BLM

Proposed Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and Final Environmental Impact Statement

A Regional Assessment for Southeast and South Central Idaho

Volume 1: Chapters 1–8 and Index

February 2008

Prepared by:

Idaho Falls and Twin Falls Districts
Bureau of Land Management
Department of Interior

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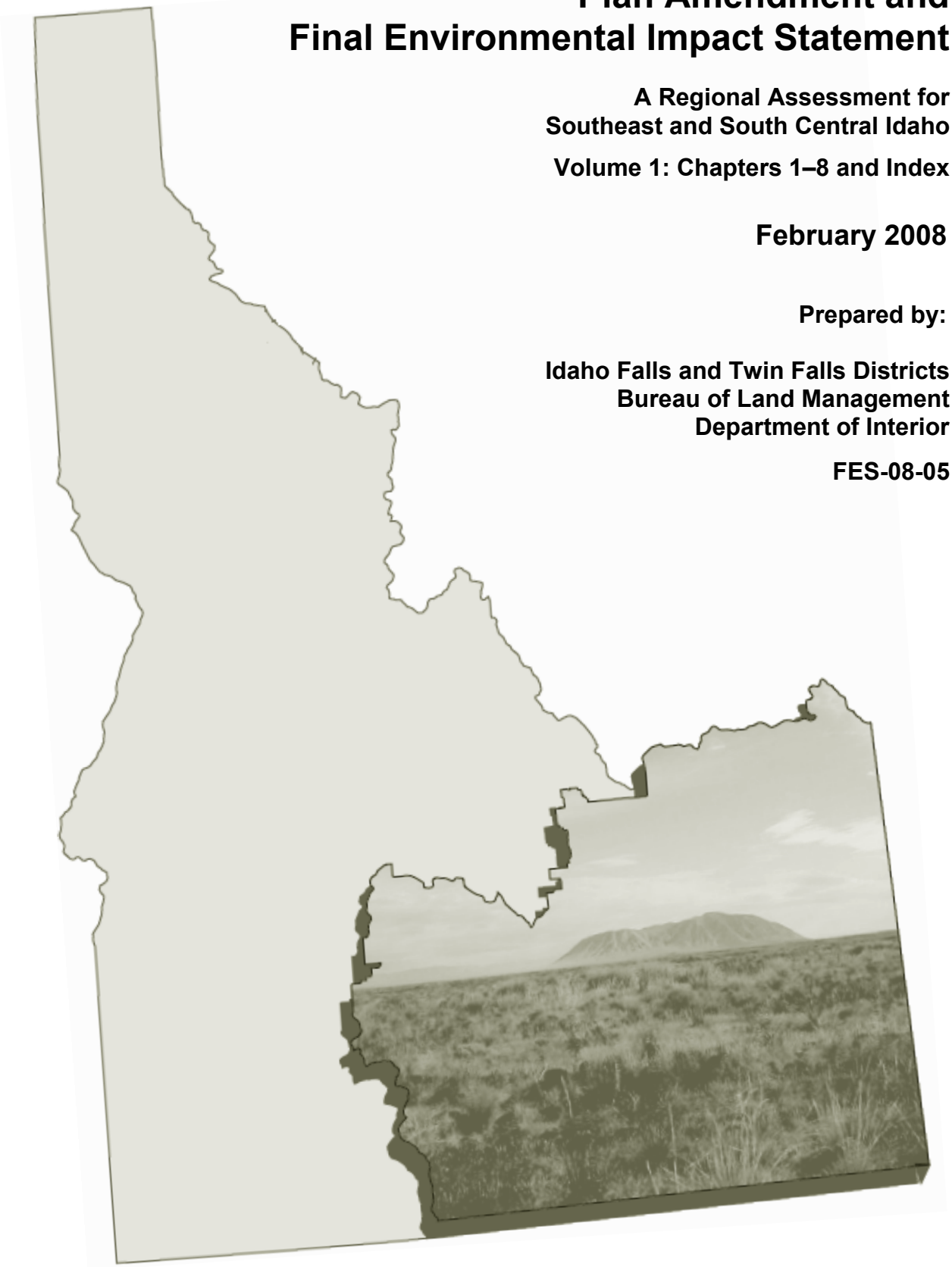

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

IDAHO FALLS DISTRICT
1405 Hollipark Drive
Idaho Falls, Idaho 83401

TWIN FALLS DISTRICT
2536 Kimberly Road
Twin Falls, Idaho 83301

February 2008

Dear Reader:

Enclosed for your information is the Proposed Fire, Fuels and Related Vegetation Management Direction Plan Amendment and Final Environmental Impact Statement. This Proposed Plan Amendment/FEIS sets forth the management direction for approximately 5 million acres of public lands located on the Snake River Plain of southeast and south central Idaho that are managed by the Bureau of Land Management (BLM).

BLM published a Notice of Intent to prepare the plan and associated EIS in the February 21, 2002 Federal Register. The agency then solicited public input and developed four management alternatives, including a No Action alternative and three action alternatives that provided different strategies for managing the fire, fuels and related vegetation in the future. These alternatives were presented and analyzed in the Draft Plan Amendment/DEIS. A Notice of Availability for the Draft Plan Amendment/DEIS was published in the Federal Register on November 5, 2004, and copies of the Draft Plan Amendment/DEIS were made available to the public through several outlets. Alternative D was identified as the Preferred Alternative in that document.

This document, the Proposed Plan Amendment/FEIS, presents an overview of the planning process and planning issues, describes all alternatives and their associated impacts, summarizes public comment received on the Draft Plan Amendment/DEIS, and provides responses to the substantive issues raised. Based on public comment and internal discussions, **Alternative E was created and is identified as the Proposed Plan Amendment** in the Proposed Plan Amendment/FEIS. Alternative E was created by combining the sagebrush steppe portion of Alternative D with the forested vegetation portion of Alternative C thereby creating an alternative that addresses the needs of both rangeland and forested vegetation types. It addresses both the Cohesive Strategy issue and the Sagebrush Steppe issue as described at Alternatives C and D above. Alternative E would increase broad treatment levels about 6 times greater than the No Action alternative.

BLM appreciates the public involvement that has taken place throughout this planning process. We believe that this Proposed Plan Amendment/FEIS represents a collaborative effort that would not have been possible without the participation of the public, state and federal agencies, and consultation with tribal governments.

The Final Plan Amendment will serve as the guiding management strategy for fire, fuels and related vegetation in the planning area for the next 10 to 15 years by providing a framework for proactive decision making including decisions regarding implementation and site specific project activities.

This Proposed Plan Amendment/FEIS is open for a 30-day no-action/protest period beginning with the date the U.S. Environmental Protection Agency (EPA) publishes the notice of availability of the FEIS in the Federal Register. During this period, the BLM will take no action to implement the plan. However, the Proposed Plan Amendment/FEIS may be protested by any person who participated in the planning

process and who has an interest that may be adversely affected by approval of the Proposed Plan Amendment/FEIS. A protest may raise only those issues that were submitted for the record during the planning process (see Code of Federal Regulations 1610.5-2). Protests must be filed with the Director, Bureau of Land Management.

Regular mail protests and overnight mail should be sent to: Director, Bureau of Land Management (210) Attention – Brenda Hudgens-Williams, 1620 L Street, Suite 1075, Washington, D.C. 20036. Emailed and fax protests will not be accepted as valid protests unless the protesting party also provides the original letter by either regular or overnight mail postmarked by the close of the protest period. Under these conditions, BLM will consider the emailed or faxed protest as an advance copy and it will receive full consideration. If you wish to provide BLM with such advance notification, please direct faxed protests to the attention of the BLM protest coordinator at 202-452-5112, and emails to Brenda_Hudgens-Williams@blm.gov.

All protests must be written and must be postmarked on or before the 30th day following publication by EPA of the Notice of Availability in the Federal Register and contain the following information:

- The name, mailing address, telephone number, and interest of the person filing the protest;
- A statement of the issue or issues being protested;
- A statement of the part or parts of the document being protested;
- A copy of all documents addressing the issue or issues previously submitted during the planning process by the protesting party, or an indication of the date the issue or issues were discussed for the record; and
- A concise statement explaining precisely why the decision presented in the Proposed Plan Amendment/FEIS is believed to be wrong.

The Director, Bureau of Land Management, will promptly render a decision on the protest. The decision will be in writing and will be sent to the protesting party by certified mail, return receipt requested. The decision of the Director shall be final.

Upon resolution of any protests, the plan will be approved and a Record of Decision will be issued. The Final Management Plan/Record of Decision will be mailed to all individuals who participated in this planning process and all other interested publics upon their request.

Sincerely,

Joe Kraayenbrink
Bureau of Land Management
Idaho Falls District Manager

Bill Baker
Twin Falls District Manager
Bureau of Land Management

Proposed Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and Final Environmental Impact Statement

Regional Assessment for Southeast/South Central Idaho

[ ] Draft Environmental Impact Statement [X] Final Environmental Impact Statement

Department of the Interior, Bureau of Land Management

TYPE of ACTION: [X] Administrative [ ] Legislative

Abstract:

The Idaho Falls and Twin Falls Districts of the Bureau of Land Management (BLM), comprising the Burley, Upper Snake, Pocatello, and Shoshone Field Offices, proposes to amend 12 existing land use plans to incorporate fire, fuels, and related vegetation management direction to move plant communities in the Districts towards Fire Regime Condition Class (FRCC) 1. Alternative B – The Proposed Action encompasses approximately 646,000 footprint-acres and would involve the establishment of Wildland Fire Use (WFU) areas, the application of fire management restrictions to protect resources, and the implementation of broad treatment levels (i.e., footprint-acres) and treatment methods (e.g., chemical, mechanical, and fire-related vegetation treatments) needed to meet resource objectives.

Five alternatives were considered in detail for this programmatic EIS. They were: Alternative A – No Action, Alternative B, Alternative C, Alternative D, and Alternative E – The Proposed Plan Amendment. Alternative E – The Proposed Plan Amendment consists of the Districts' proposal to increase the use of vegetation treatments and restoration and increase the use of fire in all plant communities except Wet/Cold Conifer, Riparian, Salt Desert Shrub, and Vegetated Rock/Lava. Alternatives B, C, D, and E were developed in response to issues raised during public and agency scoping. Alternative C would implement fire treatment levels to meet the goals of the Cohesive Strategy and 10-year Comprehensive Strategy. Alternative E was developed to determine the appropriate level and kind of treatments within the sagebrush steppe ecosystem to meet the Purpose and Need while benefiting sagebrush habitat, sage grouse, and sagebrush-obligate species. Alternative E was picked as the BLM's Proposed Plan Amendment because of the protection it provides for the remaining sagebrush steppe habitat left in the Upper Snake River Plain. The No Action Alternative is required by the National Environmental Policy Act for comparison to the other alternatives analyzed in this EIS. Alternative A – The No Action Alternative would continue existing fire, fuels, and related vegetation management direction, as identified in the current land use plans for the Districts.

The Idaho BLM State Director is the officer responsible for preparing this Final EIS.

For Further Information, Contact:

Terry Lee Smith
Pocatello Field Office
4350 Cliffs Drive
Pocatello, Idaho 83204
(208) 478-6340

READER'S GUIDE

This Proposed Plan Amendment/Final Environmental Impact Statement (Final EIS) contains information about activities and subsequent potential impacts associated with amending 12 existing land use plans within the planning area to incorporate fire, fuels, and related vegetation management direction that is consistent with the Federal Wildland Fire Management Policy. The Proposed Plan Amendment would do this by returning the vegetation communities in the planning area to historic fire regime characteristics wherever possible. The information in this Final EIS is organized to facilitate consideration of the impacts of these activities by the public and by the Bureau of Land Management (BLM). Understanding the structure of this document is crucial to overall understanding of the information required in an EIS. The following provides an overview of the components of this document.

Executive Summary – The Executive Summary included in this Final EIS provides a concise overview of information, analyses, tables, and figures presented in the body of the document.

Table of Contents – A detailed table of contents is presented at the beginning of Volume I of the Final EIS, which includes Chapters 1 through 8 and the index. The table of contents also includes separate lists of figures and maps, tables and appendixes. Volume 2 of the Final EIS, which includes maps and appendixes, also begins with a condensed table of contents, outlining only the materials contained within that volume.

Chapter 1 – Purpose and Need – Chapter 1 describes the Purpose and Need for the proposal and its scope of analysis. It briefly defines the NEPA process, describes the planning area and background, and establishes agency involvement and decisions to be made. The final sections describe scoping and other public involvement activities and list approvals and permits that may be required.

Chapter 2 – Description of Alternatives – Chapter 2 includes a description of Alternative A - No Action, Alternatives B, C, D and Alternative E – Proposed Plan Amendment. The potential environmental impacts of these alternatives on various resources and the potential mitigation measures to alleviate these impacts are summarized at the end of this chapter.

Chapter 3 – The Affected Environment – Chapter 3 describes current physical, biological, social, and economic conditions within the planning area. This information provides the baseline for assessing and comparing the potential impacts of the alternatives. This chapter is subdivided into 14 resource areas/disciplines. This allows readers to target those resources or disciplines of greatest interest to them. It also allows readers to compare information presented in Chapter 4 with corresponding "current conditions" presented in this chapter. Two of these resource disciplines are described in terms of key issues raised during public and agency scoping. These key disciplines include "Cohesive Strategy and Vegetation Resources (Issue 1)" and "Sagebrush Steppe Ecosystem (Issue 2)." The affected environment and environmental consequences for these resources are described at the field office level to better allow the public and the decision-maker to assess potential impacts and implications for field office level planning.

Chapter 4 – Environmental Consequences – Chapter 4 provides a comprehensive scientific

and analytical comparison of the potential environmental impacts of the action alternatives in relation to the No Action Alternative. In order to facilitate comparison of information provided in Chapters 3 and 4, this chapter is subdivided into the same 14 resource discipline sections as Chapter 3. Using the No Action Alternative as a baseline for comparison and using the existing conditions described in Chapter 3 as a starting point, Chapter 4 discloses the potential short- and long-term, direct and indirect impacts as well as cumulative impacts of each alternative on each resource. Chapter 4 also provides an assessment of the unavoidable impacts of implementing each alternative.

Chapter 5 – Coordination, Consultation, and Distribution – Chapter 5 includes two lists. The first is a list of the Native American Tribes, organizations, agencies, stakeholders, and individuals contacted or consulted with during the scoping process and preparation of the EIS, as well as those agencies, organizations, and persons who provided input to the EIS. The second list contains the names of the agencies, organizations, and individuals who were provided copies of the Final EIS.

Chapter 6 – List of Preparers – Chapter 6 provides a summary of qualifications and responsibilities of specialists with direct input into the preparation of this EIS.

Chapter 7 – Acronyms and Glossary – Chapter 7 includes the definitions of key words and acronyms used in this EIS.

Chapter 8 – References – Chapter 8 provides a list of sources of information and data used to prepare this EIS.

Index – This section provides a list of key words used in the document and the pages where they occur to facilitate cross-referencing and the finding of key information.

Maps – Although all figures in the document are numbered sequentially within each section, all those figures that are maps are found in the final section of the document. This facilitates use of the fold-out maps.

Appendixes – Nineteen appendixes are included in the EIS. They contain support information that is important to understanding the analysis.

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EXECUTIVE SUMMARY

The Idaho Bureau of Land Management (BLM) administers almost 5 million acres of land in south-central and eastern Idaho (Figure 1-1) in the Upper Snake Field Office (USFO), Pocatello Field Office (PFO), Burley Field Office (BFO), and Shoshone Field Office (SFO). This area is hereafter referred to as the planning area, comprising portions of the Idaho Falls and Twin Falls Districts[1]. The planning areas encompass 23 southern Idaho counties: Bannock, Bear Lake, Bingham, Blaine, Bonneville, Butte, Camas, Caribou, Cassia, Clark, Elmore, Franklin, Fremont, Gooding, Jefferson, Jerome, Lincoln, Madison, Minidoka, Oneida, Power, Teton, and Twin Falls. Major communities in the planning area include Burley, Idaho Falls, Pocatello, Shoshone, Sun Valley, and Twin Falls. Four BLM field offices—Burley, Upper Snake, Pocatello, and Shoshone—manage numerous parcels of public land that range in size from less than 40 acres to more than 100,000 acres (Figure 1-2).

ES.1 BACKGROUND AND PURPOSE AND NEED

ES.1.1 BACKGROUND

In response to the nationwide increase in wildland fires, fire starts, and fatalities, the Federal Wildland Fire Management Policy (U.S. Department of Interior [USDI] and U.S. Department of Agriculture [USDA] 1995) was revised in 2001 (USDI et al. 2001). Currently, all federal land-management agencies are implementing or preparing to implement the National Fire Plan (USDI 2000) to various extents, which is the means by which the Federal Wildland Fire Management Policy is applied. This Environmental Impact Statement (EIS) proposes to amend existing land use plans (LUPs) to provide guidance and aid in implementing the Federal Wildland Fire Management Policy in the planning area.

Prior to modern fire suppression, wildland fire had consistently been an integral part of the ecosystems in the planning area, as demonstrated by historical ecological evidence. To withstand this threat, numerous vegetation species and cover types have developed various responses that have enabled them to resist, tolerate, or take advantage of fire.

At present, many of the cover types within the planning area have been subjected to wildland fire that is not within the historical range of variability. Large and/or uncharacteristic fires in these cover types can threaten people and property as well as the resiliency, integrity, and long-term sustainability of ecosystem components and processes. Fires are occurring more frequently and are burning more severely in some cover types. For example, the invasion of the sagebrush steppe by invasive annual species such as cheatgrass (*Bromus tectorum*) and medusahead wildrye (*Taeniatherum caput-medusae*) has substantially increased fine fuel continuity in this cover type, making it more susceptible to large, frequent, and uncharacteristic fires. In other vegetation cover types, fires are occurring less frequently than they have historically, which causes undesirable changes in vegetation species composition and structure and an accumulation of hazardous fuels. For example, because of long-term fire suppression, juniper species are expanding their range at the

[1] When the FMDA was originally developed through September 2004, the four Field Offices comprised the entire Upper Snake River District (USRD). Since October 1, 2004, however, the USRD has been reorganized as the Idaho Falls District (Upper Snake, Pocatello, Challis and Salmon Field Offices) and the Twin Falls District (Burley, Shoshone and Jarbidge Field Offices).

expense of sagebrush steppe, and Dry Conifer cover types are slowly replacing Aspen and some Mountain Shrub cover types.

Since approximately 1996, wildland fires have occurred in the planning area at an overall accelerated rate (Figure 1-3), mostly due to vegetation changes and changed conditions like cheatgrass invasion into sagebrush steppe cover types. To a lesser extent, the planning area has experienced decreases in fire frequency and attendant increases in fire severity in its Aspen, Dry Conifer, and Mountain Shrub cover types. These vegetation cover types require more frequent disturbance to decrease fuel loads, facilitate aspen and forb regeneration, and decrease fire intensity. It has become clear that hazardous fuel conditions need to be managed. Altered fire regimes (i.e., changes in fire frequency, severity, and size) not only threaten resources such as wildlife habitat, cultural resources, air/visual quality, and grazing, but also affect public and firefighter safety within and around areas of human development.

ES.2.2 Purpose and Need for Action

Purpose: The purpose for this multi-plan amendment is to amend 12 existing land use plans within the planning area to incorporate fire, fuels, and related vegetation management direction that is consistent with the Federal Wildland Fire Management Policy. This approach will allow the BLM to move toward resource conditions that minimize risk to human life and property and allow for efficient and effective wildland fire suppression efforts; to integrate fire's natural role into resource management decisions; to maintain or restore vegetation that would support special status species (SSS) and healthy, diverse, and sustainable vegetation communities; and to provide for other uses by managing vegetative conditions to achieve desired conditions.

The purpose of the Proposed Plan Amendment is to:

- Establish programmatic fire management guidance, objectives, policies, and actions.
- Identify resource goals and methods, including desired future condition of vegetation resources and management actions necessary to achieve objectives.
- Form the basis to update fire management plans (FMPs) and integrate them with allotment management plans, wildlife management plans, recreation management plans, and other applicable guidance.
- Provide LUP-level direction to enable incremental steps toward resource conditions that minimize risk to human life and property and that function within the natural fire regime.

Alternative E, the Proposed Plan Amendment, would incorporate National Fire Plan direction into existing LUPs by emphasizing the increased use of fire, including prescribed fire (RxFire) and wildland fire use (WFU), to more closely approximate the historical role of fire and prepare sites for restoration treatments. Appropriate management response would be used in wildland fire suppression. Full suppression is the appropriate management response where life and property are at risk or in low elevation shrub. Post-wildland fire rehabilitation treatments would be focused to stabilize and rehabilitate burned areas. Restoration treatments would be focused on elimination of invasive annual grass and the reduction of woody fuel buildup. Over a 10-year period, under this alternative, up to approximately 1,538,000 footprint-acres would be treated (approximately six times

the acreage in Alternative A - The No Action Alternative). It is assumed that Alternative E would not be limited by existing operations capabilities and resources.

Need: There is a need for the present plan amendments in order to provide contemporary fire management issues in a comprehensive or consistent manner within the planning area. A need has been identified for increased use of vegetation treatments for hazardous fuels reduction. The current LUPs do not provide consistent direction regarding the importance of fire in the ecosystem. The recent increases in wildland fire (natural occurrences and intensities) and the large number of acres recently burned in sagebrush steppe in the planning area has impacted the natural environment of the public lands. This could impact the conservation of sage grouse or other wildlife species and indirectly affect public land users. A need has been identified for increased use of vegetation treatments for hazardous fuels reduction consistent with the National Fire Plan to reduce the risk of fire impacts on communities and resources. Action is needed to move toward resource conditions on BLM administered lands that allow productive use of these lands and enhance the social, cultural and economic stability of the communities that depend on them. As described in the Federal Regulations (43 CFR 1610.5-5): "An amendment shall be initiated by the need to consider monitoring and evaluation findings, new data, new or revised policy, a change in circumstances or a proposed action that may result in a change in the scope of resource uses or a change in terms, conditions and decisions of the approved plan…". The advent of the National Fire Plan and resource conditions as a result of fire warrant a revision of existing plans.

Fire management direction in the 12 existing LUPs in the planning area (Figure 1-4; see Table ES-1) emphasizes wildland fire suppression, briefly touches upon using RxFire and fuels treatments, and is generally silent concerning the use of WFU to benefit the resources. The existing LUPs do not address the management of fire's role in the landscape. Other issues not well addressed in the current LUPs include:

- Communities-at-risk and issues surrounding the WUI.
- Public and firefighter safety.
- Fire impacts on air quality/visibility.
- Fire hazard and fuels reduction treatment methods.
- The departure of existing fire regimes from historical conditions.
- The desired role of fire and how fire can help meet resource objectives.

The BLM's planning process forms the basis for every on-the-ground action the BLM undertakes. The proposed plan amendment would update the planning area's FMPs, which are to be prepared based on objectives in the LUPs. The proposed plan amendment would facilitate resource and fire management activities throughout the planning area, as well as set a new standard for integrating resource management and fire management activities at the field office and regional levels. The proposed plan amendment will amend the LUPs listed in Table ES-1.

TABLE ES-1. LAND USE PLANS (LUPS) CURRENTLY DIRECTING RESOURCE MANAGEMENT IN THE PLANNING AREA, WITH DATES OF IMPLEMENTATION

Year, Land Use Plan	FO[1]	Year, Land Use Plan	FO
1975, Magic MFP	SH	1982, Twin Falls MFP	BU
1976, Bennett Hills/Timmerman Hills MFP	SH	1983, Big Lost MFP	US
1981, Big Desert MFP	US	1985, Cassia RMP	BU
1981, Little Lost-Birch Creek MFP	US	1985, Medicine Lodge RMP	US
1981, Malad MFP	PO	1985, Monument RMP	SH/BU
1981, Sun Valley MFP	SH	1988, Pocatello RMP	PO

[1] Field Offices (FO): BU = Burley, US = Upper Snake, SH = Shoshone, PO = Pocatello/Malad

ES.3 IDENTIFICATION OF ISSUES

During internal, public, and agency scoping, two major issues were identified. These issues and the means of addressing them via alternatives are summarized below.

***Issue 1*: What fire and non-fire vegetation treatment levels for the Upper Snake River Plain ecosystem would best meet the goals of the Cohesive Strategy?**

This issue concerns the recommended level of treatment in the national-scale program option outlined in the draft *Cohesive Strategy for Protecting People and Sustaining Natural Resources* (U.S. Forest Service [USFS] 2000) (hereafter, Cohesive Strategy). It also involves addressing the goals and priorities identified in both the Cohesive Strategy and the 10-year Comprehensive Strategy, (USFS 2000[2]; USDI and USDA 2001).

***Issue 2*: The types of treatments under the Proposed Action may negatively affect sage grouse habitat. What effect would different types or levels of treatment have on the sagebrush steppe ecosystem and sagebrush-obligate wildlife species?**

This issue concerns the impact of treatment levels on sagebrush and the subsequent impacts to sage grouse and other sagebrush-obligate wildlife species. Treatment could occur in sagebrush, potentially affecting sage grouse habitat and populations.

ES.4 ALTERNATIVES

Alternatives considered for detailed analysis in an EIS are subject to a screening evaluation, which is intended to determine whether they meet the purpose and need for the project and whether they reduce potential environmental impacts, in this case to resources such as soil, vegetation, air quality, and health and human safety. Alternatives must also be technologically and economically feasible.

[2] Since the development of the Draft EIS, the Cohesive Strategy has been updated (USDA and USDI 2006). The issue, as described in the Draft EIS, is appropriate to both the original and updated Cohesive Strategy.

Based on the screening criteria, a number of alternatives were eliminated from consideration (see Section 2.6, Alternatives Considered but Eliminated from Further Environmental Analysis), and five alternatives remain for detailed analysis in the EIS.

Proposed Desired Future Condition (DFC) (see Table ES-2) is a management objective common to Alternatives B, C, D, and E that would produce a distribution of vegetation age classes/seral stages across the landscape. This distribution of vegetation age classes/seral stages would reduce hazardous fuels, promote a healthier and more diverse vegetation structure and composition, and return the currently altered fire regimes to more closely parallel historical fire regimes.

AGE-CLASSES AND SERAL STAGES - Current condition of vegetation and DFC were analyzed for seven vegetation groups using age-classes to approximate seral stages (see Table ES-2). It is recognized that age classes and seral stages are not identical, but for any one vegetation group there are rough correspondences between age classes and seral stages. Seral stages better describe the impacts of treatments on resources than do age classes. In the sagebrush steppe ecosystem, for example, it is more meaningful to relate the effects of early-, middle-, and late seral communities on sage grouse populations than it is to relate to the effects of three age classes of vegetation. Furthermore, the planning area does not routinely collect seral stage data at the landscape level. Thus, there were no landscape level data available for these analyses that could be correlated with seral stages other than 'years since last fire'. In the following discussion, age classes are used to roughly approximate seral stages at the landscape level for purposes of analysis only.

Existing seedings of crested wheatgrass would not be treated where they are established. Restoration treatments would use native species to the extent possible. On sites where seedling establishment has a low probability of success, however, non-native placeholder species like crested wheatgrass or Siberian wheatgrass would be used for revegetation to prevent invasion by cheatgrass and other weeds, to prevent soil erosion, and to structurally mimic native perennial grasses.

In addition to the DFC Management Common to All, there are wildland fire suppression and restoration/fuels reduction treatment restrictions common to all alternatives. These restrictions would be applied to suppression activities and vegetation treatment actions with the intent of preventing significant impacts to natural and human resources and to meet current BLM state or federal policy. These restrictions are described in detail in Appendix Q of the Proposed Plan Amendment/Final EIS.

All required community assistance actions consistent with the National Fire Plan (NFP) policy would apply to all alternatives. These include collaboration with federal, state, and local partners to assess WUI areas and update County mitigation plans, provide planning and implementation assistance to private landowners, provide Rural Fire Assistance (RFA) to rural fire districts, and provide funding to implement fire education projects.

TABLE ES-2. PROPOSED MANAGEMENT GOALS AND DESIRED FUTURE CONDITION (DFC) FOR VEGETATION COVER TYPES IN THE UPPER SNAKE, POCATELLO, BURLEY, AND SHOSHONE FIELD OFFICES

Management Goals	DFC	
	Vegetation/Fuels Age Classes	Percent in DFC
Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass		
Increase the number of acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape.	Perennial Grass: <15 years old Grass/shrub mix: 15-30 years old Shrub/grass mix: >30 years old	14% 14% 52%
Decrease the number of acres with more than 10% cheatgrass cover and/or weeds.	Cheatgrass/weeds	<20%
Mid-elevation Shrub (Including Juniper Encroachment Acres)		
Increase the number of acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape.	Perennial Grass: <5 years old Grass/shrub mix: 5-15 years old Shrub/grass mix: >15 years old	23% 45% 23%
Decrease the acres of Mid-elevation Shrub encroached upon by juniper, and/or any other undesirable species present.	Juniper encroachment Cheatgrass/weeds	7% 2%
Increase acres burned to more closely approximate the historical fire regime. Improve composition and structure of Mid-elevation Shrub types to better represent historical sagebrush steppe cover types.		
Mountain Shrub		
Increase the acres of early-seral and mid-seral stages. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape.	Perennial grass/shrub: <10 years old Shrub/Perennial Grass: 10-20 years old Shrub dominated: >20 years old	33% 33% 33%
Increase acres burned to more closely approximate the historical fire regime. Improve composition and structure of Mountain Shrub types to better represent historical Mountain Shrub cover types.		
Aspen/Conifer and Dry Conifer		
Increase acres of early-seral and mid-seral Aspen/Conifer and Dry Conifer cover types (pure aspen and Aspen/Conifer mix). Spatial arrangement of varying age-classes should occur in a mosaic across the landscape.	Aspen: <30 years old Aspen/Conifer mix: 30-50 years Dry Conifer: >50 years old	40% 40% 20%
Increase acres burned to more closely approximate the historical fire regime. Improve composition and structure of Aspen/Conifer and Dry Conifer types to better represent historical Aspen/Conifer and Dry Conifer cover types.		

TABLE ES-2. PROPOSED MANAGEMENT GOALS AND DESIRED FUTURE CONDITION (DFC) FOR VEGETATION COVER TYPES IN THE UPPER SNAKE, POCATELLO, BURLEY, AND SHOSHONE FIELD OFFICES

Management Goals	DFC	
	Vegetation/Fuels Age Classes	Percent in DFC
Salt Desert Shrub		
Maintain or increase acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape.	Perennial Grass: <30 years old Shrub/Grass/Bare Ground Mix: >30 years old	20% 76%
Decrease acres with cheatgrass, weeds, and/or other undesirable species present.	Cheatgrass/weeds	4%
Maintain fire frequency and size to approximate the historical fire regime. Maintain or improve Salt Desert Shrub types to better represent those historical cover types.		
Vegetated Rock/Lava		
Maintain or increase acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape.	Perennial Grass Rock/Shrub/Grass/Tree mix	6% 80%
Decrease acres with cheatgrass, weeds, and/or other undesirable species present.	Cheatgrass/weeds	<14%
Maintain fire frequency and size to approximate the historical fire regime. Maintain Vegetated Rock/Lava types to better represent those historical cover types.		
Wet/Cold Conifer		
Maintain the mix of early, mid, and late seral stands of lodgepole pine forest.	Shrub/grass: <30 years old Shrub/tree: 30-75 years old Tree-dominated: >75 years old	30% 44% 26%
Maintain fire frequency and size to approximate the historical fire regime. Maintain or improve Wet/Cold Conifer types to better represent those historical cover types.		
WUI		
Decrease fire frequency and size in the vicinity of the WUI to protect public and fire-fighter safety, public resources, and private lands.	Decrease fire hazard from high to moderate or low by implementing vegetation treatments and actions outlined in County/Community Mitigation Plans.	

ES.4.1. NO ACTION ALTERNATIVE

The No Action alternative reflects current LUP direction, and incorporates new policy, guidance and changes in the National Fire Plan. It emphasizes wildland fire suppression and minimizes the use of wildland fire for resource benefit. Therefore the alternative focuses on reactive stabilization and rehabilitation treatments following wildland fire (about 52 percent of footprint acres) as opposed to proactive restoration treatments (about 48 percent of footprint acres). Vegetation treatments would be conducted on a small scale and emphasize benefits to specific resources, e.g., livestock forage or wildlife habitat.

While existing LUPs lack specific guidance for WFU, restoration actions, hazardous fuels reduction, and WUI protection, the current program includes activities in these areas. These activities are being undertaken in response to new regulations, policy and national direction. These types of activities are compatible with other existing LUP program goals/objectives, and the existing LUPs do not preclude these activities.

No WFU areas are designated in the existing LUPs. Some of the existing LUPs do, however, allow the use of limited fire suppression, which, in some cases, meets the definition of WFU. Currently no WFU or limited suppression is planned because of the lack of current inventory information and the fact that WFU is not currently a high priority. At this time, current priorities are rehabilitation and restoration. Under the No Action alternative, WFU may be considered in the future with further planning and NEPA. Over a 10-year period, up to about 250,200 footprint acres would be treated under this alternative.

ES.4.2 ALTERNATIVE B

Alternative B would incorporate new policy, guidance, and changes in the National Fire Plan that have been developed since the existing LUPs were approved. This alternative emphasizes the increased use of fire, including RxFire and WFU, to more closely approximate the historical role of fire and prepare sites for restoration treatments.

Post-wildland fire treatments would be focused to stabilize and rehabilitate areas in the Low-Elevation Shrub, Invasive Annual Grass and Mid-Elevation Shrub where juniper encroachment is a problem. Restoration treatments would be focused in Low-elevation Shrub, Invasive Annual Grass, Aspen/Conifer, Dry Conifer, Mountain Shrub, and Mid-elevation Shrub encroached by juniper. Generally, no WFU areas would be designated where there is important wildlife habitat, past rehabilitation treatments, small tracts of public land, and public health and safety concerns.

Appropriate management response would be used in wildland fire suppression. Full suppression is the appropriate management response where life and property are at risk or in Low-elevation Shrub. Restoration would be emphasized (about 80 percent of footprint acres) while conducting rehabilitation (about 20 percent of footprint acres) as needed. Over a 10-year period, up to about 646,000 footprint acres would be treated (about three times the acreage in the No Action alternative) under this alternative.

ES.4.3 ALTERNATIVE C

This alternative was designed to address *Issue 1*. The goals of the Cohesive Strategy and 10-year Comprehensive Plan include: 1) improve fire prevention and suppression, 2) reduce hazardous fuels, 3) restore fire adapted ecosystems, and 4) promote community assistance. Treatment levels, treatment locations, and priorities were developed with these goals in mind.

The emphasis of alternative C is the replication of historical disturbance patterns and succession patterns for the planning area's 12 vegetation types through use of fire, mechanical, and chemical treatments and adopting the goals and priorities set in the Cohesive Strategy. Alternative C would increase WFU and RxFire in vegetation types that historically had more fire disturbance: Mid-elevation Shrub, Dry Conifer, Aspen/Conifer, and Mountain Shrub. This alternative also proposes to decrease the incidence of wildland fire in the Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass types through aggressive pro-active restoration and post-fire rehabilitation of areas dominated by invasive annual grasses, about 91 percent of footprint acres and about 9 percent of footprint acres, respectively. Over a 10-year period, up to about 1,687,000 footprint acres would be treated (about seven times the acreage in the No Action alternative) under this alternative.

Alternative C differs from alternative B in two major ways: 1) Alternative C would treat all vegetation cover types to a level that returns fire regime to a range of historical variability, and 2) Alternative C is not limited by existing operations capabilities and resources.

ES.4.4 ALTERNATIVE D

This alternative was designed to address *Issue 2*. This alternative recognizes that the sagebrush steppe ecosystem and its associated wildlife species, including sage grouse, are at risk from increased wildfire and other disturbances. The emphasis of this alternative is to maintain existing high quality sagebrush steppe habitat and to increase the quantity of resilient sagebrush steppe through post-wildland fire rehabilitation and proactive restoration. Restoration would be emphasized (about 89 percent of footprint acres) while rehabilitation would be conducted (about 11 percent of footprint acres) as needed.

Under this alternative, wildland fire suppression efforts would emphasize protection of sagebrush steppe habitats. WFU would not be allowed in areas designated as sage grouse Source (isolated/stronghold) habitats without project specific NEPA analysis. Vegetation treatments would focus on the Low- and Mid-Elevation Shrub, Invasive Annual Grass, Perennial Grass and Mountain Shrub types and sagebrush steppe invaded by juniper. Mechanical, chemical, and seeding treatments would be emphasized. RxFire would be used primarily to prepare areas for seeding and to create mosaics for the improvement or enhancement of sagebrush steppe habitats. Restoration priorities would be identified to enlarge and reconnect sagebrush steppe habitat. Over a 10-year period, up to about 1,522,000 footprint acres would be treated (about six times the acreage in the No Action alternative) under this alternative, assuming that implementation of alternative D is not limited by existing operations capabilities and resources.

ES.4.5 ALTERNATIVE E - PROPOSED PLAN AMENDMENT

This alternative was designed in response to comments received on the November 5, 2004 FMDA DEIS and represents a combination of components from Alternatives C and D which were described and analyzed in the Draft EIS. This alternative addresses part of Issue 1 (Alternative C) and the entirety of Issue 2 (Alternative D); for a discussion of Issues, see Section 1.4.1, Issues Driving Development of Alternatives. Alternative E recognizes that: 1. The sagebrush steppe ecosystem and its associated wildlife species, including sage grouse, are at risk from increased wildland fire and other disturbances. 2. Fuels accumulations in the Aspen/Conifer, Dry Conifer and Wet/Cold Conifer place these forested vegetation types at risk from wildland fire. The emphasis of Alternative E is to maintain existing, high-quality sagebrush steppe habitat, to increase the quantity of resilient sagebrush steppe and to reduce the risk of stand-replacing fires in forested vegetation types by means of post-wildland fire rehabilitation and proactive restoration. Restoration would be emphasized (approximately 90 percent of footprint-acres), and rehabilitation would be conducted as needed (approximately 10 percent of footprint-acres).

Under Alternative E, wildland fire suppression efforts would emphasize protection of sagebrush steppe and forested habitats. About 600,000 acres are considered suitable for WFU under this alternative; see Figure 2-1. These areas were designated by field office personnel where it was determined that WFU would benefit resources and help attain management goals in Aspen/Conifer, Dry Conifer, Juniper, Mountain Shrub and Wet/Cold Conifer vegetation cover types. The acres mapped as suitable for WFU in Figure 2-1 do not include areas where WFU may be found to be suitable for improving sage grouse habitats. WFU may be allowed in sage grouse Restoration (R1-3), Key, and Source Habitat for the benefit of the habitat (see Figure 3-3) only after site-specific project level coordination with IDFG (see Glossary for definitions of Restoration (R1-3), Key, and Source Habitats).

Vegetation treatments would focus on the Invasive Annual Grass, Aspen/Conifer, Dry Conifer, Low- and Mid-elevation Shrub, Mountain Shrub, Perennial Grass and Wet/Cold Conifer cover types, as well as sagebrush steppe invaded by juniper. Mechanical, chemical, and seeding treatments would be emphasized. In sagebrush steppe restoration habitats, RxFire would be used primarily to prepare areas for seeding and to create mosaics for the improvement or enhancement of sagebrush steppe habitats. Restoration priorities would be identified to enlarge and reconnect sagebrush steppe habitat. In forested vegetation types, Rxfire would be used to return fire in forested types that historically had more fire disturbance than at present.

Alternative E is designed to improve the ecological health of the sagebrush steppe ecosystem and all of its obligate wildlife species, while at the same time address the goals of the Cohesive Strategy and the 10-years Comprehensive Strategy for the forested vegetation types:

1. Improve fire prevention and suppression.
2. Reduce hazardous fuels.
3. Restore fire-adapted ecosystems.
4. Promote community assistance.

Treatment levels, treatment locations, and priorities were developed with these goals in mind.

In that the desired future conditions of vegetation types, as analyzed in Alternatives C and D, have more natural fire regimes (i.e., more fire in forested types, less fire in shrubland types), Alternative E emphasizes the conservation and restoration of sagebrush steppe while replicating historical disturbance and succession patterns in forested vegetation types by use of fire, mechanical and chemical treatments, and adopting the goals and priorities set in the Cohesive Strategy. About 1.7 million acres are considered suitable for WFU under this alternative (see Figure 2-1). These areas were designated by field office personnel in Aspen/Conifer, Dry Conifer, Mid-elevation Shrub (including juniper), Mountain Shrub, Vegetated Rock/Lava, and Wet/Cold Conifer vegetation cover types in which it was determined that WFU could benefit resources and help attain management goals.

In general, WFU would not be used where there are critical wildlife habitats, past rehabilitation treatments, small tracts of BLM-administered lands, or public health and safety concerns. Alternative E would increase RxFire in Aspen/Conifer, Dry Conifer and decrease the occurrence of wildland fires in the Low- and Mid-elevation Shrub, Perennial Grass, Invasive Annual Grass, and Mountain Shrub using aggressive, proactive restoration and post-fire rehabilitation of areas dominated by invasive annual grasses.

Over a 10-year period, under this alternative, up to approximately 1,538,000 footprint-acres would be treated (approximately six times the acreage in Alternative A). It is assumed that Alternative E would not be limited by existing operations capabilities and resources.

ES.4.6 Alternatives Considered but Eliminated from Further Environmental Analysis

Issues and impacts of concern were identified through the scoping process. Alternatives were developed to provide several ways of addressing the scoping issues and reducing potential environmental impacts, while still achieving the identified purpose and need of the project. Several alternatives for meeting the purpose and need were suggested during the scoping process. Some of these alternatives were considered and subsequently eliminated from detailed analysis for various reasons. Descriptions of these alternatives and rationales for their elimination are given below.

The alternative of altering or eliminating grazing practices was suggested in the scoping process. While this is closely tied to vegetation conditions and treatments, it does not, in itself, meet the purpose and need of the proposed project. Therefore, it was not considered further as an alternative. Grazing management as described in the existing LUP direction has been incorporated in this EIS and is included in the impacts to resources analysis of Chapter 4, Environmental Consequences.

A scoping respondent suggested that the BLM consider an alternative that would use several passive treatments for fire management. These treatments include using livestock grazing to reduce invasive species, reducing livestock usage in areas with known non-native infestations, removing livestock facilities, and closing roads and off-road vehicle trails. This alternative was eliminated from detailed analysis because it involves decisions beyond the scope of the EIS. All of these uses are part of the BLM's multiple-use mandate, and eliminating grazing or off-road recreational access is out of the scope of this process and may be addressed during the planning area field offices' LUP revision process.

A Resource Restoration Emphasis alternative was suggested. This alternative would emphasize the active restoration of rangeland habitats, wetlands, riparian, and aquatic areas. This alternative was eliminated from detailed analysis because it involves elements that are not part of the purpose and need of the project. The project purpose and need involves ESR and restoration, but only as they relate to fire management. Non-fire related restoration of rangeland, wetlands, riparian, and aquatic areas is outside of the scope of this project and this EIS analysis.

ES.5 SUMMARY OF ALTERNATIVES

A summary of alternative elements is provided in Table ES-3.

TABLE ES-3. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Management Common To All Alternatives	• Protect human life (the single, overriding priority), human communities and infrastructure, property and improvements. Suppression restrictions were developed for the following resource disciplines: • Fire Management • Cultural Resources and Historic Trails • Noxious Weeds • Recreation • Riparian Areas • Special Designations (wilderness study areas [WSAs], Areas of Critical Environmental Concern [ACECs]) • Vegetation The following fire and non-fire vegetation treatment restrictions would be applied to site-specific restoration and hazardous fuels reduction treatment actions for the following resource disciplines: • Vegetation • Air Quality • Cultural Resources and Historic Trails • Hazardous Materials and Abandoned Mine Sites • Livestock Grazing • Placeholder Species • Riparian Areas • Special Management Areas • Visual Resources • Wildlife The Field Office Normal Fire Rehabilitation Plans contain ESR restrictions that would be applied to all site-specific ESR actions. The following community assistance actions would occur consistent with National Fire Plan (NFP) policy and would apply to all alternatives, including the No Action Alternative: • Continue to collaborate with local partners to assess and define Wildland Urban Interface (WUI) areas, update existing mitigation plans, and implement a prevention and education program. • Work with other federal agencies, state, county, and private entities to update County Mitigation Plans. • Provide Rural Fire Assistance (RFA), as identified in Mitigation Plans, to rural fire districts. Assess and increase suppression capabilities and effectiveness by providing RFA to local fire suppression organizations. • Provide planning and implementation assistance to private landowners so hazardous fuels can be reduced as identified in Mitigation Plans. • Provide funding to implement fire education projects identified in Mitigation Plans. • Reduce fuel hazards and the threat of wildland fire, including consideration of any local communities-at-risk.				

TABLE ES-3. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	• Continue to collaborate with local partners to assess WUI areas and update existing mitigation plans to implement fuels treatments.				
Management Common To All Action Alternatives	**N/A**	**Goals and Objectives:** • Protect and enhance sage grouse stronghold habitats. • Protect and enhance key ecological components in plant and animal communities. • Considered mechanical and/or chemical treatments first where fire is not an appropriate tool due to risk to life, property, or resource impacts. • Move all vegetation types toward DFC and from Fire Regime Condition Class (FRCC) 2 and/or FRCC 3 toward FRCC 1. FRCC is an indicator of fire-related risk to key ecosystem components. A full description of FRCC is given in Section 3.2, Vegetation Resources and Fire's Natural Role (Issue 1). **Desired Future Condition:** *Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass* Increase the number of acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape. Decrease the number of acres with more than 10% cheatgrass cover and/or weeds. *Mid-elevation Shrub (including Juniper encroachment acres)* Increase the number of acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape. Decrease the acres of Mid-elevation Shrub encroached upon by juniper, and/or any other undesirable species present. Increase acres burned to more closely approximate the historical fire regime. Improve composition and structure of Mid-elevation Shrub types to better represent historical sagebrush steppe cover types. *Mountain Shrub* Increase the acres of early-seral and mid-seral stages. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape. Increase acres burned to more closely approximate the historical fire regime. Improve composition and structure of Mountain Shrub types to better represent historical Mountain Shrub cover types. *Aspen/Conifer and Dry Conifer* Increase acres of early-seral and mid-seral Aspen/Conifer and Dry Conifer cover types (pure				

TABLE ES-3. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
		aspen and Aspen/Conifer mix). Spatial arrangement of varying age-classes should occur in a mosaic across the landscape. Increase acres burned to more closely approximate the historical fire regime. Improve composition and structure of Aspen/Conifer and Dry Conifer types to better represent historical Aspen/Conifer and Dry Conifer cover types. *Salt Desert Shrub* Maintain or increase acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape. Decrease acres with cheatgrass, weeds, and/or other undesirable species present. Maintain fire frequency and size to approximate the historical fire regime. Maintain or improve Salt Desert Shrub types to better represent those historical cover types. *Vegetated Rock/Lava* Maintain or increase acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape. Decrease acres with cheatgrass, weeds, and/or other undesirable species present. Maintain fire frequency and size to approximate the historical fire regime. Maintain Vegetated Rock/Lava types to better represent those historical cover types. *Wet/Cold Conifer* Maintain the mix of early, mid, and late seral stands of lodgepole pine forest. Maintain fire frequency and size to approximate the historical fire regime. Maintain or improve Wet/Cold Conifer types to better represent those historical cover types. *WUI* Decrease fire frequency and size in the vicinity of the WUI to protect public and fire-fighter safety, public resources, and private lands. Decrease fire hazard from high to moderate or low by implementing vegetation treatments and actions outlined in County/Community Mitigation Plans. **Prioritization Criteria:** Following are the top two priorities under all four action alternatives: 1. Fire-fighter and public safety are the first priority in response to fire suppression. At no time would the activities described in this EIS compromise fire-fighter and public safety. 2. The protection of property and WUI is the second top priority. Vegetation treatment priorities in non-WUI areas would vary by field office as vegetation types vary			

TABLE ES-3. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
		across the planning area. In general, vegetation treatment priorities include the following: • Diversify Perennial Grass to speed reestablishment of sagebrush cover. • Enhance structural and species diversity in degraded Low-elevation sagebrush steppe. • Reduce shrub and juniper density in Mid-elevation Shrub. • Reduce invasive or noxious weeds in all vegetation types. • Rejuvenate aspen stands, reduce insect infestation and disease, and create a diversity of forest successional stages across the landscape. In Mountain Shrub, rejuvenate old, decadent shrubs and increase cover and density of desirable herbaceous species.			
Management Goals/Objectives	**Goal/Objective 1:** Emphasize protection from and rehabilitation after wildland fire within the WUI.	**Goal/Objective 1:** Make progress toward DFC in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass cover types where wildland fire should be occurring less frequently and at a smaller scale.	**Goal/Objective 1:** Make progress toward DFC in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass cover types so that wildland fire occurs less frequently than currently and at a smaller scale on the landscape. Reduce by half the number of wildland fires in these cover types to create a wildland fire regime within the historical range of variability.	**Goal/Objective 1:** Make progress toward DFC in the Low-elevation Shrub, Perennial Grass, Invasive Annual Grass, Mid-elevation Shrub, Mountain Shrub and Juniper vegetation types.	**Goal/Objective 1:** Make progress toward DFC in the Low-elevation Shrub, Perennial Grass, Invasive Annual Grass, Mid-elevation Shrub, Mountain Shrub, and Juniper vegetation types.

TABLE ES-3. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	Goal/Objective 2: Reduce fine fuels and undesirable non-native plants and create perennial cover types so that wildland fires occur less frequently and at a smaller scale.	**Goal/Objective 2:** Make progress toward DFC in the Mid-elevation Shrub, Juniper, Dry Conifer, Aspen/Conifer, and Mountain Shrub cover types, where wildland fire should be occurring more frequently on the landscape.	**Goal/Objective 2:** Make progress toward DFC in the Mid-elevation Shrub, Juniper, Dry Conifer, Aspen/Conifer, and Mountain Shrub cover types by increasing WFU and RxFire to create a fire regime within the historical range of variability.	**Goal/Objective 2:** Maintain, protect, and expand sage grouse source habitats.	**Goal/Objective 2:** Maintain, protect, and expand sage grouse source habitats.
	Goal/Objective 3: Conduct fire and non-fire vegetation treatments in Mid-elevation Shrub, Juniper, Dry Conifer, Aspen/Conifer, and Mountain Shrub.	**Goal/Objective 3:** Maintain or make progress toward DFC in the Wet/Cold Conifer, Salt Desert Shrub cover and in vegetation types where fire frequencies are within the historical range of variability.	**Goal/Objective 3:** In Wet/Cold Conifer, Riparian, Salt Desert Shrub, and Vegetated Rock/Lava vegetation and/or areas in FRCC 1, maintain vegetation conditions using mechanical, chemical, RxFire, or WFU treatments, such that wildland fire regimes are within the historical range of variability (i.e., maintain the current level of fire in these cover types).	**Goal/Objective 3:** Treat sage grouse key and restoration habitats to expand source habitats. improve and maintain sage grouse Restoration (R1-3) and key habitats.	**Goal/Objective 3:** Treat sage grouse key and restoration habitats to expand source habitats. Improve and maintain sage grouse Restoration (R1-3) and key habitats.

TABLE ES-3. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
					Goal/Objective 4: Make progress toward DFC in historically frequent fire regimes (Aspen/Conifer Dry Conifer, Mid-elevation Shrub encroached by Juniper, Mountain Shrub) by increasing WFU and RxFire to create a fire regime within the historical range of variability. **Goal/Objective 5:** In the Wet/Cold Conifer vegetation type and/or areas in FRCC 1, maintain vegetation conditions using mechanical, chemical, RxFire, or WFU treatments, such that wildland fire regimes are within the historical range of variability (i.e., maintain the current fire regime in these vegetation types).

TABLE ES-3. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Suppression and Treatment Priorities **(in addition to the overriding priority of protecting human life, human communities, infrastructure and property)**	**Suppression Priorities:** Protect cultural and natural resources, WUI, and stronghold, isolated, and key sage-grouse habitat. Minimize the costs of wildland fire suppression	**Suppression Priorities:** Minimize risk to sagebrush steppe, Dry Conifer.	**Suppression Priorities:** Minimize risk to Low-elevation Shrub where frequent, uncharacteristic fires occur; minimize risk to other vegetation types where changes in fuel accumulation and fire occurrence have occurred	**Suppression Priorities:** Minimize risk to source, key, and restoration sage grouse habitat.	**Suppression Priorities:** Minimize risk to source, key, and restoration sage grouse habitat. Minimize risk to threatened, endangered, and candidate species habitat. Minimize risk to resources where changes in fuel accumulation and fire occurrence have occurred.
	Treatment Priorities: Use RxFire and non-fire fuels treatments to improve or enhance FRCC 2 and FRCC 3 acres where public safety or WUI are at risk.	**Treatment Priorities:** Protect/maintain and restore sagebrush steppe, restore Aspen/Conifer, Mountain Shrub, Dry Conifer, and protect areas of key ecosystem components at high risk of loss.	**Treatment Priorities:** Design landscape-scale projects to reduce the combined risk to human life/property and resources; design landscape level projects in conjunction with community participation and the development of stakeholder partnerships.	**Treatment Priorities:** Within sage grouse source habitat, treat areas of low resilience. Within Key and restoration habitat: a) Treat areas adjacent to source habitat, b) Enhance key habitat, c) Treat areas that pose a fire risk to source and key habitats, d) Treat areas adjacent to key habitat.	**Treatment Priorities:** Design landscape-scale projects to reduce the combined risk to human life/property and resources; Design vegetation treatments potentially affecting Greater sage-grouse (in Low-elevation Shrub, Mid-elevation Shrub, and Mountain Shrub), conservation measures identified in Appendix R would be considered.

TABLE ES-3. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	Use RxFire and non-fire fuels treatments to maintain FRCC 1 acres where hazardous fuels pose a risk to public or firefighter safety. Use RxFire and non-fire fuels treatments to improve or enhance FRCC 2 or FRCC 3 acres where sage-grouse habitat, wildlife areas of concern, or other resources are at risk.				In the WUI, where practical and appropriate, design landscape level projects in conjunction with community participation and the development of stakeholder partnerships in the planning and monitoring processes.
Wildland Fire Use (WFU) Areas (approximate)	**WFU (Suitable):** 0 acres **No WFU (Not Appropriate):** 5.0 Million	**WFU:** 2.9 Million **No WFU:** 2.1 Million	**WFU:** 1.7 Million **No WFU:** 3.3 Million	**WFU:** 400,000 **No WFU:** 4.6 Million	**WFU:** 1.7 Million **No WFU:** 3.3 Million
Broad Treatment Levels (10-year planning period)	**Footprint:** 250,200 acres **WFU:** 0 acres **Mechanical:** 10,700 **Chemical:** 223,000	**Footprint:** 646,000 acres **WFU:** 112,200 acres **Mechanical:** 64,300 acres **Chemical:** 426,100	**Footprint:** 1,687,000 acres **WFU:** 130,000 acres **Mechanical:** 136,000 acres **Chemical:** 993,000	**Footprint:** 1,522,000 acres **WFU:** 14,800 acres **Mechanical:** 1,320,000acres **Chemical:** 1,503,000	**Footprint:** 1,538,000 acres **WFU:** 19,300 acres **Mechanical:** 1,338,000 acres **Chemical:** 1,504,000 acres

TABLE ES-3. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	RxFire: 36,600 acres **Seeding:** 256,800	**RxFire:** 356,000 acres **Seeding:** 620,900	**RxFire:** 1,035,000 acres **Seeding:** 1,161,000	**RxFire:** 677,000 acres **Seeding:** 1,486,400 acres	**RxFire:** 692,000 acres **Seeding:** 1,486,000 acres
Fire Management Restrictions	See Management Common To All above.	See Management Common To All above.	See Management Common To All above.	See Management Common To All above.	See Management Common To All above.

ES.6 AFFECTED ENVIRONMENT

A summary of the affected environment for each of the resource disciplines analyzed in this Final EIS is given below.

ES.6.1 ISSUE 1 – COHESIVE STRATEGY (VEGETATION RESOURCES)

Vegetation cover types in the planning area are shown in Table ES-4.

TABLE ES-4. CURRENT VEGETATION COVER TYPES OF THE PLANNING AREA

Vegetation Cover Type	Characterized By
Low-Elevation Shrub	Sagebrush steppe: Wyoming big sagebrush, basin big sagebrush, etc., with native grass and forb understory. Biological crust in interspaces.
Perennial Grass*	Sagebrush steppe: Seeded areas (native/Invasive Annual Grass) and native grasslands (bluebunch wheatgrass, needlegrass, Idaho fescue, etc.). Biological crust may be present in interspaces.
Invasive Annual Grass*	Potential sagebrush steppe: Principally, cheatgrass and medusahead wildrye. Biological crust may be present in interspaces.
Mid-Elevation Shrub	Sagebrush steppe: Mountain big sagebrush, low sagebrush, bitterbrush, etc., with native grass and forb understory. Biological crust may be present in interspaces.
Juniper	Rocky Mountain juniper, Utah juniper, limber pine and /or single leaf pine. Natural juniper (~12 percent juniper area), pinyon-juniper (~5 percent juniper area), and juniper encroachment in sagebrush steppe habitat (~83 percent juniper area), Biological crust may be present in interspaces.
Dry Conifer	Douglas-fir, limber pine, ponderosa pine.
Aspen/Conifer	Includes healthy stands of aspen and stands of aspen and invading conifer.
Mountain Shrub	Serviceberry, buckbrush (*Ceanothus*), snowberry, mountain mahogany, bigtooth maple, chokecherry, antelope bitterbrush, etc., with native grass and forb understory.
Wet/Cold Conifer	Lodgepole, Subalpine fire, Engelmann spruce, etc.
Riparian Areas	Streamside and wetland areas of cottonwood, willow, etc.
Salt Desert Shrub	*Atriplex* spp. (four-wing, shadscale), spiny hopsage, winterfat, greasewood, etc., with native grass and forb understory. Biological crust in interspaces.
Other/Vegetated Lava	Lava, sand dunes, barren areas, etc.

* Historically these areas were dominated by Low-elevation sagebrush steppe

Prior to 1900, fire played an essential role in the landscape by regenerating and maintaining a diverse mosaic of healthy vegetation cover types across ecosystems dominated by vegetation characteristic of Fire Regime Condition Class 1 (FRCC 1 = low risk of losing key ecosystem components). Particular areas (watersheds, benches, swales, plains) would have been in various stages of recovery from wildland fires and other disturbances, classified along a gradient of Fire Regime Condition Classes 1 through 3 (FRCC 3 = high risk of losing key ecosystem components). Over the past century, fire suppression, introduction of Invasive Annual Grass (e.g., cheatgrass and medusahead wildrye), and other land management practices have altered fire ecology and the dynamics of succession across the planning area landscape. Among other effects, this has resulted in a relatively stable annual cheatgrass community, on many potential acres of sagebrush steppe. Other plant communities have been fragmented, have lost vegetation age-class structure, or suffer from fuel loading.

ES.6.2 Special Status Plants

Forty-seven special status plant taxa are known to occur in the planning area. Sixteen additional species have "Review" or "Monitor" status. Little is known about the distribution, size, and trend of special status plant populations within the planning area. Most of the information is limited to habitat and population structure information collected with new species locations. Most monitoring programs are recent; and, therefore, long-term data regarding the response of a special status plant to disturbance are rare to non-existent. This includes data on the response of these taxa to fire.

Only one special status plant, *Spiranthes diluvialis* (Ute's ladies-tresses), is protected by its listing as Threatened under the Endangered Species Act. This riparian species has a highly limited distribution along the South Fork Snake River. Monitoring of the South Fork populations began in 1997, and modifications to the monitoring methods were adapted in 2001 (Moseley 1998, 2000; Murphy 2000, 2001a, 2001b). A human-caused wildland fire burned a portion of the Annis Island population of *Spiranthes diluvialis* during late spring, 2001. Flowering plants were observed in lightly burned areas of the fire, but it is too early to determine the overall effects of the fire to the population at this time (Murphy 2001a).

ES.6.3 Issue 2 – Sagebrush Wildlife Guild Habitats

The historical extent and distribution of sagebrush steppe communities across southern Idaho has dramatically decreased over the last century from conversion of these lands to agriculture, seeded ranges and most recently, from cheatgrass invasion and altered fire regimes. At present, Perennial Grass and Invasive Annual Grass cover types principally occur in historic sagebrush steppe communities. Perennial grasslands are predominately seeded ranges or recovering burned areas, while annual grasslands are dominated by the invasive, annual cheatgrass.

Sagebrush-obligate wildlife species (Sagebrush Guild) are negatively affected by the loss of suitable habitat through these conversions of shrub steppe habitat to grasslands. Representative sagebrush-obligate wildlife species include pronghorn, pygmy rabbit, greater sage grouse, sage sparrow, sagebrush lizard, and short-horned lizard. These Sagebrush Guild species are highly dependent upon the various subspecies of sagebrush, predominately Wyoming and Basin big sagebrush with Mountain sagebrush occurring in the transition zone between the Mid-Elevation and Mountain

Shrub cover types. Sagebrush Guild wildlife species may utilize Annual and Perennial Grass types adjacent to Low- and Mid-Elevation Shrub. Shrub types provide thermal cover and refuge (hiding) and the grasslands provide foraging areas.

ES.6.4 WILDLAND URBAN INTERFACE

The planning area is an area that has a high potential for damage by wildland fires along the wildland urban interface. The BLM promotes local involvement in wildland fire concerns though approximately 63 mutual aid agreements with the District's counties.

ES.6.5 WILDLIFE RESOURCES

To facilitate the description of existing wildlife resources at the district-wide level required for this EIS, it was decided to categorize wildlife species into guilds associated with the vegetation cover types described in the vegetation section. This allows impacts analysis to focus on key wildlife species representative of the suites of species that use each vegetation type. These guilds are noted below.

Annual Grassland - Representative species in the planning area that inhabit or use this community include the long-billed curlew, and burrowing owl.

Perennial Grassland - Representative wildlife species that inhabit this community include California bighorn sheep, Columbian sharp-tailed grouse, meadowlark, short-eared owl, and montane vole.

Salt Desert Shrub - The horned lark is the only guild species analyzed for this community. The horned lark is a widespread species that occurs throughout the planning area year-round. It occurs in open country, but can be found from the prairies to the tundra, as well as developed areas such as airports and golf courses (Stebbins 1985). It nests on the ground in shallow depressions and feeds on insects, spiders and grass and forb seeds. This species is quite adaptable and is still quite common.

Riparian Community - Species analyzed as part of this community guild include white-tailed deer, bald eagle, yellow-billed cuckoo, northern leopard frog, boreal toad, common garter snake, and Yellowstone cutthroat trout.

Juniper and Mountain Shrub - Wildlife species representative of these communities include mule deer, mountain lion, ferruginous hawk, juniper titmouse, and gray flycatcher.

Wet/Cold Conifer, Dry Conifer, Aspen/Conifer - Wildlife species representative of these communities include the Rocky Mountain elk, moose, snowshoe hare, northern goshawk, three-toed woodpecker, ruffed grouse, and red-naped sapsucker.

Special Status Wildlife Species - Forty-one special status animal taxa are known to occur in the planning area.

Wildlife habitat management on the planning area's public lands consists of maintaining and/or improving food, water and cover for over 100 species of mammals, 300 species of birds, 48 species of fish, 17 species of reptiles and 7 species of amphibians. Big game species in the planning area

include elk, mule deer, white-tailed deer, pronghorn, bighorn sheep, black bear and mountain lion. Water resources in the planning area support fisheries that include rainbow trout, brown trout, native Yellowstone cutthroat trout, bull trout, redband trout, Bonneville cutthroat trout, Bear Lake whitefish, Bonneville whitefish, Bonneville cisco, and Bear Lake sculpin. Upland game species include greater sage grouse, Columbian sharp-tailed grouse, blue grouse, ruffed grouse, gray partridge, wild turkey, ring-necked pheasant, mourning dove, chukar, and black-tailed jackrabbit. In addition to these upland species, the planning area provides habitat for several waterfowl and wetland species.

ES.6.6 Air Quality

Idaho DEQ operates an extensive ambient air monitoring network to identify attainment and nonattainment areas. Within the planning area boundaries there are two PM_{10} nonattainment areas including Portneuf Valley (Pocatello area) and Fort Hall Indian Reservation (a Tribal/EPA PM_{10} nonattainment area). Other PM_{10} nonattainment areas within the area of consideration (100 km beyond planning area boundaries) include the northern portion of Ada County (Boise area) and the northern portion of Davis County, Utah, including the city of Ogden. Violations primarily consist of an excedence of the 24-hour standard during the winter months when strong inversions trap pollutants (IDEQ 2002).

ES.6.7 Geology and Soils

The planning area falls into four physiographic provinces: Columbia Plateau – Snake River Plain (SRP) Section, Basin and Range – Great Basin Section, Middle Rocky Mountains, and the Northern Rocky Mountains. Soils of the planning area are primarily of five soil orders: Entisols, Inceptisols, Aridisols, Alfisols, and Mollisols. Soil depth in the planning area is generally deep (greater than 48 inches to bedrock) on flat, low terrain of the Snake River Plain (0-to-15-percent slope). On gently rolling uplands (0- to 30-percent slope), slightly altered bedrock is often more than 40 inches below the surface. On more rolling lands (20-to-50-percent slope), the depth to bedrock is about 20 inches to 40 inches. On steep slopes (30-to-60-percent slope), soil depths range from less than 10 inches to 20 inches and overlie partly weathered bedrock. Rock outcrops are common on steeper slopes with little or no soil development.

ES.6.8 Water Resources

The geologic provinces of the planning area landscape help define various types of surface waters: lakes, ponds, and reservoirs; ephemeral springs and seeps; steep brooks; meandering streams; seasonally flooded meadows and playas; rivers, rapids and riffles; and reaches in narrow, rocky canyons. Surface waters on, or adjacent to, planning area public lands total over 18 square miles and nearly 1,500 linear miles.

ES.6.9 Livestock Grazing Management

Livestock grazing occurs on 4.6 million acres, or 85 percent, of BLM-administered land within the planning area. For grazing administrative purposes, the planning area is divided into 1,278 grazing allotments. Currently, there are 1,120 allotments actively grazed, 31 allotments under permit/lease

but not currently grazed, 77 allotments not under permit/lease but available for grazing, and about 800,000 acres not allocated and not available for livestock grazing. BLM-administered grazing allotments can be used by one operator as an individual allotment, or by many operators in a common allotment. There are approximately 1,145 livestock operators authorized to graze livestock on the 1,120 active grazing allotments. The grazing allotments vary in size from less then 10 acres to 318,000 acres. Several of the livestock operations include private, state, and NFS lands in addition to BLM-administered lands.

ES.6.10 Recreational Resources

Public lands provide a setting for dispersed as well as developed recreational opportunities, which in the planning area include, but are not limited to, hunting, fishing, sightseeing, mountain biking, hang gliding, OHV and snowmobile use, cross country and alpine skiing, hiking, camping, caving, river running and boating, horseback riding, and picnicking. These activities are managed through special recreation permits, camping and picnic facilities, roads and trails, information signs, and bulletin boards and kiosks. Some of the major attractions within the planning area include the Craters of the Moon National Monument and Preserve, City of Rocks National Reserve, Bald Mountain Recreation Area, the historic Oregon Trail, and the Snake River.

ES.6.11 Wilderness Resources

There is no designated wilderness on BLM-administered lands. However, the planning area contains 31 Wilderness Study Areas (WSAs), which the BLM manages, some of which share administration with other districts (Lower Snake River District [LSRD], Upper Columbia Salmon Clearwater District [UCSCD]), or agencies (NPS, US Forest Service [USFS]). Additionally, there is designated wilderness managed by the NPS and USFS within the planning area boundaries.

ES.6.12 Visual Resources

The landscapes within the planning area that could be affected by wildland fire and fire vegetation treatments exhibit an extraordinary range of visual diversity, including rugged, northwest-to-southeast-trending mountains and flat valleys; steep-sided extinct volcanoes; cinder cones; sand dunes; widely-spaced mountains; and high, rugged, glaciated mountains. Lower elevations are characterized by sagebrush, juniper woodlands, and grasslands while upper elevations include spruce, fir, pine, and aspen forest. This diversity of topography, vegetation, and geological formations provides a variety of scenic experiences to those who live, work, or recreate in the area.

ES.6.13 Cultural Resources

Despite the small percentage of lands that have been inventoried for cultural resources, approximately 9,100 sites have been documented within the planning area. These sites represent a variety of types and chronological periods, dating from at least 11,000 years old to the present. Identified prehistoric sites include lithic scatters, quarries, rockshelters, rock structures and piles, and pictographs/petroglyphs. Historic sites include homesteads, railroad and trail corridors, agricultural or ranching sites, debris scatters, inscriptions, and other manifestations of historical exploration and occupation.

ES.6.14 NATIVE AMERICAN CONCERNS

Native Americans and their ancestors have subsisted on lands within the planning area for thousands of years. Existing ethnographic information generally suggests that aboriginal populations constantly traversed the Snake River Plain during their seasonal subsistence rounds, moving to the Camas Prairie in the spring and then further into the mountains for the summer. In the fall, they would return to the Snake River for the winter. The Shoshone-Bannock Tribes hunt game on BLM-administered lands today, and they continue to ascribe cultural value to the Snake River corridor and the Camas Prairie. Two other tribal groups, the Northwest Band of Shoshone Nation and the Shoshone-Paiute Tribes, also identify portions of the planning area as traditional territory.

ES.6.15 SOCIOECONOMICS

The planning area encompasses a portion of Idaho with a socially diverse population and a broad economic base. While the diversity is evident, a common characteristic that binds this region is its rural nature. Out of 23 counties in the planning area, 20 are considered rural. Abundant natural resources in rural areas define the important relationship between BLM land management and the socioeconomic condition of a region.

ES.7 ENVIRONMENTAL CONSEQUENCES

The Environmental Consequences of the Proposed Plan Amendment and the three action alternatives in relation to the No Action Alternative are summarized in Table ES-5 and ES-6 below.

TABLE ES-5. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 1[3]

Vegetation Cover Types	Field Offices																			
	Upper Snake					Pocatello					Burley					Shoshone				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Vegetation - Cohesive Strategy (Issue 1): Fire Regime Condition Class (FRCC) achieved by alternative after 30 years in respective field offices.																				
LES[1], Perennial, Annual	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2
MES[2], Juniper	3	2	1	2	2	3	3	1	2	2	3	2	1	2	2	3	3	1	2	2
Salt Desert Shrub	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	NA	NA	NA	NA	NA
Aspen/Conifer, Dry Conifer	2	3	2	3	2	3	2	2	3	2	3	2	1	3	1	3	2	2	3	2
Mountain Shrub	3	2	1	3	3	3	1	1	1	1	3	2	1	2	2	3	2	1	2	2
Wet/Cold Conifer	2	2	1	2	1	2	2	2	2	2	2	2	1	2	1	2	2	1	2	1
Vegetated Rock/Lava	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Notes:

FRCC 1 = low risk of losing key ecosystem components; FRCC 3 = high risk of losing key ecosystem components.

There are no treatments proposed for the Riparian cover type in any of the five alternatives. However, they may receive some treatment depending on the needs of the adjacent cover types.

[1] LES = Low-elevation Shrub

[2] MES = Mid-elevation Shrub

[3] Not Applicable (NA): Shoshone has no vegetation mapped as Salt Desert Shrub.

[3] All effects summarized in this and subsequent tables and/or text are abbreviated displays of detailed effects analysis described in Chapter 4 of this EIS.

TABLE ES-5. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 1

Vegetation Cover Types	Alternatives				
	A	B	C	D	E
Vegetation - Cohesive Strategy (Issue 1): Planning Area Fire Regime Condition Class (FRCC) achieved by alternative after 30 years.					
Low-elevation Shrub, Perennial, Annual	2-3	2	2	2	2
Mid-elevation Shrub, Juniper	3	2-3	1	2	2
Salt Desert Shrub	1	1	1	1	1
Aspen/Conifer, Dry Conifer	2-3	2-3	1-2	3	1-2
Mountain Shrub	3	1-2	1	1-3	1-3
Wet/Cold Conifer	2	2	1-2	2	1-2
Vegetated Rock/Lava	1	1	1	1	1

Notes:

FRCC 1 = low risk of losing key ecosystem components; FRCC 3 = high risk of losing key ecosystem components.

There are no treatments proposed for the Riparian cover type in any of the five alternatives. However, they may receive some treatment depending on the needs of the adjacent cover types.

TABLE ES-6. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Sagebrush Wildlife Guild Habitats[4] (Issue 2)	Under all alternatives, the proportion of Source Habitat that would be disturbed by vegetation treatments indicates habitat loss over the short term for the Sagebrush Guild. The percentage of mature, Low-elevation Shrub at 30-years old, or more, provides an assessment of long-term benefits to the Sagebrush Guild.				
	Upper Snake Field Office (USFO): Source Habitat disturbed in first 10 years: 0% Mature shrub at 30 years: 37% **Pocatello Field Office (PFO):** Source Habitat disturbed in first 10 years: 0% Mature shrub at 30 years: 20% **Burley Field Office (BFO):** Source Habitat disturbed in first 10 years: 0% Mature shrub at 30 years: 12%	**USFO:** Source Habitat disturbed in first 10 years: 6.9% Mature shrub at 30 years: 28% **PFO:** Source Habitat disturbed in first 10 years: 0% Mature shrub at 30 years: 20% **BFO:** Source Habitat disturbed in first 10 years: 2.6% Mature shrub at 30 years: 15%	**USFO:** Source Habitat disturbed in first 10 years: 7.7% Mature shrub at 30 years: 40% **PFO:** Source Habitat disturbed in first 10 years: 23.5% Mature shrub at 30 years: 22% **BFO:** Source Habitat disturbed in first 10 years: 13.7% Mature shrub at 30 years: 21%	**USFO:** Source Habitat disturbed in first 10 years: 9.9% Mature shrub at 30 years: 41% **PFO:** Source Habitat disturbed in first 10 years: 15.7% Mature shrub at 30 years: 25% **BFO:** Source Habitat disturbed in first 10 years: 12.4% Mature shrub at 30 years: 21%	**USFO:** Source Habitat disturbed in first 10 years: 9.9% Mature shrub at 30 years: 41% **PFO:** Source Habitat disturbed in first 10 years: 15.7% Mature shrub at 30 years: 25% **BFO:** Source Habitat disturbed in first 10 years: 12.4% Mature shrub at 30 years: 21%

[4] See full description of sagebrush guild species and their habitats in Chapter 3.

TABLE ES-6. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	Shoshone Field Office (SFO): Source Habitat disturbed in first 10 years: 0% Mature shrub at 30 years: 12%	**SFO:** Source Habitat disturbed in first 10 years: 0.0% Mature shrub at 30 years: 14%	**SFO:** Source Habitat disturbed in first 10 years: 2.3% Mature shrub at 30 years: 24%	**SFO:** Source Habitat disturbed in first 10 years: 8.5% Mature shrub at 30 years: 17%	**SFO:** Source Habitat disturbed in first 10 years: 8.5% Mature shrub at 30 years: 17%
WUI Areas of Concern	Low Risk areas: 15 Moderate Risk areas: 15 High Risk areas: 4 Least amount of treatment in, and adjacent to, the WUI areas would result in: - Continued full-scale suppression as the primary tool in reacting to wildland fires, - Continued wildland fire damage to property, - Increased financial and labor costs, and - Risk to public and fire-fighter health and safety.	Low Risk areas: 27 Moderate Risk areas: 6 High Risk areas: 1 Those WUI areas that receive the most treatments would result in cover types that: - Are more resilient to wildland fire, - Have reduced fuel loads, and, therefore, fire intensity, and - Pose less risk to WUI areas. If treatment involves WFU and RxFire, there would be some risk to the public and fire fighter health and safety, though it would be expected that the effects of treatment would reduce the incidence of uncharacteristic wildland fire by reducing fuel load, increasing	Low Risk areas: 29 Moderate Risk areas: 5 High Risk areas: 0 Same as Alternative B.	Low Risk areas: 29 Moderate Risk areas: 4 High Risk areas: 1 Similar to Alternative B with the exception that Alternative D focuses on Low- and Mid-elevation Shrub, Perennial Grass, and Invasive Annual Grass cover types.	Low Risk areas: 30 Moderate Risk areas: 4 High Risk areas: 0 Similar to Alternative B.

TABLE ES-6. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
		defensible space, and restoring cover types where feasible.			
Wildlife	- 250,240 footprint-acres under this alternative would be unavailable to wildlife for portions of the following 10 years. However, areas being rehabilitated or restored would continue to provide habitat value to certain species, particularly those that utilize early to mid-seral stages. - FRCC in Invasive Annual Grass, Perennial Grass and Low-Elevation Shrub would remain at 2 with corresponding moderate risk to wildlife guilds using these cover types. - Mid-elevation Shrub, Juniper, and Mountain Shrub would remain in FRCC 3 with higher risk of long-term adverse impacts to wildlife guilds using these cover types.	- 646,050 footprint-acres under this alternative would be unavailable to wildlife for portions of the following 10 years. However, areas being rehabilitated or restored would continue to provide habitat value to certain species, particularly those that utilize early to mid-seral stages. -FRCC in Invasive Annual Grass, Perennial Grass and Low-elevation Shrub would remain at 2 with corresponding moderate risk to wildlife guilds using these cover types. - Mid-elevation Shrub and Juniper would range from 2 to 3 across the planning area with moderate and high risk to species using these cover types.	- 1,686,528 footprint-acres under this alternative would be unavailable to wildlife for portions of the following 10 years. However, areas being rehabilitated or restored would continue to provide habitat value to certain species, particularly those that utilize early to mid-seral stages. -FRCC in Invasive Annual Grass, Perennial Grass and Low-elevation Shrub would remain at 2 with corresponding moderate risk to wildlife guilds using these cover types. - Mid-elevation Shrub and Juniper would be FRCC 1 across the planning area with low risk to species using these cover types.	- 1,522,270 footprint-acres under this alternative would be unavailable to wildlife for portions of the following 10 years. However, areas being rehabilitated or restored would continue to provide habitat value to certain species, particularly those that utilize early to mid-seral stages. - FRCC in Invasive Annual Grass, Perennial Grass and Low-elevation Shrub would remain at 2 with corresponding moderate risk to wildlife species using these cover types. - Mid-elevation Shrub and Juniper would have an FRCC of 2 across the planning area with moderate risk to species using these cover types.	- 1,538,022 footprint-acres under this alternative would be unavailable to wildlife for portions of the following 10 years. However, areas being rehabilitated or restored would continue to provide habitat value to certain species, particularly those that utilize early to mid-seral stages. - FRCC in Invasive Annual Grass, Perennial Grass and Low-elevation Shrub would remain at 2 with corresponding moderate risk to wildlife species using these cover types. - Mid-elevation Shrub and Juniper would have an FRCC of 2 across the planning area with moderate risk to species using these cover types.

TABLE ES-6. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
		- Mountain Shrub would range from FRCC 2 to 1 across the planning area with moderate-to-low risk to species using this cover type.	- Mountain Shrub FRCC would range from 3 to 1 with low-to-moderate risk to species using this cover type.	- Mountain Shrub FRCC would range from 2 to 3 with moderate-to-high risk to species using this cover type.	- Mountain Shrub FRCC would range from 3 to 1 with moderate-to-high risk to species using this cover type.
	- Aspen/Conifer and Dry Conifer FRCC would vary from 2 to 3 throughout the planning area with corresponding moderate-to- high risk to wildlife habitat in these cover types.	- Aspen/Conifer and Dry Conifer FRCC would vary from 2 to 3 throughout the planning area with corresponding moderate risk to wildlife habitat in these cover types.	- Aspen/Conifer and Dry Conifer FRCC would be 1 to 2 throughout the planning area with corresponding moderate-to-high risk to wildlife species in these cover types.	- Aspen/Conifer and Dry Conifer FRCC would be 3 throughout the planning area with corresponding high risk to wildlife species in these cover types.	- Aspen/Conifer and Dry Conifer FRCC would be 1 to 2 throughout the planning area with corresponding moderate-to-high risk to wildlife species in these cover types.
	- Salt Desert Shrub, Riparian, and Vegetated Rock/Lava would remain in FRCC 1 with low risk to wildlife species using these cover types.	- Salt Desert Shrub, Riparian, and Vegetated Rock/Lava would remain in FRCC 1 with low risk to wildlife species using these cover types.	- Salt Desert Shrub, Riparian, and Vegetated Rock/Lava would remain in FRCC 1 with low risk to wildlife species using these cover types.	- Salt Desert Shrub, Riparian, and Vegetated Rock/Lava would remain in FRCC 1 with low risk to wildlife species using these cover types.	- Salt Desert Shrub, Riparian, and Vegetated Rock/Lava would remain in FRCC 1 with low risk to wildlife species using these cover types.
Special Status Plants	Under all alternatives, site-specific project effects on special status plants would be evaluated in light of the status of the taxa, population health and integrity, ecology and response to disturbance, and habitat quality.				
	Low-elevation Shrub, Perennial Grass, Invasive Annual Grass:	*Low-elevation Shrub, Perennial Grass, Invasive Annual Grass:*	*Low-elevation Shrub, Perennial Grass, Invasive Annual Grass:*	*Low-elevation Shrub, Perennial Grass, Invasive Annual Grass:*	*Low-elevation Shrub, Perennial Grass, Invasive Annual Grass:*
	- Would treat approximately 6% of cover types to benefit special status plant habitat by reestablishing the structure, species composition, and seral dynamics of the native cover type.	- Would treat approximately 12% of cover types to benefit special status plant habitat by reestablishing the structure, species composition, and seral dynamics of the native cover type.	- Would treat approximately 37% of cover types to benefit special status plant habitat by reestablishing the structure, species composition, and seral dynamics of the native cover type.	- Would treat approximately 30% of cover types to benefit special status plant habitat by reestablishing the structure, species composition, and seral dynamics of the native cover type.	- Same as Alternative D. - RxFire on approximately 500,000 acres would benefit species that require open light and openings in early to mid-seral stages.

TABLE ES-6. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	- RxFire on approximately 14,000 acres would benefit species that require open light and openings in early to mid-seral stages. Species characteristic of late seral stages would possibly be less tolerant of burning treatments due to shading or nutrient requirements. *Mid-elevation Shrub, Juniper, including areas of juniper encroachment:* - SSS that occur on relatively fire-resistant, sparsely vegetated, rocky sites would not be impacted. - Would treat approximately 3% of cover types with benefits dependent upon seral stage status and tolerance to fire, as well as competitive ability and shade tolerance. Potential negative long-term effects would be due to lack of treatment and continued degradation of habitat.	- WFU and RxFire on approximately 320,000 acres would benefit species that require open light and openings in early to mid-seral stages. Species characteristic of late seral stages would possibly be less tolerant of burning treatments due to shading or nutrient requirements. *Mid-elevation Shrub, Juniper, including areas of juniper encroachment:* - Same as Alternative A. - Would treat approximately 15% of cover types with benefits dependent upon seral stage status and tolerance to fire, as well as competitive ability and shade tolerance. Potential negative long-term effects would be due to lack of treatment and continued degradation of habitat.	- WFU and RxFire on approximately 258,000 acres would benefit species that require open light and openings in early to mid-seral stages. Species characteristic of late seral stages would possibly be less tolerant of burning treatments due to shading or nutrient requirements. *Mid*-elevation *Shrub, Juniper, including areas of juniper encroachment:* - Same as Alternative A. - Would treat approximately 50% of cover types with benefits dependent upon seral stage status and tolerance to fire, as well as competitive ability and shade tolerance. Potential positive effects would be due to maintaining a seral community/or expanding potential habitat on a landscape scale.	- RxFire on approximately 500,000 acres would benefit species that require open light and openings in early to mid-seral stages. Species characteristic of late seral stages would possibly be less tolerant of burning treatments due to shading or nutrient requirements. *Mid-elevation Shrub, Juniper, including areas of juniper encroachment:* - Same as Alternative A. - Would treat approximately 28% of cover types with benefits dependent upon seral status and tolerance to fire, as well as competitive ability and shade tolerance. Potential positive effects would be due to maintaining a seral community/or expanding potential habitat on a landscape scale.	Species characteristic of late seral stages would possibly be less tolerant of burning treatments due to shading or nutrient requirements. *Mid-elevation Shrub, Juniper, including areas of juniper encroachment:* - Same as Alternative A .- Would treat approximately 28% of cover types with benefits dependent upon seral status and tolerance to fire, as well as competitive ability and shade tolerance. Potential positive effects would be due to maintaining a seral community/or expanding potential habitat on a landscape scale.

TABLE ES-6. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	Salt Desert Shrub: - Would treat approximately 3% of cover type. Unlikely that treatment would impact any special status plant populations.	*Salt Desert Shrub:* - No treatment proposed. No impact to any special status plant populations.	*Salt Desert Shrub:* - Same as Alternative B.	*Salt Desert Shrub:* - Same as Alternative B.	*Salt Desert Shrub:* - Same as Alternative B.
	Aspen/Conifer and Dry Conifer: - Would treat approximately 3% of cover types with benefits dependent upon the seral stage status, tolerance to fire, competitive ability, and shade tolerance.	*Aspen/Conifer and Dry Conifer:* - Would treat approximately 21% of cover types with benefits dependent upon the seral stage status, tolerance to fire, competitive ability, and shade tolerance.	*Aspen/Conifer and Dry Conifer:* - Would treat approximately 14% of cover types with benefits dependent upon the seral stage status, tolerance to fire, competitive ability, and shade tolerance.	*Aspen/Conifer and Dry Conifer:* - No treatment proposed. Unlikely to impact any special status plant populations though may indirectly impact SSS that require openings in the Aspen vegetation cover type.	*Aspen/Conifer and Dry Conifer:* - Same as Alternative C.
	Mountain Shrub: - Would treat approximately < 1% of cover type with benefits dependent upon seral stage status, tolerance to fire, competitive ability, and shade tolerance. Potential negative long-term effects would be due to lack of treatment and continued degradation of habitat.	*Mountain Shrub:* - Would treat approximately 9% of cover type with benefits dependent upon seral stage status, tolerance to fire, competitive ability, and shade tolerance. Potential negative long-term effects would be due to lack of treatment and continued degradation of habitat.	*Mountain Shrub:* - Would treat approximately 42% of cover type with benefits dependent upon seral stage status, tolerance to fire, competitive ability, and shade tolerance. Potential positive effects would be due to maintaining a seral stage and/or expanding potential habitat on a landscape scale.	*Mountain Shrub:* - Would treat approximately 13% of cover type with benefits dependent upon seral stage status, tolerance to fire, competitive ability, and shade tolerance. Potential positive effects would be due to maintaining a seral stage and/or expanding potential habitat on a landscape scale.	*Mountain Shrub:* - Would treat approximately 13% of cover type with benefits dependent upon seral stage status, tolerance to fire, competitive ability, and shade tolerance. Potential positive effects would be due to maintaining a seral stage and/or expanding potential habitat on a landscape scale.

TABLE ES-6. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	Wet/Cold Conifer: There are no special status plant species associated with the Wet/Cold Conifer cover type. *Riparian*: It is not anticipated that areas supporting special status plants would be treated, unless site-specific information indicates that small-scale RxFire use would maintain a seral stage beneficial to the taxa. *Vegetated Rock/Lava*: No treatment proposed. Unlikely to impact any special status plant populations.	*Wet/Cold Conifer*: Same as Alternative A. *Riparian*: No treatment proposed. No impact to any special status plant populations. *Vegetated Rock/Lava*: Same as Alternative A.	*Wet/Cold Conifer*: Same as Alternative A. *Riparian:* Same as Alternative A. *Vegetated Rock/Lava*: Same as Alternative A.	*Wet/Cold Conifer*: Same as Alternative A. *Riparian:* Same as Alternative B. *Vegetated Rock/Lava*: Same as Alternative A.	*Wet/Cold Conifer*: Same as Alternative A. *Riparian:* Same as Alternative B. *Vegetated Rock/Lava*: Same as Alternative A.
Air Quality	Emissions (tons/10-years): - PM_{10} 1,463 - $PM_{2.5}$ 1,233	Emissions (tons/10-years): - PM_{10} 20,235 - $PM_{2.5}$ 17,054	Emissions (tons/10-years): - PM_{10} 26,172 - $PM_{2.5}$ 21,797	Emissions (tons/10-years): - PM_{10} 9,052 - $PM_{2.5}$ 7,468	Emissions (tons/10-years): - PM_{10} 12,473 - $PM_{2.5}$ 10,371
Soil Resources	Least amount of water and wind erodible soils disturbance (37,987 and 154,731 acres, respectively).	Would disturb 98,068 acres of water erodible soils and 399,471 acres of wind erodible soils.	Most amount of water and wind erodible soils disturbance, 256,010 and 1,042,829 acres, respectively.	Would impact 231,076 acres of water erodible soils and 941,263 acres of wind erodible soils.	Would impact 233,467 acres of water erodible soils and 951,003 acres of wind erodible soils.

TABLE ES-6. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Water Resources	Less than 1% of the proposed treatments in all cover types would occur on water-erodible soils. Thus, overall, short-term impacts to water resources would be negligible across the planning area.	Approximately 7% of the proposed treatments for all cover types would occur on wind-erodible soils, while less than 2% would occur on water-erodible soils, with accompanying risk of sedimentation and short-term impacts to water quality in the planning area.	Approximately 19% of the proposed treatments for all cover types would occur on wind-erodible soils, while approximately 5% would occur on water-erodible soils, resulting in accompanying risk of sedimentation and short-term impacts to water quality in the planning area.	Approximately 17% of the proposed treatments for all cover types would occur on wind-erodible soils, while approximately 4% would occur on water-erodible soils, resulting in accompanying risk of sedimentation and short-term impacts to water quality in the planning area.	Approximately 18% of the proposed treatments for all cover types would occur on wind-erodible soils, while approximately 4% would occur on water-erodible soils, resulting in accompanying risk of sedimentation and short-term impacts to water quality in the planning area.
Livestock Grazing Management	Would result in approximately 47,500 AUMs (0.7%) being temporarily unavailable annually.	Would result in approximately 122,783 AUMs (1.8%) being temporarily unavailable annually.	Would result in approximately 320,467 AUMs (4.8%) being temporarily unavailable annually.	Would result in approximately 289,268 AUMs (4.3%) being temporarily unavailable annually.	Would result in approximately 292,242 AUMs (4.4%) being temporarily unavailable annually.
Recreation	Could have direct impacts by decreasing public access to recreational areas during treatment and recovery periods.	Would have short-term direct impacts by decreasing access to more recreational areas during treatment and recovery periods than Alternative A.	Would have short-term direct impacts by decreasing access to more recreational areas during treatment and recovery periods more than for any of the other alternatives. Dispersed recreation, such as hunting and all-terrain vehicle riding, could be adversely affected in the short term through decreased access to treated areas.	Would have short-term direct impacts by decreasing access to recreational areas during treatment and recovery periods at levels close to Alternative C. Dispersed recreation, such as hunting and all-terrain vehicle riding, could be adversely affected in the short term through decreased access to treated areas.	Would have short-term direct impacts by decreasing access to recreational areas during treatment and recovery periods at levels close to Alternative C. Dispersed recreation, such as hunting and all-terrain vehicle riding, could be adversely affected in the short term through decreased access to treated areas.
Wilderness	Treatments in Wilderness Study Areas that follow the guidance in BLM handbook H-8551 (Interim Policy for Lands Under Wilderness Review) would not impair wilderness values under any alternative.				

TABLE ES-6. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	Effects of current direction's full wildland fire suppression would not result in any short-term, discernible change from current conditions.	Treatments in Vegetated Rock/Lava (approximately 50% of the WSAs) would only include WFU. The remaining cover types that are within Wilderness Study Areas would receive, in general, approximately 2.6 times more treatment than under Alternative A. Treatment impacts may be perceived to decrease the wilderness values of these Wilderness Study Areas in the short term.	Anticipated treatment impacts would be similar to those under Alternative B for Vegetated Rock/Lava cover types. The remaining cover types that are within Wilderness Study Areas would, in general, be 6.7 times more likely to receive treatment than under Alternative A.	There are no treatments proposed in Vegetated Rock/Lava. The remaining cover types that are within Wilderness Study Areas would, in general, be 6.1 times more likely to receive treatment than under Alternative A.	Impacts to WSAs would be the same as those described for Alternative C.
Visual Resources	Views from key viewpoints would be maintained in FRCC 3 with the exception of some portions of the Ohio Gulch viewshed that would be FRCC 2. This would result in moderate-to-high visual quality degradation from atmospheric particulates and large-scale landscape scorching as seen from these viewpoints.	Views from key viewpoints would be maintained in FRCC 3 with the exception of Appendicitis Hill Wilderness Study Area viewshed, where vegetation could move to FRCC 2, resulting in lessened potential for visual quality degradation.	Views from key viewpoints would be maintained in FRCC 1 with the exception of some portions of the Appendicitis Hill Wilderness Study Area, which would remain in FRCC 2. This would result in substantially reduced potential for major visual quality degradation from atmospheric particulates and large-scale landscape scorching as seen from these viewpoints.	Views from key viewpoints would be maintained in FRCC 3, 2, and 1 with similar visual impacts to those described for Alternative B.	Views from key viewpoints would be maintained in FRCC 3, 2, and 1 with similar visual impacts to those described for Alternative B.

TABLE ES-6. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Cultural Resources and Native American Tribal Concerns	An estimated 250,200 footprint-acres would be subject to mechanical treatment, chemical treatment, RxFire, or seeding over a 10-year period. However, standard BLM practice entails measures such as pre-action inventory and avoidance that would likely mitigate these impacts.	An estimated 646,000 footprint-acres in most cover types would be treated over a 10-year period. However, standard BLM practice entails measures such as pre-action inventory and avoidance that would likely mitigate these impacts.	An estimated 1,687,000 footprint-acres would be treated over a 10-year period, resulting in a corresponding increase in risk to cultural resources or Tribal concerns. However, standard BLM practice entails measures such as pre-action inventory and avoidance that are expected to mitigate these impacts.	An estimated 1,522,000 footprint-acres would be treated over a 10-year period. Impacts would be similar to those described for Alternative C.	An estimated 1,538,000 footprint-acres would be treated over a 10-year period. Impacts would be similar to those described for Alternative C.
Socioeconomics	-The loss of revenue to the BLM in the form of grazing fees would be $65,075 over the next 10-year period. -Total fire management costs over the next 10-years would be approximately $107 million, of which approximately $37 million would be funneled into the local economy.	-The loss of revenue to the BLM in the form of grazing fees would be $168,213 over the next 10-year period. -Total fire management costs over the next 10-years would be approximately $114 million, of which approximately $40 million would be funneled into the local economy.	-The loss of revenue to the BLM in the form of grazing fees would be $439,040 over the next 10-year period. -Total fire management costs over the next 10 years would be approximately $199 million, of which approximately $70 million would be funneled into the local economy.	-The loss of revenue to the BLM in the form of grazing fees would be $396,297 over the next 10-year period. -Total fire management costs over the next 10 years would be approximately $184 million, of which approximately $64 million would be funneled into the local economy.	-The loss of revenue to the BLM in the form of grazing fees would be $400,371 over the next 10-year period. -Total fire management costs over the next 10 years would be approximately $185 million, of which approximately $65 million would be funneled into the local economy.

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CHAPTER ONE - PURPOSE AND NEED

1.1 INTRODUCTION

The Idaho Bureau of Land Management (BLM) administers almost 5 million acres of land in south-central and eastern Idaho (Figure 1-1) in the Upper Snake Field Office (USFO), Pocatello Field Office (PFO), Burley Field Office (BFO), and Shoshone Field Office (SFO). This area is hereafter referred to as the planning area, comprising portions of the Idaho Falls and Twin Falls Districts[1]. The planning areas encompass 23 southern Idaho counties: Bannock, Bear Lake, Bingham, Blaine, Bonneville, Butte, Camas, Caribou, Cassia, Clark, Elmore, Franklin, Fremont, Gooding, Jefferson, Jerome, Lincoln, Madison, Minidoka, Oneida, Power, Teton, and Twin Falls. Major communities in the planning area include Burley, Idaho Falls, Pocatello, Shoshone, Sun Valley, and Twin Falls. Four BLM field offices—Burley, Idaho Falls, Pocatello, and Shoshone—manage numerous parcels of public land that range in size from less than 40 acres to more than 100,000 acres (Figure 1-2 and Table 1-1).

BLM-administered lands under jurisdiction of the four field offices are adjacent to National Forest System (NFS) lands administered by the U.S. Forest Service (USFS), State of Idaho lands, the Fort Hall Indian Reservation, the Craters of the Moon National Monument and Preserve, the City of Rocks National Reserve, and the Idaho National Laboratory (INL), which is a U.S. Department of Energy, Idaho Operations Office (DOE-ID) facility. Also within the boundaries of the planning area are private lands in and around the many urban and rural communities.

TABLE 1-1. ACREAGES OF LAND UNDER LAND STATUS JURISDICTIONS WITHIN THE PLANNING AREA

Land Status	Acres	Percentage
Private	7,716,000	40
BLM	4,998,000	26
USFS	4,084,000	21
State of Idaho	899,000	5
DOE-INL	568,000	3
Fort Hall Indian Reservation	521,000	3
National Park Service	500,000	3
Water	197,000	1
Military	4,500	<1
Total	**19,487,500**	**100**

[1] When the FMDA was originally developed through September 2004, the four Field Offices comprised the entire Upper Snake River District (USRD). Since October 1, 2004, however, the USRD has been reorganized as the Idaho Falls District (Upper Snake, Pocatello, Challis and Salmon Field Offices) and the Twin Falls District (Burley, Shoshone and Jarbidge Field Offices).

In response to the nationwide increase in wildland fires, fire starts, and fatalities, the Federal Wildland Fire Management Policy (U.S. Department of Interior [USDI] and U.S. Department of Agriculture [USDA] 1995) was revised in 2001 (USDI et al. 2001). Currently, all federal land-management agencies are implementing or preparing to implement the National Fire Plan (USDI 2000) to various extents, which is the means by which the Federal Wildland Fire Management Policy is applied. This Environmental Impact Statement (EIS) proposes to amend existing land use plans (LUPs) to provide guidance and aid in implementing the Federal Wildland Fire Management Policy in the planning area.

Prior to modern fire suppression, wildland fire had consistently been an integral part of the ecosystems in the planning area, as demonstrated by historical ecological evidence. To withstand this threat, numerous vegetation species and cover types have developed various responses that have enabled them to resist, tolerate, or take advantage of fire.

At present, many of the cover types within the planning area have been subjected to wildland fire that is not within the historical range of variability. Large and/or uncharacteristic fires in these cover types can threaten people and property as well as the resiliency, integrity, and long-term sustainability of ecosystem components and processes. Fires are occurring more frequently and are burning more severely in some cover types. For example, the invasion of the sagebrush steppe by invasive annual species such as cheatgrass (*Bromus tectorum*) and medusahead wildrye (*Taeniatherum caput-medusae*) has substantially increased fine fuel continuity in this cover type, making it more susceptible to large, frequent, and uncharacteristic fires. In other vegetation cover types, fires are occurring less frequently than they have historically, which causes undesirable changes in vegetation species composition and structure and an accumulation of hazardous fuels. For example, because of long-term fire suppression, juniper species are expanding their range at the expense of sagebrush steppe, and Dry Conifer cover types are slowly replacing Aspen and some Mountain Shrub cover types.

Since approximately 1996, wildland fires have occurred in the planning area at an overall accelerated rate (Figure 1-3), mostly due to vegetation changes and changed conditions like cheatgrass invasion into sagebrush steppe cover types. To a lesser extent, the planning area has experienced decreases in fire frequency and attendant increases in fire severity in its Aspen, Dry Conifer, and Mountain Shrub cover types. These vegetation cover types require more frequent disturbance to decrease fuel loads, facilitate aspen and forb regeneration, and decrease fire intensity. It has become clear that hazardous fuel conditions need to be managed. Altered fire regimes (i.e., changes in fire frequency, severity, and size) not only threaten resources such as wildlife habitat, cultural resources, air/visual quality, and grazing, but also affect public and firefighter safety within and around areas of human development.

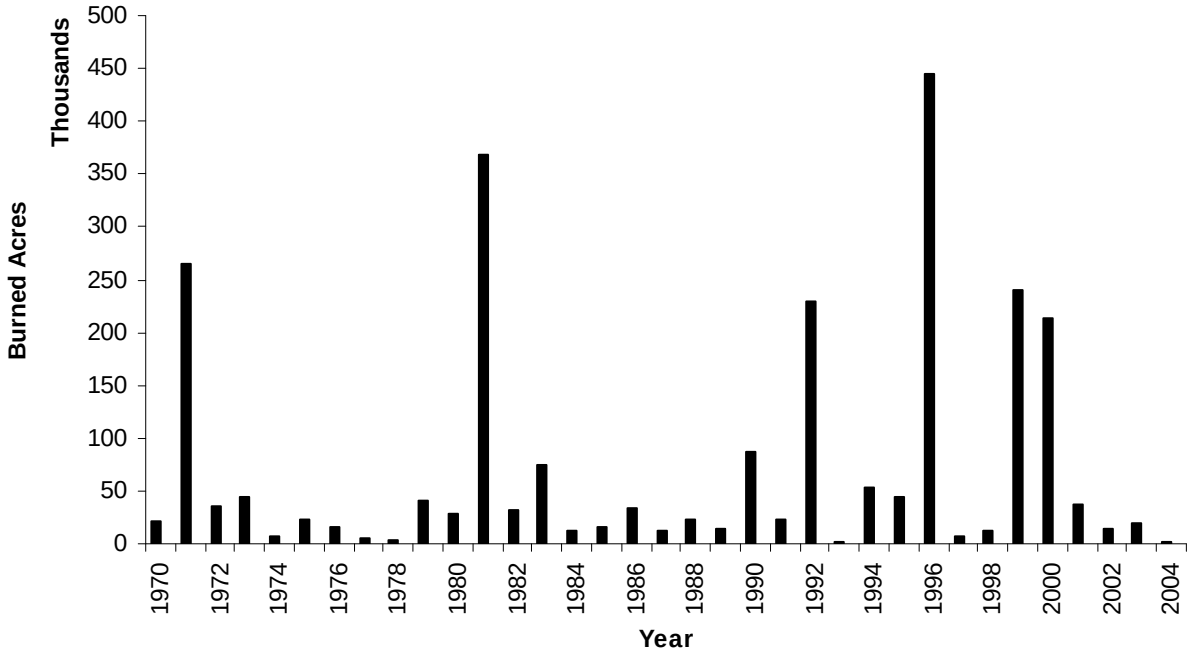


Figure 1-3. Wildland fire activity in the planning area, 1970 through 2004.

1.2 PURPOSE AND NEED FOR ACTION

1.2.1 PURPOSE

The purpose for this multi-plan amendment is to amend 12 existing land use plans within the planning area to incorporate fire, fuels, and related vegetation management direction that is consistent with the Federal Wildland Fire Management Policy. This approach will allow the BLM to move toward resource conditions that minimize risk to human life and property and allow for efficient and effective wildland fire suppression efforts; to integrate fire's natural role into resource management decisions; to maintain or restore vegetation that would support special status species (SSS) and healthy, diverse, and sustainable vegetation communities; and to provide for other uses by managing vegetative conditions to achieve desired conditions.

The purpose of the Proposed Plan Amendment is to:

- Establish programmatic fire management guidance, objectives, policies, and actions.
- Identify resource goals and methods, including desired future condition of vegetation resources and management actions necessary to achieve objectives.
- Form the basis to update fire management plans (FMPs) and integrate them with allotment management plans, wildlife management plans, recreation management plans, and other applicable guidance.
- Provide LUP-level direction to enable incremental steps toward resource conditions that minimize risk to human life and property and that function within the natural fire regime.

1.2.2 NEED

There is a need for the present plan amendments in order to provide contemporary fire management issues in a comprehensive or consistent manner within the planning area. A need has been identified for increased use of vegetation treatments for hazardous fuels reduction. The current LUPs do not provide consistent direction regarding the importance of fire in the ecosystem. The recent increases in wildland fire (natural occurrences and intensities) and the large number of acres recently burned in sagebrush steppe in the planning area has impacted the natural environment of the public lands. This could impact the conservation of sage grouse or other wildlife species and indirectly affect public land users. A need has been identified for increased use of vegetation treatments for hazardous fuels reduction consistent with the National Fire Plan to reduce the risk of fire impacts on communities and resources. Action is needed to move toward resource conditions on BLM administered lands that allow productive use of these lands and enhance the social, cultural and economic stability of the communities that depend on them. As described in the Federal Regulations (43 CFR 1610.5-5): "An amendment shall be initiated by the need to consider monitoring and evaluation findings, new data, new or revised policy, a change in circumstances or a proposed action that may result in a change in the scope of resource uses or a change in terms, conditions and decisions of the approved plan…". The advent of the National Fire Plan and resource conditions as a result of fire, warrant a revision of existing plans.

Fire management direction in the 12 existing LUPs in the planning area (Figure 1-4; see Table 1-2) emphasizes wildland fire suppression, briefly touches upon using RxFire and fuels treatments, and is generally silent concerning the use of WFU to benefit the resources. The existing LUPs do not address the management of fire's role in the landscape. Other issues not well addressed in the current LUPs include:

- Communities-at-risk and issues surrounding the WUI.
- Public and firefighter safety.
- Fire impacts on air quality/visibility.
- Fire hazard and fuels reduction treatment methods.
- The departure of existing fire regimes from historical conditions.
- The desired role of fire and how fire can help meet resource objectives.

The BLM's planning process forms the basis for every on-the-ground action the BLM undertakes. The Proposed Plan Amendment would update the planning area's FMPs, which are to be prepared based on objectives in the LUPs. The Proposed Plan Amendment would facilitate resource and fire management activities throughout the planning area, as well as set a new standard for integrating resource management and fire management activities at the field office and regional levels. The Proposed Plan Amendment will amend the LUPs listed in Table 1-2.

TABLE 1-2. LAND USE PLANS (LUPS) CURRENTLY DIRECTING RESOURCE MANAGEMENT IN THE PLANNING AREA, WITH DATES OF IMPLEMENTATION

Year, Land Use Plan	FO[1]	Year, Land Use Plan	FO
1975, Magic MFP	SH	1982, Twin Falls MFP	BU
1976, Bennett Hills/Timmerman Hills MFP	SH	1983, Big Lost MFP	US
1981, Big Desert MFP	US	1985, Cassia RMP	BU
1981, Little Lost-Birch Creek MFP	US	1985, Medicine Lodge RMP	US
1981, Malad MFP	PO	1985, Monument RMP	SH/BU
1981, Sun Valley MFP	SH	1988, Pocatello RMP	PO

[1] Field Offices (FO): BU = Burley, US = Upper Snake, SH = Shoshone, PO = Pocatello/Malad

The proposed programmatic fire management direction plan amendment respond to the following needs:

- Wildland fire is a necessary element in the development and maintenance of healthy ecosystems of the Interior Columbia Basin, Snake River Plain, and Great Basin. Fire management direction is needed to establish objectives on the role of fire in the ecosystem.
- Fire management direction is needed to establish objectives to guide vegetation treatments using mechanical, seeding, chemical, RxFire, and wildland fire use (WFU).
- Wildlife management agencies, tribes, and the public are concerned over the decline in sage grouse numbers in recent years. In some areas, invasive plant species are replacing natural sagebrush steppe communities. These trends have caused an increased need for the protection of sagebrush steppe communities (i.e., sage grouse habitat). Fire management direction is needed to establish objectives to treat vegetation and properly use and/or suppress fire to improve degraded and protect existing sagebrush steppe communities.
- Aspen, Douglas-fir, Mid-elevation Shrub, Juniper encroachment, and Mountain Shrub require vegetation treatments that include increased use of RxFire and WFU to ensure ecosystem health. In some areas, extensive buildup of fuels and/or unnaturally-dense woodland stands could lead to fires outside the natural fire regime. Existing suppression policies have not accommodated this need.
- Fire management direction is needed to provide appropriate objectives in the Wildland Urban Interface (WUI) to reduce threats to communities-at-risk from wildland fire.
- Priorities, management objectives, and management restrictions need to be established for wildland fire suppression.

This plan amendment is programmatic, meaning it provides broad-scale planning direction at a landscape level to guide future site-specific projects. Because the plan amendment is programmatic, this EIS analysis is also programmatic in that it analyzes potential impacts at the landscape level. It does not evaluate site-specific impacts, which are impossible to determine at this time because actual projects have not been proposed. Future proposed site-specific projects

will be required to conform to the stipulations of this plan amendment, as well as conduct the appropriate level of site-specific NEPA analysis. Throughout this EIS, this proposed plan amendment is referred to by three terms: Fire Management Direction Amendment (FMDA), the proposed programmatic fire management direction amendment, and the proposed plan amendment. These terms are interchangeable and all refer to Alternative E – Proposed Plan Amendment (See Section 1.3).

1.3 THE PROPOSED ACTION

In accordance with BLM planning policies, the following basic elements would compose the programmatic LUP-level plan regarding fire management direction:

- Programmatic landscape-level fire management goals and objectives, including desired wildland fire conditions.
- The suite of management actions that can be used to meet desired future conditions, including areas that are suitable for WFU for resource benefit and areas where WFU is not suitable due to social, economic, political, or resource constraints.
- Fire management priorities and treatment criteria.
- Restrictions on fire management practices, if any are needed to protect natural or cultural values.

These elements are briefly summarized below. A complete description of Alternatives A - No Action Alternative, B, C, D, and E - Proposed Plan Amendment are described in Chapter 2, Descriptions of Alternatives.

1.3.1 LANDSCAPE-LEVEL FIRE MANAGEMENT GOALS AND OBJECTIVES

Landscape-level fire management goals and objectives are described for the 12 specific vegetation cover types identified in the planning area. These goals and objectives provide programmatic direction for the field offices to maintain or make progress toward Desired Future Conditions (DFC) for areas within the planning area, in which:

- Wildland fire should occur less frequently and at a smaller scale.
- Wildland fire should occur more frequently across the landscape.
- Wildland fire should remain within the historical range of variability.

Ultimately, vegetation cover types would be maintained at or improved toward Fire Regime Condition Class (FRCC) 1. FRCC is an indicator of fire risk to key ecosystem components. A full description of FRCC is given in Section 3.2, Vegetation Resources and Fire's Natural Role (Issue 1).

1.3.2 SUITE OF MANAGEMENT ACTIONS THAT CAN BE USED TO MEET DESIRED FUTURE CONDITIONS (DFC)

The following sections describe types of activities that would be used to achieve the desired future conditions for vegetation identified in this effort. The intent of this LUP amendment is to

allow for the use of various fire and related vegetation treatments to occur on lands not meeting desired vegetative conditions as priority, opportunity, and funding allow. As such, this fire management direction amendment (FMDA) identifies areas suitable or non-suitable for various treatments (suitable identifies those areas where that activity could occur but that actual implementation appropriateness would be verified through site-specific project analysis). For example, this effort may identify broad areas where RxFire or wildland fire use is suitable; however, site specific analysis may identify other resource concerns that would make another treatment activity, such as mechanical thinning, more appropriate. For these reasons, this FMDA does not allocate or designate minimum, maximum, or specific treatment acres. However, to display relative differences in alternatives and their effects, an estimated treatment level over a 10-year period is quantified. This treatment level is not intended as a target or a not-to-exceed value, and actual on-the-ground treatments may meet, exceed, or fall short of this level based on priorities, opportunities, and funding.

1.3.2.1 Wildland Fire

A wildland fire is an unplanned fire, either lightning-caused or human-caused, against which suppression actions are taken using an appropriate management response. Within the planning area, if a wildland fire exceeds initial attack capabilities, an appropriate management strategy, consistent with the Wildland Fire Siutation Analysis (WFSA), would be chosen based on wildland fire-fighter safety, suppression cost, and resource objectives.

1.3.2.2 Fire Vegetation Treatments

1.3.2.2.1 Wildland Fire Use (WFU)

WFU is a pre-planned vegetation treatment that involves taking advantage of a naturally-ignited wildland fire in an area where fire would benefit resources.

In suitable areas, WFU could be conducted within the planning area needing treatment after a site-specific plan and National Environmental Protection Act (NEPA) analysis are completed, and only if predetermined prescriptive parameters (e.g., weather/fire behavior) can be met. Until this planning and NEPA analysis are accomplished, wildland fires would be suppressed using an appropriate management response.

1.3.2.2.2 Prescribed Fire Treatments (RxFire)

An RxFire is a pre-planned, management-ignited fire designed to meet specific resource objectives, such as reducing fuel loads, preparing a site for chemical treatment or seeding, or promoting vegetation regeneration.

In the planning area, RxFires could be performed anywhere that specific fire prescriptions can be met and fire risks to resources and public health and safety are mitigated after site-specific planning and NEPA analysis. RxFire would be used to reduce undesirable species and hazardous fuels conditions in Low-elevation Shrub (especially areas dominated by cheatgrass, in preparation for chemical and seeding treatments), to reduce juniper encroachment on Mid-elevation Shrub, reduce conifer encroachment into decadent aspen stands, and rejuvenate decadent Mountain Shrub.

1.3.2.3 Non-fire Vegetation Treatments

1.3.2.3.1 Chemical

Chemical treatments involve applying herbicides to control invasive species/noxious weeds and/or unwanted vegetation. To meet resource objectives in the planning area, the preponderance of chemical treatments would be used in areas where cheatgrass or other invasive species or noxious weeds have invaded sagebrush steppe. In these areas, fine fuel loads are extremely high due to cheatgrass dominance of the understory. The effectiveness of chemical treatments increases if they are applied following RxFire or wildland fire.

1.3.2.3.2 Mechanical

Mechanical treatments include mowing, chaining, chopping, drill seeding, and cutting vegetation. To meet resource objectives within the planning area, the majority of mechanical treatments would occur in areas where conifer/shrub densities or invasive species need to be reduced, often prior to RxFire application; when fire risk to resources is too great to use WFU or RxFires; or where opportunities exist for biomass utilization or timber harvest. Examples include:

- Mountain shrub or juniper encroachment areas adjacent to WUI areas.
- Crucial wildlife habitat (e.g., sage grouse key habitat).
- Vegetation cover types in which burning would increase the likelihood of cheatgrass invasion (e.g., juniper encroachment into Mid-elevation Shrub).
- Juniper or Aspen/Conifer cover types in which the use of trees may be desirable.

1.3.2.3.3 Seeding

Seeding treatments include applying grass, forb, or shrub seed (either aerially or from the ground) and planting shrub and tree seedlings. Native species would be used where appropriate and practical. In areas of gentle terrain, ground applications of seed are often accomplished with a rangeland drill. Seeding allows the establishment of a perennial-dominated vegetation cover type, thereby decreasing the risk of subsequent invasion by undesirable non-native grasses.

Within the planning area, seeding would be used primarily as a follow-up treatment.

1.3.2.4 Post-fire Rehabilitation: Emergency Stabilization and Rehabilitation (ESR)

Actions associated with ESR are reactive and occur following a wildland fire:

- Emergency stabilization actions are implemented within one year of a fire. Their purpose is to stabilize and prevent unacceptable degradation of natural and cultural resources; to minimize threats to life or property resulting from the effects of fire; or to repair, replace, or construct physical improvements necessary to prevent degradation of land or resources.
- Rehabilitation actions are implemented within three years of a fire. Their purpose is to repair or improve affected lands unlikely to recover to a management-approved condition on their own, or to repair or replace minor facilities damaged by fire.

1.3.2.5 Restoration: Restoration Actions on BLM-administered Lands

Treatment actions that are not included within ESR are referred to as restoration actions, which are proactive and occur before unplanned wildland fires. Restoration actions usually occur as hazardous fuels reduction treatments to meet management objectives and would consist of one or a combination of the following: RxFire, mechanical, chemical, or seeding treatments identified above.

1.3.3 FIRE MANAGEMENT PRIORITIES AND TREATMENT CRITERIA

Based on human safety and resource protection (i.e., threatened and endangered species) the Proposed Action ranks the following priorities for fire suppression and fuels treatment activities:

- Protect communities-at-risk (WUI areas) where public health and safety is a concern.
- When multiple ignitions occur, use the following criteria for establishing suppression priorities:
  - Risks to sagebrush steppe.
  - Risks to Dry Conifer.

Criteria for establishing vegetation treatments are:

- Sagebrush steppe protection/maintenance (e.g., prioritize treatment to areas that are adjacent to existing sagebrush cover types).
- Sagebrush steppe restoration.
- Aspen/conifer, Mountain Shrub, and Dry Conifer restoration.
- Areas that are at high risk of loss of key ecosystem components.

It is expected that activities would be conducted with the goal of accomplishing all of the above priorities. The criteria are to be followed when fire suppression resources or funding for projects are limited.

1.3.4 RESTRICTIONS ON FIRE MANAGEMENT PRACTICES

To protect resource values, general restrictions on fire management practices could be applied to both fire suppression and fuels treatment projects. Restrictions and guidelines were developed to protect the following resources:

- Cultural Resources and Historic Trails
- Special Management Areas
- Riparian Areas
- Soils
- Water Quality
- WUI
- Threatened, Endangered and Sensitive (TES) Species
- Wildlife
- Native Vegetation
- Visual Resources
- Air Quality
- Hazardous Materials and Abandoned Mines Management

Restrictions and guidelines vary by location and are structured to allow the local manager the flexibility to apply them as appropriate, based on resource conditions, weather factors, and operational capability. Full descriptions of these restrictions and guidelines are provided in Appendix Q, Management Restrictions.

1.4 IDENTIFICATION OF RELEVANT ISSUES

Comments regarding issues surrounding this project were solicited from tribal governments, the public, and federal, state, and local agencies. Additionally, management concerns were identified through discussions with BLM field office managers and resource specialists. Relevant issues were divided into two categories: (1) those that drove the formulation of alternatives and (2) those that can be addressed within the general context of this EIS and were used to determine the level of analysis for each resource discipline. These issues are described in detail below.

Several issues were raised during scoping that were deemed outside the scope of this EIS analysis. These issues, along with a complete list of public concerns and issues identified during the scoping process can be found in the FMDA Content Analysis (BLM 2002a).

1.4.1 ISSUES DRIVING DEVELOPMENT OF ALTERNATIVES

During internal, public, and agency scoping, two issues were identified that suggested a need for alternatives. These issues and the means of addressing them via alternatives are summarized below.

***Issue 1*: What fire and non-fire vegetation treatment levels for the Upper Snake River Plain ecosystem would best meet the goals of the Cohesive Strategy?**

The Proposed Action does not fully incorporate the recommended level of treatment in the national-scale program option outlined in the draft *Cohesive Strategy for Protecting People and Sustaining Natural Resources* (U.S. Forest Service [USFS] 2000) (hereafter, Cohesive Strategy). Additionally, the Proposed Action does not directly address the goals and priorities identified in both the Cohesive Strategy and the 10-year Comprehensive Strategy, (USFS 2000[2]; USDI and USDA 2001). The goals of the Cohesive Strategy/10-year Comprehensive Strategy include:

- Improving fire prevention and suppression.
- Reducing hazardous fuels.
- Restoring fire-adapted ecosystems.
- Promoting community assistance.

The Cohesive Strategy, prepared by the U.S. Department of Agriculture (USDA), projects the quantity and rate of fuels reduction treatments required on a landscape scale to restore altered fire regimes and protect communities from wildland fire. Central themes in the Cohesive Strategy/10-year Comprehensive Strategy include the return of fire to its *natural* role in the ecosystem, as well as an aggressive, collaborative approach for reducing wildland fire risk to

[2] Since the development of the Draft EIS, the Cohesive Strategy has been updated (USDA and USDI 2006). The issue, as described in the Draft EIS, is appropriate to both the original and updated Cohesive Strategy.

cover types in fire-prone areas. The Cohesive Strategy estimates that fuels reduction treatments need to be increased fivefold to achieve these goals.

***Issue 2*: The types of treatments under the Proposed Action may negatively affect sage grouse habitat. What effect would different types or levels of treatment have on the sagebrush steppe ecosystem and sagebrush-obligate wildlife species?**

This issue concerns the impact of treatment levels in the Proposed Action on sagebrush and the subsequent impacts to sage grouse and other sagebrush-obligate wildlife species. Treatment could occur in sagebrush, potentially affecting sage grouse habitat and populations.

1.4.2 Issues Driving the Analysis

This section summarizes the general issues that helped determine the pertinent resources and scope to be analyzed during the planning process.

- ***Water Quality, Watershed, Soils, and Riparian Resources:*** What would be the impacts on biological crusts, wind, and water erosion?
- ***Vegetation:*** What would be the impacts on vegetation cover types and/or the spread of noxious and invasive weeds?
- ***Wildlife:*** What would be the impacts on sagebrush steppe wildlife species, as well as big game winter range and calving areas?
- ***T&E Species:*** What would be the impacts on terrestrial and aquatic T&E species?
- ***Fire Management:*** How would each of the alternatives impact wildland fire risk to the WUI, including people and property?
- ***Air Quality:*** What would be the short-term and long-term impacts on air quality?
- ***Cultural Resources:*** What would be the impacts on significant cultural resources?

1.5 PLANNING CRITERIA AND LEGISLATIVE CONSTRAINTS

Planning criteria were prepared to ensure that decisions made are tailored to the issues pertinent to this programmatic planning effort and to avoid unnecessary data collection or analysis. The criteria identify the legal, policy, and regulatory constraints that direct or limit the BLM's ability to resolve issues; they also help guide the development of alternatives. The criteria were based on standards prescribed by applicable law and regulations; agency guidance; analysis of information pertinent to the planning area; results of consultation with tribal governments, the public, and government agencies; and professional judgment.

The preliminary planning criteria, provided to the public in 2002, were finalized in September 2002. These criteria can be summarized as follows:

- Comply with Federal Land Policy and Management Act (FLPMA) and all other applicable federal and state laws.
- Consult and coordinate with applicable federal, state, local agencies and tribal governments.

- Recognize traditional tribal uses associated with these lands and preserve values important to tribal members.
- Protect federally listed threatened/endangered species and BLM sensitive species.
- Incorporate applicable Biological Opinions, Conservation Agreements, and Strategy Plans.
- Incorporate applicable land health standards and best management practices.
- Manage resources/uses for multiple use and sustained yield.

1.6 DECISIONS TO BE MADE

This EIS would provide sufficient analysis for the Idaho BLM State Director to answer the following questions:

- What fire management goals and objectives should be established at the landscape level for the LUPs in the planning area?
- What management actions should be used to meet DFC?
- What criteria should be used to establish fire management priorities?
- What restrictions are needed to protect natural and cultural values?

It should be noted that this is a programmatic EIS and analyzes broad planning-level direction to guide fire management. Proposed site-specific fire management actions would be analyzed using site-specific NEPA processes that would disclose project impacts at the implementation level.

1.7 RELATIONSHIP OF THE PROPOSED AMENDMENT TO OTHER FIRE MANAGEMENT PLANNING EFFORTS

This proposed LUP amendment would be the foundation for updating FMPs, fire management planning implementation documents, and on-the-ground actions and activities. The LUPs provide direction to the FMPs. This link between FMPs and LUPs is central to the Purpose and Need to amend the LUPs. In addition, guidance for developing FMPs is found in the *Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide* (Forest Service Handbook (FSH 5108).

The FMP prepared at the field office, Planning Area, or regional level provides implementation information for a fire management program. It is a strategic document that defines a program to manage wildland fires based on the associated LUP. The FMP contains all relevant LUP management direction to guide planning, analysis, and implementation of on-the-ground fire management actions and is updated annually to reflect changes in policy, LUP direction, and ground conditions, as well as other changes in the fire management program.

This proposed amendment to the LUPs would also offer direction for applying fire and non-fire vegetation treatments.

1.8 RELATIONSHIP OF THE PROPOSED AMENDMENT TO NON-FIRE MANAGEMENT PLANS AND EFFORTS

The proposed LUP amendment is interrelated with the following existing plans and ongoing efforts within the planning area.

1.8.1 POCATELLO LAND USE PLAN (LUP) REVISION

This FMDA would amend the Pocatello RMP (1988) and the Malad MFP (1981). The PFO is currently preparing a separate revision to these plans, which is scheduled to be completed in fiscal year (FY) 2008. Fire management direction is addressed in the Pocatello RMP revision effort and uses similar goals, objectives, and management actions as described in this plan amendment. This planning effort would not amend the RMP revision.

1.8.2 THE CRATERS OF THE MOON NATIONAL MONUMENT AND PRESERVE

The NPS and the BLM have prepared a joint monument management plan for Craters of the Moon National Monument and Preserve, which was created by Presidential Proclamation 7373 on November 9, 2000. This NPS/BLM planning area is located entirely within the administrative boundary of the FMDA planning area. Fire management planning decisions for Craters of the Moon National Monument and Preserve have been determined through the monument management planning process. Finalizing the FMDA would not amend any decisions nor affect management for the Monument and Preserve.

1.8.3 IDAHO NATIONAL LABORATORY (INL)

The INL is located entirely within the administrative boundary of the USFO. The DOE-ID and the BLM both have management responsibilities within the INL boundaries, as identified in a 2003 Memorandum of Understanding (MOU). While most INL activities are overseen by DOE-ID, certain responsibilities, such as grazing management, remain with the BLM. The INL has primary responsibility for suppressing wildland fires within its administrative boundaries, and BLM provides mutual aid for wildland fire response.

In April 2003, DOE-ID completed the *Final Idaho National Engineering and Environmental Laboratory Wildland Fire Management Environmental Assessment*. DOE-ID has completed a management plan for the Sagebrush Steppe Ecosystem Reserve (SSER) within the INL boundary. DOE-ID is supportive of the BLM's fire management planning effort and agrees that describing the INL lands in this planning document would be beneficial to the two agencies and interested publics.

As identified in the 2003 MOU, the Districts would consult with DOE-ID prior to making any final decisions regarding wildland fire suppression and control that might affect the INL.

1.8.4 INTERIOR COLUMBIA BASIN ECOSYSTEM MANAGEMENT PROJECT

The BLM is guided by a 2003 MOU to use information from the Interior Columbia Basin Strategy to amend and revise RMPs and project implementation on BLM-administered lands

throughout the Interior Columbia Basin. The Interior Columbia Basin Strategy provides guidance for how to incorporate data and resource information developed by the Interior Columbia Basin Ecosystem Management Project (completed in December 2000). The strategy facilitates the use of the project because a basin-scale Record of Decision (ROD) has been neither signed nor expected.

The Interior Columbia Basin Ecosystem Management Project was used in the development of the Purpose and Need for the fire management direction assessed in this EIS, particularly information relating to vegetation management to control cheatgrass invasion and maintain existing sagebrush steppe cover types in the planning area. The BLM has incorporated the science and data from the Interior Columbia Basin Ecosystem Management Project as part of the fire, fuels, and related vegetation management direction.

1.8.5 Tribal Trust Responsibilities

The BLM is responsible for maintaining a formal government-to-government relationship with federally recognized tribal governments. The Shoshone-Bannock Tribal Governments and Shoshone-Paiute Tribal Governments have rights to and cultural/historical affiliation with lands in the planning area. The relationship between the federal government and the tribal governments focuses on ensuring that the legal rights and interests of the tribal governments are upheld and protected, in accordance with relevant treaties, executive orders, legislation, and federal policies. This includes consulting with tribal representatives; identifying and protecting important archaeological, religious, and/or sacred sites; and providing tribal members with appropriate access to these sites.

1.8.6 Vegetation Treatments and Herbicide Use Environmental Impact Statements (EISs)

The BLM prepared a Programmatic Environmental Impact Statement (PEIS) to address vegetation treatments using herbicides on BLM lands in 17 western states (BLM 2007). The Record of Decision (ROD) was signed on September 29, 2007. The PEIS addresses non-herbicide treatment methods, including fire use and mechanical, manual, and biological control methods, to treat hazardous fuel conditions, invasive species, and other unwanted or competing vegetation. Several new herbicide active ingredients were identified that are more effective in treating certain types of vegetation than currently approved herbicide active ingredients. The BLM has determined that the potential for increased use of herbicides, and approval for use of additional herbicide active ingredients on public lands would reduce the risk of uncharacteristic wildfires by reducing harzardous fuel conditions, restoring fire-damaged lands, and improving ecosystem health.

1.8.7 Upper Snake Land Use Plan (LUP) Revision

The USFO is beginning a LUP revision process that would result in replacing existing field office LUPs in 2011/2012. As with the Pocatello RMP revision, the Upper Snake RMP revision would use similar goals, objectives, and management actions as those described in this FMDA.

1.9 PLAN CONFORMANCE

Approval of the ROD for this project would amend fire management direction in all 12 existing LUPs listed in Table 1-2. The new fire management direction presented in the selected alternative would be incorporated into each of the 12 plans, thereby bringing them into compliance with current fire policy and planning direction. Appendix B compares how each alternative would amend each of the existing LUPs when compared to the existing LUPs' direction and current program (i.e., Alternative A – The No Action Alternative). This amendment affects only fire management direction. All other resource management direction in the existing 12 LUPs would still apply.

1.10 CHANGES BETWEEN DRAFT AND FINAL EIS

The Draft Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and Environmental Impact Statement (FMDA) was published in November of 2004 (USDI 2004a). During preparation of the Proposed Plan Amendment and Final Environmental Impact Statement (EIS) several steps have been completed:

- public comments received on the draft plan amendment/EIS have been considered and incorporated into the Final EIS,
- Endangered Species Act (ESA) consultation has been completed with the results also incorporated into the Final EIS.

However, extended timeframes associated with completing the consultation process, coupled with shifting office and personnel priorities away from this planning effort have extended the original timeframe for completion of the amendment. During this period several developments, including new information regarding the planning area and the draft EIS have occurred. The developments and new information pertinent to the FMDA since the Draft EIS was released are:

Applicability of the Data

- Specific on-the-ground conditions have changed since 2004 and there are additional datasets the have been developed since 2004.

Additional BLM Policy and Direction for Management Activities

- A National Sage-Grouse Habitat Conservation Strategy was completed in 2004 (USDI-BLM 2004b), which was supplemented by a Conservation Plan for the Greater Sage-Grouse in Idaho in 2006 (USDI-BLM 2006).
- A National EIS and Record of Decision (ROD) pertaining to vegetation treatments and chemical usage were completed in 2007 (USDI-BLM 2007).
- A Land Use Plan Amendment and ROD for the implementation of a wind energy development program was completed in 2005 (USDI BLM 2005b).
- A programmatic EIS was prepared to evaluate issues associated with the designation of energy corridors on federal lands in eleven western states (USDOE and USDI BLM 2006).

Changes in Administrative Boundaries and Designations

- The Idaho BLM redefined District boundaries after the release of the Draft EIS. Public Law and Presidential Proclamation also changed land management designations in the area with the expansion of the Craters of the Moon National Monument.

These events warranted consideration to validate release of the Final EIS and Proposed Plan Amendment. A Supplemental Information Report (SIR) (Appendix S) was prepared to consider the significance of the new information and to inform the State Director of the adequacy of the existing analysis prior to the issuance of a Final EIS and Proposed Plan Amendment.

The Council of Environmental Quality (CEQ) regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA) state that, "Agencies shall prepare supplements to either draft or final environmental impact statements if …(ii) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 CFR §1502.9(c)(1). Based on the evaluation and analysis documented in the SIR, the new information and developments that have occurred since the issuance of the Draft EIS do <u>not</u> represent significant new circumstances or information (when considered in context and/or intensity) that is relevant to the environmental concerns and bearing on the Draft FMDA that would trigger a supplement as required by the Council on Environmental Quality (CEQ) Section 1502.9. The FMDA analysis is sufficient for the purpose of complete disclosure contemplated under the requirements of NEPA.

CHAPTER TWO - DESCRIPTION OF ALTERNATIVES

2.1 INTRODUCTION

This chapter provides a detailed description of the five alternatives under consideration in this Environmental Impact Statement (EIS): A - No Action, B, C, D, and E - Proposed Plan Amendment. These alternatives address management direction for managing fire, fuels, and related vegetation resources — improving the health of Idaho Bureau of Land Management (BLM)-administered lands by facilitating the return of fire to its natural role in the ecosystem. This would be accomplished using various vegetation management approaches and adaptive management while also considering public safety, fire-fighter safety, protection of property, and communities-at-risk.

A range of alternative actions was developed to address issues and concerns expressed during the public scoping process (see Section 1.4, Identification of Relevant Issues). Five alternatives for this project have been developed with input from agencies and the public and have been evaluated in detail for their potential environmental impacts.

This chapter is organized as follows:

- The role of the BLM and participating agencies (Section 2.2).
- The process of alternative development (Section 2.3).
- The five alternatives and the issues that they were designed to address (Section 2.4).
- New fire direction implementation and the roles of monitoring, evaluation, and adaptive management in that implementation (Section 2.5).
- The alternatives that were considered for further analysis but eliminated, as well as rationales for their elimination (Section 2.6).
- Reasonably foreseeable future actions (Section 2.7) - Reasonably foreseeable future actions include those that have already been approved but not yet implemented, as well as those that can be reasonably anticipated for future proposal and implementation. Reasonably foreseeable future actions are analyzed in conjunction with the alternatives so as to assess cumulative effects.
- Alternatives, potential environmental effects associated with the alternatives, and management restrictions (Section 2.8).

2.2 IDAHO BUREAU OF LAND MANAGEMENT (BLM) COORDINATION

To ensure this EIS is in full compliance with other federal, state, and local agency requirements regarding the proposed fire and fuels management direction and to assist in developing alternatives, the BLM helped form an interdisciplinary (ID) team. The U.S. Fish and Wildlife Service (USFWS) and the Idaho Department of Fish and Game (IDFG) have participated in this planning effort since its initiation. The BLM also received input from Native American Tribes; U.S. Forest Service (USFS); National Parks Service (NPS); Idaho National Laboratory (INL);

Idaho Departments of Agriculture, Lands, Environmental Quality, Parks and Recreation; as well as individuals and local groups.

The BLM has provided the general direction for the ID team discussions, evaluations, and decisions. In conjunction with this direction, the ID team has provided oversight of the analysis process with the role of ensuring that the EIS contains the relevant information to meet the needs of the BLM and all other agencies involved.

2.3 DEVELOPMENT OF ALTERNATIVES

Alternatives considered for detailed analysis in an EIS are subject to a screening evaluation, which is intended to determine whether they meet the purpose and need for the project and whether they reduce potential environmental impacts, in this case to resources such as soil, vegetation, air quality, and health and human safety. Alternatives must also be technologically and economically feasible.

The BLM compiled a comprehensive list of the issues and concerns raised during public scoping (see Section 1.4, Identification of Relevant Issues). Most comments focused on potential environmental impacts and alternative management options. After public scoping, development of potential alternatives to address or incorporate these comments began, with resource-specific input from the BLM and participating agencies. Based on the screening criteria, a number of alternatives were eliminated from consideration (see Section 2.6, Alternatives Considered but Eliminated from Further Environmental Analysis), and five alternatives remain for detailed analysis in the EIS.

Although the resources and activities occurring in the planning area are administered by the BLM, participating agencies with specific concerns provided their input to the alternative development process. For example, the USFWS provided the technical information specific to federally listed threatened and endangered species (T&E) related issues. The BLM used this information in its decision-making process to ensure technically feasible alternatives were considered with regard to T&E species.

2.4 DESCRIPTION OF ALTERNATIVES

In accordance with BLM planning policies, alternatives are described with the same basic elements appropriate to land use plan (LUP)-level decision-making regarding fire management direction. These elements include the following:

- Landscape-level fire management goals and objectives, including desired wildland fire conditions.
- The suite of management actions that can be used to meet Desired Future Conditions (DFC), including areas that are suitable for wildland fire use (WFU) to benefit resources and areas where WFU is not appropriate due to ecological, social, economic, political, or resource constraints (*suitable* identifies those areas where that activity could occur but that actual implementation appropriateness would be verified through site-specific project analysis).

- Criteria used to establish fire management priorities.
- Restrictions on fire management practices, if any are needed to protect natural or cultural values.

Five alternatives have been developed to address the two issues raised during public and agency scoping (as described in Section 1.4, Identification of Relevant Issues) and are analyzed in detail. Each alternative is structured in the following manner:

- Assumptions - formulated to guide the development of each alternative.
- Goals/Objectives and Management Actions - Goals/Objectives related to landscape-level fire management, including DFC for fuels, vegetation, and wildland fire conditions, and management actions, strategies or actions that can be used to meet DFC.
- Prioritization Criteria - criteria for fire management presented in order of priority.
- WFU Areas - areas identified as:
  - Suitable for possible WFU for resource benefit, or
  - Not appropriate for WFU due to social, economic, political, or resource constraints.
- Treatment Levels - identified for analysis purposes for the life of the LUP amendment (until superseded or replaced through subsequent LUP amendments or revisions).
- Management Restrictions - placed on fire management practices (including both wildland fire suppression and fuels management) to protect natural or cultural resource values.

Certain aspects of the five alternatives are common to all alternatives, as well as other actions that are common to all action alternatives; they are summarized in the next section. The unique elements of each alternative are discussed subsequently, and alternatives are summarized in tables at the end of this chapter.

Alternative objectives and broad treatment levels (footprint-acres) are described in terms of treatments to the vegetation cover types found in the planning area. Vegetation cover types include: Low-elevation Shrub (including Perennial Grass and Invasive Annual Grass), Mid-elevation Shrub (including juniper encroachment), Mountain Shrub, Aspen/Conifer, Dry Conifer, Salt Desert Shrub, Vegetated Rock/Lava, Wet/Cold Conifer, and Riparian. Complete descriptions of these vegetation types are given in Section 3.2, Vegetation Resources and Fire's Natural Role (Issue 1).

2.4.1 FOOTPRINT-ACRES AND TREATMENT-ACRES

To aid with comparing the alternatives, treatment levels (footprint-acres) are identified by alternative in Chapter 4, Environmental Consequences. Because some BLM-administered land acres may burn and/or be treated multiple times to achieve management objectives, it is important to understand the difference between the terms footprint-acre and treatment-acre, which are used throughout this document. Footprint-acre(s) refers to a single area or acreage within which some intervention, manipulation, or treatment is/are performed. Treatment-acre(s) refers to the multiple interventions, manipulations, or treatments on the same footprint-acre(s) to achieve management objectives. Footprint-acres of a given area would never be greater than treatment-acres of that same area. However, treatment-acres may be equal to or greater than footprint-acres (Appendix A).

For example, if a farmer wanted to raise potatoes on a 1-acre parcel, he/she would first plant the potatoes, which would be the first pass over the 1-acre parcel. He/she would make a second pass to fertilize, a third pass to spray herbicides, and a fourth pass to harvest the potato crop. The farmer would have worked the same 1-acre (footprint-acre) parcel four times, which is the equivalent of 4 acres (treatment-acres) of treatment.

The following sections describe the activities that would be used to achieve the desired future conditions for vegetation identified in the various alternatives. This LUP amendments would allow for the use of various fire and related vegetation treatments to occur on public lands not meeting desired vegetative conditions as priority, opportunity, and funding allow. As such, this LUP amendment identifies areas *suitable* or *non-suitable* for various treatments (*suitable* identifies those areas where that activity could occur but that actual implementation appropriateness would be verified through site-specific project analysis). For example, this effort may identify broad areas where RxFire or wildland fire use is suitable; however, site specific analysis may identify other resource concerns that would make another treatment activity, such as mechanical thinning, more appropriate. For these reasons, this plan amendment does not allocate or designate minimum, maximum, or specific treatment acres. However, to display relative differences in alternatives and their effects, an estimated treatment level over a 10-year period is quantified. This treatment level is not intended as a target or a not-to-exceed value, and actual on-the-ground treatments may meet, exceed, or fall short of this level based on priorities, opportunities, and funding.

2.4.2 MANAGEMENT COMMON TO ALL ALTERNATIVES

The following elements are common to all five alternatives, including the No Action Alternative, which represents the current situation and reflects what is being implemented in an effort to meet current policy.

2.4.2.1 Management Restrictions

Wildland fire suppression restrictions and restoration/fuels reduction treatment restrictions would be implemented under all alternatives and would be specified in each of the 12 LUP amendments. These restrictions would be applied to suppression activities and vegetation treatment actions with the intent of protecting sensitive resources. All restrictions are intended to prevent significant impacts to natural and human resources and to meet current BLM state or federal policy. This section lists the resource disciplines for which restrictions were developed. Appendix Q describes in detail the management actions to be applied. In the appendix, restrictions are organized according to the resource discipline they affect. Because it is assumed that these restrictions would be applied, they were considered in the analysis of all alternatives.

2.4.2.1.1 Wildland Fire Suppression Restrictions

Suppression restrictions were developed for the following resource disciplines:

- Fire Management
- Cultural Resources and Historic Trails
- Noxious Weeds
- Human life, human communities, infrastructure, and property
- Recreation
- Riparian Areas
- Special Designations (wilderness study areas [WSAs], Areas of Critical Environmental Concern [ACECs])
- Vegetation

2.4.2.1.2 Fire and Non-Fire Vegetation Treatment Restrictions

Fire and non-fire vegetation treatment restrictions would be applied to site-specific restoration and hazardous fuels reduction treatment actions for the following resource disciplines:

- Vegetation
- Air Quality
- Cultural Resources and Historic Trails
- Hazardous Materials and Abandoned Mine Sites
- Livestock Grazing
- Placeholder Species
- Riparian Areas
- Special Management Areas
- Visual Resources
- Wildlife

2.4.2.1.3 Emergency Stabilization and Rehabilitation (ESR) Restrictions

The Field Office Normal Fire Rehabilitation Plans contain ESR restrictions that would be applied to all site-specific ESR actions.

2.4.2.2 Community Assistance/Protection Guidelines

The following community assistance actions would occur consistent with National Fire Plan (NFP) (USDI 2000) policy and would apply to all alternatives, including the No Action Alternative:

- Continue to collaborate with local partners to assess and define Wildland Urban Interface (WUI) areas, update existing mitigation plans, and implement a prevention and education program.
- Work with other federal agencies, state, county, and private entities to update County Mitigation Plans.
- Provide Rural Fire Assistance (RFA), as identified in Mitigation Plans, to rural fire districts. Assess and increase suppression capabilities and effectiveness by providing RFA to local fire suppression organizations.
- Provide planning and implementation assistance to private landowners so hazardous fuels can be reduced as identified in Mitigation Plans.
- Provide funding to implement fire education projects identified in Mitigation Plans.
- To reduce fuel hazards and the threat of wildland fire, including consideration of any local communities-at-risk.

- Continue to collaborate with local partners to assess WUI areas and update existing mitigation plans to implement fuels treatments.

2.4.3 ALTERNATIVE A - THE NO ACTION ALTERNATIVE (CURRENT PLAN DIRECTION)

Alternative A would be consistent with the direction, regulation, and policy of the 12 current LUPs. Non-fire related guidance would continue to be carried forward under the current 12 LUPs until they are revised.

The No Action Alternative (Alternative A) management direction described herein is a summary of management direction from the 12 existing LUPs to be amended by this planning process. The summarized management direction from existing plans is described using present-day terminology. The No Action Alternative management direction was developed this way for analysis and to facilitate comparison of alternatives. Appendix B identifies the specific fire management direction in each existing LUP that would continue under Alternative A.

This alternative emphasizes wildland fire suppression and does not allow for WFU. Therefore, consistent with current management, this alternative focuses on reactive stabilization and rehabilitation treatments following wildland fire (approximately 52 percent of footprint-acres in this alternative), as opposed to proactive restoration treatments (approximately 48 percent of footprint-acres in this alternative). Treatment levels were projected for the next 10 years based on the average annual treatments that have occurred over the past 10 years.

Vegetation treatments would continue to be conducted on a small scale and would emphasize benefits to specific resources (e.g., livestock forage or wildlife habitat). Though the current LUPs address the need for vegetation treatments, they generally lack specific guidance for WFU, restoration actions, hazardous fuels reduction, and WUI protection. The activities detailed in current LUPs are being undertaken in response to new regulations, policy, and national direction. These types of activities are compatible with other existing LUP program goals/objectives, and the existing LUPs do not preclude these activities.

No areas are designated as suitable for WFU in this alternative (Figure 2-1). Some of the existing LUPs do, however, allow the use of limited fire suppression. Current LUPs that identify limited suppression areas are the Cassia, Monument, Medicine Lodge, and Pocatello resource management plans (RMPs) and the Twin Falls, Big Desert, and Little Lost Birch Creek management framework plans (MFPs). (For more specific information, refer to the appropriate plan). Current high priorities are rehabilitation and restoration.

2.4.3.1 Alternative A - Assumptions

Over a 10-year period, up to approximately 250,200 footprint-acres would be treated under this alternative, assuming past treatment levels continue at the same rate in the future.

2.4.3.2 Alternative A - Goals/Objectives and Management Actions

Goal/Objective 1 - Emphasize protection from and rehabilitation after wildland fire within the WUI.

Management Actions

- Use suppression to safely manage and suppress wildland fires.
- Use mechanical, chemical, and seeding treatments for rehabilitation following wildland fire.
- In cooperation with state, county, and local governments and fire departments, develop mitigation plans and implement plan actions, including fuels reduction projects, rural fire department assistance, and public education.

Goal/Objective 2 - Reduce fine fuels and undesirable non-native plants and create perennial cover types so that wildland fires occur less frequently and at a smaller scale.

Management Actions

- Suppress all wildland fires in Low-elevation Shrub to protect areas where sagebrush dominates to minimize fire size.
- Following wildland fire, use chemical, mechanical, and seeding treatments with appropriate plant materials to attempt to stabilize sites and prevent dominance of invasive annual vegetation and noxious weeds. Plant materials would be native where appropriate and practical.
- Use RxFire to prepare areas for subsequent chemical, mechanical, and/or seeding treatments.

Goal/Objective 3 - Conduct fire and non-fire vegetation treatments in Mid-elevation Shrub, Juniper, Dry Conifer, Aspen/Conifer, and Mountain Shrub.

Management Actions

- Use mechanical, chemical, seeding, or RxFire treatments to meet resource management objectives.
- Remove encroaching or mature juniper using chemical, mechanical, and RxFire treatments to re-establish, maintain, or enhance Mid-elevation Shrub cover types.

2.4.3.3 Alternative A - Prioritization Criteria

Suppression priorities when multiple wildland fire ignitions occur include:

- Protect human life (the single, overriding priority).
- Protect human communities, community infrastructure, other property, and improvements.
- Protect cultural and natural resources based on the values to be protected, human health and safety, and costs of protection. *Once people are assigned, these human resources become the highest value to be protected.*

Other priorities would support BLM wildland fire policy and the existing LUPs and would be reflected in all Wildland Fire Situation Analyses (WFSAs). Overarching priorities for the planning area include:

- Protect WUI, including municipal watersheds.
- Protect stronghold, isolated, and key sage-grouse habitat.
- Protect cultural and natural resources, including special status species (SSS) habitat.
- Minimize the cost of wildland fire suppression.

Priorities for establishing fire and non-fire vegetation treatments include:

- Use RxFire and non-fire fuels treatments to improve or enhance Fire Regime Condition Class (FRCC) 2 and FRCC 3 acres where public/firefighter safety or WUI are at risk. A full description of FRCC is given in Section 3.2, Vegetation Resources and Fire's Natural Role (Issue 1).
- Use RxFire and non-fire fuels treatments to maintain FRCC 1 acres where hazardous fuels pose a risk to public or firefighter safety.
- Use RxFire and non-fire fuels treatments to improve or enhance FRCC 2 or FRCC 3 acres where sage-grouse habitat is at risk.
- Use RxFire and non-fire fuels treatments to improve or enhance FRCC 2 or FRCC 3 acres where wildlife areas of concern are at risk.
- Use RxFire and non-fire fuels treatments to improve or enhance FRCC 2 or FRCC 3 acres where other resources are at risk.

Fire management plans (FMPs) would re-visit both suppression and vegetation treatment priorities for resources when updated.

2.4.3.4 Alternative A - Wildland Fire Use (WFU) Areas

No acres in the planning area are identified as suitable for WFU for resource benefit.

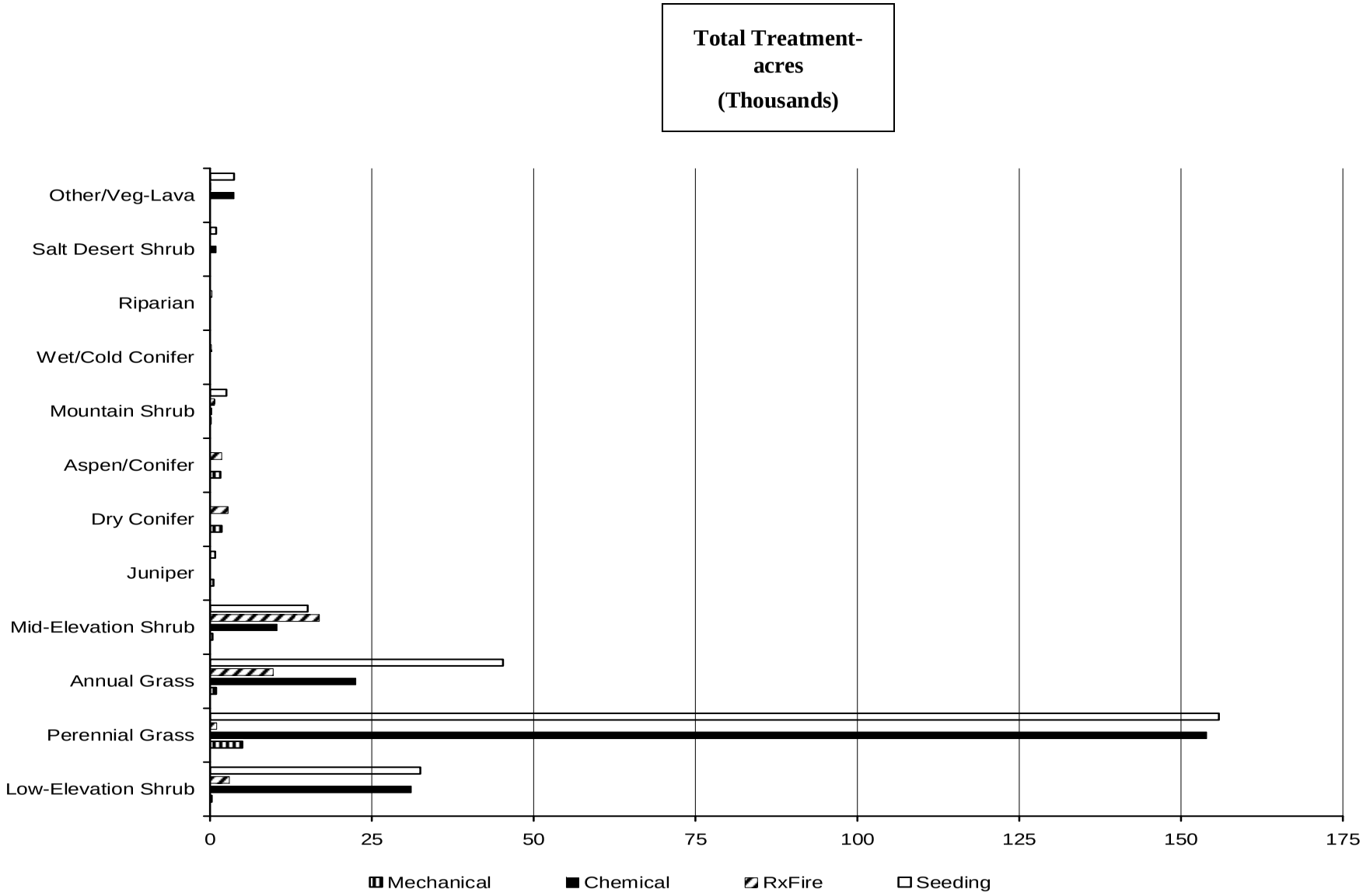
2.4.3.5 Alternative A - Treatment Levels

To implement Alternative A, approximately 250,200 footprint-acres would be treated over a 10-year period. Table 2-1 summarizes the total number of acres proposed in Alternative A by treatment type. Table 2-2 identifies the vegetation type/acres and footprint-acres and graphically illustrates the broad treatment levels (treatment-acres) for the various treatment methods (i.e., mechanical and chemical treatment, RxFire, and seeding). The locations of areas that are suitable/not suitable for WFU are shown in Figure 2-1.

TABLE 2-1. PLANNING AREA TOTAL FOOTPRINT AND TREATMENT ACRES BY TREATMENT TYPE, ALTERNATIVE A

Footprint Acres	Wildland Fire Use	Mechanical	Chemical	RxFire	Seeding
250,200	0	10,700	223,000	36,600	256,800

TABLE 2-2. ALTERNATIVE A - VEGETATION TYPE AND 10-YEAR TOTAL TREATMENT ACRES BY TREATMENT TYPE



2.4.3.6 Alternative A - Management Restrictions

Alternative A would have identical management restrictions to those common to all alternatives previously described in Section 2.4.2.1, Management Restrictions, and detailed in Appendix Q with the exception of fire suppression restrictions for threatened, endangered, and candidate species. Given Alternative A, fire management restrictions taken from a concurrence letter received from the USFWS on June 20, 2006 would not apply (Appendix O, Final Biological Assessment and USFWS Concurrence Letter). Planning area wide, the resource advisor would ensure emergency consultation is initiated with the USFWS whenever suppression activities impact T&E habitats.

2.4.4 MANAGEMENT ACTIONS COMMON TO ALL ACTION ALTERNATIVES

The following elements are common to all four action alternatives and include goals, DFC, prioritization criteria, and management restrictions that do not apply to the No Action Alternative. Goals and objectives are as follows:

- Protect and enhance sage grouse stronghold habitats.
- Protect and enhance key ecological components in plant and animal communities.
- Considered mechanical and/or chemical treatments first where fire is not an appropriate tool due to risk to life, property, or resource impacts.
- Move all vegetation types toward DFC.

2.4.5 DESIRED FUTURE CONDITION (DFC)

DFC is considered a management objective. For the purposes of this analysis, it indicates the proportional distribution of vegetation age classes/successional stages across the landscape. Each vegetation age class represents different vegetation species composition. Attaining a DFC within a vegetation type promotes a healthier and more diverse vegetation structure and composition, and returns the currently altered fire regimes to a fire regime that more closely parallels the historical fire regime.

In this analysis, DFC was determined by considering historical fire frequency, vegetation response time following disturbance, and the current condition of the vegetation. Uncharacteristic vegetation (e.g., cheatgrass [*Bromus tectorum*], invasive species, noxious weeds), which compose portions of the DFC (Table 2-3), would be treated but is expected to remain a part of vegetation cover types.

Because the attributes used to determine DFC were modeled and estimated using scientific literature and local expertise, the age class distribution for a given DFC should not be viewed as a target. The DFC age class percentage, when compared to the current age class percentage, indicates a desired trend. For example, if it is identified that approximately 20 percent of a vegetation type is dominated by shrub/grass (>30 years old), and the DFC indicates 50 percent, the desired trend is to create more shrub/grass (>30 years old) over time with the proposed management actions. The primary objective of the action alternatives is to meet the management goals. Specific DFC percentages were developed so the action alternatives could be compared

quantitatively and in a relative manner. Assumptions and calculations made to determine DFC are discussed in Appendix C.

DFC varies among vegetation types and is an objective of Alternatives B, C, D, and E. Management goals and DFC for the vegetation cover types in the planning area are presented in Table 2-3.

TABLE 2-3. PROPOSED MANAGEMENT GOALS AND DESIRED FUTURE CONDITION (DFC) FOR VEGETATION COVER TYPES IN THE UPPER SNAKE, POCATELLO, BURLEY, AND SHOSHONE FIELD OFFICES

Management Goals	DFC	
	Vegetation/Fuels Age Classes	Percent in DFC
Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass		
Increase the number of acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape.	Perennial Grass: <15 years old Grass/shrub mix: 15-30 years old Shrub/grass mix: >30 years old	14% 14% 52%
Decrease the number of acres with more than 10% cheatgrass cover and/or weeds.	Cheatgrass/weeds	<20%
Mid-elevation Shrub (Including Juniper Encroachment Acres)		
Increase the number of acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape.	Perennial Grass: <5 years old Grass/shrub mix: 5-15 years old Shrub/grass mix: >15 years old	23% 45% 23%
Decrease the acres of Mid-elevation Shrub encroached upon by juniper, and/or any other undesirable species present.	Juniper encroachment Cheatgrass/weeds	7% 2%
Increase acres burned to more closely approximate the historical fire regime. Improve composition and structure of Mid-elevation Shrub types to better represent historical sagebrush steppe cover types.		
Mountain Shrub		
Increase the acres of early-seral and mid-seral stages. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape.	Perennial grass/shrub: <10 years old Shrub/Perennial Grass: 10-20 years old Shrub dominated: >20 years old	33% 33% 33%
Increase acres burned to more closely approximate the historical fire regime. Improve composition and structure of Mountain Shrub types to better represent historical Mountain Shrub cover types.		

TABLE 2-3. PROPOSED MANAGEMENT GOALS AND DESIRED FUTURE CONDITION (DFC) FOR VEGETATION COVER TYPES IN THE UPPER SNAKE, POCATELLO, BURLEY, AND SHOSHONE FIELD OFFICES

Management Goals	DFC	
	Vegetation/Fuels Age Classes	Percent in DFC
Aspen/Conifer and Dry Conifer		
Increase acres of early-seral and mid-seral Aspen/Conifer and Dry Conifer cover types (pure aspen and Aspen/Conifer mix). Spatial arrangement of varying age-classes should occur in a mosaic across the landscape.	Aspen: <30 years old Aspen/Conifer mix: 30-50 years Dry Conifer: >50 years old	40% 40% 20%
Increase acres burned to more closely approximate the historical fire regime. Improve composition and structure of Aspen/Conifer and Dry Conifer types to better represent historical Aspen/Conifer and Dry Conifer cover types.		
Salt Desert Shrub		
Maintain or increase acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape.	Perennial Grass: <30 years old Shrub/Grass/Bare Ground Mix: >30 years old	20% 76%
Decrease acres with cheatgrass, weeds, and/or other undesirable species present.	Cheatgrass/weeds	4%
Maintain fire frequency and size to approximate the historical fire regime. Maintain or improve Salt Desert Shrub types to better represent those historical cover types.		
Vegetated Rock/Lava		
Maintain or increase acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape.	Perennial Grass Rock/Shrub/Grass/Tree mix	6% 80%
Decrease acres with cheatgrass, weeds, and/or other undesirable species present.	Cheatgrass/weeds	<14%
Maintain fire frequency and size to approximate the historical fire regime. Maintain Vegetated Rock/Lava types to better represent those historical cover types.		
Wet/Cold Conifer		
Maintain the mix of early, mid, and late seral stands of lodgepole pine forest.	Shrub/grass: <30 years old Shrub/tree: 30-75 years old Tree-dominated: >75 years old	30% 44% 26%
Maintain fire frequency and size to approximate the historical fire regime. Maintain or improve Wet/Cold Conifer types to better represent those historical cover types.		

TABLE 2-3. PROPOSED MANAGEMENT GOALS AND DESIRED FUTURE CONDITION (DFC) FOR VEGETATION COVER TYPES IN THE UPPER SNAKE, POCATELLO, BURLEY, AND SHOSHONE FIELD OFFICES

Management Goals	DFC	
	Vegetation/Fuels Age Classes	Percent in DFC
WUI		
Decrease fire frequency and size in the vicinity of the WUI to protect public and fire-fighter safety, public resources, and private lands.	Decrease fire hazard from high to moderate or low by implementing vegetation treatments and actions outlined in County/Community Mitigation Plans.	

2.4.5.1 Prioritization Criteria

Following are the top two priorities under all four action alternatives:

1. Fire-fighter and public safety are the first priority in response to fire suppression. At no time would the activities described in this EIS compromise fire-fighter and public safety.
2. The protection of property and WUI is the second top priority.

WUI areas are identified in the National Fire Plan as requiring protection and are common to all alternatives. Communities-at-risk in the WUI were identified in the Federal Register (66FR751 8/17/2001) and are assessed via County/Community Mitigation plans and initiated by interagency planning efforts. The National Fire Plan mandates that priority be given to protecting these communities from wildland fire and to preventing fires that start on private lands from spreading to BLM-administered lands. Vegetation treatments in and around WUI areas would be conducted with the goal of reducing fire hazard. This goal would not necessarily contribute to progress towards FRCC 1.

Vegetation treatment priorities in non-WUI areas would vary by field office as vegetation types vary across the planning area. In general, vegetation treatment priorities include the following:

- Diversify Perennial Grass to speed reestablishment of sagebrush cover.
- Enhance structural and species diversity in degraded Low-elevation sagebrush steppe.
- Reduce shrub and juniper density in Mid-elevation Shrub.
- Reduce invasive species or noxious weeds in all vegetation types.
- Rejuvenate aspen stands, reduce insect infestation and disease, and create a diversity of forest successional stages across the landscape.
- In Mountain Shrub, rejuvenate old, decadent shrubs and increase cover and density of desirable herbaceous species.

2.4.5.2 Management Restrictions

Wildland fire suppression restrictions and restoration/fuels reduction treatment restrictions would be implemented under all four action alternatives and would be specified in each of the 12 LUP

amendments. These restrictions would be applied to suppression activities and vegetation treatments with the intent of protecting sensitive resources. They include those listed in a concurrence letter received from the USFWS on June 20, 2006 (Appendix O, Final Biological Assessment and USFWS Concurrence Letter) to protect threatened, endangered, and candidate species. However, as wildland fire suppression is generally considered an emergency action, the agency administrator could choose to override the restrictions to protect life, property, or valuable resources. All restrictions are intended to prevent significant impacts to natural and human resources and to meet current BLM state or federal policy. This section lists the resource disciplines for which restrictions were developed. Appendix Q describes in detail the management actions to be applied. In the appendix, restrictions are organized according to the resource discipline they address. Because it is assumed that these restrictions would be applied, they were considered in the analysis of all action alternatives

2.4.5.2.1 Wildland Fire Suppression Restrictions

Suppression restrictions were developed for the following resource disciplines:

- Fire Management
- Cultural Resources and Historic Trails
- Hazardous Materials
- Noxious Weeds
- Recreation
- Riparian Areas
- Special Designations (WSAs, ACECs)
- Threatened, Endangered, and Candidate Species
- Vegetation

2.4.5.2.2 Fire and Non-Fire Vegetation Treatment Restrictions

The fire and non-fire vegetation treatment restrictions would be applied to site-specific restoration and hazardous fuels reduction treatment actions for the following resource disciplines:

- Vegetation
- Air Quality
- Cultural Resources and Historic Trails
- Hazardous Materials and Abandoned Mine Sites
- Livestock Grazing
- Placeholder Species
- Riparian Areas
- Special Management Areas
- Threatened, Endangered, and Candidate Species
- Visual Resources
- Wildlife

2.4.5.2.3 Emergency Stabilization and Rehabilitation (ESR) Restrictions

The Field Office Normal Fire Rehabilitation Plans contains ESR restrictions that would be applied to all site-specific ESR actions.

2.4.6 ALTERNATIVE B

Alternative B would incorporate new policy, guidance, and changes brought about by the National Fire Plan (USDI 2000), which has been developed since the existing LUPs were approved. This alternative emphasizes the increased use of fire, including RxFire and WFU, to more closely approximate historical fire regimes and to prepare sites for restoration treatments.

Post-wildland fire treatments would be used to stabilize and rehabilitate areas in Low-elevation Shrub, with a focus on treating Invasive Annual Grass and Mid-elevation Shrub cover types, where juniper encroachment is a problem. Restoration treatments would be used primarily in Low-elevation Shrub (including Invasive Annual Grass), Aspen/Conifer, Dry Conifer, Mountain Shrub, and Mid-elevation Shrub encroached by juniper. Treatment levels would be limited by existing operational capabilities and resources.

Alternative B considers about 3.3 million acres suitable for WFU (see Figure 2-1). Within the 3.3 million acres, 112,000 acres are the estimated maximum number of WFU acres that would be implemented over a 10-year period, given lightning fire frequency within the vegetation types where WFU is proposed. WFU areas were designated by field office personnel where it was determined that WFU could benefit resources and help attain management goals. In general, WFU would not be used where there are SSS or critical wildlife habitats, past rehabilitation treatments, small tracts of BLM-administered land, or public health and safety concerns.

2.4.6.1 Alternative B - Assumptions

Over a 10-year period under this alternative, up to approximately 646,000 footprint-acres would be treated (approximately three times the acreage in Alternative A).

Full suppression is the appropriate management response where life and property are at risk or in Low-elevation Shrub. The full spectrum of management responses would be allowed in other vegetation cover types. Restoration would be emphasized (approximately 80 percent of footprint-acres) while conducting rehabilitation (approximately 20 percent of footprint-acres), as needed.

2.4.6.2 Alternative B - Goals/Objectives and Management Actions

Goal/Objective 1 - Make progress toward DFC in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass cover types, where wildland fire should occur less frequently and at a smaller scale.

Management Actions

- Use the appropriate management response to safely manage wildland fire and reduce the number of acres burned to a level similar to the historical regime. The appropriate management response in Low-elevation Shrub is suppression of all wildland fire starts to protect existing and restored sagebrush cover types.
- Conduct fuels and restoration projects in areas invaded by or at risk of being invaded by annual, non-native vegetation, and noxious weeds.
- Following WFU and RxFire treatments, use chemical, mechanical, and seeding treatments with appropriate plant materials to attempt to stabilize sites and prevent

dominance of invasive, annual vegetation, and noxious weeds. Use native plant materials where appropriate and practical.

- Allow WFU and RxFire in areas dominated by annual species following site-specific NEPA analysis.

Goal/Objective 2 - Make progress toward DFC in the Mid-elevation Shrub, Juniper, Dry Conifer, Aspen/Conifer, and Mountain Shrub vegetation types, where wildland fire should be occurring more frequently on the landscape.

Management Actions

- Use the appropriate management response to safely manage wildland fires.
- Allow fire use following site-specific NEPA analyses.
- Design vegetation treatments to mimic the effect of historical fire on vegetation structure and composition.
- In Mid-elevation Shrub, conduct RxFire and chemical, mechanical, and seeding treatments in all areas invaded by or at risk of being invaded by annual, non-native vegetation, and noxious weeds.
- Maintain or restore Mid-elevation Shrub cover types, using chemical, mechanical, and RxFire treatments to remove encroaching or mature juniper.
- Following wildland fire, WFU and RxFire treatments, use chemical, mechanical, and seeding treatments with appropriate plant materials to attempt to stabilize sites and prevent dominance of invasive, annual vegetation, and noxious weeds. Use native plant materials where determined to be appropriate and practical at the project-implementation level.

Goal/Objective 3 - Maintain or make progress toward DFC in the Wet/Cold Conifer and Salt Desert Shrub cover types and in vegetation types where fire frequencies are within the historical range of variability.

Management Actions

- Use the appropriate management response to safely manage and suppress wildland fires.
- Allow WFU in Vegetated Rock/Lava. Current policy and appropriate NEPA requirements would be followed prior to implementation.
- Generally limit projects in Salt Desert Shrub, Vegetated Rock/Lava, and Wet/Cold Conifer cover types to chemical treatments to control noxious weeds and invasive species.

2.4.6.3 Alternative B - Prioritization Criteria

When multiple wildland fire ignitions occur, the criteria for establishing suppression priorities would follow the two prioritization criteria described under Section 2.4.4.1, followed by the following prioritization:

- Minimize risks to sagebrush steppe.
- Minimize risks to Dry Conifer.

Criteria for establishing vegetation treatments are:

- Protect/maintain sagebrush steppe. Prioritize treatment to areas that are adjacent to existing sagebrush cover types.
- Restore sagebrush steppe.
- Restore Aspen/Conifer, Mountain Shrub, Dry Conifer.
- Protect areas of key ecosystem components that are at high risk of loss.

2.4.6.4 Alternative B - Wildland Fire Use (WFU) Areas

Approximately 2.9 million acres across the planning area would be identified as suitable for WFU for resource benefit, and approximately 2.1 million acres would be identified as not suitable/appropriate for WFU due to ecological, social, economic, political, or resource constraints. The locations of areas that are suitable/not suitable for WFU are shown in Figure 2-1. Appendix D identifies the specific suitable/not suitable acres by field office.

2.4.6.5 Alternative B - Treatment Levels

To implement Alternative B, 646,000 footprint-acres would be treated over a 10-year period. Table 2-4 summarizes treatment acres by treatment type for Alternative B. Table 2-5 identifies the vegetation type/acres and footprint-acres and graphically illustrates the broad treatment levels (treatment-acres) for the various treatment methods (i.e., WFU, mechanical and chemical treatment, RxFire, and seeding).

TABLE 2-4. PLANNING AREA TOTAL FOOTPRINT AND TREATMENT ACRES BY TREATMENT TYPE, ALTERNATIVE B

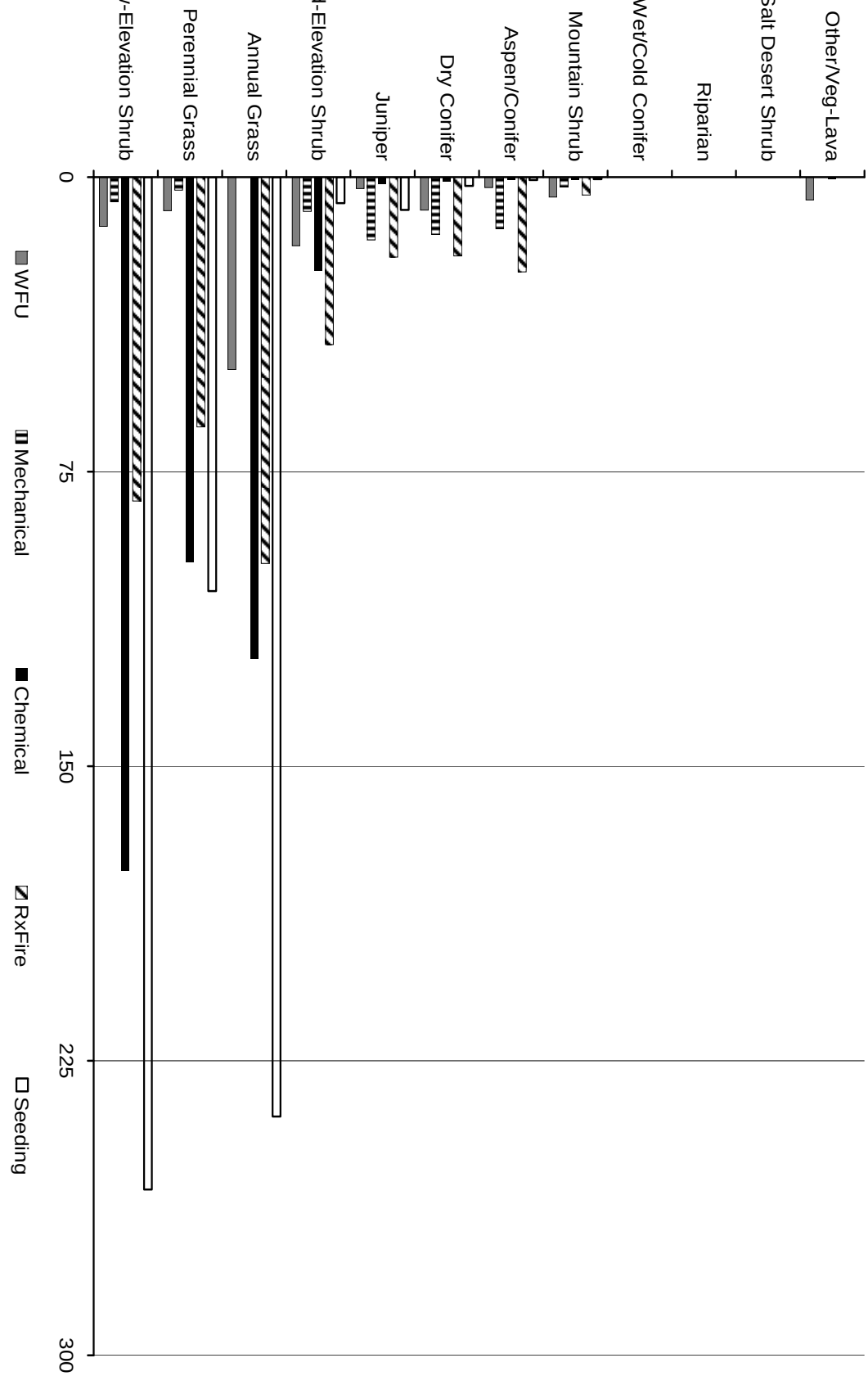
Footprint Acres	Wildland Fire Use	Mechanical	Chemical	RxFire	Seeding
646,000	112,200	64,300	426,100	356,000	620,900

Alternative B treatment levels were determined by field office staff considering the intent of this alternative, which is to increase the use of fire, including RxFire and WFU, to more closely approximate historical fire regimes and to prepare sites for restoration treatments.

2.4.6.6 Alternative B - Management Restrictions

Alternative B would have identical management restrictions to those common to all alternatives previously described in Section 2.4.2.1, Management Restrictions, and detailed in Appendix Q.

TABLE 2-5. ALTERNATIVE B – VEGETATION TYPE AND 10-YEAR TOTAL TREATMENT ACRES BY TREATMENT TYPE



2.4.7 ALTERNATIVE C

This alternative was designed to address Issue 1 (found in Section 1.4.1, Issues Driving Development of Alternatives):

> *What fire and non-fire vegetation treatment levels for the Upper Snake River Plain ecosystem would best meet the goals of the Cohesive Strategy?*

The goals of the Cohesive Strategy and 10-year Comprehensive Strategy include:

- Improve fire prevention and suppression.
- Reduce hazardous fuels.
- Restore fire-adapted ecosystems.
- Promote community assistance.

Treatment levels, treatment locations, and priorities were developed with these goals in mind. The emphasis of Alternative C is to replicate historical disturbance and succession patterns for the vegetation types in the planning area using fire, mechanical and chemical treatments, and adopting the goals and priorities set in the Cohesive Strategy.

Alternative C considers about 1.7 million acres suitable for WFU (see Figure 2-2). Within the 1.7 million acres, 130,000 acres are the estimated maximum number of WFU acres that would be implemented over a 10-year period given lightning fire frequency in the vegetation types where WFU is proposed. In this alternative, WFU areas were determined considering the natural fire regime of each vegetation types, including average fire frequency and size. WFU would be emphasized in Aspen/Conifer, Dry Conifer, Juniper, Mid-elevation Shrub, Mountain Shrub, Vegetated Rock/Lava, and Wet/Cold Conifer vegetation cover types in which it was determined that WFU could benefit resources and help attain management goals.

This alternative also proposes to decrease the occurrence of wildland fire in the Low-elevation Shrub (including Perennial and Invasive Annual Grass) cover type using aggressive, proactive restoration, and post-fire rehabilitation of areas dominated by Invasive Annual Grasses. Approximately 91 percent of the footprint-acres of these vegetation types would be restored, and approximately 9 percent of their footprint-acres would be rehabilitated.

This alternative was developed using the following approach:

- Replicate historical disturbance patterns and successional patterns as closely as possible by applying vegetation treatments.
- Maintain treatment levels at the same rate as the historical fire rotation for each vegetation type (i.e., the acreage treated over 10 years corresponding to the burned acreage expected over 10 years under historical conditions).
- After 10 to 15 years of treatment, ensure that wildland fires burn less frequently and burn smaller acreages than they currently do in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass cover types. This shift would be due to:

- More proactive restoration in areas dominated by non-native annual species.
- More treatments following wildland fire in areas invaded by, or with the potential to be invaded by undesirable non-native annual species.
- Strategic placement of restoration treatments to protect Low-elevation Shrub cover types.

2.4.7.1 Alternative C - Assumptions

Over a 10-year period, under this alternative, up to approximately 1,687,000 footprint-acres would be treated (approximately seven times the acreage in Alternative A).

Alternative C differs from Alternative B in two major ways: (1) Alternative C would treat all cover types to a level that returns the fire regime to the range of historical variability, and (2) Alternative C would not be limited by existing operations capabilities and resources.

2.4.7.2 Alternative C - Goals/Objectives and Management Actions

Goal/Objective 1 - Make progress toward DFC in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass vegetation types so that wildland fire occurs less frequently and at a smaller scale on the landscape. Reduce by half the number of wildland fires in these vegetation types to create a wildland fire regime within the historical range of variability.

Management Actions

- Use RxFire to prepare areas for chemical, mechanical, and/or seeding treatments, or, if needed, to dispose of vegetation or accumulated litter.
- Strategically place treatments on a landscape scale to prevent fire from spreading toward or from WUI areas, Low-elevation Shrub cover type, or other resources at risk, using the entire array of mechanical, chemical, and small-scale RxFire operations to thin, reduce, and control hazardous fuels.

Goal/Objective 2 - Make progress toward DFC in the Mid-elevation Shrub, Juniper, Dry Conifer, Aspen/Conifer, and Mountain Shrub vegetation types by increasing WFU and RxFire to create a fire regime within the historical range of variability.

Management Actions

- Use mechanical and chemical treatments to prepare areas in FRCC 2 and FRCC 3 for RxFire and WFU.
- Where prescriptive parameters, resource conditions, and vegetation conditions allow, use WFU or RxFire to increase the annual average number of wildland fire acres to an average similar to historical conditions. Current policy and appropriate NEPA requirements would be followed before implementation.
- Following WFU and RxFire treatments, use chemical, mechanical, and seeding treatments with appropriate plant materials to attempt to stabilize sites and prevent dominance of invasive, annual vegetation, and noxious weeds. Use of native plant materials would be emphasized.

Goal/Objective 3 - In Wet/Cold Conifer, Riparian, Salt Desert Shrub, and Vegetated Rock/Lava vegetation types and/or areas in FRCC 1, maintain vegetation conditions using mechanical, chemical, RxFire, or WFU treatments, such that wildland fire regimes are within the historical range of variability (i.e., maintain the current fire regime in these vegetation types).

Management Action

- Use treatments, as appropriate, to maintain landscapes in FRCC 1.

2.4.7.3 Alternative C - Prioritization Criteria

When multiple wildland fire ignitions occur, the criteria for establishing suppression priorities would follow the two prioritization criteria described under Section 2.4.4.1, followed by the following prioritization:

- Minimize risks to Low-elevation Shrub vegetation type where frequent, uncharacteristic fires occur.
- Minimize risks to other vegetation types, where changes in fuel accumulation and fire occurrence have occurred (i.e., FRCC 2 and FRCC 3 areas).

Criteria for establishing vegetation treatments are:

- Design landscape-scale projects to reduce the *combined* risk to human life/property and resources (e.g., where WUI and ecosystems at risk coincide).
- Design projects through interagency planning performed at the landscape level in conjunction with active community participation and development of stakeholder partnerships in the planning and monitoring processes.

2.4.7.4 Alternative C - Wildland Fire Use (WFU) Areas

Alternative C would provide the most treatment options and would treat at a level necessary to return the planning area to FRCC 1 while addressing specific resource management concerns.

Approximately 1.7 million acres across the planning area would be identified as suitable for WFU for resource benefit, and approximately 3.3 million acres would be identified as not suitable/appropriate due to social, economic, political, or resource constraints. The locations of areas that are not suitable for WFU are shown in Figure 2-2. Appendix D identifies the specific suitable/not suitable acres by field office.

2.4.7.5 Alternative C - Treatment Levels

To implement Alternative C, 1,687,000 footprint-acres would be treated over a 10-year period. Table 2-6 summarizes treatment acres by treatment type for Alternative C. Table 2-7 illustrates the vegetation type/acres and footprint-acres and graphically illustrates the broad treatment levels (treatment-acres) for the various treatment methods (i.e., WFU, mechanical and chemical treatment, RxFire, and seeding).

TABLE 2-6. PLANNING AREA TOTAL FOOTPRINT AND TREATMENT ACRES BY TREATMENT TYPE, ALTERNATIVE C

Footprint Acres	Wildland Fire Use	Mechanical	Chemical	RxFire	Seeding
1,687,000	130,000	136,000	993,000	1,035,000	1,161,000

Alternative C treatment levels were determined by fire ecologists who used the natural fire rotation to determine appropriate disturbance levels by vegetation type. Treatment levels in Alternative C are intended to replicate historical disturbance patterns and succession patterns for the vegetation types in the planning area by using fire, mechanical and chemical treatments, and adopting the goals and priorities set in the Cohesive Strategy.

2.4.7.6 Alternative C - Management Restrictions

Alternative C would have identical management restrictions to those common to all alternatives previously described in Section 2.4.2.1, Management Restrictions, and detailed in Appendix Q.

2.4.8 ALTERNATIVE D

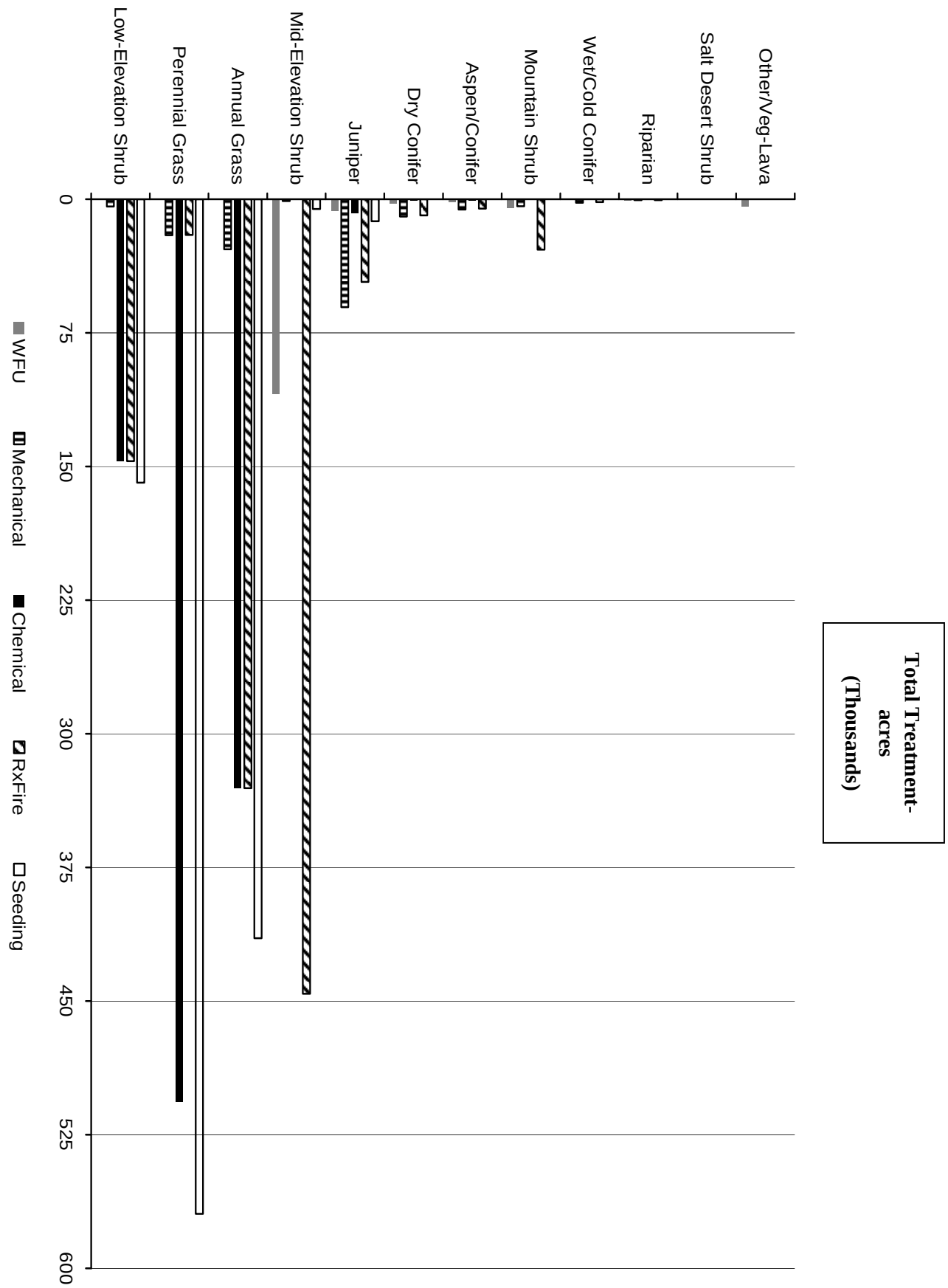
Alternative D was designed to address Issue 2 (found in Section 1.4.1, Issues Driving Development of Alternatives):

> *The types of treatments under the Proposed Action may negatively affect sage grouse habitat. What effect would different types or levels of treatment have on the sagebrush steppe ecosystem and sagebrush-obligate wildlife species?*

This alternative recognizes that the sagebrush steppe ecosystem and its associated wildlife species, including sage grouse, are at risk from increased wildland fire and other disturbances. This alternative emphasizes maintaining existing, high-quality sagebrush steppe habitat and increasing the quantity of sagebrush steppe via post-wildland fire rehabilitation and proactive restoration. Restoration would be emphasized (approximately 89 percent of footprint-acres), and rehabilitation would be conducted as needed (approximately 11 percent of footprint-acres).

Alternative D considers about 400,000 acres suitable for WFU (see Figure 2-2). Within the 400,000 acres, 14,800 acres are the estimated maximum number of WFU acres that would be implemented over a 10-year period given lightning fire frequency in the vegetation types where WFU is proposed. These areas were designated by field office personnel where it was determined that WFU would benefit resources and help attain management goals in Juniper and Mountain Shrub vegetation cover types. The acres mapped as suitable for WFU in Figure 2-2 do not include areas where WFU may be found to be suitable for improving sage grouse habitats. WFU may be allowed in sage grouse Restoration (R1-3), key, and source habitat for the benefit of the habitat (see Figure 3-3) only after site-specific project level coordination with IDFG (see Glossary for definitions of Restoration (R1-3), key, and source habitats).

TABLE 2-7. ALTERNATIVE C – VEGETATION TYPE AND 10-YEAR TOTAL TREATMENT ACRES BY TREATMENT TYPE



Vegetation treatments would focus on the Low-elevation and Mid-elevation Shrub, Invasive Annual Grass, Perennial Grass, and Mountain Shrub cover types, as well as sagebrush steppe invaded by juniper. Mechanical, chemical, and seeding treatments would be emphasized. RxFire would be used primarily to prepare areas for seeding and to create mosaics for the improvement or enhancement of sagebrush steppe habitats. Restoration priorities would be identified to enlarge and reconnect sagebrush steppe habitat.

This alternative was developed using the following approach:

- Make progress toward DFC, resulting in improved sage grouse source and key habitats.
- Manage fuels and fire across the sagebrush steppe landscape to provide habitat for a variety of sagebrush-obligate wildlife species as well as other resource benefits. Progress made toward DFC would result in improved habitat for sagebrush steppe obligate species.
- Because of the emphasis of this alternative, no treatments in Dry Conifer, Aspen/Conifer, Salt Desert Shrub, and Wet/Cold Conifer would be undertaken. However, the overriding priority to protect life and property in and around WUI areas would necessitate treatment of these types when life and property are threatened.

2.4.8.1 Alternative D - Assumptions

Over a 10-year period, under this alternative, up to approximately 1,522,000 footprint-acres would be treated (approximately six times the acreage in Alternative A). It is assumed that Alternative D would not be limited by existing operations capabilities and resources.

2.4.8.2 Alternative D - Goals/Objectives and Management Actions

Goal/Objective 1 - Make progress toward DFC in the Low-elevation Shrub, Perennial Grass, Invasive Annual Grass, Mid-elevation Shrub, Mountain Shrub, and Juniper vegetation types.

Management Actions

- Use chemical, mechanical, seeding, and RxFire treatments as appropriate to achieve DFC.
- In Perennial Grass, Invasive Annual Grass, and juniper-invaded cover types, restore the sagebrush steppe with an aggressive sagebrush seeding effort, using the appropriate sagebrush subspecies for the treatment area.

Goal/Objective 2 - Maintain, protect, and expand sage grouse source habitats.

Management Actions

- Suppress wildland fires in sage grouse source habitats (Figure 3-3), except where WFU would benefit habitat.
- Allow WFU in sage grouse source habitats for the benefit of the habitat only after site-specific project level coordination with IDFG (Figure 3-3).
- Conduct vegetation treatments in areas that pose a wildland fire risk to source habitats.

- Treat areas within source habitats that have low resiliency (i.e., areas characterized by low species diversity, undesirable composition, and dead or decadent sagebrush).
- Following wildland fire, WFU and RxFire treatments, use chemical, mechanical, and seeding treatments with appropriate plant materials to attempt to stabilize sites and prevent dominance of invasive, annual vegetation, and noxious weeds. Use native plant materials where determined to be appropriate and practical at the project-implementation level.

Goal/Objective 3 - Treat sage grouse key and restoration habitats to expand source habitats. Improve and maintain sage grouse Restoration (R1-3) and key habitats.

Management Actions

- Use the appropriate management response to wildland fire in all restoration and key habitats.
- Allow WFU in sage grouse restoration and key habitats for the benefit of the habitat only after site-specific project level coordination with IDFG (Figure 3-3).
- Conduct vegetation treatments in restoration and key habitats to reduce risk of wildland fire and reconnect restoration and key habitats.
- Treat areas of restoration and key habitats that have low resiliency characterized by low species diversity.

2.4.8.3 Alternative D - Prioritization Criteria

When multiple wildland fire ignitions occur, the criteria for establishing suppression priorities would follow the two prioritization criteria described under Section 2.4.4.1, followed by the following prioritization:

- Minimize risks to sage grouse source habitats.
- Minimize risks to sage grouse key habitats.
- Minimize risks to sage grouse restoration habitats.

Criteria for establishing vegetation treatments are:

- Within sage grouse source habitat, treat areas of low resilience.
- Within key and restoration habitat,
  - Treat areas adjacent to source habitat.
  - Enhance key habitat.
  - Treat areas that pose a fire risk to source and key habitats.
  - Treat areas adjacent to key habitat.

2.4.8.4 Alternative D - Wildland Fire Use (WFU) Areas

Approximately 430,000 acres across the planning area would be identified as suitable for WFU for resource benefit, and approximately 4.6 million acres would be identified as not appropriate due to social, economic, political, and resource constraints. The location of areas that are not

appropriate for WFU are shown in Figure 2-2. Appendix D identifies the specific WFU suitable/not appropriate acres by field office.

2.4.8.5 Alternative D - Treatment Levels

To implement Alternative D, 1,522,000 footprint-acres would be treated over a 10-year period. Table 2-8 summarizes treatment acres by treatment type for Alternative D. Table 2-9 identifies the vegetation type/acres and footprint-acres and graphically illustrates the broad treatment levels (treatment-acres) for the various treatment methods (i.e., WFU, mechanical and chemical treatment, RxFire, and seeding).

TABLE 2-8. PLANNING AREA TOTAL FOOTPRINT AND TREATMENT ACRES BY TREATMENT TYPE, ALTERNATIVE D

Footprint Acres	Wildland Fire Use	Mechanical	Chemical	RxFire	Seeding
1,522,000	14,800	1,320,000	1,503,000	677,000	1,486,400

Alternative D treatment levels were established by wildlife biologists who determined treatment levels needed to maintain existing, high-quality sagebrush steppe habitat and to increase the quantity of sagebrush steppe via post-wildland fire rehabilitation and proactive restoration.

2.4.8.6 Alternative D - Management Restrictions

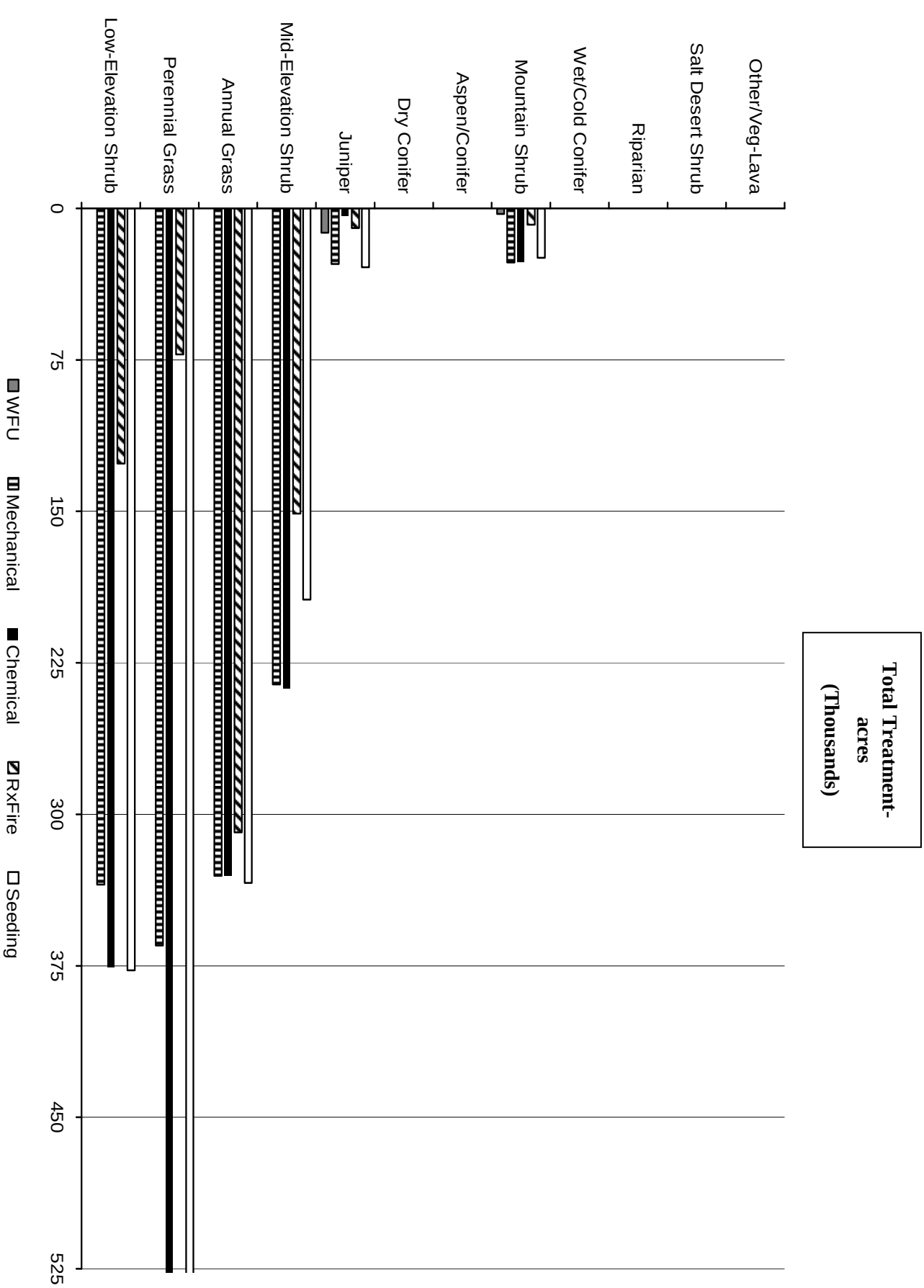
Alternative D would have identical management restrictions to those common to all alternatives previously described in Section 2.4.2.1, Management Restrictions, and detailed in Appendix Q.

2.4.9 ALTERNATIVE E (PROPOSED PLAN AMENDMENT)

This alternative was designed in response to comments received on the November 5, 2004 Fire Management Direction Amendment (FMDA) Draft Environmental Impact Statement (DEIS). This alternative addresses Issue 1 (Alternative C) for forested vegetation types and the entirety of Issue 2 (Alternative D). For a discussion of issues, see Section 1.4.1, Issues Driving Development of Alternatives. Alternative E recognizes that:

- The sagebrush steppe ecosystem and its associated wildlife species, including sage grouse, are at risk from increased wildland fire and other disturbances.
- Fuel accumulations in vegetation types with historically frequent fire regimes (i.e., Aspen/Conifer, Dry Conifer) are at risk of losing key ecological components due to fire suppression.
- Hazardous fuels exist in the WUI.

TABLE 2-9. ALTERNATIVE D – VEGETATION TYPE AND 10-YEAR TOTAL TREATMENT ACRES BY TREATMENT TYPE



Alternative E emphasizes conserving and restoring sagebrush steppe while replicating historical disturbance and succession patterns in vegetation types with historically frequent fire regimes by use of fire, mechanical and chemical treatments, and adopting the goals and priorities set in the Cohesive Strategy. Restoration would be emphasized (approximately 91 percent of footprint-acres), and rehabilitation would be conducted as needed (approximately 9 percent of footprint-acres).

This alternative addresses the Cohesive Strategy and the 10-year Comprehensive Strategy for forested vegetation cover types. The goals of the Cohesive Strategy and 10-year Comprehensive Strategy include:

- Improve fire prevention and suppression
- Reduce hazardous fuels
- Restore fire-adapted ecosystems
- Promote community assistance

Under Alternative E, wildland fire suppression efforts would emphasize protection of WUI and sagebrush steppe and forested habitats.

In general, WFU would not be used where there are SSS or critical wildlife habitats, past rehabilitation treatments, small tracts of BLM-administered lands, or public health and safety concerns. Alternative E would increase RxFire in Aspen/Conifer, Dry Conifer, Mountain Shrub, and Mid-elevation Shrub at risk of juniper encroachment, and decrease the occurrence of wildland fires in the Low-elevation and Mid-elevation Shrub, Perennial Grass, Invasive Annual Grass, and Mountain Shrub using aggressive, proactive restoration, and post-fire rehabilitation of areas dominated by Invasive Annual Grasses.

Alternative E considers about 1.7 million acres suitable for WFU (Figure 2-2). Within the 1.7 million acres, approximately 19,300 acres are the estimated number of WFU acres that would be implemented over a 10-year period given lightning fire frequency in the vegetation types where WFU is proposed. In this alternative, WFU areas were determined considering the natural fire regime of each vegetation types, including average fire frequency and size in Aspen/Conifer, Dry Conifer, Mid-elevation Shrub (including Juniper), Mountain Shrub, Vegetated Rock/Lava, and Wet/Cold Conifer vegetation cover types in which it was determined that WFU could benefit resources and help attain management goals. The acres mapped as suitable for WFU in Figure 2-2 do not include areas where WFU may be found to be suitable for improving sage grouse habitats. WFU may also be allowed in sage grouse Restoration (R1-3), key, and source habitat for the benefit of the habitat (Figure 3-3) only after site-specific project level coordination with IDFG (see Glossary for definitions of Restoration (R1-3), key, and source habitats).

This alternative also proposes to decrease the occurrence of wildland fire in the Low-elevation Shrub (including Perennial and Invasive Annual Grass) cover type using aggressive, proactive restoration, and post-fire rehabilitation of areas dominated by Invasive Annual Grasses. Approximately 91 percent of the footprint-acres of these vegetation types would be restored and approximately 9 percent of their footprint-acres would be rehabilitated.

Vegetation treatments would focus on the Low-elevation and Mid-elevation Shrub, Invasive Annual Grass, Perennial Grass, and Mountain Shrub cover types, as well as sagebrush steppe invaded by juniper. Mechanical, chemical, and seeding treatments would be emphasized. RxFire would be used primarily to prepare areas for seeding and to create mosaics for the improvement or enhancement of sagebrush steppe habitats, but would also be used in vegetation types where more fire is desired. Restoration priorities would be identified to enlarge and reconnect sagebrush steppe habitat.

This alternative was developed using the following approach:

- Manage fuels and fire across the sagebrush steppe landscape to provide habitat for a variety of sagebrush-obligate wildlife species as well as other resource benefits. Progress made toward DFC would result in improved habitat for sagebrush steppe obligate species.
- Maintain treatment levels at the same rate as the historical fire rotation for the Aspen/Conifer, Dry Conifer, Mountain Shrub, Mid-elevation Shrub encroached by juniper, and Dry Conifer (i.e., the acreage treated over 10 years corresponding to the burned acreage expected over 10 years under historical conditions).
- Replicate historical disturbance patterns and successional patterns as closely as possible by applying vegetation treatments in historically frequent fire regimes.
- Regardless of vegetation type, consider treatments to protect life and property in and around WUI areas if it is deemed that life and property are at risk.
- After 10 to 15 years of treatment, wildland fires would burn less frequently and would burn smaller acreages than they currently do in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass cover types. This shift would be due to:
    - More proactive restoration in areas dominated by non-native annual species.
    - More ESR treatments following wildland fire in areas invaded and/or dominated by non-native annual species.
    - Strategic placements of restoration treatments to protect Low-elevation Shrub vegetation types.

2.4.9.1 Alternative E - Assumptions

Over a 10-year period, under this alternative, up to approximately 1,538,000 footprint-acres would be treated (approximately six times the acreage in Alternative A). It is assumed that Alternative E would not be limited by existing operations capabilities and resources.

2.4.9.2 Alternative E - Goals/Objectives and Management Actions[2]

Goal/Objective 1 - Make progress toward DFC in the Low-elevation Shrub, Perennial Grass, Invasive Annual Grass, Mid-elevation Shrub, Mountain Shrub, and Juniper vegetation types.

Management Actions

- Use chemical, mechanical, seeding, and RxFire treatments as appropriate to achieve DFC.
- In Perennial Grass, Invasive Annual Grass, and juniper-invaded cover types, restore the sagebrush steppe with an aggressive sagebrush seeding effort, using the appropriate sagebrush subspecies for the treatment area.
- Strategically place treatments on a landscape scale to prevent fire from spreading into important sagebrush steppe habitat or WUI.

Goal/Objective 2 - Maintain, protect, and expand sage grouse source habitats.

Management Actions

- Suppress wildland fires in source habitats (Figure 3-3), except where WFU would benefit habitat.
- Allow WFU in sage grouse source habitats for the benefit of the habitat only after site-specific project level coordination with IDFG (Figure 3-3).
- Conduct vegetation treatments in areas that pose a wildland fire risk to source habitats.
- Treat areas within source habitats that have low resiliency (i.e., areas characterized by low species diversity, undesirable composition, and dead or decadent sagebrush).
- Following wildland fire, WFU and RxFire treatments, use chemical, mechanical, and seeding treatments with appropriate plant materials to attempt to stabilize sites and prevent dominance of invasive, annual vegetation, and noxious weeds. Use native plant materials where determined to be appropriate and practical at the project-implementation level.

Goal/Objective 3 - Treat sage grouse key and restoration habitats to expand source habitats. Improve and maintain sage grouse Restoration (R1-3) and key habitats.

Management Actions

- Use appropriate management response to wildland fire in all sage grouse restoration and key habitats and healthy wildlife habitats.
- WFU may be allowed in historically frequent fire regimes to restore fire's natural role and in sage grouse restoration and key habitats for the benefit of the habitat only after site-specific project level consultation/collaboration with IDFG (Figure 3-3).

[2] The Proposed Plan Amendment (Alternative E) is described in broader terms in the BA (Appendix O) to better differentiate impacts to federally listed species. These broader descriptions are associated with sagebrush steppe habitat that also serves as sage grouse source, key, and restoration habitat. Specifically, Goals 2 and 3 and the Prioritization Criteria in the BA describe these specific sage-grouse habitat types in broader ecological terms such as "sagebrush steppe" and "important or healthy wildlife habitat." This did not change the effects analysis of the federally listed species as presented in the BA.

- Conduct vegetation treatments in restoration and key habitats to reduce risk of wildland fire and reconnect restoration and key habitats.
- Treat areas of restoration and key habitats that have low resiliency characterized by low species diversity.

Goal/Objective 4 - Make progress toward DFC in historically frequent fire regimes (Aspen/Conifer, Dry Conifer, Mid-elevation Shrub encroached by juniper, Mountain Shrub) by increasing WFU and RxFire to create a fire regime within the historical range of variability.

Management Actions

- Use mechanical and chemical treatments to prepare areas in FRCC 2 and FRCC 3 for RxFire and WFU.
- Where prescriptive parameters, resource conditions, and vegetation conditions allow, use WFU or RxFire to increase the annual average number of wildland fire acres to an average similar to historical conditions. Current policy and appropriate NEPA requirements would be followed prior to implementation.
- Following wildland fire, WFU and RxFire treatments, use chemical, mechanical, and seeding treatments with appropriate plant materials to attempt to stabilize sites and prevent dominance of invasive, annual vegetation, and noxious weeds. Use native plant materials where determined to be appropriate and practical at the project-implementation level.

Goal/Objective 5 - In the Wet/Cold Conifer vegetation type and/or areas in FRCC 1, maintain vegetation conditions using mechanical, chemical, RxFire, or WFU treatments, such that wildland fire regimes are within the historical range of variability (i.e., maintain the current fire regime in these vegetation types).

Management Action

- Use treatments, as appropriate, to maintain landscapes in FRCC 1.

2.4.9.3 Alternative E - Prioritization Criteria

When multiple wildland fire ignitions occur, the criteria for establishing suppression priorities would follow the two prioritization criteria described under Section 2.4.4.1, followed by the following prioritization:

- Minimize risks to sage-grouse source, key, and restoration habitats.
- Minimize risks to habitats occupied by T&E species.
- Minimize risks to resources where changes in fuel accumulation and fire occurrence have occurred (i.e., FRCC 2 and FRCC 3 areas).

Criteria for establishing vegetation treatments are:

- Design landscape-scale projects to reduce the combined risk to human life/property and resources (e.g., where WUI and ecosystems at risk coincide).

- In designing vegetation treatments in Low- and Mid-elevation Shrub and Mountain Shrub that could potentially affect Greater Sage-grouse, conservation measures identified in Appendix R would be implemented.
- The planning, designing, and monitoring of WUI and landscape level projects would be accomplished through interagency planning (BLM and USFS) with active local community participation, and through the development of partnerships.

2.4.9.4 Alternative E - Wildland Fire Use (WFU) Areas

Approximately 1.7 million acres across the planning area would be identified as suitable for WFU for resource benefit, and approximately 3.3 million acres would be identified as not appropriate due to ecological, social, economic, political, and resource constraints which is identical to Alternative C. The locations of areas that are not appropriate for WFU are shown in Figure 2-2. Appendix D identifies the specific WFU suitable/not appropriate acres by field office.

2.4.9.5 Alternative E - Treatment Levels

To implement Alternative E, 1,538,000 footprint-acres would be treated over a 10-year period. Table 2-11 identifies the vegetation type/acres and footprint-acres and graphically illustrates the broad treatment levels (treatment-acres) for the various treatment methods (i.e., WFU, mechanical and chemical treatment, RxFire, and seeding). Table 2-10 below summarizes treatment acres by treatment type for Alternative E:

TABLE 2-10. PLANNING AREA TOTAL FOOTPRINT AND TREATMENT ACRES BY TREATMENT TYPE, ALTERNATIVE E

Footprint Acres	Wildland Fire Use	Mechanical	Chemical	RxFire	Seeding
1,538,000	19,300 [1]	1,338,000	1,504,000	692,000	1,486,000

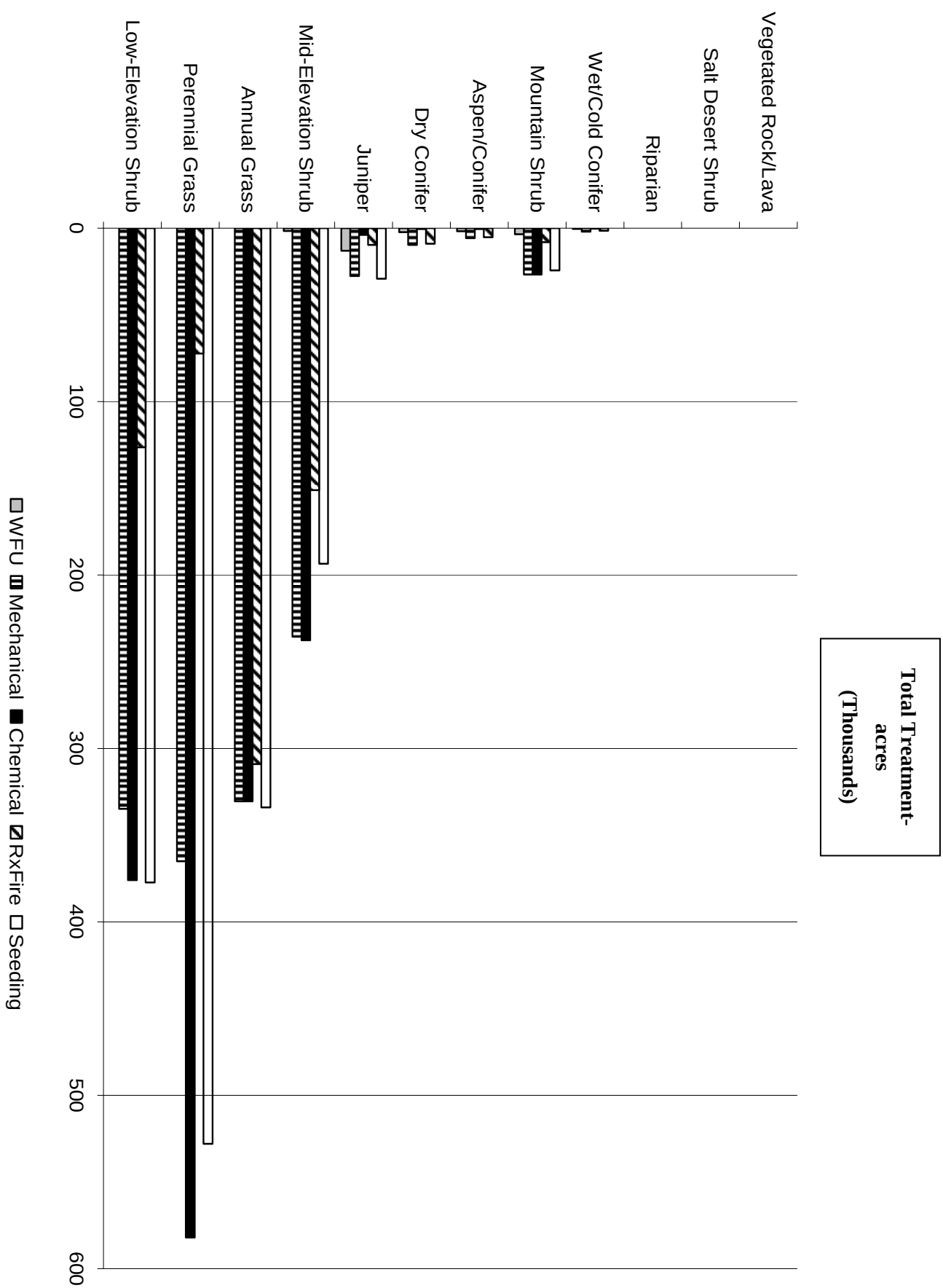
[1] Approximately 19,300 acres in Aspen/Conifer, Dry Conifer, Mountain Shrub and Juniper to improve sage grouse habitat.

Alternative E treatment levels were established by wildlife biologists and fire ecologists who determined treatment levels needed to (1) maintain existing, high-quality sagebrush steppe habitat and to increase the quantity of sagebrush steppe in shrub steppe ecosystems and (2) replicate historical disturbance rates and succession patterns for the vegetation types of the planning area where more fire is desired, while protecting the WUI to meet the goals and priorities set in the Cohesive Strategy.

2.4.9.6 Alternative E - Management Restrictions

Alternative E would have identical management restrictions to those common to all alternatives previously described in Section 2.4.2.1, Management Restrictions, and detailed in Appendix Q.

TABLE 2-11. ALTERNATIVE E - VEGETATION TYPE AND 10-YEAR TOTAL TREATMENT ACRES BY TREATMENT TYPE



2.5 IMPLEMENTATION, MONITORING, EVALUATION, AND ADAPTIVE MANAGEMENT

2.5.1 IMPLEMENTATION

The following discussion of monitoring, evaluation, and adaptive management applies to the implementation of the Proposed Plan Amendment, Alternative E.

The FMDA analysis is broad and uses DFC and FRCC analysis as a broad level assessment of the condition of vegetation. The FMDA is thus intended to provide broad programmatic direction for future fire, fuels, and related vegetation management of the Upper Snake River Plain and surrounding lands. The analysis is based upon best available scientific information and methods. It is not designed for project-level or site-specific decision-making. Additional mid-scale and site-specific analysis would be undertaken in subsequent planning efforts (i.e., RMP revisions, FMPs, project plans). For these reasons, the following chapter sets forth guidance for implementing the Proposed Plan Amendment only.

The acreages intended for treatment and described in each alternative are to be viewed as scenarios that reflect broad treatment levels for the purposes of comparison of alternatives and effects assessment. Once an alternative or broad treatment level is selected, actual projects and acres to be treated would be identified by field office personnel based on site-specific information. Field office personnel would set treatment priorities based upon their knowledge of the conditions and needs of the land. Site-specific NEPA-documents would be prepared for all fuels, ESR, and other vegetation management treatments. Where WFU is deemed suitable, these areas would not be available for WFU (fire starts would be suppressed using AMR) until site specific analyses and NEPA-documents are complete. Site-specific plans would identify management goals, prescriptive parameters, mitigation measures, objectives, and actions for an area that is suitable for WFU. Analysis of the effects of WFU would be completed during the site-specific NEPA process.

Field office and fire management staff would implement plan amendment direction. Field office ID teams, including both fire and resource specialists, would plan and analyze specific projects. The development of each project incorporating WFU, RxFire and non-fire vegetation treatments would include public involvement and the preparation of a NEPA document for each project to be implemented.

Within the scope of this analysis, the FMDA is designed to allow for adaptive management. Adaptive management would allow project planners the flexibility to respond to changes in resource conditions or as new information becomes available from continued monitoring and evaluation. The assumptions set forth above provide the guidance to focus on needs identified on the ground as they are considered on a project-by-project basis.

2.5.2 MONITORING AND EVALUATION

Any part of the above alternatives that might be selected for implementation would have a monitoring component. Accomplishing management objectives outlined in this plan would be

determined through the collection of data at a programmatic level. Data used in this analysis to determine current conditions and analyze effects (average annual acres of wildland fire, number of fire starts, and WFU/ESR/vegetation/fuels treatment acres, collected over a 10-year period) would be used to confirm that management actions are leading toward DFC and other plan amendment objectives.

Monitoring data would be compiled and analyzed by field office personnel and summarized by field office. Monitoring data would be evaluated as needed to detect changes in current conditions and answer specific management questions aimed at determining whether the proposed management actions are meeting plan amendment objectives. The proposed monitoring and evaluation plan for the Proposed Plan Amendment is described in Table 2-12.

The general FMDA plan monitoring and evaluation strategy includes the following:

- Reassess percent of landscape existing by vegetation type, by age class using large fire, and vegetation treatment data.
- Recalculate current conditions and compare the DFC at the field office level when RMP revision is completed.
- Calculate how many fires have occurred and how many acres have burned and been treated in WUI.
- Summarize results in a 10-year report.

Field office managers would ensure data is collected and would evaluate periodically to determine, among other things, the need for revising this proposed amendment. As policy dictates, wildfire, WFU, and vegetation treatment locations and acres would be recorded. Formal evaluation and reporting would occur every 10 years, unless field office managers deem a shorter timeframe warranted by changes in vegetation condition (i.e., above average annual acreage burned by wildfire). The 10-year report would include a summarization of the above mentioned data and analysis of this data to determine whether resource conditions have moved toward DFC and/or have met other management objectives outlined in this amendment.

In addition to the programmatic monitoring plan described above, monitoring would also be completed at the site-specific level, which would be used to determine if treatments have been successful and if conditions are moving toward site-specific objectives. Site specific monitoring would be performed in compliance with the field office Normal Fire Rehabilitation Plans (NFRPs) for ESR. Pro-active vegetation management treatments would be monitored at the site-specific level following BLM state and national protocols outlined in handbooks and policy.

As future resource management planning efforts are undertaken at the field office level, analysis methods may change. As a result, monitoring methods may change. Even though analysis and monitoring methods may change in future planning efforts, broad-scale programmatic monitoring as described above would continue over the life of this amendment.

TABLE 2-12. FMDA AMENDED LUP MONITORING AND EVALUATION PLAN

Goal/ Objective	Question?	Parameters Monitored	Monitoring Activity		Indicator	Reporting Frequency
Vegetation types are moving toward their historic range of age class variability and distribution across the landscape.	Are management activities moving vegetation toward DFC?	Vegetation/Fuel Age Class for: • Low-elevation shrub • Mid-elevation shrub • Mountain shrub • Aspen/Conifer/Dry Conifer • Salt desert shrub • Vegetated rock • Wet/Cold Conifer	Collect wildland fire, WFU, ESR and pro-active vegetation treatment perimeter data and year of occurrence in geographical information systems (GIS).	Vegetation/ Fuel age class acreage and percent by vegetation type.	Every 10 years or more frequently if vegetation conditions warrant.	
		Uncharacteristic vegetation acres	Use satellite imagery and/or field surveys to re-map cheatgrass and noxious weed acres.	Total cheatgrass and noxious weed dominated acreage and percent by vegetation type.	Every 10 years or more frequently if vegetation conditions warrant.	
Sage grouse source habitat is being protected or enhanced.	Are management activities resulting in improvement in sagebrush steppe?	Vegetation/Fuel Age Class for: • Low-elevation shrub • Mid-elevation shrub • Mountain shrub	Collect wildland fire, WFU, ESR and pro-active vegetation treatment perimeter data and year of occurrence in GIS.	Vegetation/ Fuel age class acreage and percent by vegetation type.	Every 10 years or more frequently if vegetation conditions warrant.	
		Uncharacteristic vegetation acres	Use satellite imagery and/or field surveys to re-map cheatgrass and noxious weed acres.	Total cheatgrass and noxious weed dominated acreage and percent by vegetation type.		
Decrease fire frequency and size in the vicinity of the WUI.	Are management activities reducing fire risk to WUI?	Wildland Fire occurrence in WUI.	Map fire starts and calculate number of fire starts within each WUI polygon.	Total number of fire starts per year by WUI polygon.	Every 10 years or more frequently if vegetation conditions warrant.	
		Average fire size in WUI.	Map large fires[1] and calculate average fire size within each WUI polygon.		Total acres burned and average fire size by WUI polygon.	

[1] Large fire is defined as any wildfire on BLM-administered public lands that is greater than 10 acres in size. Current BLM policy requires that large fires be recorded annually in GIS.

2.5.3 Adaptive Management

Adaptive management is a rational approach to decision-making in natural resource management. Adaptive management of natural resources is fueled by a monitoring program that acts as an early-warning system for resource problems, and which facilitates the evaluation and planning phases in deciding which actions to implement. Under adaptive management, planning decisions and implementation actions are based upon real-world information and data. Adaptive management is a cyclic, active feedback process (Figure 2-3) with four important components: (1) planning, (2) implementation, (3) monitoring, and (4) evaluation. No one component is more important than the others, though information gained through periodic monitoring and evaluation keeps this process cycling. Adaptive management only occurs when all four activities are regularly performed. The constant feedback nature of adaptive management facilitates management flexibility and reduces the chances of missed opportunities.

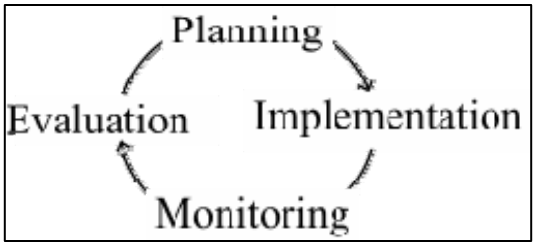


Figure 2-3. Diagram of the adaptive management cycle.

Monitoring (data collection) and evaluation (data analysis) are critical to gaining reliable information and data about natural resources, which are essential for rational planning decisions to implement new management actions or maintain present activities.

As a decision-making process, adaptive management evaluates the outcomes of management actions, and then uses this information to direct or change management. Approached in this manner, management actions/activities are treated as working hypotheses, not final solutions to complex ecological problems. Monitoring and evaluation provide continued feedback (information and data), upon which a resource manager can make informed decisions. An effective monitoring program keeps resource managers abreast of current conditions and gives them the information and data to adapt management actions/activities to changing resource conditions.

In other words, adaptive management facilitates corrective management actions intended to repair ecosystem functions and processes. Evaluation tests whether management actions are achieving expected results or not. When results are being achieved, management actions continue unchanged. If management actions are determined to be ineffective or even counter-productive, adaptive management can redirect management actions to better achieve goals/objectives. Assuming that an ecosystem is healthy, adaptive management can facilitate maintaining ecosystem processes within normal fluctuations of climate and environment. Adaptive management requires monitoring and evaluation to feed the decision process.

Adaptive management in this case means analyzing, monitoring, and evaluating the broad-scale indicators outlined in Table 2-12 above. Every 10 years, answers to the management questions

would be provided in a report. If management objectives are not being met, the objectives set forth in this analysis would be re-evaluated to determine if plan amendment is necessary.

2.6 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ENVIRONMENTAL ANALYSIS

Issues and impacts of concern involving the proposed action were identified through the scoping process. Alternatives to the proposed action were developed to provide several ways of addressing the scoping issues and reducing potential environmental impacts, while still achieving the identified purpose and need of the project. Several alternatives for meeting the purpose and need were suggested during the scoping process. Some of these alternatives were considered and subsequently eliminated from detailed analysis for various reasons. Descriptions of these alternatives and rationales for their elimination are given below.

The alternative of altering or eliminating grazing practices was suggested in the scoping process. While this is closely tied to vegetation conditions and treatments, it does not, in itself, meet the purpose and need of the proposed project. Therefore, it was not considered further as an alternative. Grazing management as described in the existing LUP direction has been incorporated in this EIS and is included in the impacts to resources analysis of Chapter 4, Environmental Consequences. The BLM analyzes grazing under NEPA in association with Resource Management Plan revisions or at the project level following Standard and Guide assessment, evaluation and determination.

A scoping respondent suggested that the BLM consider an alternative that would use several passive treatments for fire management. These treatments include using livestock grazing to reduce invasive species, reducing livestock usage in areas with known non-native infestations, removing livestock facilities, and closing roads and off-road vehicle trails. This alternative was eliminated from detailed analysis because it involves decisions beyond the scope of the EIS. All of these uses are part of the BLM's multiple-use mandate, and eliminating grazing or off-road recreational access is out of the scope of this process and may be addressed during the planning area field offices' LUP revision process.

A Resource Restoration Emphasis alternative was suggested. This alternative would emphasize the active restoration of rangeland habitats, wetlands, riparian, and aquatic areas. This alternative was eliminated from detailed analysis because it involves elements that are not part of the purpose and need of the project. The project purpose and need involves ESR and restoration, but only as they relate to fire management. Non-fire related restoration of rangeland, wetlands, riparian, and aquatic areas is outside of the scope of this project and this EIS analysis.

2.7 REASONABLY FORESEEABLE FUTURE ACTIONS

As stated in Chapter 1, Purpose and Need, there are several planning efforts going on within the planning area. These would result in decisions that could have a cumulative impact on resources within the planning area. The reasonably foreseeable future actions resulting from these planning efforts are described below.

2.7.1 IDAHO NATIONAL LABORATORY (DEPARTMENT OF ENERGY, IDAHO OPERATIONS OFFICE [DOE-ID], INL)

As stated in Chapter 1, Purpose and Need, the DOE-ID, in conjunction with the BLM has prepared a management plan for the Sagebrush Steppe Ecosystem Reserve (SSER). DOE-ID completed the Final *Idaho National Engineering and Environmental Laboratory Wildland Fire Management Environmental Assessment* in April 2003. Decisions arising from these planning efforts would be considered in fire management on the INL, grazing, the sagebrush steppe cover types, and wildlife.

2.7.2 SAWTOOTH NATIONAL FOREST

The Sawtooth National Forest, which comprises approximately 2.2 million acres in south-central Idaho, and in conjunction with the Boise and Payette National Forests, revised its Forest Plan in July 2003. Part of this revision process included designating acres of land that would be treated with fire to reach forest management objectives. These objectives include: (1) treating fuels to reduce the risk of wildland fire, (2) treating fuels to achieve desired vegetation conditions, (3) treating fuels generated from management activities, and (4) habitat improvement. Reasonably foreseeable fire management projects on the Sawtooth National Forest include at least 40,000 acres of fuels management over the next decade, focusing on the WUI areas. These fuels management treatments would use a combination of fire and mechanical treatments to reduce fuels and restore and maintain forested vegetation types.

2.7.3 CARIBOU AND TARGHEE NATIONAL FORESTS

Reasonably foreseeable fire management projects on the Targhee National Forest include approximately 2,000 acres per year of fuels reduction, as per the 1997 Forest Plan. These reductions would occur through both fire and mechanical treatments (USFS 2003a).

The Caribou National Forest completed its Forest Plan in February 2003. The fuels treatment goal in the new plan is 7,000 acres per year to 7,500 acres per year. The plan states the 10-year annual average fuels treatment would be (1) 3,500 acres of fire and mechanical treatment in forested habitat, and (2) 4,000 acres of fire and mechanical treatments in non-forested habitat.

Of the 3,525 acres of forested habitat treated, 1,375 acres would be within the WUI, and 2,150 acres would be outside the WUI. The majority of the area within the WUI would be treated by mechanical methods and outside the WUI would be treated primarily with RxFire (USFS 2003a).

Although the combined treatment goal for the Caribou and Targhee National Forests is approximately 9,000 acres, the average combined acreage treated over the past several years has been 2,500 to 3,000. Approximately 39 percent (975 acres to 1,170 acres) has been in the WUI, and approximately 61 percent (1,525 acres to 1,830 acres) has been outside the WUI. Accordingly, future treatments in the WUI would approximately triple the amount of past treatments. It is likely that both forests would continue a trend toward additional treatments within the WUI, as well as additional mechanical treatments overall (USFS 2003a).

2.7.4 IDAHO DEPARTMENT OF LANDS (IDL)

In May 2002, the IDL, in conjunction with the BLM and other federal agencies, signed the Idaho Statewide Implementation Strategy for the National Fire Plan. The implementation plan focuses on fire preventions and suppression, hazardous fuels reduction, restoration of fire-adapted ecosystems, and the promotion of community assistance in fire management. The strategy emphasizes a collaborative approach at the county level, encouraging the development of county risk assessments and mitigation plans with assistance from state and federal agencies. Counties are encouraged to identify fire management priorities quickly and to begin whatever actions are necessary to mitigate potential risks or vulnerabilities (IDL 2002a). During 2002, IDL, in cooperation with federal agencies, disbursed $1.9 million to WUI projects and the development of defensible space. Additional money was used for hazardous fuel condition reduction programs for several communities, including Island Park, Idaho (IDL 2002b). Developing risk assessments and mitigation plans would allow counties and communities within the planning area to determine their current fire hazard risk and to develop effective mitigation to minimize wildland urban risks to persons and property. Additionally, implementing community-based fuels reduction programs provides opportunities for private landowners to work with federal land management agencies to manage the WUI.

2.7.5 SHOSHONE-BANNOCK TRIBAL GOVERNMENTS

The Shoshone-Bannock Tribal Governments and Bureau of Indian Affairs at Fort Hall, Idaho are planning a number of projects that would reduce hazardous fuel conditions and reduce fire risks in the WUI. These projects include WUI actions at Michaud Flat (26 acres of mechanical treatment), Bannock Creek (100 acres, half mechanical and half RxFire), and Ross Fork Creek. There are also proposed hazardous fuels reduction projects for Mount Putnam (150 acres that would be mechanically treated and then RxFire treated) and the Fort Hall Bottoms (130 acres of RxFire).

2.7.6 SHOSHONE-PAIUTE TRIBAL GOVERNMENTS

BLM is currently consulting with the Shoshone-Paiute Tribal Governments at the Duck Valley Reservation, Owyhee, Nevada regarding integrating fire management on BLM lands with fire and vegetation management on reservation lands. Over the next few years, the Shoshone-Paiute Tribal Governments are planning to implement hazardous fuel condition reduction projects under the Healthy Forests Restoration Act. BLM would continue to consult with the Shoshone-Paiute Tribes as they develop their FMP and the first phase of Fire Planning Analysis (FPA) for their Northeastern Nevada Fire Planning Unit.

2.7.7 THE CRATERS OF THE MOON NATIONAL MONUMENT AND PRESERVE

The NPS and the BLM have prepared a joint monument management plan for Craters of the Moon National Monument and Preserve, which was created by Presidential Proclamation 7373 on November 9, 2000. This proclamation resulted in the transfer of BLM-administered public lands to the National Park Service (NPS). This NPS/BLM planning area is located entirely within the administrative boundary of the FMDA planning area. Fire management planning decisions for Craters of the Moon National Monument and Preserve have been determined

through the monument management planning process. Finalization of the FMDA would not amend any decisions nor affect management for the Monument and Preserve. The Craters of the Moon planning area was originally included within the Draft EIS for this plan amendment effort and both treatment and effects were described for this area in the DEIS. Since publication of the DEIS, the Craters of the Moon National Monument Management Plan (MMP) has been completed and management direction issued. The broad treatment levels described in the MMP are similar to the treatments described in the FMDA. Rather than displaying the effects separately based on this decision, the effects of treatments in the Craters of the Moon planning area have remained integrated in the analysis disclosed in Chapters 3 and 4 of this document.

2.7.8 POCATELLO LAND USE PLAN (LUP) REVISION

The Pocatello Field Office (PFO) is currently preparing a separate revision to the current applicable planning documents, which is scheduled to be completed in fiscal year (FY) 2008. Fire management direction is addressed in the Pocatello RMP revision effort and uses similar goals, objectives, management actions, and treatment levels as those described in this plan amendment. This plan amendment would not amend that RMP revision but would provide interim guidance until that revision is complete.

2.8 SUMMARY OF ALTERNATIVES AND EFFECTS

A summary of alternative elements is provided in Table 2-13. Table 2-14 summarizes impacts to resources and uses. Table 2-15 provides a summary of the effects of each alternative.

TABLE 2-13. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Management Common To All Alternatives	Suppression restrictions were developed for the following resource disciplines: • Fire Management • Cultural Resources and Historic Trails • Noxious Weeds • Human life, human communities, infrastructure, and property • Recreation • Riparian Areas • Special Designations (wilderness study areas [WSAs], Areas of Critical Environmental Concern [ACECs]) • Vegetation The following fire and non-fire vegetation treatment restrictions would be applied to site-specific restoration and hazardous fuels reduction treatment actions for the following resource disciplines: • Vegetation • Air Quality • Cultural Resources and Historic Trails • Hazardous Materials and Abandoned Mine Sites • Livestock Grazing • Placeholder Species • Riparian Areas • Special Management Areas • Visual Resources • Wildlife The Field Office Normal Fire Rehabilitation Plans contain ESR restrictions that would be applied to all site-specific ESR actions. The following community assistance actions would occur consistent with National Fire Plan (NFP) policy and would apply to all alternatives, including the No Action Alternative: • Continue to collaborate with local partners to assess and define Wildland Urban Interface (WUI) areas, update existing mitigation plans, and implement a prevention and education program. • Work with other federal agencies, state, county, and private entities to update County Mitigation Plans. • Provide Rural Fire Assistance (RFA), as identified in Mitigation Plans, to rural fire districts. Assess and increase suppression capabilities and effectiveness by providing RFA to local fire suppression organizations. • Provide planning and implementation assistance to private landowners so hazardous fuels can be reduced as identified in Mitigation Plans. • Provide funding to implement fire education projects identified in Mitigation Plans. • Reduce fuel hazards and the threat of wildland fire, including consideration of any local communities-at-risk.				

TABLE 2-13. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	• Continue to collaborate with local partners to assess WUI areas and update existing mitigation plans to implement fuels treatments.				
Management Common To All Action Alternatives	**N/A**	**Goals and Objectives:** • Protect and enhance sage grouse stronghold habitats. • Protect and enhance key ecological components in plant and animal communities. • Considered mechanical and/or chemical treatments first where fire is not an appropriate tool due to risk to life, property, or resource impacts. • Move all vegetation types toward DFC and from Fire Regime Condition Class (FRCC) 2 and/or FRCC 3 toward FRCC 1. FRCC is an indicator of fire-related risk to key ecosystem components. A full description of FRCC is given in Section 3.2, Vegetation Resources and Fire's Natural Role (Issue 1). **Desired Future Condition:** *Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass* Increase the number of acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape. Decrease the number of acres with more than 10% cheatgrass cover and/or weeds. *Mid-elevation Shrub (including Juniper encroachment acres)* Increase the number of acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape. Decrease the acres of Mid-elevation Shrub encroached upon by juniper, and/or any other undesirable species present. Increase acres burned to more closely approximate the historical fire regime. Improve composition and structure of Mid-elevation Shrub types to better represent historical sagebrush steppe cover types. *Mountain Shrub* Increase the acres of early-seral and mid-seral stages. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape. Increase acres burned to more closely approximate the historical fire regime. Improve composition and structure of Mountain Shrub types to better represent historical Mountain Shrub cover types. *Aspen/Conifer and Dry Conifer* Increase acres of early-seral and mid-seral Aspen/Conifer and Dry Conifer cover types (pure				

TABLE 2-13. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
		aspen and Aspen/Conifer mix). Spatial arrangement of varying age-classes should occur in a mosaic across the landscape. Increase acres burned to more closely approximate the historical fire regime. Improve composition and structure of Aspen/Conifer and Dry Conifer types to better represent historical Aspen/Conifer and Dry Conifer cover types. *Salt Desert Shrub* Maintain or increase acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape. Decrease acres with cheatgrass, weeds, and/or other undesirable species present. Maintain fire frequency and size to approximate the historical fire regime. Maintain or improve Salt Desert Shrub types to better represent those historical cover types. *Vegetated Rock/Lava* Maintain or increase acres with a native/placeholder shrub-grass mix. Spatial arrangement of varying age-classes should occur in a mosaic across the landscape. Decrease acres with cheatgrass, weeds, and/or other undesirable species present. Maintain fire frequency and size to approximate the historical fire regime. Maintain Vegetated Rock/Lava types to better represent those historical cover types. *Wet/Cold Conifer* Maintain the mix of early, mid, and late seral stands of lodgepole pine forest. Maintain fire frequency and size to approximate the historical fire regime. Maintain or improve Wet/Cold Conifer types to better represent those historical cover types. *WUI* Decrease fire frequency and size in the vicinity of the WUI to protect public and fire-fighter safety, public resources, and private lands. Decrease fire hazard from high to moderate or low by implementing vegetation treatments and actions outlined in County/Community Mitigation Plans. **Prioritization Criteria:** Following are the top two priorities under all four action alternatives: 1. Fire-fighter and public safety are the first priority in response to fire suppression. At no time would the activities described in this EIS compromise fire-fighter and public safety. 2. The protection of property and WUI is the second top priority. Vegetation treatment priorities in non-WUI areas would vary by field office as vegetation types			

TABLE 2-13. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
		vary across the planning area. In general, vegetation treatment priorities include the following: • Diversify Perennial Grass to speed reestablishment of sagebrush cover. • Enhance structural and species diversity in degraded Low-elevation sagebrush steppe. • Reduce shrub and juniper density in Mid-elevation Shrub. • Reduce invasive or noxious weeds in all vegetation types. • Rejuvenate aspen stands, reduce insect infestation and disease, and create a diversity of forest successional stages across the landscape. In Mountain Shrub, rejuvenate old, decadent shrubs and increase cover and density of desirable herbaceous species.			
Management Goals/Objectives	**Goal/Objective 1:** Emphasize protection from and rehabilitation after wildland fire within the WUI.	**Goal/Objective 1:** Make progress toward DFC in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass cover types where wildland fire should be occurring less frequently and at a smaller scale.	**Goal/Objective 1:** Make progress toward DFC in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass cover types so that wildland fire occurs less frequently than currently and at a smaller scale on the landscape. Reduce by half the number of wildland fires in these cover types to create a wildland fire regime within the historical range of variability.	**Goal/Objective 1:** Make progress toward DFC in the Low-elevation Shrub, Perennial Grass, Invasive Annual Grass, Mid-elevation Shrub, Mountain Shrub and Juniper vegetation types.	**Goal/Objective 1:** Make progress toward DFC in the Low-elevation Shrub, Perennial Grass, Invasive Annual Grass, Mid-elevation Shrub, Mountain Shrub, and Juniper vegetation types.

TABLE 2-13. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	Goal/Objective 2: Reduce fine fuels and undesirable non-native plants and create perennial cover types so that wildland fires occur less frequently and at a smaller scale.	**Goal/Objective 2:** Make progress toward DFC in the Mid-elevation Shrub, Juniper, Dry Conifer, Aspen/Conifer, and Mountain Shrub cover types, where wildland fire should be occurring more frequently on the landscape.	**Goal/Objective 2:** Make progress toward DFC in the Mid-elevation Shrub, Juniper, Dry Conifer, Aspen/Conifer, and Mountain Shrub cover types by increasing WFU and RxFire to create a fire regime within the historical range of variability.	**Goal/Objective 2:** Maintain, protect, and expand sage grouse source habitats.	**Goal/Objective 2:** Maintain, protect, and expand sage grouse source habitats.
	Goal/Objective 3: Conduct fire and non-fire vegetation treatments in Mid-elevation Shrub, Juniper, Dry Conifer, Aspen/Conifer, and Mountain Shrub.	**Goal/Objective 3:** Maintain or make progress toward DFC in the Wet/Cold Conifer, Salt Desert Shrub cover and in vegetation types where fire frequencies are within the historical range of variability.	**Goal/Objective 3:** In Wet/Cold Conifer, Riparian, Salt Desert Shrub, and Vegetated Rock/Lava vegetation and/or areas in FRCC 1, maintain vegetation conditions using mechanical, chemical, RxFire, or WFU treatments, such that wildland fire regimes are within the historical range of variability (i.e., maintain the current level of fire in these cover types).	**Goal/Objective 3:** Treat sage grouse key and restoration habitats to expand source habitats. improve and maintain sage grouse Restoration (R1-3) and key habitats.	**Goal/Objective 3:** Treat sage grouse key and restoration habitats to expand source habitats. Improve and maintain sage grouse Restoration (R1-3) and key habitats.

TABLE 2-13. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
					Goal/Objective 4: Make progress toward DFC in historically frequent fire regimes (Aspen/Conifer Dry Conifer, Mid-elevation Shrub encroached by Juniper, Mountain Shrub) by increasing WFU and RxFire to create a fire regime within the historical range of variability. **Goal/Objective 5:** In the Wet/Cold Conifer vegetation type and/or areas in FRCC 1, maintain vegetation conditions using mechanical, chemical, RxFire, or WFU treatments, such that wildland fire regimes are within the historical range of variability (i.e., maintain the current fire regime in these vegetation types).

TABLE 2-13. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Suppression and Treatment Priorities	**Suppression Priorities:** Protect human life, human communities, infrastructure, property, cultural and natural resources, WUI, and stronghold, isolated, and key sage-grouse habitat. Minimize the costs of wildland fire suppression	**Suppression Priorities:** Minimize risk to sagebrush steppe, Dry Conifer.	**Suppression Priorities:** Minimize risk to Low-elevation Shrub where frequent, uncharacteristic fires occur; minimize risk to other vegetation types where changes in fuel accumulation and fire occurrence have occurred	**Suppression Priorities:** Minimize risk to source, key, and restoration sage grouse habitat.	**Suppression Priorities:** Minimize risk to source, key, and restoration sage grouse habitat. Minimize risk to threatened, endangered, and candidate species habitat. Minimize risk to resources where changes in fuel accumulation and fire occurrence have occurred.
	Treatment Priorities: Use RxFire and non-fire fuels treatments to improve or enhance FRCC 2 and FRCC 3 acres where public safety or WUI are at risk.	**Treatment Priorities:** Protect/maintain and restore sagebrush steppe, restore Aspen/Conifer, Mountain Shrub, Dry Conifer, and protect areas of key ecosystem components at high risk of loss.	**Treatment Priorities:** Design landscape-scale projects to reduce the combined risk to human life/property and resources; design landscape level projects in conjunction with community participation and the development of stakeholder partnerships.	**Treatment Priorities:** Within sage grouse source habitat, treat areas of low resilience. Within Key and restoration habitat: a) Treat areas adjacent to source habitat, b) Enhance key habitat, c) Treat areas that pose a fire risk to source and key habitats, d) Treat areas adjacent to key habitat.	**Treatment Priorities:** Design landscape-scale projects to reduce the combined risk to human life/property and resources; Design vegetation treatments potentially affecting Greater sage-grouse (in Low-elevation Shrub, Mid-elevation Shrub, and Mountain Shrub), conservation measures identified in Appendix R would be considered.

TABLE 2-13. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	Use RxFire and non-fire fuels treatments to maintain FRCC 1 acres where hazardous fuels pose a risk to public or firefighter safety. Use RxFire and non-fire fuels treatments to improve or enhance FRCC 2 or FRCC 3 acres where sage-grouse habitat, wildlife areas of concern, or other resources are at risk.				In the WUI, where practical and appropriate, design landscape level projects in conjunction with community participation and the development of stakeholder partnerships in the planning and monitoring processes.
Wildland Fire Use (WFU) Areas (approximate)	**WFU (Suitable):** 0 acres **No WFU (Not Appropriate):** 5.0 Million	**WFU:** 2.9 Million **No WFU:** 2.1 Million	**WFU:** 1.7 Million **No WFU:** 3.3 Million	**WFU:** 400,000 **No WFU:** 4.6 Million	**WFU:** 1.7 Million **No WFU:** 3.3 Million
Broad Treatment Levels (10-year planning period)	**Footprint:** 250,200 acres **WFU:** 0 acres **Mechanical:** 10,700 **Chemical:** 223,000	**Footprint:** 646,000 acres **WFU:** 112,200 acres **Mechanical:** 64,300 acres **Chemical:** 426,100	**Footprint:** 1,687,000 acres **WFU:** 130,000 acres **Mechanical:** 136,000 acres **Chemical:** 993,000	**Footprint:** 1,522,000 acres **WFU:** 14,800 acres **Mechanical:** 1,320,000acres **Chemical:** 1,503,000	**Footprint:** 1,538,000 acres **WFU:** 19,300 acres **Mechanical:** 1,338,000 acres **Chemical:** 1,504,000 acres

TABLE 2-13. SUMMARY OF ALTERNATIVES A THROUGH E

Alternative Elements	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	RxFire: 36,600 acres **Seeding:** 256,800	**RxFire:** 356,000 acres **Seeding:** 620,900	**RxFire:** 1,035,000 acres **Seeding:** 1,161,000	**RxFire:** 677,000 acres **Seeding:** 1,486,400 acres	**RxFire:** 692,000 acres **Seeding:** 1,486,000 acres
Fire Management Restrictions	See Management Common To All above.	See Management Common To All above.	See Management Common To All above.	See Management Common To All above.	See Management Common To All above.

TABLE 2-14. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 1[3]

Vegetation Cover Types	Field Offices																			
	Upper Snake					Pocatello					Burley					Shoshone				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Vegetation - Cohesive Strategy (Issue 1): Fire Regime Condition Class (FRCC) achieved by alternative after 30 years in respective field offices.																				
LES[1], Perennial, Annual	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2
MES[2], Juniper	3	2	1	2	2	3	3	1	2	2	3	2	1	2	2	3	3	1	2	2
Salt Desert Shrub	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	NA	NA	NA	NA	NA
Aspen/Conifer, Dry Conifer	2	3	2	3	2	3	2	2	3	2	3	2	1	3	1	3	2	2	3	2
Mountain Shrub	3	2	1	3	3	3	1	1	1	1	3	2	1	2	2	3	2	1	2	2
Wet/Cold Conifer	2	2	1	2	1	2	2	2	2	2	2	2	1	2	1	2	2	1	2	1
Vegetated Rock/Lava	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Notes:

FRCC 1 = low risk of losing key ecosystem components; FRCC 3 = high risk of losing key ecosystem components.

There are no treatments proposed for the Riparian cover type in any of the five alternatives. However, they may receive some treatment depending on the needs of the adjacent cover types.

[1] LES = Low-elevation Shrub

[2] MES = Mid-elevation Shrub

[3] Not Applicable (NA): Shoshone has no vegetation mapped as Salt Desert Shrub.

[3] All effects summarized in this and subsequent tables and/or text are abbreviated displays of detailed effects analysis described in Chapter 4 of this EIS.

TABLE 2-14. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 1

Vegetation Cover Types	Alternatives				
	A	B	C	D	E
Vegetation - Cohesive Strategy (Issue 1): Planning Area Fire Regime Condition Class (FRCC) achieved by alternative after 30 years.					
Low-elevation Shrub, Perennial, Annual	2-3	2	2	2	2
Mid-elevation Shrub, Juniper	3	2-3	1	2	2
Salt Desert Shrub	1	1	1	1	1
Aspen/Conifer, Dry Conifer	2-3	2-3	1-2	3	1-2
Mountain Shrub	3	1-2	1	1-3	1-3
Wet/Cold Conifer	2	2	1-2	2	1-2
Vegetated Rock/Lava	1	1	1	1	1

Notes:

FRCC 1 = low risk of losing key ecosystem components; FRCC 3 = high risk of losing key ecosystem components.

There are no treatments proposed for the Riparian cover type in any of the five alternatives. However, they may receive some treatment depending on the needs of the adjacent cover types.

TABLE 2-15. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Sagebrush Wildlife Guild Habitats[4] (Issue 2)	Under all alternatives, the proportion of Source Habitat that would be disturbed by vegetation treatments indicates habitat loss over the short term for the Sagebrush Guild. The percentage of mature, Low-elevation Shrub at 30-years old, or more, provides an assessment of long-term benefits to the Sagebrush Guild.				
	Upper Snake Field Office (USFO): Source Habitat disturbed in first 10 years: 0% Mature shrub at 30 years: 37% **Pocatello Field Office (PFO):** Source Habitat disturbed in first 10 years: 0% Mature shrub at 30 years: 20% **Burley Field Office (BFO):** Source Habitat disturbed in first 10 years: 0% Mature shrub at 30 years: 12%	**USFO:** Source Habitat disturbed in first 10 years: 6.9% Mature shrub at 30 years: 28% **PFO:** Source Habitat disturbed in first 10 years: 0% Mature shrub at 30 years: 20% **BFO:** Source Habitat disturbed in first 10 years: 2.6% Mature shrub at 30 years: 15%	**USFO:** Source Habitat disturbed in first 10 years: 7.7% Mature shrub at 30 years: 40% **PFO:** Source Habitat disturbed in first 10 years: 23.5% Mature shrub at 30 years: 22% **BFO:** Source Habitat disturbed in first 10 years: 13.7% Mature shrub at 30 years: 21%	**USFO:** Source Habitat disturbed in first 10 years: 9.9% Mature shrub at 30 years: 41% **PFO:** Source Habitat disturbed in first 10 years: 15.7% Mature shrub at 30 years: 25% **BFO:** Source Habitat disturbed in first 10 years: 12.4% Mature shrub at 30 years: 21%	**USFO:** Source Habitat disturbed in first 10 years: 9.9% Mature shrub at 30 years: 41% **PFO:** Source Habitat disturbed in first 10 years: 15.7% Mature shrub at 30 years: 25% **BFO:** Source Habitat disturbed in first 10 years: 12.4% Mature shrub at 30 years: 21%

[4] See full description of sagebrush guild species and their habitats in Chapter 3.

TABLE 2-15. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	Shoshone Field Office (SFO): Source Habitat disturbed in first 10 years: 0% Mature shrub at 30 years: 12%	**SFO:** Source Habitat disturbed in first 10 years: 0.0% Mature shrub at 30 years: 14%	**SFO:** Source Habitat disturbed in first 10 years: 2.3% Mature shrub at 30 years: 24%	**SFO:** Source Habitat disturbed in first 10 years: 8.5% Mature shrub at 30 years: 17%	**SFO:** Source Habitat disturbed in first 10 years: 8.5% Mature shrub at 30 years: 17%
WUI Areas of Concern	Low Risk areas: 15 Moderate Risk areas: 15 High Risk areas: 4 Least amount of treatment in, and adjacent to, the WUI areas would result in: - Continued full-scale suppression as the primary tool in reacting to wildland fires, - Continued wildland fire damage to property, - Increased financial and labor costs, and - Risk to public and fire-fighter health and safety.	Low Risk areas: 27 Moderate Risk areas: 6 High Risk areas: 1 Those WUI areas that receive the most treatments would result in cover types that: - Are more resilient to wildland fire, - Have reduced fuel loads, and, therefore, fire intensity, and - Pose less risk to WUI areas. If treatment involves WFU and RxFire, there would be some risk to the public and fire fighter health and safety, though it would be expected that the effects of treatment would reduce the incidence of uncharacteristic wildland fire by reducing fuel	Low Risk areas: 29 Moderate Risk areas: 5 High Risk areas: 0 Same as Alternative B.	Low Risk areas: 29 Moderate Risk areas: 4 High Risk areas: 1 Similar to Alternative B with the exception that Alternative D focuses on Low- and Mid-elevation Shrub, Perennial Grass, and Invasive Annual Grass cover types.	Low Risk areas: 30 Moderate Risk areas: 4 High Risk areas: 0 Similar to Alternative B.

TABLE 2-15. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
		load, increasing defensible space, and restoring cover types where feasible.			
Wildlife	- 250,240 footprint-acres under this alternative would be unavailable to wildlife for portions of the following 10 years. However, areas being rehabilitated or restored would continue to provide habitat value to certain species, particularly those that utilize early to mid-seral stages. - FRCC in Invasive Annual Grass, Perennial Grass and Low-Elevation Shrub would remain at 2 with corresponding moderate risk to wildlife guilds using these cover types. - Mid-elevation Shrub, Juniper, and Mountain Shrub would remain in FRCC 3 with higher risk of long-term adverse impacts to wildlife guilds using these cover types.	- 646,050 footprint-acres under this alternative would be unavailable to wildlife for portions of the following 10 years. However, areas being rehabilitated or restored would continue to provide habitat value to certain species, particularly those that utilize early to mid-seral stages. -FRCC in Invasive Annual Grass, Perennial Grass and Low-elevation Shrub would remain at 2 with corresponding moderate risk to wildlife guilds using these cover types. - Mid-elevation Shrub and Juniper would range from 2 to 3 across the planning area with moderate and high risk to species using these cover types.	- 1,686,528 footprint-acres under this alternative would be unavailable to wildlife for portions of the following 10 years. However, areas being rehabilitated or restored would continue to provide habitat value to certain species, particularly those that utilize early to mid-seral stages. -FRCC in Invasive Annual Grass, Perennial Grass and Low-elevation Shrub would remain at 2 with corresponding moderate risk to wildlife guilds using these cover types. - Mid-elevation Shrub and Juniper would be FRCC 1 across the planning area with low risk to species using these cover types.	- 1,522,270 footprint-acres under this alternative would be unavailable to wildlife for portions of the following 10 years. However, areas being rehabilitated or restored would continue to provide habitat value to certain species, particularly those that utilize early to mid-seral stages. - FRCC in Invasive Annual Grass, Perennial Grass and Low-elevation Shrub would remain at 2 with corresponding moderate risk to wildlife species using these cover types. - Mid-elevation Shrub and Juniper would have an FRCC of 2 across the planning area with moderate risk to species using these cover types.	- 1,538,022 footprint-acres under this alternative would be unavailable to wildlife for portions of the following 10 years. However, areas being rehabilitated or restored would continue to provide habitat value to certain species, particularly those that utilize early to mid-seral stages. - FRCC in Invasive Annual Grass, Perennial Grass and Low-elevation Shrub would remain at 2 with corresponding moderate risk to wildlife species using these cover types. - Mid-elevation Shrub and Juniper would have an FRCC of 2 across the planning area with moderate risk to species using these cover types.

TABLE 2-15. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
		- Mountain Shrub would range from FRCC 2 to 1 across the planning area with moderate-to-low risk to species using this cover type.	- Mountain Shrub FRCC would range from 3 to 1 with low-to-moderate risk to species using this cover type.	- Mountain Shrub FRCC would range from 2 to 3 with moderate-to-high risk to species using this cover type.	- Mountain Shrub FRCC would range from 3 to 1 with moderate-to-high risk to species using this cover type.
	- Aspen/Conifer and Dry Conifer FRCC would vary from 2 to 3 throughout the planning area with corresponding moderate-to- high risk to wildlife habitat in these cover types.	- Aspen/Conifer and Dry Conifer FRCC would vary from 2 to 3 throughout the planning area with corresponding moderate risk to wildlife habitat in these cover types.	- Aspen/Conifer and Dry Conifer FRCC would be 1 to 2 throughout the planning area with corresponding moderate-to-high risk to wildlife species in these cover types.	- Aspen/Conifer and Dry Conifer FRCC would be 3 throughout the planning area with corresponding high risk to wildlife species in these cover types.	- Aspen/Conifer and Dry Conifer FRCC would be 1 to 2 throughout the planning area with corresponding moderate-to-high risk to wildlife species in these cover types.
	- Salt Desert Shrub, Riparian, and Vegetated Rock/Lava would remain in FRCC 1 with low risk to wildlife species using these cover types.	- Salt Desert Shrub, Riparian, and Vegetated Rock/Lava would remain in FRCC 1 with low risk to wildlife species using these cover types.	- Salt Desert Shrub, Riparian, and Vegetated Rock/Lava would remain in FRCC 1 with low risk to wildlife species using these cover types.	- Salt Desert Shrub, Riparian, and Vegetated Rock/Lava would remain in FRCC 1 with low risk to wildlife species using these cover types.	- Salt Desert Shrub, Riparian, and Vegetated Rock/Lava would remain in FRCC 1 with low risk to wildlife species using these cover types.
Special Status Plants	Under all alternatives, site-specific project effects on special status plants would be evaluated in light of the status of the taxa, population health and integrity, ecology and response to disturbance, and habitat quality.				
	Low-elevation Shrub, Perennial Grass, Invasive Annual Grass:	*Low-elevation Shrub, Perennial Grass, Invasive Annual Grass:*	*Low-elevation Shrub, Perennial Grass, Invasive Annual Grass:*	*Low-elevation Shrub, Perennial Grass, Invasive Annual Grass:*	*Low-elevation Shrub, Perennial Grass, Invasive Annual Grass:*
	- Would treat approximately 6% of cover types to benefit special status plant habitat by reestablishing the structure, species composition, and seral dynamics of the native cover type.	- Would treat approximately 12% of cover types to benefit special status plant habitat by reestablishing the structure, species composition, and seral dynamics of the native cover type.	- Would treat approximately 37% of cover types to benefit special status plant habitat by reestablishing the structure, species composition, and seral dynamics of the native cover type.	- Would treat approximately 30% of cover types to benefit special status plant habitat by reestablishing the structure, species composition, and seral dynamics of the native cover type.	- Same as Alternative D. - RxFire on approximately 500,000 acres would benefit species that require open light and openings in early to mid-seral stages.

TABLE 2-15. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	- RxFire on approximately 14,000 acres would benefit species that require open light and openings in early to mid-seral stages. Species characteristic of late seral stages would possibly be less tolerant of burning treatments due to shading or nutrient requirements. *Mid-elevation Shrub, Juniper, including areas of juniper encroachment:* - SSS that occur on relatively fire-resistant, sparsely vegetated, rocky sites would not be impacted. - Would treat approximately 3% of cover types with benefits dependent upon seral stage status and tolerance to fire, as well as competitive ability and shade tolerance. Potential negative long-term effects would be due to lack of treatment and continued degradation of habitat.	- WFU and RxFire on approximately 320,000 acres would benefit species that require open light and openings in early to mid-seral stages. Species characteristic of late seral stages would possibly be less tolerant of burning treatments due to shading or nutrient requirements. *Mid-elevation Shrub, Juniper, including areas of juniper encroachment:* - Same as Alternative A. - Would treat approximately 15% of cover types with benefits dependent upon seral stage status and tolerance to fire, as well as competitive ability and shade tolerance. Potential negative long-term effects would be due to lack of treatment and continued degradation of habitat.	- WFU and RxFire on approximately 258,000 acres would benefit species that require open light and openings in early to mid-seral stages. Species characteristic of late seral stages would possibly be less tolerant of burning treatments due to shading or nutrient requirements. *Mid*-elevation *Shrub, Juniper, including areas of juniper encroachment:* - Same as Alternative A. - Would treat approximately 50% of cover types with benefits dependent upon seral stage status and tolerance to fire, as well as competitive ability and shade tolerance. Potential positive effects would be due to maintaining a seral community/or expanding potential habitat on a landscape scale.	- RxFire on approximately 500,000 acres would benefit species that require open light and openings in early to mid-seral stages. Species characteristic of late seral stages would possibly be less tolerant of burning treatments due to shading or nutrient requirements. *Mid-elevation Shrub, Juniper, including areas of juniper encroachment:* - Same as Alternative A. - Would treat approximately 28% of cover types with benefits dependent upon seral status and tolerance to fire, as well as competitive ability and shade tolerance. Potential positive effects would be due to maintaining a seral community/or expanding potential habitat on a landscape scale.	Species characteristic of late seral stages would possibly be less tolerant of burning treatments due to shading or nutrient requirements. *Mid-elevation Shrub, Juniper, including areas of juniper encroachment:* - Same as Alternative A. - Would treat approximately 28% of cover types with benefits dependent upon seral status and tolerance to fire, as well as competitive ability and shade tolerance. Potential positive effects would be due to maintaining a seral community/or expanding potential habitat on a landscape scale.

TABLE 2-15. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	Salt Desert Shrub: - Would treat approximately 3% of cover type. Unlikely that treatments would impact any special status plant populations.	*Salt Desert Shrub:* - No treatment proposed. No impact to any special status plant populations.	*Salt Desert Shrub:* - Same as Alternative B.	*Salt Desert Shrub:* - Same as Alternative B.	*Salt Desert Shrub:* - Same as Alternative B.
	Aspen/Conifer and Dry Conifer: - Would treat approximately 3% of cover types with benefits dependent upon the seral stage status, tolerance to fire, competitive ability, and shade tolerance.	*Aspen/Conifer and Dry Conifer:* - Would treat approximately 21% of cover types with benefits dependent upon the seral stage status, tolerance to fire, competitive ability, and shade tolerance.	*Aspen/Conifer and Dry Conifer:* - Would treat approximately 14% of cover types with benefits dependent upon the seral stage status, tolerance to fire, competitive ability, and shade tolerance.	*Aspen/Conifer and Dry Conifer:* - No treatment proposed. Unlikely to impact any special status plant populations though may indirectly impact SSS that require openings in the Aspen vegetation cover type.	*Aspen/Conifer and Dry Conifer:* - Same as Alternative C.
	Mountain Shrub: - Would treat approximately < 1% of cover type with benefits dependent upon seral stage status, tolerance to fire, competitive ability, and shade tolerance. Potential negative long-term effects would be due to lack of treatment and continued degradation of habitat.	*Mountain Shrub:* - Would treat approximately 9% of cover type with benefits dependent upon seral stage status, tolerance to fire, competitive ability, and shade tolerance. Potential negative long-term effects would be due to lack of treatment and continued degradation of habitat.	*Mountain Shrub:* - Would treat approximately 42% of cover type with benefits dependent upon seral stage status, tolerance to fire, competitive ability, and shade tolerance. Potential positive effects would be due to maintaining a seral stage and/or expanding potential habitat on a landscape scale.	*Mountain Shrub:* - Would treat approximately 13% of cover type with benefits dependent upon seral stage status, tolerance to fire, competitive ability, and shade tolerance. Potential positive effects would be due to maintaining a seral stage and/or expanding potential habitat on a landscape scale.	*Mountain Shrub:* - Would treat approximately 13% of cover type with benefits dependent upon seral stage status, tolerance to fire, competitive ability, and shade tolerance. Potential positive effects would be due to maintaining a seral stage and/or expanding potential habitat on a landscape scale.

TABLE 2-15. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	Wet/Cold Conifer: There are no special status plant species associated with the Wet/Cold Conifer cover type. *Riparian*: It is not anticipated that areas supporting special status plants would be treated, unless site-specific information indicates that small-scale RxFire use would maintain a seral stage beneficial to the taxa. *Vegetated Rock/Lava*: No treatment proposed. Unlikely to impact any special status plant populations.	*Wet/Cold Conifer*: Same as Alternative A. *Riparian*: No treatment proposed. No impact to any special status plant populations. *Vegetated Rock/Lava*: Same as Alternative A.	*Wet/Cold Conifer*: Same as Alternative A. *Riparian:* Same as Alternative A. *Vegetated Rock/Lava*: Same as Alternative A.	*Wet/Cold Conifer*: Same as Alternative A. *Riparian:* Same as Alternative B. *Vegetated Rock/Lava*: Same as Alternative A.	*Wet/Cold Conifer*: Same as Alternative A. *Riparian:* Same as Alternative B. *Vegetated Rock/Lava*: Same as Alternative A.
Air Quality	Emissions (tons/10-years): - PM_{10} 1,463 - $PM_{2.5}$ 1,233	Emissions (tons/10-years): - PM_{10} 20,235 - $PM_{2.5}$ 17,054	Emissions (tons/10-years): - PM_{10} 26,172 - $PM_{2.5}$ 21,797	Emissions (tons/10-years): - PM_{10} 9,052 - $PM_{2.5}$ 7,468	Emissions (tons/10-years): - PM_{10} 12,473 - $PM_{2.5}$ 10,371
Soil Resources	Least amount of water and wind erodible soils disturbance (37,987 and 154,731 acres, respectively).	Would disturb 98,068 acres of water erodible soils and 399,471 acres of wind erodible soils.	Most amount of water and wind erodible soils disturbance, 256,010 and 1,042,829 acres, respectively.	Would impact 231,076 acres of water erodible soils and 941,263 acres of wind erodible soils.	Would impact 233,467 acres of water erodible soils and 951,003 acres of wind erodible soils.

TABLE 2-15. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Water Resources	Less than 1% of the proposed treatments in all cover types would occur on water-erodible soils. Thus, overall, short-term impacts to water resources would be negligible across the planning area.	Approximately 7% of the proposed treatments for all cover types would occur on wind-erodible soils, while less than 2% would occur on water-erodible soils, with accompanying risk of sedimentation and short-term impacts to water quality in the planning area.	Approximately 19% of the proposed treatments for all cover types would occur on wind-erodible soils, while approximately 5% would occur on water-erodible soils, resulting in accompanying risk of sedimentation and short-term impacts to water quality in the planning area.	Approximately 17% of the proposed treatments for all cover types would occur on wind-erodible soils, while approximately 4% would occur on water-erodible soils, resulting in accompanying risk of sedimentation and short-term impacts to water quality in the planning area.	Approximately 18% of the proposed treatments for all cover types would occur on wind-erodible soils, while approximately 4% would occur on water-erodible soils, resulting in accompanying risk of sedimentation and short-term impacts to water quality in the planning area.
Livestock Grazing Management	Would result in approximately 47,500 AUMs (0.7%) being temporarily unavailable annually.	Would result in approximately 122,783 AUMs (1.8%) being temporarily unavailable annually.	Would result in approximately 320,467 AUMs (4.8%) being temporarily unavailable annually.	Would result in approximately 289,268 AUMs (4.3%) being temporarily unavailable annually.	Would result in approximately 292,242 AUMs (4.4%) being temporarily unavailable annually.
Recreation	Could have direct impacts by decreasing public access to recreational areas during treatment and recovery periods.	Would have short-term direct impacts by decreasing access to more recreational areas during treatment and recovery periods than Alternative A.	Would have short-term direct impacts by decreasing access to more recreational areas during treatment and recovery periods more than for any of the other alternatives. Dispersed recreation, such as hunting and all-terrain vehicle riding, could be adversely affected in the short term through decreased access to treated areas.	Would have short-term direct impacts by decreasing access to recreational areas during treatment and recovery periods at levels close to Alternative C. Dispersed recreation, such as hunting and all-terrain vehicle riding, could be adversely affected in the short term through decreased access to treated areas.	Would have short-term direct impacts by decreasing access to recreational areas during treatment and recovery periods at levels close to Alternative C. Dispersed recreation, such as hunting and all-terrain vehicle riding, could be adversely affected in the short term through decreased access to treated areas.

TABLE 2-15. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Wilderness	Treatments in Wilderness Study Areas that follow the guidance in BLM handbook H-8551 (Interim Policy for Lands Under Wilderness Review) would not impair wilderness values under any alternative.				
	Effects of current direction's full wildland fire suppression would not result in any short-term, discernible change from current conditions.	Treatments in Vegetated Rock/Lava (approximately 50% of the WSAs) would only include WFU. The remaining cover types that are within Wilderness Study Areas would receive, in general, approximately 2.6 times more treatment than under Alternative A. Treatment impacts may be perceived to decrease the wilderness values of these Wilderness Study Areas in the short term.	Anticipated treatment impacts would be similar to those under Alternative B for Vegetated Rock/Lava cover types. The remaining cover types that are within Wilderness Study Areas would, in general, be 6.7 times more likely to receive treatment than under Alternative A.	There are no treatments proposed in Vegetated Rock/Lava. The remaining cover types that are within Wilderness Study Areas would, in general, be 6.1 times more likely to receive treatment than under Alternative A.	Impacts to WSAs would be the same as those described for Alternative C.
Visual Resources	Views from key viewpoints would be maintained in FRCC 3 with the exception of some portions of the Ohio Gulch viewshed that would be FRCC 2. This would result in moderate-to-high visual quality degradation from atmospheric particulates and large-scale landscape scorching as seen from these viewpoints.	Views from key viewpoints would be maintained in FRCC 3 with the exception of Appendicitis Hill Wilderness Study Area viewshed, where vegetation could move to FRCC 2, resulting in lessened potential for visual quality degradation.	Views from key viewpoints would be maintained in FRCC 1 with the exception of some portions of the Appendicitis Hill Wilderness Study Area, which would remain in FRCC 2. This would result in substantially reduced potential for major visual quality degradation from atmospheric particulates and large-scale	Views from key viewpoints would be maintained in FRCC 3, 2, and 1 with similar visual impacts to those described for Alternative B.	Views from key viewpoints would be maintained in FRCC 3, 2, and 1 with similar visual impacts to those described for Alternative B.

TABLE 2-15. SUMMARY OF ALTERNATIVE EFFECTS-ISSUE 2

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
			landscape scorching as seen from these viewpoints.		
Cultural Resources and Native American Tribal Concerns	An estimated 250,200 footprint-acres would be subject to mechanical treatment, chemical treatment, RxFire, or seeding over a 10-year period. However, standard BLM practice entails measures such as pre-action inventory and avoidance that would likely mitigate these impacts.	An estimated 646,000 footprint-acres in most cover types would be treated over a 10-year period. However, standard BLM practice entails measures such as pre-action inventory and avoidance that would likely mitigate these impacts.	An estimated 1,687,000 footprint-acres would be treated over a 10-year period, resulting in a corresponding increase in risk to cultural resources or Tribal concerns. However, standard BLM practice entails measures such as pre-action inventory and avoidance that are expected to mitigate these impacts.	An estimated 1,522,000 footprint-acres would be treated over a 10-year period. Impacts would be similar to those described for Alternative C.	An estimated 1,538,000 footprint-acres would be treated over a 10-year period. Impacts would be similar to those described for Alternative C.
Socioeconomics	-The loss of revenue to the BLM in the form of grazing fees would be $65,075 over the next 10-year period. -Total fire management costs over the next 10-years would be approximately $107 million, of which approximately $37 million would be funneled into the local economy.	-The loss of revenue to the BLM in the form of grazing fees would be $168,213 over the next 10-year period. -Total fire management costs over the next 10-years would be approximately $114 million, of which approximately $40 million would be funneled into the local economy.	-The loss of revenue to the BLM in the form of grazing fees would be $439,040 over the next 10-year period. -Total fire management costs over the next 10 years would be approximately $199 million, of which approximately $70 million would be funneled into the local economy.	-The loss of revenue to the BLM in the form of grazing fees would be $396,297 over the next 10-year period. -Total fire management costs over the next 10 years would be approximately $184 million, of which approximately $64 million would be funneled into the local economy.	-The loss of revenue to the BLM in the form of grazing fees would be $400,371 over the next 10-year period. -Total fire management costs over the next 10 years would be approximately $185 million, of which approximately $65 million would be funneled into the local economy.

CHAPTER THREE - AFFECTED ENVIRONMENT

This chapter describes existing conditions, trends, opportunities, and risks of resources that could be affected as a result of implementing any of the alternatives or this Environmental Impact Statement (EIS). Specific aspects of each resource discussed in this section (e.g., surface water quality, sage grouse) were raised during the public and agency scoping process. The level of information presented in this chapter is commensurate with and sufficient to assess potential effects of the alternatives in Chapter 4, Environmental Consequences, of this EIS. Also presented are general trends that have been occurring to resources as a result of existing land use plans (LUPs) that the Idaho Bureau of Land Management (BLM) uses for land management in the planning area. Risks to individual resources as a result of fire suppression and wildland fire are discussed, along with opportunities to manage individual resources under fire, fuels, and related vegetation planning processes.

3.1 FIRE AND FUELS MANAGEMENT CONCERNS FOR THE PLANNING AREA FIELD OFFICES

The planning area's four BLM field offices - Upper Snake Field Office (USFO), Pocatello Field Office (PFO), Burley Field Office (BFO), and Shoshone Field Office (SFO) - comprise a wide variety of landscapes, topographies, cover types, and habitats. Forest/timber types are concentrated on the planning area's eastside, in the USFO and PFO; the PFO is also concerned with Wildland Urban Interface (WUI) issues. Sagebrush steppe cover types are present throughout the planning area, including the Snake River Plain, and the valleys and foothills south to the borders of Utah and Nevada (i.e., the BFO, SFO, and USFO). The land administered by the BFO has the planning area's largest area of juniper encroachment. The SFO has areas of sagebrush steppe with large populations of three-tip sagebrush, which is uncommon in other portions of the planning area. These differences among field offices and differences in their past-use histories all influence the present state of the vegetation, its conditions, its altered ecologies, its problems, and its priorities. Following is a brief synopsis of the issues each field office faces.

3.1.1 UPPER SNAKE FIELD OFFICE (USFO)

The primary focuses of current management for the USFO include the WUI, as well as maintaining or improving Low-elevation Shrub in the Big Desert area (west of Blackfoot) by means of fire rehabilitation and hazardous fuels reduction projects focused on restoration. The dominance of this area by highly flammable annual cheatgrass and perennial grasses is a consequence of large fires over the past 10 years that have decimated the shrub canopy. In Mid-elevation Shrub (e.g., north of Camas National Wildlife Refuge and the St. Anthony Dunes area), RxFire and mechanical treatments remain priorities to reduce hazardous fuels and restore ecological health. Remaining priorities involve projects in Mountain Shrub, Dry Conifer, and Aspen/Conifer types to stimulate desirable species and to reduce hazardous fuels.

3.1.2 POCATELLO FIELD OFFICE (PFO)

The primary focus of current management for the PFO is the WUI, which is predominately composed of Juniper with a variety of other cover types, depending upon location (e.g., Lava

Ranch, Portneuf, and Buckskin areas). Juniper encroachment into Mid-elevation Shrub is also an issue in the WUI of the PFO. Outside the WUI, priorities include aspen regeneration and Dry Conifer forest health issues. Mountain Shrub regeneration and the control and eradication of noxious and invasive weeds are emerging issues both within and outside the WUI.

3.1.3 BURLEY FIELD OFFICE (BFO)

The primary focuses of current management for the BFO inclue the WUI, as well as to restore areas of Low- and Mid-elevation Shrub that are presently dominated by cheatgrass and areas experiencing juniper encroachment. Another priority is to remove encroaching and mature Utah Juniper from Mountain Shrub cover types and pinyon sites (mapped within Juniper) and restore Aspen, Riparian, and Low-elevation and Mid-elevation Shrub types to more natural conditions. In late-seral stage sagebrush stands, other priorities include reducing shrub density and increasing the herbaceous understory, thereby reducing the uncharacteristic wildland fires in these cover types.

3.1.4 SHOSHONE FIELD OFFICE (SFO)

The primary focuses of management for the SFO include the WUI, as well as to reduce the risk and severity of wildland fires in the Low-elevation and Mid-elevation Shrub types, which have been impacted by wildland fire over the past 30 years. Frequent (<10-year fire return intervals), unplanned fires have converted shrub types to predominately Invasive Annual Grass types, which severely impact multiple resources and their uses.

The first priority for the SFO is to restore areas of Invasive Annual Grass and Low-elevation Shrub heavily invaded by non-native annuals, especially in areas adjacent to intact sagebrush steppe. Additional priorities are to restore, enhance, or maintain areas of Dry Conifer, Aspen, Mountain Shrub, and Mid-elevation Shrub via hazardous fuels reduction projects. In late-seral stage sagebrush stands, other priorities include reducing shrub density and increasing the herbaceous understory, thereby reducing the risk and severity of wildland fires in these cover types.

3.2 VEGETATION RESOURCES AND FIRE'S NATURAL ROLE (ISSUE 1)

One of the principal goals of the Cohesive Strategy (U.S. Forest Service [USFS] 2000) is to return fire to its historical range in all cover as described by Fire Regime Condition Class (FRCC) 1. FRCC is a measure of vegetation and fuel departure, as well as fire severity and frequency departure. Vegetation in a condition of FRCC 1 would correspond to its historical range of conditions and would be less susceptible to uncharacteristic fires; see Table 3-1 for definitions of FRCC 1-3. Descriptions of species that characterize cover types, area extents, and cheatgrass (*Bromus tectorum*) invasion of the planning area's vegetation cover types are presented in Table 3-2 and Table 3-3.

For the purpose of determining current FRCC and analyzing the effects of the alternatives, these vegetation cover types were grouped based on ecological site and similar historic fire regimes: Low-elevation Shrub (including Perennial and Invasive Annual Grass), Mid-elevation Shrub

(including juniper encroachment); Mountain Shrub; Aspen/Conifer; Dry Conifer; Salt Desert Shrub; Vegetated rock/lava; Wet/Cold Conifer; and Riparian. Summaries of current vegetation condition and FRCC for each cover type are found under each cover type description in Sections 3.2.1.1 through 3.2.1.8.

TABLE 3-1. FIRE REGIME CONDITION CLASS[1] (FRCC) DESCRIPTIONS

FRCC	Departure from Natural (Historical) Fire Regime	Description
FRCC 1	Minimal or none (0% to 33% departure)	Vegetation composition, structure, and fuels are similar to those of the historical regime and do not pre-dispose the system to risk of loss of key ecosystem components. Wildland fires are characteristic of the historical fire regime behavior, severity, and patterns. Disturbance agents, native species habitats, and hydrologic functions are within the historical range of variability.
FRCC 2	Moderate (33% to 66% departure)	Vegetation composition, structure, and fuels have moderate departure from the historical regime and predispose the system to risk of loss of key ecosystem components. Wildland fires are moderately uncharacteristic compared to the historical fire regime behaviors, severity, and patterns. Disturbance agents, native species habitats, and hydrologic functions are outside the historical range of variability.
FRCC 3	High (>66% departure)	Vegetation composition, structure, and fuels have high departure from the historical regime and predispose the system to high risk of loss of key ecosystem components. Wildland fires are highly uncharacteristic compared to the historical fire regime behaviors, severity, and patterns. Disturbance agents, native species habitats, and hydrologic functions are substantially outside the historical range of variability.

[1] Hann 2001.

TABLE 3-2. CURRENT VEGETATION COVER TYPES OF THE PLANNING AREA

Vegetation Cover Type	Characterized By:
Low-elevation Shrub	Sagebrush steppe: Wyoming big sagebrush, basin big sagebrush, etc., with native grass and forb understory. Biological crust in interspaces.
Perennial Grass[1]	Sagebrush steppe: Seeded areas (native/non-native) and native grasslands (bluebunch wheatgrass (*Pseudoroegneria spicata*), needlegrass (*Achnatherum Beauv*.), Idaho fescue (*Festuca idahoensis*), etc.). Biological crust may be present in interspaces.
Invasive Annual Grass[1]	Potential sagebrush steppe: Principally, cheatgrass and medusahead wildrye (*Taeniatherum caput-medusae*). Biological crust may be present in interspaces.
Mid-elevation Shrub	Sagebrush steppe: Mountain big sagebrush, low sagebrush, bitterbrush, aspen, etc., with native grass and forb understory. Biological crust may be present in interspaces.
Juniper	Rocky Mountain juniper, Utah juniper, limber pine, and /or single leaf pine. Natural juniper (approximately 12% juniper area), pinyon-juniper (approximately 5% juniper area), and juniper encroachment in sagebrush steppe habitat (approximately 83% juniper area). Biological crust may be present in interspaces.
Dry Conifer	Douglas-fir, limber pine, ponderosa pine.
Aspen/Conifer	Includes healthy stands of aspen and invading conifer.
Mountain Shrub	Serviceberry, buckbrush *(Ceanothus)*, snowberry, mountain mahogany, bigtooth maple, chokecherry, antelope bitterbrush, aspen, etc., with native grass and forb understory.
Wet/Cold Conifer	Lodgepole, Subalpine fire, Engelmann spruce, etc.
Riparian areas	Streamside and wetland areas of cottonwood, willow, etc.
Salt Desert Shrub	*Atriplex* spp. (four-wing, shadscale), spiny hopsage, winterfat, greasewood, etc., with native grass and forb understory. Biological crust in interspaces.
Vegetated Rock/Lava	Lava, sand dunes, barren areas, etc.

[1] Historically these areas were dominated by Low-elevation sagebrush steppe.

TABLE 3-3. VEGETATION COVER TYPE AND CHEATGRASS INVASION ACREAGES AND PERCENTAGES, IN THE PLANNING AREA AND BY FIELD OFFICE

Planning Area (Acres)			Field Office Acres of Vegetation Cover Type (% of veg-type invaded by cheatgrass) [1]			
Vegetation Cover Type (% of Planning Area)		Acres of Cheatgrass (% of veg-type)	PFO	USFO	BFO	SFO
Low-elevation Shrub	1,531,220 (28)	391,950 (26.00)	38,244 (6.00)	913,184 (45.00)	385,496 (39.00)	415,308 (23.00)
Perennial Grass[2]	1,436,031 (27)	529,133 (37.00)	108,255 (18.00)	470,002 (23.00)	309,059 (31.00)	548,808 (31.00)
Invasive Annual Grass[2,3]	330,581 (6)	330,182 (NA)	32 (0.01)	36 (<0.01)	49,098 (5.00)	281,362 (16.00)
Mid-elevation Shrub	848,782 (16)	38,775 (5.00)	143,598 (23.00)	231,519 (11.00)	31,174 (3.00)	311,194 (18.00)
Juniper (Including juniper encroachment in Mid-elevation Shrub)	90,966 (2)	12,729 (14.00)	26,102 (4.00)	5,380 (0.27)	59,712 (6.00)	4 (<0.01)
Dry Conifer	88,768 (2)	12 (0.01)	49,022 (8.00)	20,132 (0.99)	376 (0.04)	19,241 (1.00)
Aspen/Conifer	56,290 (1)	76 (0.10)	40,395 (7.00)	10,276 (0.51)	1,232 (0.13)	4,441 (0.25)
Mountain Shrub	339,815 (6)	14,523 (5.00)	186,869 (30.00)	13,035 (0.64)	38,825 (4.00)	11,901 (0.67)
Wet/Cold Conifer	24,965 (<1)	268 (2.00)	678 (0.06)	14,095 (0.70)	833 (0.08)	9,388 (0.53)
Riparian	30,903 (<1)	1,962 (6.00)	6,823 (1.11)	15,690 (0.78)	2,338 (0.24)	6,153 (0.35)
Salt Desert Shrub	37,792 (<1)	5,293 (14.00)	346 (0.06)	27,409 (1.40)	10,177 (0.08)	0
Vegetated Rock/Lava	582,057 (11)	80,591 (14.00)	16,387 (3.00)	304,794 (15.00)	94,604[4] (10.00)	166,786 (9.00)
TOTALS	5,398,170	1,405,494	616,751	2,025,552	982,924	1,774,586

[1] ≥ 5% cover of cheatgrass.

[2] Formerly Low-elevation and Mid-elevation Shrub. Total historical low-elevation sagebrush acreage estimated at 3,518,883 acres, or 65.2% of the BLM-administered lands. Approximately half of the Low-elevation Shrub has been converted to Invasive Annual Grass cover type or Perennial Grass cover type.

[3] Not an historical cover type, formerly Low-elevation and Mid-elevation Shrub.

[4] Due to changes in field office boundaries, this acreage is now located in the Shoshone Field Office.

3.2.1 CURRENT CONDITIONS AND TRENDS

For the purposes of analysis, the vegetation types discussed in the Final EIS are described as homogenous or stand alone cover types. In reality, they are not evenly distributed across the landscape but merge and blend themselves in association with each other. The most common vegetation types found in association with each other are Juniper, Mid-elevation Shrub, Mountain Shrub, Aspen/Conifer, Dry Conifer and Riparian. The percentage of a vegetation type found in association with others varies depending on aspect, soils, elevations, and precipitation. Similary, Annual and Perennial Grass areas, Riparian, Salt Desert Shrub and Vegetated Lava vegetation types are found in association with the Low-elevation Shrub vegetation type. This association of vegetation types tends to be more homogenous and found on larger areas and in closer proximity to one another with less mixing than the previously mentioned vegetation types found in association with each other. The vegetation types discussed are the principal biotic components of the ecosystem. Vegetation provides wildlife cover and browse, nesting and rearing habitat, and a wide variety of other ecosystem benefits. Vegetation forms the protective cover of watersheds and produces the biomass that characterizes cover types and their habitats. Vegetation also functions in the hydrologic cycle as a dynamic interface between the soil and the atmosphere. It intercepts precipitation, retards overland flow, retains soil water by root absorption, and transports water back to the atmosphere via stems and leaves (evapo-transpiration).

Determinations of current FRCC were made for cover types in the four field offices. FRCC values may vary at the site-specific level within a single cover type or field office. A full description of how FRCC and vegetation condition was determined is found in Appendix C. Historical fire rotations, fire severities, and fire size and patterns were estimated from relevant literature and professional judgments; see Appendix C for a description of Fire Regime Groups, Fire Rotation (Return Intervals), and Fire Severity. Current composition of vegetation by age classes and current FRCC are presented in Tables 3-4 through 3-18. The vegetation resources of the planning area are the central issue of this EIS. This section discusses the current and historical vegetation of the planning area and its trend under current management, including cover types and species, federally-listed threatened and endangered (T&E) and BLM-Sensitive species, noxious and invasive weeds, and the influence of fire. Plants found in the planning area that are important to Native Americans and how they are used can be found in Appendix N.

The cover types listed in Table 3-2 and Table 3-3 were aggregated from 51 cover types originally classified by the Gap Analysis Program (GAP) for southern Idaho (Scott et al. 2002 [1993]). The GAP is used to assess the conservation status of native vertebrate species, habitat loss, and natural land cover types at a regional level to meet the needs of natural resources management agencies like the BLM. GAP uses Landsat Thematic Mapper satellite images to generate the digital maps from which land cover patterns are delineated. (The minimum mapping unit is 30 m^2, a landscape-level resolution sufficient for regional-level planning; however, this might not represent actual acres on the ground.)

The distribution of the cover types across the planning area is presented in Figure 3-1. These cover types are based on coarse-scale approximations used to define the mapping units. Within a mapping unit, species composition, species distribution, habitats, and cover type structures may vary widely due to various factors such as environmental gradients, ecotones, natural variations,

and site-specific historical influences (e.g., fire, grazing, landslides). If a particular species is noted in a cover type in Table 3-1, it means that the species is one of the principal species used to define the cover type, but it does not mean that the species is found *only* in that cover type. A species may be found in a number of cover types, where its presence would be more or less dominant. For example, mountain big sagebrush is primarily associated with the more mesic sites of Mid-elevation Shrub, but it can also be found at higher elevations in some Mountain Shrub cover types.

Fire plays an essential ecological role in regenerating and maintaning a diverse mosaic of healthy cover types across ecosystems. Historically (prior to 1900), the planning area's landscape would have been dominated by the vegetation characteristic of FRCC 1.

Particular areas (e.g., watersheds, benches, swales, plains) would have been in various stages of recovery from wildland fires and other disturbances resulting in a mosaic of seral stages across the landscape.

Over the past century, fire suppression, introduction of non-natives (e.g., cheatgrass and medusahead wildrye), and other land management practices have altered fire ecology, species composition, and the dynamics of ecological succession across the planning area landscape. The vegetation seral mosaic across the planning area has been altered and certain species and/or seral stages now predominate, moving landscapes toward FRCC 3. Since approximately 1950, there have been large-scale conversions from sagebrush steppe to urban and agricultural development.

Cheatgrass invasion dates from before the 1930s in southern Idaho. Today, in undeveloped areas of the planning area, a large portion of the historical sagebrush steppe has further degraded due to cheatgrass invasion and past uses. Consequently, some of the planning area's ecosystems are at risk of ecological breakdown (e.g., loss of more sagebrush steppe habitat). Similarly, long-term fire suppression in the forested landscape has resulted in fewer early-seral and mid-seral stages and in more late-seral stages, often with high fuel loads.

3.2.1.1 Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass

Presently, the Low-elevation Shrub type is dominated by Wyoming big sagebrush *(Artemisia tridentata* subsp. *wyomingensis)* and basin big sagebrush *(Artemisia tridentata* subsp. *tridentata)*, with approximately 26 percent invaded by cheatgrass. West to east across the planning area, the Low-elevation Shrub separates into two zones at approximately the midpoint of Craters of the Moon National Monument and Preserve.[1] The western portion is characterized by less than 12 inches of precipitation per year, warm soils, and historically degraded rangelands; it also has been most heavily impacted by cheatgrass. The eastern portion has slightly higher precipitation, cooler soils, and more intact sagebrush steppe. Higher precipitation sagebrush steppe is probably more resistant to cheatgrass and would probably respond better to treatments than the drier portions.

[1] Approximately 113 degrees, 20 minutes east longitude.

3.2.1.1.1 Shrubs

At present, Low-elevation Shrub dominates approximately 28 percent of the planning area's BLM-administered lands. Basin big sagebrush occurs on deep and well-drained sandy soils, at low to mid-elevations, and 10-inch to 16-inch precipitation zones. Wyoming big sagebrush occurs on finer-textured, shallow soils that have limited depths of water infiltration, at low-elevations to mid-elevations and 8-inch to 12-inch precipitation zones. Three-tip sagebrush is locally dominant north of the Snake River over much of the low-elevation sagebrush. Other common shrub species are rubber or gray rabbitbrush *(Chrysothamnus nauseosus)*; yellow, green, or Douglas rabbitbrush *(Chrysothamnus viscidiflorus)*; low, little, or gray sagebrush *(Artemisia arbuscula)*; black sagebrush *(Artemisia nova)*; and silver sagebrush *(Artemisia cana)*. Gray and green rabbitbrushes, both of which sprout, may be a co-dominant with sagebrush. Low sagebrush and silver sagebrush cover types are minor cover types that are minimally influenced by fire.

Wyoming sagebrush may produce large numbers of viable seeds, but not in all years. Large burn areas may require decades to naturally reseed (U.S. Department of Agriculture [USDA] 2002a). Fire effects on soil seedbanks and regeneration range from none in Wyoming big sagebrush (USDA 2002a) to reduced viability and germination in basin big sagebrush (USDA 2002b). Some areas supporting Wyoming and basin big sagebrush have become dominated by three-tip sagebrush after large burns. Three-tip sagebrush may be either seral or climax, depending on the site potential, but generally is climax only on sites that are colder and wetter than those that support Wyoming sagebrush, but not as cold and wet as those sites that support mountain big sagebrush. Replacing Wyoming and basin big sagebrush by three-tip sagebrush has implications for fire ecology and wildlife habitat (e.g., sage grouse).

3.2.1.1.2 Perennial Grass

At present, Perennial Grass dominates approximately 27 percent of the planning area's BLM-administered lands. Perennial Grass is composed of native sites with Idaho fescue *(Festuca idahoensis)*, bluebunch wheatgrass *(Agropyron spicatum)*, western wheatgrass *(Agropyron smithii)*, thickspike wheatgrass *(Agropyron dasystachyum)*, Thurber's needlegrass *(Achnatherum thurberiana)*, Sandberg bluegrass *(Poa secunda)*, and Indian ricegrass *(Oryzopsis hymenoides)*, as well as seedings of native and non-native perennial grasses such as crested wheatgrass *(Agropyron cristatum)*, Siberian wheatgrass *(Agropyron fragile)*, Snake River wheatgrass *(Elymus wawawaiensis)*, and bluebunch wheatgrass.

Historically, native Perennial Grass formed part of the seral mosaic of the sagebrush steppe habitat; although, it is unclear how widespread they once may have been represented across the landscape. Perennial Grass is considered an intermediate seral stage in the sagebrush steppe. Perennial Grass would eventually develop into diverse sagebrush steppe habitat if undisturbed for 20 to 70 years without impacts from wildland fires. Other Perennial Grass cover types expanded in portions of the planning area due to the eradication of shrubs, especially sagebrush species, or by wildland fires on relatively good condition rangelands.

Non-native perennial grasslands, those dominated by crested wheatgrass or other non-native species, are stable cover types that do not trend toward recovery to sagebrush steppe habitat as quickly as native perennial grasslands, though they are more preferred than cheatgrass.

Sagebrush re-establishment in crested wheatgrass stands is apparent on portions of the planning area. On more suitable sites and in higher precipitation zones, sagebrush would reclaim areas containing non-native seedlings in 20 or 30 years. However, it is unlikely that native understory components would return to historical, pre-disturbance proportions in 20 to 30 years, without proactive intervention to diversify the community.

3.2.1.1.3 Invasive Annual Grass

Invasive Annual Grass cover type was not part of the planning area's historical vegetation. At present, Invasive Annual Grasses have invaded approximately 26 percent of the planning area's cover types, primarily in former sagebrush steppe. Unfortunately, cheatgrass forms a relatively stable state but dysfunctional ecosystem in this cover type (Laycock 1991). Once the cheatgrass fire regime becomes established in a region, it is extremely difficult to regain a more desirable, relatively stable wildland system. Figure 3-1 depicts areas with a high cover of cheatgrass, including Invasive Annual Grass cover types, Perennial Grass cover types, and degraded sagebrush steppe with a high cover of cheatgrass in the understory (i.e., areas with greater than 20 percent cover).

Cheatgrass and medusahead wildrye are the two principal invasive annual species in the planning area. During the fire year, the presence of cheatgrass and medusahead wildrye in a wildland cover type extends the time during which the cover type is susceptible to wildland fire ignitions. Both cheatgrass and medusahead wildrye are opportunistic winter annuals that germinate anytime between autumn and spring when temperatures and soil moisture are suitable. Native grasses, on the other hand, go dormant through winter and are slower to develop in the spring. In the summer, cheatgrass and medusahead wildrye dry out four to six weeks earlier than perennial grasses and form a fine-textured, highly flammable fuel. These Invasive Annual Grasses may also extend the fire year by one to two months in the fall when perennial grasses can green-up following periods of moisture in the autumn (Paysen et al. 2000). Seeds may remain viable for a year or more (Pyke and Novak 1994) and are known to remain viable for up to 11 years under dry storage conditions (USDA 2002c). Cheatgrass seed production can be impacted by RxFire when it is applied during the brief period between the purple stage and when the seeds are dropped a short time later.

The criteria for establishing when cheatgrass becomes an invasive concern or a fire concern are not readily assigned. As noted previously, degraded sites are most susceptible to Invasive Annual Grass invasion after disturbance; an abundance of cheatgrass in the understory enhances the likelihood of fire spread and conversion of sagebrush steppe to Invasive Annual Grass cover type (USDA 2002a).

Disturbances such as wildland fire are not wholly responsible for expanding cheatgrass in southern Idaho. Dryland farming ventures in the 1930s contributed to the spread of cheatgrass in this region. Since then, wildland fire has become the dominant factor for cheatgrass's spread. There is also strong evidence that cheatgrass can invade sites that have remained ungrazed for over 20 years at the Idaho National Laboratory (INL) (Anderson and Inouye 2001) and in kipukas at Craters of the Moon National Monument and Preserve. At the INL, transects from the 1950s showed cheatgrass invasion by 1976. Cheatgrass at the INL, however, is not the fire/fuels problem that it is on some BLM-administered lands. Areas with intact biological crusts are more

resistant to cheatgrass invasion, as the crusts form a physical barrier to seed penetration and germination (Belnap et al. 2001). This may, in turn, reduce hazardous fuel loads and increase continuities in the interspaces so that, when a cover type burns on a small scale, a mosaic is created, consisting of relatively unburned or lightly burned islands between burn areas.

The Sitewide Field Area within INL still retains much of its historical ecological character. Permanent plots were established in 1950, and vegetation species cover and density data were collected and analyzed at 5-year to 10-year intervals through 1995. By 1950, heavy grazing and a 17-year drought had resulted in very low cover of perennial grasses (0.5 percent), low density of perennial forbs, and dominance by sagebrush and other shrubs (17 percent). Since 1950, however, a major portion of the INL has been free of livestock grazing and subsequent vegetation dynamics have been attributed to natural fluctuations in the environment. Recent ecological history of the INL shows that cheatgrass invaded undisturbed sites sometime between 1965 and 1975. Anderson and Inouye (2001) surmise that:

- In spite of continued dominance by shrubs, perennial grasses have increased, resulting in a 13-fold increase by 1975, and more recently, fluctuations between 1.4 and 4 fold.
- There has been little change in aggregate species richness for shrubs and grasses, while mean species richness per plot has increased due to expansion of previously isolated populations (rather than immigration of new species).
- Resistance to invasion, total cover, and total productivity are all correlated with species richness.
- Cheatgrass appeared in the ungrazed area of INL in the 1975 censuses and has increased since then.

Of 108 plant species recorded in 1995, the three plant species with highest covers were sagebrush (9.5 percent), rabbitbrush (7.7 percent), and cheatgrass (2.3 percent).

3.2.1.1.4 Perennial Forbs

Perennial forbs are also important understory components of the sagebrush steppe and may include salsify *(Tragopogon dubius)*, Hooker's balsamroot *(Balsamorhiza hookeri)*, narrow-leaf collomia *(Collomia linearis)*, blue-eyed Mary *(Collinsia parviflora)*, pink microsteris *(Microsteris gracilis)*, shaggy fleabane daisy *(Erigeron pumilus)*, Indian paintbrush *(Castilleja* spp.*)*, owl-clover *(Orthocarpus lutea)*, and buckwheat *(Eriogonum* spp.*)*.

3.2.1.1.5 Fire Ecology

Historically, infrequent natural fires of stand replacement helped to maintain a mosaic of shrublands and perennial grasslands throughout the sagebrush steppe ecosystem. Pre-settlement stand replacing fire frequencies for Low-elevation Shrub are estimated to vary from 60 to 110 years (85 years midrange) for basin big sagebrush and Wyoming sagebrush types (Whisenant 1990; Peters and Bunting 1994; Miller 2001). Accordingly, Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass are classified as Fire Regime IV (Hardy et al. 2001) See Appendix C for an explanation of Fire Regimes I through V (Hardy et al. 2001).

Most sagebrush species are not fire-tolerant, except for the local genotype of three-tip sagebrush. Wyoming big sagebrush steppe cover types had low fuel loads (i.e., 200 pounds per acre [lb/ac] to 900 lb/ac) and were characterized by patchy fires that produced a mosaic of burned, recovering, or unburned lands (USDA 2002a). Invasive Annual Grass invasion has increased fine fuels, resulting in frequent large fires. Large fires impact the existing sagebrush steppe habitat and facilitate expansion of cheatgrass.

Fuel loads in perennial grasslands range from 250 lb/ac to greater than 2,000 lb/ac. Because perennial grasslands are derived from burned sagebrush steppe cover types, the dominant perennial grasses still retain the same ecological characteristics that they exhibit in sagebrush steppe. Perennial grasses on the planning area reportedly exhibit good recovery after severe fire. Growth points in these grasses are compressed near the ground at the base of shoots (i.e., root crowns in bunchgrasses and lateral shoots in sod-formers). Most perennial grasses respond by resprouting from these basal growing points following fire. The primary determinant of fire response in perennial grasslands is fire residence time. Fast-moving fires have a short residence time and seldom cause substantial mortality. Slow moving fires, however, have longer residence times and greater severity. Mortality to perennial grasses is high under these conditions as the fire spends more time in the vegetative base of the plant. With most natural ignitions, the predominant fire spread is a fast moving fire. Because native grasslands are seral to sagebrush steppe, natural/historical fire rotations of 60 to 110 years for Low-elevation Shrub and a Fire Regime IV (Hardy et al. 2001) are similar.

Once cheatgrass dominates a site, the fire regime is altered with fire being more frequent. Shortened natural/historical fire rotations impact perennial vegetation by killing the tops of the plants and allowing little time (few growing seasons) between recurrent fires. Fuel loads in Invasive Annual Grass-dominated sites vary between 0 lb/ac and 2,000 lb/ac, depending upon the site characteristics and annual climate. In some locations, areas dominated by Invasive Annual Grasses have experienced multiple burns on the same area (e.g., 6 times since 1939 at one locale in the Big Desert). Typical fire regimes for FRCC in Low-elevation Shrub are shown below in Table 3-4.

TABLE 3-4. TYPICAL FIRE REGIMES FOR FIRE REGIME CONDITION CLASS (FRCC) 1, 2, AND 3, FOR LOW-ELEVATION SHRUB (INCLUDES PERENNIAL AND INVASIVE ANNUAL GRASS)

	FRCC 1	FRCC 2	FRCC 3
Natural Fire Rotation	60-110 years	15-60 years	<10 years
Fire Severity	Low-medium: Stand replacement depending on fire weather conditions.	Medium-high: Stand replacement.	High: Stand replacement.
Fire Size and Pattern	Small to moderate burning in a mosaic pattern.	Moderate to large with little to no mosaic patterns.	Majority of fires large and contiguous.
Generally, these cover types require fewer disturbances for their recovery and maintenance than what has occurred in the past 30 years OR on the east side of the planning area where large homogeneous patches of dense sagebrush steppe (> 30% shrub canopy cover) still exist and Invasive Annual Grasses are not a major component of the understory, more small-scale disturbances are required for recovery and maintenance than what has occurred in the past 30 years.			

Current condition of the Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass cover types is given in Table 3-5 for each of the field offices. Current condition (percentage) is analyzed by proportions of age class (roughly equivalent to seral stage) and, when present, uncharacteristic vegetation. Current FRCC, a landscape-level risk descriptor, is also given for each field office.

TABLE 3-5. CURRENT CONDITIONS (%) OF LOW-ELEVATION SHRUB, PERENNIAL GRASS, AND INVASIVE ANNUAL GRASS BY AGE CLASS AND CURRENT FIRE REGIME CONDITION CLASS (FRCC), BY FIELD OFFICE

Vegetation Cover Type and Age Class	Field Offices							
	USFO		PFO		BFO		SFO	
	Condition	FRCC	Condition	FRCC	Condition	FRCC	Condition	FRCC
Perennial Grass: <15-y	29%		32%		23%		3%	
Grass/shrub mix: 15-30-y	1%		5%		7%		2%	
Shrub/grass mix: >30-y	48%	2	24%	2	22%	2	28%	3
Crested wheatgrass	<1%		10%		15%		25%	
Cheatgrass and/or weeds	22%		29%		33%		42%	

- FRCC 1: Results in a 14:14:52 mixture of early, mid, and late successional stages arranged in a mosaic pattern across the landscape. The remaining 20 percent of the acreage is in an uncharacteristic state due to the presence of annual and/or introduced grasses. Fifty-two percent of the landscape has shrub cover ranging between 10 percent and 25 percent with understories and interspaces dominated by native herbaceous perennials or a cover type that functionally mimics the characteristics of the natural fire regime in its frequency, behavior, intensity, and severity.
- FRCC 2: Results in a landscape with more than half the Low-elevation Shrub in either an alternate stable state (cheatgrass monoculture) and/or an early stage of succession. When shrub cover is less than 10 percent, sites are dominated by native perennial grasses with some intrusion by Invasive Annual Grasses. Under these circumstances, lower frequency fires would facilitate recovery of these sites to domination by shrubs and native perennial grasses while the present, altered fire regimes would hasten their conversion to Invasive Annual Grass (i.e., alternate stable state of succession).
- FRCC 3: Results in a landscape with the majority of Low-elevation Shrub in an alternate stable state of succession. Invasive Annual grasses dominate with few desirable perennials and little to no shrub cover.

3.2.1.2 Mid-elevation Shrub, Juniper, and Juniper Encroachment

The Mid-elevation Shrub, Juniper, and juniper encroachment cover type is classified as Fire Regime II (Hardy et al. 2001). The Mid-elevation Shrub occurs at mid-elevations to high-elevations (above 7,500 feet, 14-inch to 20-inch precipitation zones), with cooler soils, and more intact native cover types than Low-elevation Shrub. This cover type is dominated by mountain big sagebrush *(Artemisia tridentata* subsp. *vaseyana)* and appears less vulnerable to conversion

to Invasive Annual Grass than Low-elevation Shrub. Other common shrub species are rubber or gray rabbitbrush; yellow, green, or Douglas rabbitbrush; low, little, or gray sagebrush; black sagebrush; and bitterbrush *(Purshia tridentata)*. Juniper has invaded some Mid-elevation Shrub cover types as a result of fire suppression.

Depending on soil type and depth, perennial grasses such as Idaho fescue *(Festuca idahoensis)*, bluebunch wheatgrass, and Sandberg bluegrass may dominate the understory of Mid-elevation Shrub cover types. Perennial forbs are also important understory components of the Mid-elevation Shrub and may include salsify, nodding microseris *(Microseris nutans)*, arrowleaf balsamroot *(Balsamorhiza sagittata)*, narrow-leaf collomia, blue-eyed Mary, pink microsteris, Indian paintbrush, owl-clover, and buckwheat. Tapertip hawksbeard *(Crepis acuminata)* is a desirable native forb that declines with heavy livestock grazing. Invasion of cheatgrass is most common on frequently disturbed sagebrush steppe sites (USDA 2002a).

Juniper woodlands occupy approximately 2 percent of the planning area's BLM-administered lands. The Juniper cover type includes stands of natural Juniper (approximately 10,500 acres), pinyon-juniper (approximately 5,000 acres), and juniper encroached Mid-elevation Shrub (approximately 75,500 acres). Some of the natural juniper stands occur in fire-safe habitats.

Juniper is best established between 4,500 feet and 6,000 feet on a wide variety of soils and in the 10-inch to 15-inch precipitation zones. Three species of juniper may be encountered on the planning area, Rocky Mountain Juniper *(Juniperus scopulorum)*, Utah Juniper *(Juniperus osteosperma)*, and Western Juniper *(Juniperus occidentalis)*; fire ecologies for these three species are similar. Juniper woodlands consist of a diversity of habitats that vary in understory species and stand densities. Junipers are considered climax species for pinyon-juniper habitats, while in sagebrush/shrub steppe habitats, less than 5 percent juniper can enhance wildlife habitat. Species compositions and stand densities vary with elevation; drier sites tend to have widely spaced junipers.

Single-needle pinyon pine *(Pinus monophylla)* occurs as isolated stands on approximately 5,000 acres in the vicinity of the City of Rocks National Reserve, Almo, Cassia County. Pinyon pines occur with juniper trees at intermediate elevations in dry upland hills at precipitation ranges from 10 inches to 16 inches. In good years, pinyon pine cones yield an abundance of nutritious nuts, which were a traditional food and remain an important tradition of Native Americans today. It is estimated that pinyon and juniper woodlands have increased tenfold over the past 130 years throughout the Intermountain West (Miller and Tausch 2001). Expansion has been largely at the expense of sagebrush-bunchgrass cover types, though pinyon and juniper have also made significant invasions into low sagebrush, black sagebrush, bitterbrush, and curl-leaf mountain mahogany, and aspen and Riparian cover types (Miller and Tausch 2001). In central Oregon, western juniper expansion began between 1875 and 1885, with expansion peaking between 1905 and 1925 (Miller and Rose 1999). Western juniper expansion has been attributed to combined influences of livestock grazing, reductions in fine fuels, climatic changes (mild temperatures and above average precipitation in the late 1880s and early 1900s), and reduction in wildland fires due to fire suppression and cessation of burning by Native Americans (Miller et al. 2001; USDA 2002e).

Fire Ecology

Historically, relatively frequent fires maintained a mosaic of seral stages throughout the Mid-elevation Shrub. Pre-settlement, stand-replacing fire frequencies have been estimated as varying between 10 and 25 years (18 years midrange) for mountain big sagebrush (Houston 1973; Harniss and Murray 1973). Perennial grasses typically recover these burned areas until shrubs become reestablished. Fuel loads vary widely from near 0 lb/ac to 2,000 lb/ac. Fine fuels in mountain big sagebrush vary between 500 lb/ac and 1,250 lb/ac. Mid-elevation Shrub is classified as Fire Regime II (Hardy et al. 2001).

Stand replacing fire frequency for pinyon-juniper is estimated to range from 200 years to more than 300 years (250 years midrange) (Goodrich and Barber 1999). Surface fires readily kill thin-barked young juniper trees and were historically relatively frequent in areas on which Juniper has now encroached. Fire was probably responsible for the lack of encroachment into sagebrush steppe habitat. Typical crown fuels are 3.6 tons per acre (tons/ac) for foliage and 1.8 tons/ac for 0 inch to 0.25 inch branchwood. Typical fuel loads for larger woody material are not readily available, though 11 tons/ac is considered heavy. It is generally agreed that fire was the most important natural disturbance impacting the distribution of juniper and/or pinyon-juniper woodlands before the introduction of livestock in the nineteenth century (Miller and Rose 1999).

Burkhardt and Tisdale (1976; USDA 2002d) concluded that fire frequencies of 30 to 40 years would control Juniper expansion into mountain big sagebrush cover types. Western juniper may be long-lived (e.g., 1,000 years or more) with western juniper found in fire-proof spots (e.g., broken, rocky terrain) (USDA 2002e). Based on reports for Rocky Mountain juniper, high severity, stand-replacing fires in mature stands may have return intervals in excess of 400 to 600 years (USDA 2002e). Juniper and pinyon-juniper are classified as Fire Regime V (Hardy et al. 2001). Typical fire regimes for FRCC in Juniper and Mid-elevation Shrub are shown below in Table 3-6 and Table 3-7.

TABLE 3-6. TYPICAL FIRE REGIMES FOR FIRE REGIME CONDITION CLASS (FRCC) 1, 2, AND 3, FOR MID-ELEVATION SHRUB (INCLUDING JUNIPER ENCROACHMENT AREAS)

	FRCC 1	FRCC 2	FRCC 3
Natural Fire Rotation	10-25 years	25-60 years	>60 years
Fire Severity	Low-medium: Mixed with some stand replacement depending on fire weather conditions	Medium-high: Mixed with a greater proportion of stand replacement	High: Mostly stand replacement
Fire Size and Pattern	Small to moderate burning in a mosaic pattern	Moderate to large with little to no mosaic patterns	Large and contiguous
Generally, this cover type requires more disturbances than what has occurred in the past 30 years for its recovery and maintenance OR on the west side of the planning area where Invasive Annual Grasses have increased the fine fuel loading and fire frequency, this cover type requires fewer disturbances than what has occurred in the past 30 years for its recovery and maintenance.			

TABLE 3-7. TYPICAL FIRE REGIMES FOR FIRE REGIME CONDITION CLASS (FRCC) 1, 2, AND 3, FOR JUNIPER (GROWING ON FIRE-RESISTANT SITES)

	FRCC 1	FRCC 2	FRCC 3
Natural Fire Rotation	200 to 300+ years	100-200 years	<100 years
Fire Severity	High: Causing stand replacement	Mixed: Stand replacement depending on fire weather conditions	Mixed: Stand replacement depending on fire weather conditions
Fire Size and Pattern	Large and contiguous	Moderate to large burning in a contiguous pattern	Moderate to large burning in a contiguous pattern
This cover type has been little affected by disturbances over the past 30 years.			

Current condition of the Mid-elevation Shrub (including juniper encroachment areas) cover type is given in Table 3-8 for each of the field offices. Current condition (percentage) is analyzed by proportions of age class (roughly equivalent to seral stage) and, when present, uncharacteristic vegetation. Current FRCC, a landscape-level risk descriptor, is also given for each field office.

TABLE 3-8. CURRENT CONDITIONS (PERCENTAGE) OF MID-ELEVATION SHRUB (INCLUDING JUNIPER ENCROACHMENT ACRES) BY AGE CLASS AND CURRENT FIRE REGIME CONDITION CLASS (FRCC), BY FIELD OFFICE

Vegetation Cover Type and Age Class	Field Offices							
	USFO		PFO		BFO		SFO	
	Condition	FRCC	Condition	FRCC	Condition	FRCC	Condition	FRCC
Perennial Grass: <5-y	<1%		<1%		1%		0%	
Grass/shrub mix: 15-30-y	7%		8%		6%		4%	
Shrub/grass mix: >15-y	86%	3	72%	3	63%	3	91%	3
Juniper encroachment	2%		13%		23%		<1%	
Cheatgrass/weeds	5%		6%		7%		5%	

- FRCC 1: Results in a nearly even mixture of early, mid, and late successional stages arranged in a mosaic pattern across the landscape. One-third to one-half of the Mid-elevation Shrub can be characterized as having a shrub canopy cover of approximately 10 percent to 25 percent. These areas have an understory dominated by native forbs and grasses or an herbaceous cover type that functionally mimics the characteristics of the natural fire regime (i.e., introduced Perennial Grass and forb species). There is little to no Invasive Annual Grasses present in the understory. In areas where juniper woodlands occur, juniper trees are limited to fire-resistant sites through periodic disturbance. Only small amounts of dead woody material are present.
- FRCC 2: Results in a landscape with more than one-half the Mid-elevation Shrub in either an alternate stable state (cheatgrass monoculture) or an early stage of succession (characterized by having 10 percent or less shrub canopy cover and a mixture of

Perennial and Invasive Annual Grass and forb species in the understory), OR, in a landscape that has more than one-half the Mid-elevation Shrub in an alternate stable state or late stage of succession (characterized by having late-seral stage shrubs with greater than 25 percent canopy cover and little to no understory grass or forb species present). Native species richness across the landscape is diminished under both circumstances. In areas where juniper woodlands occur, juniper trees have expanded out from the fire-resistant areas and are intermittently spaced through some or all of the Mid-elevation Shrub. There is a reduction or loss of shrub canopy cover and an increase in dead woody material where juniper encroachment is occurring.

- FRCC 3: Results in a landscape with the majority of Mid-elevation Shrub in an alternate stable state of succession (characterized by having less than 10 percent shrub canopy cover and Invasive Annual Grasses dominating the herbaceous understory), OR, in a landscape with the majority of Mid-elevation Shrub in a late stage of succession (characterized by having more than 30 percent shrub canopy cover and little to no native grasses and forbs in the understory) or an alternate stable state of succession (juniper woodland monoculture). Native species richness across the landscape is severely compromised under both circumstances. In areas where juniper woodlands occur, juniper trees have expanded their range out into the Mid-elevation Shrub with tree densities high enough to partially or fully exclude a shrub and/or herbaceous understory. Large amounts of dead woody material are present.

3.2.1.3 Mountain Shrub

Mountain Shrub occupies approximately 5 percent of the planning area and occurs as a transition cover type between sagebrush steppe and conifer cover types. Mountain Shrub is found at moderately high elevations, often associated with Douglas-fir and aspen cover types, on sites that are more mesic than sagebrush steppe (e.g., 14-inch to 16-inch precipitation zones) but drier than aspen (18-inch to greater than 24-inch precipitation zones). Mountain Shrub is usually found on north and east slopes that tend to be cooler and moister than south and west aspects. Mountain Shrub is a highly diverse cover type with chokecherry *(Prunus virginiana)*, serviceberry *(Amelanchier alnifolia)*, currant *(Ribes* spp.*)*, mountain snowberry *(Symphoricarpos oreophilus)*, and elderberry *(Sambucus racemosa)*, often intermingled with mountain big sagebrush and Mountain Shrub mahogany. The Mountain Shrub cover type, with its high productivity and diverse herbaceous understory, provides important biodiversity, wildlife habitat, and protective ground cover to the ecosystem.

<u>Fire Ecology</u>

Stand-replacing fires occur from 25 to 100 years (63 year midrange) in Mountain Shrub (Loop and Gruell 1973), though natural/historical fire rotations may vary widely with changes in elevation, aspect, site moisture, and the associated forest or woodland cover types. Fuel loads also vary among cover types. All species of Mountain Shrub resprout after fire, except for mountain big sagebrush and mountain mahogany. Mountain Shrub cover types generally recover rapidly following wildland fire and are considered to be fire-tolerant. Mountain Shrub is classified as Fire Regime III (Hardy et al. 2001). Typical fire regimes for FRCC in Mountain Shrub are shown below in Table 3-9.

TABLE 3-9. TYPICAL FIRE REGIMES FOR FIRE REGIME CONDITION CLASS (FRCC) 1, 2, AND 3, FOR MOUNTAIN SHRUB

	FRCC 1	FRCC 2	FRCC 3
Natural Fire Rotation	10-50 years	50-100 years	100+ years
Fire Severity	Low-medium: Mixed with stand replacement depending on conditions and fire weather	Medium-high: Mixed with stand replacement depending on conditions and fire weather	High: Stand replacement depending on conditions and fire weather
Fire Size and Pattern	Small to moderate burning in a mosaic pattern	Moderate burning in a mosaic pattern or large burning in a contiguous pattern	Large and contiguous
This cover type requires more disturbances for its maintenance than what has occurred in the past 30 years.			

Current condition of the Mountain Shrub cover type is given in Table 3-10 for each of the field offices. Current condition (percentage) is analyzed by proportions of age class (roughly equivalent to seral stage) and, when present, uncharacteristic vegetation. Current FRCC, a landscape-level risk descriptor, is also given for each field office.

TABLE 3-10. CURRENT CONDITIONS (%) OF MOUNTAIN SHRUB BY AGE CLASS AND CURRENT FIRE REGIME CONDITION CLASS (FRCC), BY FIELD OFFICE

Vegetation Cover Type and Age Class	Field Offices							
	USFO		PFO		BFO		SFO	
	Condition	FRCC	Condition	FRCC	Condition	FRCC	Condition	FRCC
Early seral shrub: <10 y	<1%		<1%		1%		2%	
Mid- seral shrub: 10-20 y	3%	3	10%	3	5%	3	2%	3
Late seral shrub: >20 y	97%		90%		94%		96%	

- FRCC 1: Results in a nearly even mixture of successional stages arranged in a mosaic pattern across the landscape. One-third to one-half of the Mountain Shrub cover type can be characterized as having approximately 10 percent to 30 percent shrub canopy cover with vigorous leader growth occurring during years of average to above-average precipitation. Susceptibility to insect attack and disease is low. The amount of live woody material in shrub stands far exceeds the amount of dead woody material. Understory vegetation includes a variety of native grasses and forbs with little to no invasive/noxious weeds present.
- FRCC 2: Results in more mid successional and late successional Mountain Shrub cover types than early successional stages across the landscape. More than one-half of the Mountain Shrub stands can be characterized as having approximately 30 percent to 45 percent canopy cover with diminished amounts of leader growth regardless of yearly precipitation. Susceptibility to insect attack and disease is moderate. The amount of live woody material in shrub stands is even or only slightly greater than the amount of dead woody material. Invasive/noxious weeds may be present in the understory at low or moderate levels.

- FRCC 3: Results in a landscape predominately made up of late successional Mountain Shrub cover types. The majority of Mountain Shrub stands can be characterized as having greater than 45 percent canopy cover with only minimal amounts of yearly leader growth occurring. Susceptibility to insect attack and disease is high. Shrub stands are composed of more dead woody material than live woody material. Invasive/noxious weeds may be present in low, moderate, or high levels.

3.2.1.4 Aspen/Conifer and Dry Conifer

The Dry Conifer cover type occupies approximately 2 percent of the planning area's BLM-administered lands. Principal species of Dry Conifer include Douglas-fir *(Pseudotsuga menziesii)*, limber pine *(Pinus flexilis)*, and Ponderosa pine *(Pinus ponderosa* var. *scopulorum)*. Douglas-fir occurs between 6,000 feet and 8,000 feet on variable soils and in 20-inch to 30-inch precipitation zones, typically as isolated patches on cool north slopes. Douglas-fir stands often occur between ponderosa and spruce-fir cover types. Ponderosa pine occurs between approximately 5,000 feet and 7,600 feet on a variety of soils and in 15-inch to 30-inch precipitation zones.

The Aspen/Conifer cover type includes pure stands of aspen, and aspen in association with various conifers such as Engelmann spruce *(Picea engelmannii)*, lodgepole pine, ponderosa pine, and douglas-fir. Aspen-dominated cover types occupy approximately 1 percent of the planning area's BLM-administered lands. Aspen cover types can be climax or seral to conifer cover types (e.g., Douglas-fir). Aspen/Conifer cover types are found between 5,500 feet and 8,000 feet on a variety of soils but grow best in deep, moist, loamy soils in a range of precipitation zones (16-inch to 40-inch precipitation zones).

Although conifer invasion is a natural pattern in many aspen stands, long-term fire suppression throughout the planning area has resulted in an increased representation and dominance by conifer in aspen stands, thus reducing the extent of aspen-dominated stands, increasing fire hazard, and impacting visual resources.

<u>Fire Ecology</u>

Most Dry Conifer species have thick bark that protects them from serious damage during ground fires, except for young limber pine trees, which often die in low-severity fires. Ponderosa pine is very resistant to ground fire; Douglas-fir is less resistant to ground fire. In Douglas-fir stands on steep slopes, wildland fires tend to become lethal crown fires. Fuel loads in douglas-fir and ponderosa pine average approximately 17 tons/ac. Aspen/Conifer and Dry Conifer are both classified as Fire Regime III (Hardy et al. 2001). Fire frequencies in the Aspen/Conifer mix range between 25 years and 100 years (63 years midrange) with mixed severity (Loop and Gruell 1973). Fuel loads range from above 6 tons/ac. Pure stands of aspen are particularly susceptible to mortality of above-ground stems from fire, but aspen is well-adapted to regeneration by sprouting following fire (Jones and DeByle 1985; Mutch 1970). Specific site and climatic conditions are necessary before fires can ignite and spread, as aspen stands do not easily burn and often act as natural fuel breaks during wildland fires. Fires generally do not occur in young aspen stands. In older stands, during the warmest/driest months of the year, abundant fuel can lead to higher severity fires. Late-seral stage aspen stands in areas with thin, acidic soils may be less vigorous at regenerating via suckering. Sites such as these may support conifers even after

fire (USDA 2002f). Typical fire regimes for FRCC in Aspen/Conifer is given below in Table 3-11.

Current condition of the Aspen/Dry Conifer cover types is given in Table 3-12 for each of the field offices. Current condition (percentage) is analyzed by proportions of age class (roughly equivalent to seral stage) and, when present, uncharacteristic vegetation. Current FRCC, a landscape-level risk descriptor, is also given for each field office.

TABLE 3-11. TYPICAL FIRE REGIMES FOR FIRE REGIME CONDITION CLASS (FRCC) 1, 2, AND 3, FOR ASPEN/CONIFER AND DRY CONIFER

	FRCC 1	FRCC 2	FRCC 3
Natural Fire Rotation	25-100 years	100+ years	100+ years
Fire Severity	Mixed: Mostly ground fires with some stand-replacing fires	Mixed: Ground fires and stand-replacing fires	Mostly stand-replacing fires
Fire Size and Pattern	Small to moderate fires likely; burning in a mosaic pattern	Moderate to large fires likely; burning in less of a mosaic pattern and more of a contiguous pattern	Large landscape-scale fires likely, mostly contiguous burn patterns
This cover type requires more disturbances for its recovery and maintenance than what has occurred in the past 30 years.			

TABLE 3-12. CURRENT CONDITIONS (%) OF ASPEN/CONIFER AND DRY CONIFER BY AGE CLASS AND CURRENT FIRE REGIME CONDITION CLASS (FRCC), BY FIELD OFFICE

Vegetation Cover Type and Age Class	Field Offices							
	USFO		PFO		BFO		SFO	
	Condition	FRCC	Condition	FRCC	Condition	FRCC	Condition	FRCC
Aspen: <30-y	<1%		2%		<1%		2%	
Aspen/Conifer: 30-50-y	30%	3	29%	3	30%	3	29%	3
Dry Conifer: >50-y	70%		69%		70%		69%	

- FRCC 1: Results in a 40:40:20 mixture of successional stages arranged in a mosaic pattern across the landscape. The basis for the mixture is described by the DFC development explanation in Appendix C. Of the forested landscape, 40 percent can be characterized as having approximately 30 to 40 mature conifer trees and 1,000 to 10,000 aspen stems per acre. Small pockets of conifer regeneration are present, and aspen regeneration is vigorous. Understory vegetation includes a variety of native shrubs, forbs, and grasses. Forest stands have low susceptibility to insect attack and disease, making standing dead and down trees scarce.
- FRCC 2: Results in more mid and late successional forest than early successional forest across the landscape. More than half of the forested landscape can be characterized as having approximately 40 to 80 mature conifer trees per acre with many Dry Conifer seedlings and/or shade-tolerant tree species present in the understory. Aspen stands have

become smaller and are slowly being replaced by conifers. Aspen stand density may range from approximately 10 to 1,000 stems per acre with little to no regeneration occurring. Understory native species richness is diminished. Forest stands are moderately susceptible to insect attack and disease and have scattered pockets of standing dead and down trees.

- FRCC 3: Results in a landscape predominately made up of late successional forest. The majority of the forested landscape can be characterized as having 80 to more than 800 conifer trees per acre with little to no understory. Aspen stands have become a minor component with approximately 0 to 10 stems per acre and little to no regeneration occurring. Forest stands are highly susceptible to insect attack and disease and have a high density of standing dead and down trees.

3.2.1.5 Salt Desert Shrub

Salt Desert Shrub is one of the least extensive cover types in the planning area, occupying less than 1 percent of the planning area's BLM-administered lands. Halophytes and succulent shrubs, which are saline-tolerant, characterize Salt Desert Shrub, including four-wing saltbush *(Atriplex canescens)*, shadscale *(Atriplex confertifolia)*, winterfat *(Eurotia lanata)*, bud sage *(Atriplex spinescens)*, and greasewood *(Sarcobatus vermiculatus)*. Common grasses include saltgrass *(Distichlis spicata)*, alkali sacaton (*Sporobolus airoides)*, Indian ricegrass *(Oryzopsis hymenoides)*, and squirreltail *(Sitanion hystrix)*. Productivity in this cover type is relatively low, as understory vegetation is naturally sparse and fuels are generally light. Greasewood favors deeper soils with an accessible water table, and high pH and alkaline content. Biological crusts are usually present and cover most of the interspaces between shrubs in Salt Desert Shrub cover types.

Fire Ecology

Fire frequency has been estimated at 200 to more than 300 years for the Salt Desert Shrub cover types. Fuel loads vary between 250 lb/ac to 750 lb/ac. Historically, fire was not a common disturbance in Salt Desert Shrub. A lack of continuous cover (fuels) made fire rare to non-existent in shadscale cover types. Historically, Salt Desert Shrub cover types did not burn often enough or in large enough patches to support dominance of fire-adapted plants. At present, cheatgrass has invaded some Salt Desert Shrub. Salt Desert Shrub is classified as Fire Regime V (Hardy et al. 2001). Typical fire regimes for FRCC in Salt Desert Shrub is given in Table 3-13.

Current condition of the Salt Desert Shrub cover type is given in Table 3-14 for each of the field offices. Current condition (percentage) is analyzed by proportions of age class (roughly equivalent to seral stage) and, when present, uncharacteristic vegetation. Current FRCC, a landscape-level risk descriptor, is also given for each field office.

FRCC 1 through FRCC 3: At present, there is little data to predict the relationship between vegetation structure and composition and successional stages or FRCCs in Salt Desert Shrub.

TABLE 3-13. TYPICAL FIRE REGIMES FOR FIRE REGIME CONDITION CLASS (FRCC) 1, 2, AND 3 FOR SALT DESERT SHRUB

	FRCC 1	FRCC 2	FRCC 3
Natural Fire Rotation	> 200 years	Unknown	Unknown
Fire Severity	Low-medium: Mixed severity with some stand replacement depending on conditions and fire weather	Medium-high: Mixed with a greater proportion of stand replacement	High: Stand replacement from recurrent burning of the increasingly dominant cheatgrass component
Fire Size and Pattern	Small to moderate burning in a mosaic pattern	Moderate to large with little to no mosaic patterns	Large and contiguous
To maintain this cover type, fewer disturbances than what has occurred in the past 30 years are required.			

TABLE 3-14. CURRENT CONDITIONS (%) OF SALT DESERT SHRUB BY AGE CLASS AND CURRENT FIRE REGIME CONDITION CLASS (FRCC), BY FIELD OFFICE

Vegetation Cover Type and Age Class	Field Offices							
	USFO		PFO		BFO		SFO	
	Condition	FRCC	Condition	FRCC	Condition	FRCC	Condition	FRCC
Perennial Grass; <30-y	<1%	1	4%	1	11%	1	NA	NA
Shrub/Grass/Bare Ground Mix >30-y	86%		82%		75%			
Cheatgrass/Weeds	14%		14%		14%			
NA = not applicable; there is less than 100 acres of Salt Desert Shrub mapped in the SFO								

3.2.1.6 Vegetated Rock/Lava

Vegetated rock/lava, which comprises approximately 11 percent of the planning area's BLM-administered lands, is characterized by limber pine *(Pinus flexilis)*, Rocky Mountain juniper (*Juniperus scopulorum*), Wyoming big sagebrush, fernbush, and a variety of forbs. Trees occur in different densities depending upon substrate, either as isolated trees growing in the cracks and fissures of lava flows, forming open woodlands with low cover, or as stands growing in cinder deposits, forming higher densities and cover. Most pre-settlement trees on vegetated lava has been harvested in the past 150 years (National Park Service [NPS] 2003).

Fire Ecology

Historically, natural fire was infrequent and noncontiguous in open vegetated lava woodlands, where only one to a few trees burned; whereas, natural fire was infrequent but contiguous in the denser stands and could result in stand replacement. Due to the broken terrain of Vegetated Rock/Lava, secondary succession following wildland fire is highly unpredictable and depends on specific microsite characteristics like the amount of soil deposition and soil development, seed

sources, and dispersal from surrounding areas. Consequently, the development of vegetation following fire is quite varied. In addition to limber pine and Rocky Mountain juniper, Vegetated Rock/Lava cover types may be composed of varying amounts of herbaceous forbs, grasses, and shrubs (e.g., Wyoming and mountain big sagebrush, fernbush, bitterbrush, syringa, currant, and chokecherry). Vegetated rock/lava is classified as Fire Regime V (Hardy et al. 2001). Typical fire regimes for FRCC in Vegetated Rock/Lava is given below in Table 3-15.

Current condition of the Vegetated Rock/Lava cover type is given in Table 3-16 for each of the field offices. Current condition (percentage) is analyzed by proportions of age class (roughly equivalent to seral stage) and, when present, uncharacteristic vegetation. Current FRCC, a landscape-level risk descriptor, is also given for each field office.

TABLE 3-15. TYPICAL FIRE REGIMES FOR FIRE REGIME CONDITION CLASS (FRCC) 1, 2, AND 3 FOR VEGETATED ROCK/LAVA

	FRCC 1	FRCC 2	FRCC 3
Natural Fire Rotation	200 to 300+ years	15-60 years	<10 years
Fire Severity	Low severity in open woodland where fuels are light, sparse, and discontinuous. Mixed to high severity in denser stands on cinder deposits with the potential of stand replacement depending on conditions and fire weather.	Secondary succession following wildland fire is highly unpredictable and depends on microsite-specific characteristics like amount of soil deposition and soil development, seed sources and dispersal from surrounding areas, etc. Consequently, cover types on lava are quite varied and may be composed of varying amounts of herbaceous forbs and grasses, shrubs as well as Utah and Rocky Mountain junipers and limber pine.	See FRCC 2.
Fire Size and Pattern	Open Woodland: Small and patchy, often only one or two trees burn, ignition typically from lightening strikes. Denser Stands: Small to large and contiguous.		
This cover type has been little affected by disturbances over the past 30 years.			

FRCC 1 through FRCC 3: At this time, there is little data from which to predict the relationship between vegetation structure and composition with successional stages or FRCCs on Vegetated Rock/Lava (see Table 3-16).

TABLE 3-16. CURRENT CONDITIONS (%) OF VEGETATED ROCK/LAVA BY AGE CLASS AND CURRENT FIRE REGIME CONDITION CLASS (FRCC), BY FIELD OFFICE

Vegetation Cover Type and Age Class	Field Offices							
	USFO		PFO		BFO		SFO	
	Condition	FRCC	Condition	FRCC	Condition	FRCC	Condition	FRCC
Perennial Grass	11%		7%		2%		3%	
Rock/Shrub/Grass/ Tree mix	75%	1	79%	1	84%	1	83%	1
Cheatgrass/Weeds	14%		14%		14%		14%	

3.2.1.7 Wet/Cold Conifer

Wet/Cold Conifer occupies approximately 0.5 percent of the planning area's BLM-administered lands. Wet/Cold Conifer occurs at high elevations in the colder, humid environment above the Douglas-fir cover types. In the planning area, Wet/Cold Conifer is mainly dominated by lodgepole pine *(Pinus contorta)*. Other localized dominants include Engelmann spruce and subalpine fir *(Abies lasiocarpa)*. At lower and mid-elevation sites, subalpine fir occupies sites that are too wet, too dry, or too low in nutrients for Engelmann spruce. At higher elevations, it is not uncommon to find pure stands of Engelmann spruce. The spruce-fir cover type occurs above 7,000 feet on shallow soils in 30-inch to 40-inch precipitation zones. The lodgepole cover types occur above 6,000 feet on a variety of soils in 15-inch to 30-inch precipitation zones. Lodgepole is often regarded as early seral for spruce-fir and Douglas-fir cover types.

Fire Ecology

Stand replacing fire frequencies for the spruce-fir cover types range from 50 years to 300 years (Agee 1993; Arno 1980; Romme 1979). Fuel loads depend largely upon elevation and aspect. Subalpine fir and Engelmann spruce are very sensitive to wildland fire. Fire severity in these stands varies from low severity, which consumes duff and small diameter fuels, to high severity, which may become stand-replacing fires. Lodgepole pine is sensitive to medium to high severity fires, though fires in lodgepole also include slow moving fires in sparse duff. Lodgepole pine must experience hot crown and stand-replacing fires for its serotinous cones to open. Wet/Cold Conifer is classified as Fire Regime V (Hardy et al. 2001). Typical fire regimes for FRCC in Wet/Cold Conifer is given below in Table 3-17.

Current condition of the Wet/Cold Conifer cover type is given in Table 3-18 for each of the field offices. Current condition (percentage) is analyzed by proportions of age class (roughly equivalent to seral stage) and, when present, uncharacteristic vegetation. Current FRCC, a landscape-level risk descriptor, is also given for each field office.

TABLE 3-17. TYPICAL FIRE REGIMES FOR FIRE REGIME CONDITION CLASS (FRCC) 1, 2, AND 3 FOR WET/COLD CONIFER (CLIMAX LODGEPOLE PINE FOREST)

	FRCC 1	FRCC 2	FRCC 3
Natural Fire Rotation	50 - 300 years	80 - 300 years	150 - 300+ years
Fire Severity	Stand replacement: Some surface fire but mostly stand replacing fire with high intensities.	Stand replacement: Some surface fire but mostly stand replacing fire with high intensities.	Stand replacement: Some surface fire but mostly stand replacing fire with high intensities.
Fire Size and Pattern	Large stand replacement fires in a mosaic or in a continuous pattern under extreme climatic conditions.	Large stand replacement fires in a mosaic or in continuous pattern.	Large stand replacement fires in a mosaic or in continuous pattern.
This cover type requires more disturbances for its maintenance than what has occurred in the past 30 years.			

TABLE 3-18. CURRENT CONDITIONS (%) OF WET/COLD CONIFER BY AGE CLASS AND CURRENT FIRE REGIME CONDITION CLASS (FRCC), BY FIELD OFFICE

Vegetation Cover Type and Age Class	Field Offices							
	USFO		PFO		BFO		SFO	
	Condition	FRCC	Condition	FRCC	Condition	FRCC	Condition	FRCC
Shrub/grass: <30-y	2%		<1%		4%		1%	
Shrub/tree: 30-75-y	10%	2	10%	2	10%	2	10%	2
Tree-dominated: >75-y	88%		90%		86%		89%	

- FRCC 1: Results in a 30:40:30 mixture of successional stages arranged in a mosaic pattern across the landscape. The basis for the mix is described by the DFC development explanation in Appendix C. Of the Wet/Cold Conifer forest, 40 percent can be characterized as having tree densities of 700 stems/acre to 800 stems/acre. Lodgepole pine regeneration occurs in small blow-down areas creating pockets of ladder fuel (i.e., small trees and overlapping deadfall). The majority of the forested landscape is composed of a mosaic of single-age class lodgepole pine stands, which originated at different times following periodic large-scale disturbance (usually fire). Susceptibility to insect attacks, disease, and blowdown is relatively low compared to forested landscapes in FRCC 2 or 3.
- FRCC 2: Results in more mid successional and late successional stages than early successional stages across the landscape. More than one-half of the Wet/Cold Conifer forest can be characterized as having tree densities of 800 stems/acre to 1,000 stems/acre. Insect attacks, disease, and blowdown are more prevalent and as a result, forest canopy openings are more numerous/large. Lodgepole pine regeneration occurs in these openings creating multi-aged stands and moderate amounts of ladder fuel (i.e., small trees and overlapping deadfall).
- FRCC 3: Results in a landscape with the majority of Wet/Cold Conifer forest in a late stage of succession (more than 2,000 stems per acre is not uncommon). Forested

landscapes in this condition are highly susceptible to insect attack, disease, and blowdown, which combined, create large and numerous canopy openings. Seedlings, saplings, and pole-sized lodgepole pine grow up in canopy openings creating mixed aged-class stands and large amounts of ladder fuel (i.e., small trees and overlapping deadfall).

3.2.1.8 Riparian

Riparian and wetland cover types, which occupy less than 1 percent of the planning area, are defined as "areas of land directly influenced by permanent water, which have visible vegetation or physical characteristics reflective of permanent water influence." Lake shores and stream banks are typical riparian areas. Excluded from Riparian are such sites as ephemeral streams or washes that do not support vegetation dependent upon free water in the soil. In the planning area, healthy riparian areas generally can be identified by typical riparian species such as cottonwoods *(Populus* spp.*)*, willows *(Salix* spp.), sedges *(Carex* spp.*)*, and rushes *(Juncus* spp.*)*. Cottonwoods are found in nearly pure stands along the Snake River. These Riparian and wetland cover types support a wide variety of plant species and form important habitat for a large number of fish, birds, and mammals. Dominant riparian and wetland plant species, their ecological functions, responses to fire, and resource management considerations are listed in Appendix E. Unhealthy riparian areas are characterized by sagebrush growing near highly incised surface waters, with juniper invasion along the stream banks.

Fire Ecology

Natural fire is generally an infrequent occurrence in this cover type, though the dominant cover type adjacent to the Riparian cover type usually dictates its natural/historical fire rotation. It is difficult to generalize about the vegetation structure and composition of riparian areas as they relate to successional stages or FRCCs. Improving FRCC in adjacent upland cover types would generally benefit Riparian cover types. Typically, fire regimes for Riparian areas are associated with the FRCC of adjacent vegetation types (Table 3-19).

TABLE 3-19. TYPICAL FIRE REGIMES FOR FIRE REGIME CONDITION CLASS (FRCC) FOR RIPARIAN

Natural Fire Rotation	Fire frequency is closely related to fire occurrence in the surrounding upland cover types.
Fire Severity	Low to high severity depending on fuel moisture and fire weather.
Fire Size and Pattern	Small and discontinuous to large and continuous depending upon fuel moisture and fire weather.

3.2.1.9 Special Status Plants

Special status plants occur in a variety of cover types across the planning area. Ranking categories and protocols for special status plants, and a summary of known taxa on the planning area is presented in Appendix F. Listed taxa are afforded protection under the Endangered Species Act (ESA), as amended, and under BLM regulations. The mandates of the ESA only apply to taxa that have been officially listed as threatened or endangered, are proposed for

listing, or are candidates for listing (BLM Manual 6840). The BLM is required to consult with the U.S. Fish and Wildlife Service (USFWS) on potential impacts to listed plants.

BLM sensitive plants are designated by the State Director under 16 U.S. Code (USC) 1536 (a)(2). Sensitive plants shall be managed so as to prevent further listing as proposed, threatened, or endangered, with the same level of protection as candidate species (BLM Manual 6840). In the planning area, 47 special status plant taxa are known to occur. Sixteen additional species have Watch status. The plants, their statuses, the field office of occurrence, and their habitats are also listed in Appendix F.

Little is known about the distribution, size, and trend of special status plant populations within the planning area. Most of the information is limited to habitat and population structure information collected with new species locations. Most monitoring programs are recent; therefore, long-term data regarding the response of these plant taxa to disturbance, including data on the response of these taxa to fire, are rare to nonexistent.

Only one special status plant, Ute ladies' tresses *(Spiranthes diluvialis)*, is protected by its listing as *threatened* under the ESA. This riparian species has a highly limited distribution along the South Fork of the Snake River. Monitoring of the South Fork populations began in 1997, with modifications to the monitoring methods in 2001 (Moseley 1998, 2000; Murphy 2000, 2001a, 2001b).

One species, Saint Anthony evening primrose *(Oenothera psammophila)*, is protected by a conservation strategy that guides management of its sand dune habitat in a manner that provides for the primrose's life history requirements (Idaho State Conservation Effort 1995).

3.2.1.10 Noxious Weeds

In addition to cheatgrass and medusahead wildrye invasions and juniper expansion, the planning area's vegetation resources are also threatened by a variety of noxious weeds listed by the State of Idaho (Appendix G). Species such as *Centaurea diffusa* (diffuse knapweed), *Acroptilon repens* (Russian knapweed), *Centaurea maculosa* (spotted knapweed), thistles, and *Chondrilla juncea* (rush skeletonweed have exhibited a tendency to increase following fires.

While roads and trails are often areas of concentration for noxious weeds, scattered populations occur throughout the planning area in all habitats. A summary of regulations and management direction for noxious weeds is in Appendix G.

Field offices manage noxious weeds through annual inventories and treatments. Weed control treatments may include integrated chemical, biological, mechanical, and/or hand treatment methods, as well as post-fire weed detection and monitoring. Using integrated pest management methods is preferred over chemical treatments alone. Controlling and monitoring noxious weeds, as with any other post-wildland fire rehabilitation treatment, would be funded by other sources beyond two years following fire control.

3.2.1.11 Current Fire Ecology Trends

The primary vegetation/fire ecology-related trends on the planning area include:

1. Low-elevation and Mid-elevation Shrub (sagebrush steppe): The sagebrush steppe has dramatically decreased from its historical extent through conversion to agriculture, seeded ranges, and, more recently, from cheatgrass invasion and associated altered fire regimes. In addition, Mid-elevation Shrub has become invaded by junipers (i.e., encroachment) or is occupied by late-seral stage, single age-class stands of sagebrush. Continued loss of these cover types is a major concern.
2. Perennial and Invasive Annual Grass (potential sagebrush steppe): Areas dominated by these cover types occur principally in what was once sagebrush steppe. Perennial Grass cover types are now composed of seeded ranges and recovering burned areas, primarily the result of range improvements and/or fire rehabilitation. Perennial Grass cover types also include some lower seral stages that historically were less abundant. Invasive Annual Grass cover types are on the increase, dominated by invasive non-native annual species, such as cheatgrass and medusahead wildrye. Expansion of Invasive Annual Grasses into native sites is a major, immediate concern. Site occupancy by introduced perennial placeholder species in disturbed areas is much preferred over invasion by cheatgrass or other noxious weeds. In Perennial and Invasive Annual Grass cover types, current fire regimes have increased in frequency and severity compared to the historical fire regimes typical of intact sagebrush steppe.
3. Forest, Mid-elevation Shrub, Riparian, Mountain and Salt Desert Shrub, and Vegetated Rock/Lava: In general, fire suppression in forests and woodlands have increased stand densities. Dry Conifer and Aspen/Conifer, as well as encroached juniper in Mid-elevation Shrub, have shifted the seral balance toward greater representation of climax vegetation, with a corresponding loss of early and intermediate seral stages. Wildlife habitat quality has declined, while acreage of late-seral stage stands and the attendant fuel loads have increased. In Dry Conifer, Aspen/Conifer, and juniper encroachment, current fire regimes are less frequent than historical fire regimes. In Mountain Shrub, Salt Desert Shrub, Wet/Cold Conifer, Riparian, and Vegetated Rock/Lava, current fire regimes remain about the same as historical fire regimes.

3.2.2 RISKS

At present, decreases in native species, invasion of weeds, expansion of undesirable species, and alteration of natural fire regimes have impoverished cover type structural diversity and ecosystem integrity in the planning area. The situation is characterized by the limited occurrence of healthy sagebrush steppe, disproportionate dominance by late seral forest cover stages, and the associated loss or impairment of a variety of linkages and corridors between wildlife habitats. Specific risks associated with each cover type are briefly discussed below.

3.2.2.1 Low-elevation Shrub, Perennial Grass, Invasive Annual Grass

The main risk is the further expansion of cheatgrass, through altered fire regimes and loss of remaining Low-elevation Shrub, especially Wyoming big sagebrush. Wyoming and basin big sagebrush cover types are the most at risk and least resilient vegetation resources on the planning area, especially on the west side. Altering cover type structure via increased three-tip sagebrush dominance may reduce habitat value for a variety of sagebrush-obligate wildlife species, including sage grouse.

The main risk in Perennial Grass cover types is the further expansion of cheatgrass facilitated by wildland fires and loss of the remaining native Perennial Grass cover types, which occur in mid to late seral sagebrush steppe. Over the long term, seeded grass ranges may become more diverse with the expansion of sagebrush and other native perennials. Site occupancy by introduced perennial placeholder species is much preferred over invasion by cheatgrass or other noxious weeds.

The main risk in Invasive Annual Grass cover types is present and the future expansion of cheatgrass and continued altered fire regimes. Expanding Invasive Annual Grass cover type is a major factor responsible for increased fire frequency and severity in the sagebrush steppe.

3.2.2.2 Mid-elevation Shrub, Juniper, and Juniper Encroachment

Two main fire-related risk scenarios exist in the Mid-elevation Shrub cover type: (1) the further expansion of cheatgrass, leading to altered fire regimes and loss of more sagebrush steppe, and (2) the encroachment of juniper into sagebrush steppe habitat, exacerbated by continued fire suppression in juniper (primarily in the BFO management area).

The main risk in juniper is continued expansion into Mid-elevation Shrub and further loss of sagebrush steppe habitat. As junipers begin to dominate a site, understory plants, including the sagebrush component eventually decline. Once understory ground cover is gone, accelerated erosion and soil loss may further degrade the site. In areas invaded by non-native weeds, care must be taken when implementing juniper control activities. Pinyon pine trees are also at risk from juniper encroachment and stand-replacing crown fires. Fire hazard within pinyon areas would be reduced by mechanical harvest and thinning of juniper trees and other fuels, when necessary. No fire is much preferred over dominance by invasive species or noxious weeds.

3.2.2.3 Mountain Shrub

The main risk is continued loss of seral stage diversity because of past fire suppression activities. These activities have resulted in high fuel loads and/or an increase in mature single-age shrub stands. The Mountain Shrub cover type is predominately made up of species that sprout following top-killing fires, so fires do not pose as great a risk in this cover type as in others.

3.2.2.4 Aspen/Conifer and Dry Conifer

High fuel loads, poor stand age-class diversity, and lack of regeneration are the main risks to this cover type. Currently, most stands are mature/stands, often with extensive Douglas-fir beetle kill.

In the Aspen/Conifer mix, the main risk of continued fire suppression and lack of fire management is the continued decline in aspen regeneration and associated increase in coniferous climax species, such as Douglas-fir.

3.2.2.5 Salt Desert Shrub

Invasion by cheatgrass has the potential to increase fire frequency in the Salt Desert Shrub type. Altered fire regimes may eliminate native plants and convert Salt Desert Shrub to an Invasive Annual Grass cover type.

3.2.2.6 Vegetated Rock/Lava

Although there are no major vegetation/fire-related risks to these resources, noxious weed invasions are a potential risk in all cover types following fire.

3.2.2.7 Wet/Cold Conifer

One fire-related risk for Wet/Cold Conifer is the high fuel loads in lodgepole pine forests, especially near the WUI. Another risk is managing for a balance of lodgepole pine and subalpine fir/Englemann spruce.

3.2.2.8 Riparian

There is an indirect risk involving sedimentation events from burned cover types around riparian zones. A loss of canopy over waterways could also increase the risk of higher water temperatures.

3.2.2.9 Special Status Plants

Probably the greatest threat to the viability of many sensitive status plants is the conversion of native sagebrush steppe habitat due to wildland fire and subsequent disturbance associated with rehabilitation or weed invasion. Sensitive plants in Salt Desert Shrub, Low-elevation Shrub, Mid-elevation Shrub, Juniper and pinyon-juniper habitats are likely at the greatest risk from fire-associated impacts due to potential conversion of these habitats by weedy invasive species post-fire, or rehabilitation activities. While special status plants such as Picabo milkvetch *(Astragalus oniciformis)* have been found in rehabilitated areas, disturbance associated with some seedbed preparation methods (plowing, disking), can be detrimental to populations (Moseley and Popovich 1995). Therefore areas with known or suspected special status plant populations are currently treated so as to minimize potential negative impacts to surviving plants, including reduction of soil surface disturbance and rehabilitation with native species or a native/introduced species mix that mimics the structure of the native cover type.

Special status plants that occur in higher elevation/higher precipitation shrub and riparian cover types (i.e., Ute ladies' tresses) are less likely to be negatively impacted by post-fire activities, as these areas are not normally subject to rehabilitation efforts. Special status plants occurring in woodland or forested habitats could potentially be impacted by thinning, RxFire, or post-fire salvage logging. In all cases, positive or negative impacts would depend on the natural fire ecology of the species. Some species might actually benefit from reducing competition or opening the canopy. However, because we know little about the fire ecology of most special status plants, post-fire or post-treatment monitoring of populations is important to future management efforts.

Special status plants are potentially at risk due to fire suppression activities due to bulldozing fire lines. Resource advisors knowledgeable in the location of T&E and BLM-Sensitive species are important participants in fire suppression activities.

3.2.2.10 Noxious Weeds

In many situations, wildland fires have exacerbated the recent expansion and invasion of weeds such as knapweeds, skeletonweed, and thistles. This is especially true in the western, warm, low-elevation areas dominated by sagebrush steppe and grasslands. Noxious weeds may affect the environment by altering soil properties, depleting soil nutrients, altering the composition of native cover types, altering movement and use by animals, and by altering the historical disturbance cycles, including fire and grazing (BLM 1991). From a watershed perspective, heavy infestations of weeds can alter seasonal water flows, reduce infiltration, and increase runoff. Noxious weeds can detract from recreation sites and lower property values, and they can increase the costs and lower the returns of commercial operations. In general, noxious weed invasions are a potential risk in all cover types following fire.

3.2.3 OPPORTUNITIES

Fire is a necessary ecological process in maintaining ecosystem resiliency in natural cover types. Historically, fire was a periodic disturbance that helped maintain a mosaic of cover types and different seral stages while periodically reducing fuel loads. Currently, however, most fire regimes have been altered, resulting in shifts toward Invasive Annual Grass cover types, loss of desirable sagebrush steppe, encroachment of junipers, and decadence in Mountain Shrub, Aspen/Conifer, and Dry Conifer cover types. However, a variety of fire-related management opportunities are available to more effectively manage wildland fuel loads, maintain and improve the ecological integrity of existing vegetation resources, and hinder the spread of undesirable, non-native species. Opportunities exist to manage range cover types for the preservation and improvement of remaining sagebrush steppe habitat, to rehabilitate and restore cover types, and to hinder the spread of Invasive Annual Grasses associated with altered fire regimes.

To varying degrees, native cover types in the planning area are semi-adapted or maintained by fire. Although some important native plant species such as Wyoming big sagebrush may be adversely affected by fire in the short term, the long-term benefits in terms of maintaining habitat diversity are well established. Even in the short term, most perennial grasses and re-sprouting shrubs may be characterized as stimulated by fire, as they typically exhibit an increase in vigor and seed production post-fire. There are two vegetation cover types where wildland fire use (WFU) may be an important tool: (1) present cover types that are the result of altered fire regimes (too frequent or too infrequent wildland fires), and (2) cover types composed of species that benefit or are stimulated by wildland fire. RxFire and/or WFU may provide opportunities to control cheatgrass, rejuvenate Mountain Shrub, reduce the expansion of juniper encroachment, rejuvenate aspens stands, and stimulate lodgepole pine reproduction.

WFU may provide opportunities to mange Mountain Shrub, Mid-elevation Shrub with juniper encroachment, Dry Conifer, and Aspen/Conifer cover types. Because pre-fire understory composition dictates the subsequent post-fire ecological trajectory, opportunities to preserve and restore intact native understories can improve the quality of vegetation resources on the planning area while helping to reduce the occurrence and impacts of undesired fires. Maintaining and restoring cover types with intact understories of perennial grasses are important aspects of

managing fire and fuel loads in the sagebrush steppe. Specific opportunities to use fire in the various cover types are briefly noted below.

3.2.3.1 Low-elevation Shrub

Opportunities to manage wildland fire may include suppression to preserve remaining sagebrush steppe and minimize further expansion of Invasive Annual Grass-dominated areas. WFU and RxFire offer opportunities to regenerate the seral mosaic within intact sagebrush steppe. Management efforts that promote native Perennial Grass and forb understories and intact biological crusts offer opportunities to maintain and enhance cover types that are more resilient to the adverse impacts of fire. Fire may also be an important tool in restoration and rehabilitation efforts to control Invasive Annual Grasses, as discussed below.

3.2.3.2 Perennial Grass

Opportunities to apply WFU are limited due to concerns of further invasion of Invasive Annual Grasses. Restoration efforts, however, may use treatments to increse diversity and shrub cover.

3.2.3.3 Invasive Annual Grass

Opportunities to apply wildland fire are severely limited due to concerns of further expansion of Invasive Annual Grass-dominated areas. Restoring Invasive Annual Grasslands to native cover types or more desirable/stable Perennial Grass cover types may involve using RxFire to remove cheatgrass as an initial stage of treatment.

Because the viable populations of Invasive Annual Grass over-winters in the soil as seeds, controlling seedling emergence and reducing seed production are considered effective methods of controlling cheatgrass and medusahead wildrye. The most effective control measures to date have employed chemical herbicides that are applied as pre-emergent controls or to rapidly growing young plants. Seed production can be impacted by RxFire when it is applied during the brief period between the purple stage and when the seeds are dropped a short time later. A summary of restoration methods used in Invasive Annual Grass cover types in the planning area is presented in Appendix H.

3.2.3.4 Mid-elevation Shrub

RxFire and WFU may be useful to regenerate late seral stages and promote seral mosaics of shrublands with diverse native understories of perennial grasses and forbs. Fire may also be useful to control juniper encroachment of Mid-elevation Shrub. This may involve managing fine fuel loads prior to RxFire to ensure fuels are adequate to kill encroaching juniper.

3.2.3.5 Juniper

Opportunities for fire management in controlling the expansion of juniper into sagebrush steppe may involve WFU and RxFire to reduce juniper dominance on Mid-elevation Shrub sites. RxFire and WFU along with other active restoration approaches such as mechanical removal may help to recover sagebrush steppe habitat that has been encroached by juniper. Fire would not be used for fuels reduction in pinyon stands.

3.2.3.6 Mountain Shrub

RxFire and WFU may be useful to regenerate late seral stages and promote seral mosaics of shrubs with diverse native understories of perennial grasses and forbs.

3.2.3.7 Dry Conifer

RxFire and WFU would help reduce fuel loads and stem densities and increase age-class diversity.

3.2.3.8 Aspen/Conifer

RxFire and WFU may be used to regenerate late seral stands and promote a more diverse seral mosaic of aspen, which is currently skewed toward late mature to decadent stands. Restoring aspen stands would require stand-replacement disturbances such as crown fires or mechanical harvesting.

3.2.3.9 Salt Desert Shrub

No opportunities exist for WFU in this covertype, as fire does not play a historical role in these cover types. Preserving the remaining Salt Desert Shrub areas and minimizing further expansion of Invasive Annual Grass-dominated areas would continue to be a challenge.

3.2.3.10 Vegetated Rock/Lava

Opportunities for WFU are severely limited. Regeneration success, proximity to developed areas, and weed invasions pose challenges to the effective use of fire in these areas.

3.2.3.11 Wet/Cold Conifer

RxFire and WFU would help reduce fuel loads and stem densities, but regeneration of lodgepole pine would probably require stand-replacing fires.

3.2.3.12 Riparian

Most of the riparian species, such as cottonwoods, willows, birch, and alder, are somewhat fire-adapted (i.e., they sprout following fire). RxFire may offer a management approach to maintaining seral diversity (increasing plant regeneration) in these cover types. However, these activities would be most effective if managed specifically for the riparian zone versus being a by-product of fire management in an adjacent cover type. Fire management operations in adjacent cover types typically impose buffer zones around riparian and wetland areas, to protect riparian and wetland areas from disturbance.

3.2.3.13 Special Status Plants

Because little is known about the fire ecology of most special status plants, pre-fire and post-fire or post-treatment monitoring of populations provide an opportunity to gain insights that may be important to future management efforts. All areas proposed for treatment (either proactive fuels

treatment/restoration or post-wildland fire/rehabilitation) would be surveyed for special status plants on a project-specific basis.

Areas with known or suspected special status plant populations may be managed to minimize potential negative impacts. Knowledge in the location of T&E and BLM-Sensitive species would play an important role in fire management activities by providing direction on specific actions associated with fire suppression, mechanical fuel removal, chemical treatment, or the use of RxFire.

3.2.3.14 Noxious Weeds

Aggressive burn area rehabilitation and restoration through proactive fuels reduction treatments could control the expansion of noxious weeds. Opportunities exist through treatments both post-fire seeding and fuels treatments to prevent further expansion, and as an ongoing program to reclaim areas that are already degraded. Because pre-fire understory composition largely dictates subsequent post-fire ecological trends, preservation and restoration of intact native cover types and biological crusts across the planning area aid in maintaining and enhancing resilient cover types.

Table 3-20 provides a summary of fire management risks and opportunities for each cover type in the planning area.

TABLE 3-20. OVERVIEW OF PRIMARY FIRE MANAGEMENT RISKS AND OPPORTUNITIES, BY VEGETATION COVER TYPE

Cover Type	Characterized By	Fire Risk(s)	Vegetation Management Opportunities
Low-elevation Shrub	Sagebrush steppe: Wyoming big sagebrush, basin big sagebrush, etc.	Further expansion of noxious weeds through altered fire regime and loss of remaining sagebrush steppe, especially Wyoming big sagebrush.	Suppress all wildland fires; Minimize further expansion of Invasive Annual Grass-dominated areas; Preserve remaining sagebrush steppe; Limited fire use (WFU and RxFire) to regenerate mosaic within sagebrush steppe. Further loss of sage grouse habitat is also a major concern, but long-term ecological stability and value suggests the need for seral mosaics even in sagebrush cover types.
Invasive Annual Grass	Principally cheatgrass and medusahead wildrye. Potentially sagebrush steppe.	Further expansion of noxious weeds through altered fire regime.	Use AMR to reduce fire size in areas at risk of Invasive Annual Grass; Restore to more stable vegetation, ideally sagebrush steppe cover type;

TABLE 3-20. OVERVIEW OF PRIMARY FIRE MANAGEMENT RISKS AND OPPORTUNITIES, BY VEGETATION COVER TYPE

Cover Type	Characterized By	Fire Risk(s)	Vegetation Management Opportunities
Invasive Annual Grass, *continued*			Minimize further expansion of Invasive Annual Grass-dominated areas; and rehabilitate or restore Invasive Annual Grasslands to sagebrush/Perennial Grass/forb cover types using available native plant materials and non-native perennial species as necessary. Restoration may involve use of RxFire to remove cheatgrass as an initial stage of treatment. Both approaches are intensive and may be limited by availability of native seed.
Perennial Grass	Seeded areas (native and non-native) and native grasslands (bluebunch wheatgrass, needlegrass, Idaho fescue, etc.). Most perennial grasslands are potential sagebrush steppe.	Further expansion of noxious weeds through altered fire regime and loss of remaining native perennial grasslands that are probably early seral to sagebrush communities.	Use AMR to protect seedings and to allow for shrub establishment; Minimize further expansion of Invasive Annual Grass-dominated areas; and Preserve existing Perennial Grass.
Mid-elevation Shrub	Sagebrush steppe: Mountain big sagebrush, low sagebrush, bitterbrush, etc.	Further expansion of noxious weeds through altered fire regime and loss of remaining sagebrush steppe. Encroachment of Juniper into sagebrush steppe habitat due to past fire suppression.	Use RxFire and WFU to regenerate late seral stages, promote seral mosaics of shrubs and diverse native understories of perennial grasses and forbs. When suppressing fires, use AMR to ensure openings are created where needed.
Juniper	Rocky Mountain juniper, Utah juniper and/or single leaf pine.	Further expansion of noxious weeds through altered fire regime. Expansion of juniper into sagebrush cover types, loss of sagebrush acreage, soil erosion loss from mature stands of juniper. Invasion/expansion of noxious weeds due to loss of native perennial understory and nitrogen inputs into the soil following fire (either RxFire or WFU).	Use vegetation treatments, including RxFire and WFU to remove encroaching juniper.
Dry Conifer	Douglas-fir, limber pine, Ponderosa pine, etc.	Further expansion of noxious weeds through altered fire regime. High fuel loads, poor stand age-class diversity and	Reduce fuel loads and stem densities through mechanical thinning, RxFire and WFU.

TABLE 3-20. OVERVIEW OF PRIMARY FIRE MANAGEMENT RISKS AND OPPORTUNITIES, BY VEGETATION COVER TYPE

Cover Type	Characterized By	Fire Risk(s)	Vegetation Management Opportunities
Dry Conifer, *continued*		lack of regeneration. Currently these areas are skewed toward late mature stands, often with lots of beetle kill in Douglas-fir.	
Aspen/ Conifer	Includes healthy stands of aspen and stands of aspen and invading Conifer.	Further expansion of noxious weeds through altered fire regime. Loss of aspen cover and shift toward greater representation by later seres.	Use RxFire and WFU to regenerate late seral stands and promote more diverse seral mosaic of aspen (e.g., currently skewed toward late mature). When suppressing fires, use AMR to ensure openings are created where needed.
Mountain Shrub	Serviceberry, Ceanothus, snowberry, mountain mahogany, bigtooth maple, chokecherry, antelope bitterbrush, etc.	Further expansion of noxious weeds through altered fire regime. Loss of seral diversity because of past fire suppression activities.	Use RxFire and WFU to regenerate late seral stages, promote seral mosaics of shrubs and diverse native understories of perennial grasses and forbs. When suppressing fires, use AMR to ensure openings are created where needed.
Wet/Cold Conifer	Subalpine fir, Engelmann spruce, lodgepole pine, etc.	Further expansion of noxious weeds through altered fire regime. Concern with lack of regeneration in lodgepole pine due to fire suppression.	No specific management recommendations provided. Regeneration of conifers would occur naturally as stand-replacing fire occurs.
Riparian	Streamside and wetland areas of cottonwood, willow, etc.	Further expansion of noxious weeds through altered fire regime. Mostly a low priority as Riparian is generally excluded from burns under the alternatives, although some RxFire are planned for the west side of the planning area. The same ecological benefits of seral mosaics apply.	Most of the species such as cottonwoods, willows, birch, and alder are somewhat fire-adapted. Fire may offer a management approach to maintaining seral diversity in these communities, especially if they are already impacted by damming and reduced flood flows.
Salt Desert Shrub	*Atriplex* spp. (four-wing, shadscale), spiny hopsage, winterfat, greasewood, etc.	Noxious weeds altering the fire regime in an otherwise non-fire regulated cover type.	Suppress all wildland fires; Minimize further expansion and restore Invasive Annual Grass-dominated areas, and Preserve remaining Salt Desert Shrub areas.
Vegetated Rock/Lava	Agriculture, towns/communities, open water, lava, sand dunes, barren areas, etc.	Non-issue from vegetation standpoint.	Use AMR and WFU as fires occur naturally very infrequently and vegetation is sparse.

3.3 WILDLAND URBAN INTERFACE (WUI)

3.3.1 CURRENT CONDITIONS AND TRENDS

In recent years, public and private lands have continued to burn, resulting in the loss of property, damage to natural resources, and the disruption of community services. Many of these fires burned in the WUI areas and exceeded the fire suppression capabilities of fire-fighters. The WUI can be described as a line, area, or zone in which human developments, such as communities, farms, ranches, summer homes, and recreational facilities, meet or intermix with undeveloped wildland or vegetative fuels on forestland or rangeland (Laverty and Williams 2000).

The planning area has a high potential for damage by wildland fires along the WUI. The BLM and fire districts promote local involvement in wildland fire concerns though approximately 63 mutual aid agreements with various counties.

3.3.1.1 The National Fire Plan

In 1995, a review of existing Federal Wildland Fire Management Policy was initiated after 34 fire-fighter fatalities occurred during the 1994 fire season. The resulting Federal Wildland Fire Management Policy and Program Review was the first comprehensive statement of wildland fire policy coordinated between the U.S. Department of Interior (USDI) and U.S. Department of Agriculture (USDA). It articulated direction on issues of safety, the role of fire in natural resource management, and the relative role of federal and non-federal agencies in the WUI. In January 2001, the Federal Wildland Fire Management Policy was reviewed and updated with a strengthened focus on key issues such as restoring landscapes and rebuilding communities, undertaking projects to reduce risk, working directly with communities, and establishing accountability. Collectively, these documents are known as the National Fire Plan.

In 2000, Congress directed the USDI and USDA to engage the governors of the western states in a collaborative attempt to cooperatively develop a coordinated, national, 10-year comprehensive strategy, with the states as full partners in the planning, decision-making, and implementing the National Fire Plan. *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment – A 10-year Comprehensive Strategy* was officially released in August 2001 and emphasizes a proactive, collaborative, and community-based approach to reducing wildland fires.

3.3.1.2 Communities-at-risk

See Appendix I for a list of communities-at-risk that are located in the planning area. The Secretaries of the USDA and the USDI were asked in the Fiscal Year (FY) 2001 Interior Appropriations Act (Public Law 106-291) to publish jointly in the *Federal Register* a list of all WUI communities that are at high risk from wildland fire (Volume 66, August 17, 2001). The criteria for listing varied from state to state, which explains why some states listed hundreds of communities, while others submitted a much smaller list.

A list of the approximately 158 communities-at-risk located within the planning area (Figure 3-2) is in Appendix I. The list was submitted by the IDL. After IDL identified Idaho's CAR, an

interagency team of the USDA, USDI, state foresters, and Shoshone-Bannock Tribal Governments were convened to organize together to reduce the risk to these communities and implement the NFP in a coordinated fashion. Representatives from other federal agencies such as the U.S. Department of Energy (DOE) and U.S. Department of Defense (DOD) were included when appropriate. This team would continue to serve the long-term goals of identifying, prioritizing, and implementing wildland risk and hazard assessment and fuels treatment projects, to ensure that the long-term needs of communities vulnerable to wildland fire are addressed and the NFP is implemented in Idaho.

Additionally, in December 2002, fire and resource personnel created a list of communities/areas that are at highest risk from wildland fire in the planning area (Appendix J). This list was based on BLM's professional judgment regarding which communities/adjacent subdivisions have the highest risk from wildland fire originating on BLM-administered lands. The criteria used to develop the BLM list included proximity to BLM-administered lands (federal fire personnel normally respond to private land fires burning within a 1-mile radius of BLM-administered land), fuel type, and/or continuity such that the potential for large wildland fire exists.

Existing project proposals in those identified WUI communities that have approved plans and completed environmental compliance would have the highest priority for fuels treatment, and work is already underway in many of these communities. Additional projects that can be readied for implementation would receive the next priority. Finally, for those newly identified projects or projects not ready for implementation, the planning process would be initiated toward future treatments, and implementation schedules would be developed.

Additionally, the NFP working group directed all counties in Idaho to prepare mitigation plans. All 44 counties have plans completed. Work is continuing in the vicinity of specific communities (over 30) as outlined in county wildfire protection plans (CWPPs).

3.3.2 RISKS

Seasonal wildland fires present a potential threat to both new and established communities along the WUI. For areas in and around the WUI where wildland fire occurrence is on the increase and there have been no fuels reductions efforts, the risk of large wildland fire is elevated, due to the hazardous fuel loads and associated increases in fire severity, size, and frequency. To reduce fuel loads within the WUI, various kinds of treatment may be used to reduce the risk. Among these, WFU and RxFire pose an inherent risk to WUI areas due to the possibility of escape. Accordingly, WFU and RxFire use is strictly prescribed, requiring site-specific National Environmental Protection Act (NEPA) analysis before implementation.

Several vegetation cover types evolved with fire and require fire to establish, promote, and/or maintain certain cover types found within the ecosystem. Vegetation types may be inherently prone to large scale stand replacement wildland fires that are part of their reproductive process (e.g., stand-replacing fire in lodgepole pine forest stimulate seed drop and reproduction). Where these cover types overlap with WUI, the primary objective would be to reduce wildland fire intensity through the use of mechanical and/or chemical treatments and some RxFire, mostly as pile burning, where appropriate.

During the wildland fire season, the availability of fire-fighting personnel is often diminished depending on the occurrence of other fires in the region, the size of those fires, and the number of structures needing protection. Even for the individual fire, there are not always enough fire-fighters to quickly suppress fires before structures are threatened or damaged by fire. While fire-fighters are defending one structure, the perimeter of the fire may rage on elsewhere, threatening many more structures and consuming many acres of vegetation. For these reasons, residents of communities along the WUI cannot solely depend on fire-fighters to save their property. Residents in the WUI can help protect their property and community by taking defensive steps toward reducing fuel loads both before and during the fire season.

3.3.3 OPPORTUNITIES

The President of the United States has directed the Secretaries of the USDA and USDI to increase federal investments in projects designed to reduce risk of wildland fire in the WUI. Congress has supported this direction in the form of increased funding since October 2000. The BLM can reduce wildland fire intensity in and around WUI areas by planning and implementing fuels reduction and restoration treatments on surrounding BLM-administered lands.

The 10-year Comprehensive Strategy establishes a strategy for federal, state, and private land managers/owners to plan and prioritize fuels reduction projects in and around WUI areas, improve fire prevention and suppression, restore fire-adapted ecosystems, and promote community assistance. The BLM is participating in interagency awareness campaigns, to encourage private landowners to proactively reduce the risk of wildland fire to their property and improve their safety in relation to wildland fire, as well as prevention programs. By taking defensive steps to assist the BLM and fire-fighters both before and during the fire season, the impacts caused to or from private property can be lessened or possibly even eliminated. Ultimately, however, landowners are responsible for activities that occur on their land, in terms of reducing the potential for wildland fire burning to or from their property.

The BLM also has Memorandas of Understanding (MOUs) with over 41 municipal, county, and fire districts in the planning area. These agreements provide mutual fire-fighting aid between local and county fire departments and the BLM. To ensure that the MOUs are used with the best efficiency, operating plans are updated and maintained on an annual basis by the local and county fire departments. These annual plans are more specific information to help fire managers use time, manpower, and resources to effectively protect communities-at-risk and fight wildland fires.

3.4 SAGEBRUSH STEPPE ECOSYSTEM (ISSUE 2)

3.4.1 CURRENT CONDITIONS AND TRENDS

The historical extent and distribution of the sagebrush steppe ecosystem across southern Idaho has dramatically decreased over the last century from conversion of these lands to agriculture and seeded ranges, cheatgrass invasion, and altered fire regimes. For the purposes of this EIS, present and potential sagebrush steppe cover types are represented by the following cover types: Low-elevation Shrub and Mid-elevation Shrub, Annual and Perennial Grass, and Juniper that has invaded Mid-elevation Shrub sites.

At present, the distribution of shrub dominated acres within the Low- and Mid-elevation Shrub cover types in the planning area are greatly reduced from historical. Those sagebrush steppe cover types that remain are fragmented and have been invaded by cheatgrass; the presence of cheatgrass makes the remaining sagebrush steppe habitats susceptible to large wildland fires.

Continued loss of shrub dominated acres is causing some decline in most of the sagebrush-obligate wildlife species that compose the Sagebrush Guild. The Sagebrush Guild species that use sagebrush steppe habitat are characteristic of the sagebrush steppe ecosystem and require this habitat to reproduce and maintain their populations. Representative Sagebrush Guild species in the bulleted list below depend highly upon sagebrush and its various subspecies - Wyoming and basin big sagebrush and Mountain big sagebrush.

- Greater sage grouse (*Centrocercus urophasianus*)
- Sage sparrow *(Amphispiza belli)*
- Sagebrush lizard *(Sceloporus graciosus)*
- Short-horned lizard *(Phrynosoma douglasii hernandesi)*
- Pronghorn (*Antilocarpa americana*)
- Pygmy rabbit *(Brachylagus idahoensis)*

Wyoming and basin big sagebrush principally occur in the Low-elevation Shrub and Mid-elevation Shrub. Mountain big sagebrush occurs in the transition zone between the Mid-elevation and Mountain Shrub cover types. Shrub cover types provide nesting and rearing cover, fawning cover, thermal cover, refuge (hiding), and winter forage for these wildlife species. The greater sage grouse is the premier representative wildlife species for the sagebrush steppe ecosystem. In the following discussion, reference to sage grouse is used to represent the entire Sagebrush Guild.

Perennial Grass and Invasive Annual Grass cover types presently occur in historical sagebrush steppe. Perennial Grass cover types include seeded ranges or recovering burned areas, while Invasive Annual Grass cover types are highly degraded areas dominated by the invasive annual cheatgrass. Grass cover types do not provide resources that the Sagebrush Guild require; although, they may locally use these cover types when they occur adjacent to intact Low-elevation Shrub and Mid-elevation Shrub. Juniper encroachment into Mid-elevation Shrub sites has also reduced the habitat available to the Sagebrush Guild.

The BLM uses six categories to classify sage grouse habitats: Stronghold Habitat and Isolated Habitat (collectively called Source Habitat), Key Habitat, Restoration 1 Habitat (R1), Restoration 2 Habitat (R2), and Restoration 3 Habitat (R3). Figure 3-3 depicts the distribution of sage grouse habitats across the planning area. Table 3-21 lists the acres of each sage grouse habitat type within the planning area by ownership or administration authority. The INL is included in Table 3-21 because it contains field areas within its boundaries that compose the important, relatively pristine Sagebrush Steppe Ecosystem Reserve (SSER), which is contiguous with adjacent BLM-administered lands.

TABLE 3-21. ACRES OF EACH CATEGORY OF SAGE GROUSE HABITAT WITHIN THE PLANNING AREA, BY LAND JURISDICTION

	Planning Area Total (Federal, State, and Private)	Planning Area BLM	Planning Area INL
Stronghold Habitat[1]	2,664,537	1,524,505	26,789
Isolated Habitat	377,198	90,998	NA
Key Habitat	4,396,836	2,210,085	363,471
Restoration 1	1,904,429	1,240,789	140,796
Restoration 2	581,907	458,286	NA
Restoration 3	88,048	73,054	NA

[1]Stronghold and isolated habitats were originally defined as source habitat but the definition was refined in 2004.

Source Habitats, with various levels of sagebrush canopy cover, herbaceous grass species, and the preferred mixture of forb species, provide high-quality habitats for all members of the Sagebrush Guild, including invertebrates.

Stronghold Habitat is defined as an area in which sufficient Breeding Habitat remains to support sage grouse nesting populations with generally stable or increasing trends since the drought in the 1990s.

Isolated Habitat is defined as an area in which Breeding Habitat remains but is relatively small and isolated by farmlands, forests, and/or grasslands (see Table 3-21). Nesting populations in these areas have been stable or decreasing since the drought of the 1990s.

Key Habitat is defined as generally large-scale, intact sagebrush steppe areas that provide sage grouse habitat. Small inclusions of Perennial Grass cover types, either native or introduced, or other habitats (e.g., mountain mahogany) may be present. At present, Key Habitats are critical to the viability of the Sagebrush Guild in the planning area. Key Habitat areas should be protected from large fires and also maintained and improved as needed (see Figure 3-3).

Restoration Habitats are habitats that have the potential to become Key Habitats. They are considered to lack one or more habitat components and are in need of some treatment to restore their functionality as Sagebrush Guild habitat (see Figure 3-3). Successful treatment areas become Key then Source Habitats that provide enhanced habitat quality for the sagebrush steppe wildlife species, allowing reoccupation of degraded habitats that had been Sagebrush Guild habitat.

- Restoration 1 Habitats (R1) are sagebrush-limited areas with acceptable understory conditions in terms of grass species composition that includes native and seeded Perennial Grass rangelands.
- Restoration 2 Habitats (R2) are areas where existing sagebrush cover may or may not be adequate to meet the needs of sage grouse, but understory herbaceous conditions are poor. Undesirable plant species such as cheatgrass, medusahead wildrye, or other non-

native plants are common to dominant. Opportunities exist in R2 for WFU to achieve restoration objectives.

- Restoration 3 Habitats (R3) are areas of juniper encroachment that usually has invaded Mid-elevation Shrub. Opportunities exist in R3 for WFU to achieve restoration objectives.

Further description of Sagebrush Guild species and their ecology is presented in Section 3.5.1.1, Low-elevation Shrub and Mid-elevation Shrub habitats.

3.4.2 RISKS

Over the past three decades, most of the wildland fire activity in the planning area has been in the sagebrush steppe. Wildland fires have helped accelerate the loss of sagebrush cover types and put both the sagebrush steppe ecosystem and the Sagebrush Guild at risk. The increase in wildland fires has been facilitated by the invasion of Invasive Annual Grasses that provide little to no habitat for the Sagebrush Guild but which dry out early in the growing season and exacerbate the flammable fuel situation. Some of the planning area's previous sagebrush steppe acreages have burned four times since 1970 and are today, dominated by Invasive Annual Grasses. Thus, the interplay between Invasive Annual Grasses and wildland fires has been a major factor in the decline of Sagebrush Guild habitat.

Those sagebrush steppe habitats that remain are important to a number of sensitive species, including, sage grouse, pygmy rabbits, and sage sparrows. Limiting factors to game species such as elk and mule deer include burned-over shrub cover types on winter ranges that are replaced by non-beneficial non-native plants. Wildland fires also reduce carrying capacity for pronghorn, which depend directly upon shrubs and herbaceous cover for fawning success. Furthermore, long-term suppression of natural fires in Mid-elevation Shrub has permitted further loss of Sagebrush Guild habitat by juniper encroachment.

Agricultural development, predation, fragmentation of habitat, and loss of sagebrush steppe cover types have resulted in an overall decline in wildlife populations that compose the Sagebrush Guild.

3.4.3 OPPORTUNITIES

Wildland fire is a natural part of the sagebrush steppe ecosystem. Scientists estimate that the historical fire return interval for Wyoming big sagebrush cover types, which predominate over the planning area, varied between 60 years and 110 years between stand-replacing fires. Opportunities exist to reduce wildland fire frequencies and size in existing shrub cover types to more natural fire regimes. In addition, opportunities exist to manipulate the frequency of fires areas that were once sagebrush steppe (i.e., grassland and/or juniper) and restore these areas to healthy sagebrush steppe cover types.

Opportunities exist for improving the quality and areal extent of sage grouse habitat through the use of fire treatments (WFU and RxFire), as well as mechanical, chemical, and seeding treatments. Although there are short-term consequences of these treatments, they could restore a more diverse sagebrush steppe landscape and return fire frequencies and fire severities to more

natural regimes with the beneficial result of better, higher quality habitat for the Sagebrush Guild.

Fire and mechanical treatments can produce a mosaic of successional stages across the landscape that creates a more diverse habitat of high quality. Sage grouse, for instance, use different cover types/successional stage habitats during various phases of the year: shrub cover in spring for nesting and rearing, grass and forb areas during the growing season to balance out a nutritional diet, shrublands in winter for thermal cover and foraging, and open grass or barren areas in late winter and spring for lekking and reproduction. Fire and mechanical treatments can also reduce juniper density and restore sage grouse habitat where juniper has invaded and displaced sagebrush cover types.

3.5 WILDLIFE RESOURCES

To facilitate the description of existing wildlife resources at the landscape-level required for this EIS, wildlife species were categorized into guilds associated with the cover types described in Section 3.2, Vegetation Resources and Fire's Natural Role (Issue 1). This allows the impacts analysis to focus on key wildlife species representative of the suites of species that use each cover type. Wildlife species guild members are listed under each cover type in the following discussion.

3.5.1 CURRENT CONDITIONS AND TRENDS

3.5.1.1 Low-elevation Shrub and Mid-elevation Shrub Habitats

The representative guild species for Low-elevation Shrub and Mid-elevation Shrub cover types in the planning area include greater sage grouse, sage sparrow, sagebrush lizard, short-horned lizard, pygmy rabbit, and pronghorn.

Even though greater sage grouse population levels appear to have been increasing throughout the planning area the long-term trend shows an overall decline in the species. Currently, sage grouse counts are well below historical levels. This decline is due to reduced, fragmented, and lost sagebrush steppe habitat.

Sage grouse use traditional winter and summer habitats (Key Habitat; see Figure 3-3) and depend heavily on sagebrush for nesting cover. Sagebrush also provides critical winter thermal cover and 100 percent of sage grouse winter forage. Some nesting occurs near traditionally used strutting grounds (Autenrieth 1981; Wallestad and Pyrah 1974), while migratory populations may nest upward of 15 miles to 20 miles from traditional strutting grounds. Sage grouse broods are highly upon water, insects, and succulent forage during the first nine weeks following hatching. Riparian areas provide an important source for brood rearing habitats and migration corridors (Autenrieth 1981; Call and Maser 1985).

The sage sparrow is a migrant that summers in Idaho and winters in Arizona, New Mexico, and northern Mexico. It is found in sagebrush flats and desert scrub areas. It usually nests in sagebrush and typically feeds on insects and seeds. This species has been in recent decline. This decline is due to reduced, fragmented, and lost sagebrush steppe habitat.

The sagebrush lizard is a common species associated with sagebrush cover types and pinyon-juniper woodland. It is a ground dweller that prefers open ground with low shrubs and rocks where it retreats when threatened. It feeds on insects (Stebbins 1985). This species appears to be still abundant, but data on this species is less available than for the vertebrates discussed above. The sagebrush lizard faces the same risks that other members of the Sagebrush Guild face.

The short-horned lizard occurs in various habitats including everything from sagebrush to spruce/fir. It may be found at elevations up to 11,000 feet. It feeds on insects and snails and is usually found near loose soil that it can burrow in at night. This species' decline is due to reduced, fragmented, and lost sagebrush steppe habitat.

The pygmy rabbit is the smallest of all North American rabbits. It occurs in dense stands of tall sagebrush and is the only rabbit in North America known to dig its own burrow. It is rarely seen more than a few feet from its burrow or dense cover. Topography and soil are very important in choosing a site to dig their burrows. This species has been in decline in the planning area due to reduced and fragmented sagebrush steppe habitat.

Pronghorn make extensive use of the sagebrush steppe (e.g., Low-elevation Shrub and Mid-elevation Shrub, Perennial Grass, and Riparian cover types). Antelope favor healthy sagebrush habitats (Sundstron et al.1973). Sagebrush is used as forage and habitat year-round, but is of greatest importance in winter. Some researchers have found the winter diet of antelope to be comprised of as much as 95 percent to 100 percent big sagebrush (Olsen and Hansen 1977). Most pronghorn populations in the planning area are considered relatively stable, while long-term population levels have been decreasing in some areas due to habitat loss. Pronghorn are primarily found at elevations below 6,000 feet and on slopes of less than 30 percent in the planning area. Seasonal variations in snow distribution and depth influence antelope distribution on crucial winter ranges, while proximity to water influences antelope distribution on spring, summer, and fall ranges (Figure 3-4). Total pronghorn habitat in the planning area and on BLM-administered land are shown in Table 3-22 and Table 3-23, respectively.

TABLE 3-22. BIG GAME SEASONAL HABITAT ACREAGES ON ALL LANDS (I.E., FEDERAL, STATE, AND PRIVATE) WITHIN THE PLANNING AREA

Species	Seasonal Habitat	Total Habitat
Elk	1,894,709	3,386,751
Mule Deer	1,923,458	8,649,608
White-tailed Deer	38,000	38,000
Pronghorn	1,700,834	3,060,393
Bighorn Sheep	20,932	445,948
Moose	182,402	361,654

TABLE 3-23. BIG GAME SEASONAL HABITAT ACREAGES ON BLM-ADMINISTERED LANDS WITHIN THE PLANNING AREA

Species	Seasonal Habitat	Total Habitat
Elk	653,234	1,534,267
Mule Deer	1,246,844	2,250,684
White-tailed Deer	11,658	11,658
Pronghorn	1,108,849	2,115,509
Bighorn Sheep	19,718	201,264
Moose	65,716	170,978

3.5.1.2 Perennial Grass Habitat

The representative guild species for the Perennial Grass cover type include Columbian sharp-tailed grouse *(Tympanuchus phasaianellus)*, western meadowlark *(Sturnella neglecta)*, short-eared owl *(Asio flammeus)*, and montane vole *(Microtus montanus).*

Columbian sharp-tailed grouse occupy various habitats including Low-elevation Shrub and Mid-elevation Shrub, Perennial Grass, and Mountain Shrub. All populations are considered to be at least stable, with recent evidence of expansion occurring in south-central Idaho. Occupied habitat varies from sagebrush/grass native habitat to Conservation Reserve Program lands and recent expansion into old crested wheatgrass seedings.

The western meadowlark is found throughout the entire planning area. It is a ground-nesting, short-distance migrant that usually uses grasslands for breeding grounds. Meadowlarks are ground foragers that typically feed on insects; although, they also consume seeds. Nesting typically occurs during the spring and summer. Meadowlark populations are generally stable throughout the planning area; however, habitat risks to these species include conversion of Perennial Grass to Invasive Annual Grass and loss of sagebrush steppe habitat.

The short-eared owl can be found throughout the Northern Hemisphere and South America. It is a permanent resident of south-central Idaho wetlands and deserts and has been impacted by agriculture and urban development. Short-eared owls are common in agricultural areas; although, there appears to be a problem with the using pesticides in the species' wintering habitat in Argentina. Short-eared owl populations are fluctuating but generally stable throughout the West. They do occur in the planning area but are not common.

The montane vole is associated with wet meadows of forested areas as well as dry grasslands and sagebrush grasslands. They live in runways and burrows under the cover of tall grasses. They forage chiefly on grasses, sedges, and rushes. This species may be impacted by agricultural or other developments in its natural habitat. Montane vole populations in the planning area appear to fluctuate somewhat but are generally stable.

3.5.1.3 Invasive Annual Grass Habitat

Representative species that inhabit or use the Invasive Annual Grass cover type in the planning area include the long-billed curlew *(Numenius americanus)* and western burrowing owl *(Athene cunicularia)*.

The long-billed curlew is a neotropical migrant that is found within the administrative boundaries of all of the planning area field offices. This bird typically inhabits grasslands near riparian areas or water sources where it can obtain its preferred food source of aquatic invertebrates. In upland areas, curlew also feed on insects, berries, and seeds. Long-billed curlew populations appear to be declining throughout the western Great Plains but are actually increasing in Idaho.

The western burrowing owl is found in grasslands associated with sagebrush steppe across the planning area. Burrowing owls are neotropical migrants that feed on insects, birds, small mammals, and reptiles. As indicated by their name, they nest in burrows instead of on the ground or in trees; they often use abandoned burrows of badgers, gophers, or foxes. Sometimes breeding pairs live together in colonies. Burrowing owls require open areas with low ground cover for hunting and burrows. Decreases in burrowing owls in the planning area can be attributed to overall decreases in burrowing animals, as well as loss of habitat to agriculture. Burrowing owl populations in the planning area appear stable. However, their population numbers have been shown to fluctuate according to the abundance of prey items such as voles.

3.5.1.4 Juniper and Mountain Shrub Habitats

Wildlife species representative of the Juniper and Mountain Shrub Guilds include ferruginous hawk *(Buteo regalis)*, juniper titmouse *(Baeolophus ridgwayi)*, gray flycatcher *(Empidonax wrightii)*, mule deer *(Odocoileus hemionus)*, California bighorn sheep *(Ovis canadensis)*, and mountain lion *(Felis concolor)*.

The ferruginous hawk, a BLM sensitive species, is the largest of the North American buteos. It is a neotropical migrant that breeds from southwestern Canada to central Arizona, New Mexico, and northern Texas and winters in California to northern Mexico. It is a year-round resident over the region that extends from Nevada through western and southern Idaho, northern Arizona, and New Mexico to eastern Colorado and South Dakota. In the western and southeastern portions of Idaho, the ferruginous hawk nests at the edge of juniper habitats and open, desert and grassland habitats. Ferruginous hawks are highly sensitive to human disturbance (e.g., oil and gas development, agricultural practices, and urban encroachment). They have experienced a decline across much of their range and have been extirpated from some of their former breeding grounds in Idaho. Portions of the Raft River and Curlew Valleys have been designated as a Globally Important Bird Area by the American Bird Conservancy and National Audobon Society for its healthy, well-monitored, and extensively-studied population of ferruginous hawks.

The juniper titmouse is a year-round resident of the pinyon-juniper and pine woodlands; it is also common in suburbs. It nests in snag holes, natural or made by woodpeckers. They typically feed on fruit, seeds, and insects. This species is relatively tolerant of human encroachment.

The gray flycatcher is a migrant species that summers in Utah and Idaho and winters in Mexico. It nests in arid pinyon-juniper woodlands and sagebrush areas. It builds its nest in the crotch of juniper trees or sagebrush. It feeds exclusively on insects. This species is still quite common but faces the same risks that other Sagebrush Guild species face.

Mule deer populations in the planning area are presently considered stable, with current management direction focused on improving or maintaining existing numbers. Preferred areas of seasonal habitat use, including migration routes, are characterized by vegetation mosaics of timbered or tall brush hiding cover, mixed with sagebrush/grass and bitterbrush as well as mountain mahogany foraging sites (Figure 3-6). Preferred hiding and thermal cover include timber stands, willow, aspen, and tall sagebrush. Proximity to water, an important factor during spring, summer, and fall, is the reason for deer dependency upon riparian zones. Aspen stands provide an important required habitat component for fawning and fawn rearing cover. Total mule deer habitat in the planning area and on BLM-administered land are shown in Table 3-22 and Table 3-23, respectively.

The mountain lion is managed as a game species in Idaho. Mountain lions are usually associated with remote, rough topography. However, mountain lions are increasing their occupation of major Riparian habitat, where an abundant prey base of white-tailed deer already exists, especially within the Upper Snake and Pocatello Field Offices. Within the Shoshone Field Office, white-tailed deer are considered to be isolated, scattered and at low densities within the Big Wood River Valley.

Presently, two subspecies of bighorn sheep occupy areas within the planning area. Rocky Mountain bighorn sheep occupy winter habitat areas (i.e., Low-elevation Shrub cover types) within the Lemhi and Birch Creek areas of the USFO, while California bighorn sheep occupy suitable areas of the Jim Sage Mountain range and South Hills area (i.e., Mid-elevation Shrub and Mountain Shrub cover types) of the BFO (Figure 3-5). Bighorn sheep require areas adjacent to extremely steep rough or precipitous terrain for escape and security cover. Shrubby mountain mahogany and open sagebrush-grass sites, interspersed with steep escape cover are typical of foraging and loafing areas. Stands of dense timber and brush are predominantly avoided, except when sheep are forced to move through such areas during migration from summer to winter habitat areas. Bighorn sheep populations in the planning area are small but stable. Recently, bighorn sheep have been transplanted into their historic range along Idaho border with Utah and Nevada. Total bighorn sheep habitats in the planning area and on BLM-administered land are shown in Table 3-22 and Table 3-23, respectively.

3.5.1.5 Dry Conifer, Aspen/Conifer, and Wet/Cold Conifer Habitats

Wildlife species representative of the Wet/Cold Conifer, Dry Conifer, and Aspen/Conifer Guilds include the northern goshawk *(Accipter gentiles)*, three-toed woodpecker *(Picoides tridactylus)*, ruffed grouse *(Bonasa umbellus)* red-naped sapsucker *(Sphyrapicus nuchalis)*, snowshoe hare *(Lepus americanus)*, Rocky Mountain elk *(Cervus elaphus)*, and moose *(Alces alces)*.

Northern goshawks generally occur in undisturbed forested areas. Areas of potentially suitable Nesting Habitat for northern goshawk typically consist of coniferous forest and mixed-aspen forest types dominated by spruce, fir, pine, and aspen. Mature aspen stands are also used for

nesting where these other forest types are not available. Goshawks typically prey on small mammals. They build their nests in the crotches of trees. A decline in populations of this species is associated with the lost of forested habitat.

The three-toed woodpecker nests and winters in northern coniferous forest and mixed-aspen forest types dominated by spruce, fir, pine, and aspen, usually above 8,000 feet elevation (Bull et al. 1986). Three-toed woodpeckers typically feed on wood-boring insects. The species is impacted by forest management practices such as clear cutting and stand-replacing wildland fires. Three-toed woodpecker populations are stable nationally, but there is little data to indicate their status in the planning area. Occurrence of birds or nests is rare.

Ruffed grouse habitat is closely associated with Dry Conifer, Aspen/Conifer, and Riparian cover types throughout the planning area. In the spring and summer, ruffed grouse feed on berries, seeds, fruit, and insects. Ruffed grouse winter in high-elevation timber where they feed on needles and buds of Douglas-fir. Riparian areas and aspen stands are important for ruffed grouse brood rearing due to the presence of insects, preferred forbs, and berry producing shrub species. Additionally, herbaceous cover is an important component of Brood Rearing Habitat, directly affecting areas of use and brood survival (Harju 1974; Zwickel 1972). Ruffed grouse are plentiful in wooded habitat in the planning area.

The red-naped sapsucker is a neotropical migrant that summers in Idaho and winters in Central America. It occurs in mixed conifer and aspen forests. They generally nest in the same tree year after year though not necessarily using the same hole. They prefer to be near riparian areas. The sapsucker diet includes sap from deciduous trees, pitch from coniferous trees, berries, and cambium. The species is impacted by forest management practices such as clear cutting and stand-replacing wildland fires. The state-wide Idaho population of red-naped sapsucker appears to be stable at approximatley 140,000 individuals (Rosenberg 2004).

The snowshoe hare typically lives in forested areas. In the summer, it has a thin brown coat that changes to a heavy, white coat in winter. In the winter, snowshoe hares feed on tree bark, woody twigs, and tree buds from aspen, willow, birch, maple, sumac, and alder. The hare also eats the needles of conifers, spruce, fir, cedar, and hemlock. In the summer, snowshoe hares feed on grasses, forbs, and shrub shoots. Hares typically rest or hide in abandoned animal burrows, logs, or low vegetation during the day. They feed at night. Snowshoe hares are preyed upon by many predators and are particularly important to Canada lynx. Other predators that use snowshoe hare as a food source include coyotes, foxes, weasels, bobcats, great horned owls, and larger hawks. Snowshoe hare populations in the planning area can fluctuate widely. Typically they depend on the availability of dense shrubby habitat combined with density of predation. Exact population dynamics for the planning area are unknown.

Important seasonal elk habitat areas are illustrated in Figure 3-7. Elk prefer habitats away from traveled roads, characterized by vegetation mosaics of timbered or brushy hiding cover and open sagebrush grassland foraging sites. Hiding and thermal cover is provided by timber stands, mountain mahogany, aspen-willow riparian zones, and rugged terrain closely associated with a wide range of cover types (i.e., Low-elevation Shrub and Mid-elevation Shrub, high-elevation Mountain Shrub, Wet/Cold Conifer, Dry Conifer, Aspen/Conifer, Juniper, and Riparian cover types). During spring, summer, and fall, close proximity to water is an important habitat factor

that is provided by both natural and artificial sources throughout the planning area. Year-long or spring/summer/fall elk ranges are present throughout the planning area at higher elevations wherever forested habitat sites and topography provide good security from roads and other human activities. Major cover types preferred by summer elk include Aspen/Conifer, high-elevation Mountain Shrub, Dry Conifer, Mid-elevation Shrub, and Riparian cover types. Total elk habitat throughout the planning area and on BLM-administered land are shown in Table 3-22 and Table 3-23, respectively.

Moose populations in the planning area are believed to have increased since the late 1970s. Crucial winter and spring moose habitat exists within the Sands, Tex Creek, and Big Bend Ridge areas with winter population numbers sometimes exceeding 500 individuals per area (Idaho Department of Fish and Game [IDFG] 2002 (see Figure 3-5). These areas are characterized by Mid-elevation and Mountain Shrub species such as sagebrush and bitterbrush. These species, along with coniferous and deciduous trees, provide adequate winter forage and thermal cover requirements. Throughout the spring, summer, and fall, moose depend highly on riparian habitat areas as well as the adjacent Aspen/Conifer and Wet/Cold Conifer cover types, which provide calving, foraging, and thermal cover habitat needs. Most studies indicate that 90 percent or more of the moose diet contains fewer than seven different plant species (Schwartz 1992). Therefore, limiting factors for moose populations include degraded riparian and adjacent upland habitat conditions. Total moose habitat in the planning area and on BLM-administered land are shown in Table 3-22 and Table 3-23, respectively.

3.5.1.6 Salt Desert Shrub Habitat

The horned lark *(Eremophila alpestris)* is the only species analyzed for the Salt Desert Shrub cover type. The horned lark occurs throughout the planning area year-round. It occurs in open country, nests on the ground in shallow depressions, and feeds on insects, spiders, grass, and forb seeds. This species is quite adaptable and is quite common.

3.5.1.7 Riparian Habitat

Species analyzed as part of the Riparian Guild include deer, bald eagle *(Haliaetus leucocephalus)*, western yellow-billed cuckoo *(Coccyzus americanus)*, northern leopard frog *(Rana pipiens)*, boreal toad *(Bufo boreas)*, common garter snake *(Thamnophis sirtalis)*, Western terrestrial garter snake *(Thamnophsis elegans)*, and Yellowstone cutthroat trout *(Oncorhynchu clarki bouvieri)*.

White-tailed deer are predominantly found north of the Snake River; although small, localized populations are found throughout the remainder of the state (see Figure 3-4). They are closely associated with the major riparian areas in the planning area (e.g., Snake River, Henry's Fork of the Snake River, etc.) and the associated upland cover types, including the Low-elevation Shrub and Mid-elevation Shrub. Overall, white-tailed deer populations are healthy and are probably near all-time highs for the state (IDFG 1999). Total white-tailed deer habitat in the planning area and on BLM-administered land are shown in Table 3-22 and Table 3-23, respectively.

Bald eagle seasonal habitat occurs throughout the planning area, with the majority of nesting, brood rearing, and wintering habitats near major rivers. Twenty-four active nest sites occur on or

near BLM-administered lands within the Greater Yellowstone ecosystem, resulting in high bald eagle productivity.

The western yellow-billed cuckoo is presently the only species in the planning area proposed by the USFWS to be listed as threatened under the ESA. Their present range and habitat occupation include the South Fork of the Snake River, where the associated cottonwood and Riparian cover type provides Nesting and Brood Rearing Habitat. Western yellow-billed cuckoos are obligate riparian nesters and are restricted to more mesic habitats along rivers, streams, and other wetlands (Johnson et al. 1987).

Northern leopard frogs can be found throughout the planning area, and populations appear stable. Northern leopard frogs are found in a variety of habitats, including grasslands, shrublands, woodlands, and forest habitats. They are generally associated with areas where there is a permanent water source and aquatic vegetation, including springs, slowly moving streams, marshes, bogs, ponds, canals, and reservoirs.

The boreal toad is listed by the State of Idaho as a sensitive species due to declining populations within the state. This species inhabits areas near springs, streams, meadows, and woodlands above approximately 7,000 feet elevation in Idaho. Boreal toads breed in wetland areas during May and June. Once the breeding season has ended, the adults tend to move away from wetland areas and toward moist coniferous forest. Boreal toad populations have been declining throughout their range because of habitat loss and degradation, environmental contaminants, and disease. This species is currently listed as a candidate species for listing under the ESA in Colorado, New Mexico, and Wyoming. The southeast Idaho population of boreal toad is thought to be part of this same candidate population (Petersen 2004).

The common and western terrestrial garter snakes occur throughout the Idaho in many habitats, including grassland and wooded areas. They prefer moist habitats, however, near riparian areas, lakes or damp meadows. Both species feed on toads, frogs, fish, salamanders, small mammals, earthworms, slugs, leeches, and insects. The common garter snake is relatively rare throughout the planning area (personal communication Dr. Charles Peterson, Professor of Biology, Idaho State University). The western terrestrial garter snake is common throughout the planning area. Yellowstone cutthroat trout are found in various tributaries of the Snake River in the planning area. Henry's Fork of the Snake River supports a productive sport fishery consisting of Yellowstone cutthroat trout, as well as rainbow trout *(Oncorhynchus mykiss)*, and brown trout *(Salmo trutta)*. The South Fork of the Snake River also supports a productive sport fishery based on the native Yellowstone cutthroat trout. Loss of cold-water habitat, habitat degradation, and introduction of non-native sport fish such as brown trout, brook trout, and rainbow trout have all contributed to the decline of this species.

3.5.2 Federally-Listed Threatened and Endangered (T&E) and BLM-Sensitive Species

In the planning area, 41 T&E and BLM-Sensitive animal taxa are known to occur. Table 3-24 outlines these T&E and BLM-Sensitive species that are known to occur throughout the planning area and the cover types they are associated with. A list of these T&E and BLM-Sensitive

species, their scientific names, and their life history are included in Appendix K or the Biological Assessment (BA) (Appendix O).

TABLE 3-24. T&E AND BLM-SENSITIVE SPECIES WITHIN THE PLANNING AREA, BY VEGETATION COVER TYPE

Vegetation Cover Type	Sensitive Species List
Low and Mid-elevation Shrub	T-2: Pygmy rabbit, greater sage grouse, St. Anthony Dunes tiger beetle, Idaho point-headed grasshopper. T-3: Loggerhead shrike, Brewer's sparrow, sage sparrow, Townsend's big-eared bat, California bighorn sheep, Piute ground squirrel, spotted bat, Townsend's big-eared bat T-4: Cliff chipmunk, Uinta chipmunk, Wyoming ground squirrel, kit fox, black-throated sparrow.
Perennial Grass	T-3: Columbian sharp-tailed grouse.
Juniper, Mountain Shrub, and Salt Desert Shrub	T-3: California bighorn sheep, prairie falcon, ferruginous hawk, Piute ground squirrel. T-4: Cliff chipmunk, Uinta chipmunk, Wyoming ground squirrel, little pocket mouse, Virginia's warbler.
Riparian	T-1: Bald eagle[1], western yellow-billed cuckoo, Snake River physa, Idaho springsnail, Bliss Rapids snail, Utah valvata snail, Banbury Springs limpet T-2: Northern leopard frog, boreal toad, greater sage grouse, Shoshone sculpin, Wood River sculpin, redband trout, Westslope cutthroat, Bonneville cutthroat, Yellowstone cutthroat. T-3: Columbian sharp-tailed grouse, calliope hummingbird, willow flycatcher, common garter snake, western toad.
Dry Conifer and Aspen/Conifer	T-3: Fisher, Lewis woodpecker, flammulated owl, northern goshawk, Williamson's sapsucker, Hammond's flycatcher, olive-sided flycatcher, fringed myotis
Wet/Cold Conifer	T-1: Gray wolf, grizzly bear, Canada lynx. T-3: Fisher, northern goshawk, Williamson's sapsucker, Hammond's flycatcher, olive-sided flycatcher.
Invasive Annual Grass	None

[1]The Bald eagle was delisted as a Threatened species on June 28, 2007.

T-1. Federally Threatened, Endangered, Proposed and Candidate Species

Idaho Sensitive Species

T-2. Rangewide / Globally Imperiled Species

T-3. Regional / State Imperiled Species

T-4. Peripheral Species

T-5. Watch Species (not considered as sensitive species)

3.5.3 RISKS

Wildland fires are a natural and necessary component of an ecosystem. Long-term fire suppression, without management to control hazardous fuels, results in large fires that are an imminent threat to wildlife and other resources. Uncharacteristic fires tend to burn with changed severity, frequency, or size from historic. When this occurs, wildlife habitats take longer to regenerate, and the wildlife habitat carrying capacity may be reduced for longer periods of time than would be expected under natural fire regimes. On the other hand, wildland fires in cheatgrass-dominated areas tend to recur at increasingly shorter intervals as the native vegetation is replaced by the highly flammable fine hazardous fuels of this Invasive Annual Grass. Under this scenario, wildlife habitats have no chance to recover, which results in permanent reductions in carrying capacity for multiple species.

Within the planning area, limiting factors to species such as elk, mule deer, and pronghorn include the loss of preferred shrubs from winter ranges, the loss of herbaceous cover, and the reduction in carrying capacity and fawning success. In the Aspen/Conifer cover types, fire suppression has resulted in late-seral stage aspen stands and monotypic conifer forests. Aspen forests are very important to many wildlife species, such as big game and birds, and support more biodiversity then monotypic conifer stands.

Increased wildland fire within riparian and adjacent to riparian habitat tends to increase the siltation and sedimentation of the water sources in the given area, in particuar the Snake River. This siltation and sedimentation has a negative effect on the aquatic creatures living in that water source. Several species of snail, including the Bliss Rapids snail and the Banbury Springs limpet, for instance, have experienced population declines due to the sedimentation of their water source.

3.5.4 OPPORTUNITIES

Vegetation treatments (WFU, RxFire, chemical, mechanical, and seeding applications) have both the short-term and long-term effects on wildlife. Although short-term effects are often detrimental to wildlife (e.g., temporary loss of habitat), the long-term effects of treatments would benefit both wildlife and the ecosystem health. Successful treatments in the planning area's various cover types would promote more natural fire regimes leading to restore habitats with higher values for wildlife.

Riparian areas can be held to healthier standards and would not be at high risk (burning or sedimentation) if the surrounding areas do not have excessive fuel loads. Areas where FRCC improves would have less risk of erosion and sedimentation. This, in turn, would reduce impacts to fish and other aquatic organisms.

Wildland fire at the historic frequency and severity would promote functioning ecosystems and landscapes that consist of a mosaic of successional stages across the landscape which benefits wildlife. Wildland fire would also stimulate the regeneration of fire-adapted species and rejuvenation of fire-tolerant species, while mechanical seeding would facilitate the recovery of the cover types where native species are poor or missing. Restoring native cover types would be beneficial to big game that feed on shrubs, grasses, and herbs as well as those species that use

this mixed vegetation cover for fawning. In addition, fire treatments in Aspen/Conifer would permit the rejuvenation of the aspen stands that are essential for big game fawning areas and contribute to the biodiversity of forests.

3.6 AIR QUALITY

3.6.1 CURRENT CONDITIONS AND TRENDS

The EPA air quality permitting system suggests that analyses of air quality impacts should consider all airsheds within 100 km of proposed facilities or projects. To be consistent with this direction, the area of consideration for air resource impacts would be those airsheds over lands within the planning area as well as airsheds over lands within 100 km beyond the planning area boundary (Figure 3-8).

3.6.1.1 Applicable Air Quality Regulations and Policy

The basic regulatory framework for controlling air pollutants in the United States is the Clean Air Act (CAA) as amended in 1970, 1977, 1990, and 1999. This legal mandate was designed to protect human health and welfare from air pollution. National Ambient Air Quality Standards (NAAQS) are defined in the CAA as levels of pollutants, which detrimental effects on human health and welfare may result.

The EPA established NAAQS for six criteria pollutants: (1) carbon monoxide (CO), (2) nitrogen dioxide (NO_2), (3) ozone (O_3), (4) lead (Pb), (5) sulfur dioxide (SO_2), and (6) two categories of particulate matter – fine particulates with an aerodynamic diameter of 10µm or less (PM_{10}) and fine particulates with an aerodynamic diameter of 2.5 µm or less ($PM_{2.5}$). The primary standards for the criteria pollutants incorporate health effects. Levels are set to protect the health of the most susceptible individuals in the population, including the very young, the very old, and those with respiratory problems or other ailments. The EPA also established secondary standards, or quality of life standards for the criteria pollutants. Many of the secondary standards are set at the same levels as the primary standards. All of the standards are expressed as concentration and duration of exposure, including both short-term and long-term exposure. For example, the PM_{10} annual standard is 50 µg/m³, and the 24-hour standard is 150 µg/m^3. Standards for $PM_{2.5}$, promulgated by the EPA in 2007, include an annual standard of 15 µg/m^3 and a 24-hour standard of 35 µg/m^3.

When an area within a state exceeds a NAAQS (usually around an urban center), it may be designated as a non-attainment area. Areas in which levels of a criteria pollutant measure below the health-based standard are designated as attainment areas. It is possible for a geographic area to be an attainment area for one criteria pollutant and a non-attainment area for another. Air-monitoring networks, which measure ambient air quality, have been established to determine whether an area meets the NAAQS. Monitoring sites, by design, are located in areas with the highest expected concentration levels, including both major urban areas and a few remote areas. Both filter-based and real-time monitors are used. A community with non-attainment status must demonstrate to both the public and the EPA how it would meet standards in the future. The State of Idaho Department of Environmental Quality (IDEQ) is tasked with preparing the preparation

of an attainment plan to meet NAAQS for those areas in non-attainment by EPA-specified deadlines.

Under the EPA's Natural Events Policy, the EPA may exercise its discretion not to designate an area as non-attainment if high PM_{10} concentrations are attributable to wildland fire. However, the state is required to develop and implement a Natural Events Action Plan (NEAP) to respond to the health impacts of natural events. In March of 2002, the IDEQ completed a NEAP for Idaho in response to the extensive natural wildland fire events of 2000.

The 1977 CAA amendments clarified that the federal government is subject to CAA requirements. The 1990 CAA amendments required the EPA to establish transportation and general conformity regulations to address air pollution activities under the jurisdiction of the federal government. The General Conformity Rule was promulgated in November 1993 and applies to non-transportation related federal activities, including RxFire. A formal conformity determination must be made for projects planned within non-attainment or maintenance areas to show that the projects would not contribute to any NAAQS violations. As RxFire and WFU projects would typically not occur within non-attainment or maintenance areas, formal conformity determinations would be unnecessary. However, projects planned in the vicinity of non-attainment or maintenance areas would need to evaluate the potential impacts of emissions to these areas in project-specific NEPA analyses.

The 1977 CAA amendments set a national goal to "preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historical value." Stringent air quality requirements were established for areas designated as Class I attainment areas. Class I areas include National Forest System (NFS) wilderness areas, national monuments over 5,000 acres in size, national parks over 6,000 acres in size, and international parks, all in existence as of August 1977. In July 1999, the EPA published the Regional Haze Rule, which requires all fifty states to develop visibility plans that address regional haze impairment to Class I areas affected both within and outside their state.

In May 1998, the EPA in cooperation with other federal land managers, states, and Tribal Governments, issued the Interim Air Quality Policy on Wildland and RxFires. One of the goals of this policy is to allow fire to function as a disturbance process on federally managed wildlands while protecting public health and welfare. It provides incentives for states to work with land managers to develop state smoke management programs. Smoke management programs can be certified by the EPA and are determined at the state's discretion to be either voluntary or mandatory.

3.6.1.2 Planning Area Air Quality

Montana and Idaho are currently managing smoke emissions from forest and range RxFire under the Montana/Idaho Smoke Management Program. Participants include landowners and managers (federal, state, Tribal, and private), IDEQ, and the National Weather Service. The program is voluntary in Idaho. Federal landowners must follow policy and write burn plans including actions to minimize fire emissions, a smoke dispersion evaluation, public notification, exposure reduction procedures, and an air quality monitoring plan. Burners submit planned burn lists at the

beginning of the calendar year and report individual burns one day prior to ignition. A full-time meteorologist uses burn activity, weather, and air quality information to make daily go or no go recommendations for planned burns.

An airshed characterization report (Trinity 2003) was prepared to analyze the airsheds within the planning area (included as Appendix L). Idaho's dominant air pollutant is particulate matter from sources such as residential wood combustion, industrial emissions, automobile exhaust, agricultural activities, fugitive road dust, and open burning. Table 3-25 and Table 3-26 show average PM_{10} and $PM_{2.5}$ emissions for counties within the planning area and 100-km boundary.

TABLE 3-25. PM_{10} 5-YEAR ANNUAL AVERAGE EMISSIONS AND TRENDS

County	Non-attainment Area(s)	5-year Annual Average[1] (1995-1999)	Trend[2]
Bannock	Y	11,742	D
Bear Lake	N	4,640	D
Bingham	N	25,610	D
Blaine	N	8,928	D
Bonneville	N	20,355	D
Butte	N	3,291	D
Camas	N	5,556	I
Caribou	N	6,052	D
Cassia	N	14,550	D
Clark	N	1,442	D
Franklin	N	5,845	D
Fremont	N	8,736	D
Gooding	N	9,098	D
Jefferson	N	15,804	D
Jerome	N	10,710	D
Lincoln	N	3,667	D
Madison	N	9,687	D
Minidoka	N	11,802	D
Oneida	N	4,523	D
Power	Y	8,249	D
Teton	N	3,996	D
Twin Falls	N	25,564	D

[1] Tons/year.
[2] I= increasing/improving, D = decreasing.

TABLE 3-26. $PM_{2.5}$ 5-YEAR ANNUAL EMISSIONS AND TRENDS

County	Non-attainment Area(s)[1]	5-year Annual Average[2] (1995-1999)	Trend[3]
Bannock	NA	2,490	D
Bear Lake	NA	894	D
Bingham	NA	4,568	D
Blaine	NA	2,122	D
Bonneville	NA	3,914	D
Butte	NA	600	D
Camas	NA	4,041	I
Caribou	NA	1,334	D
Cassia	NA	2,814	D
Clark	NA	303	D
Franklin	NA	1,019	D
Fremont	NA	1,621	D
Gooding	NA	1,618	D
Jefferson	NA	2,903	D
Jerome	NA	1,939	D
Lincoln	NA	662	D
Madison	NA	1,757	D
Minidoka	NA	2,151	D
Oneida	NA	873	D
Power	NA	2,865	D
Teton	NA	749	D

[1] Not established for $PM_{2.5}$.
[2] Tons/year.
[3] I= increasing/improving, D = decreasing.

3.6.1.2.1 Airsheds

The State of Idaho has been divided into 16 airsheds (see Figure 3-8). An airshed is defined as a geographic area with similar topography and meteorology in which the airflow is contained the majority of the time. The planning area is located within all or portions of seven airsheds, including airsheds 17, 18, 19, 20, 21, 24, and 25. The majority of the planning area falls within airsheds 18, 19, 20, 24, and 25 with only minor portions falling within airsheds 17 and 21 (see Appendix L for further discussion). Table 3-27 includes the minimum and maximum PM_{10} and $PM_{2.5}$ emissions over a 5-year period (1995-2001) by airshed.

TABLE 3-27. PM_{10} AND $PM_{2.5}$ EMISSIONS (TONS/YEAR) OVER A 5-YEAR PERIOD, BY AIRSHED

Airshed	PM_{10} (min/max)	$PM_{2.5}$ (min/max)	Trend[2]
18	1,442/20,355	303/3,914	I
19	1,442/25,6101	303/4,568	I
20	4,523/25,610	873/4,568	I
24	3,291/8,928	600/4,041	I
25	3,667/25,564	662/5,298[1]	D

[1] highest value
[2] I=Increasing/Improving, D=Decreasing

3.6.1.2.2 Impact Zones

Impact zones are areas considered to be smoke sensitive by the IDEQ and are given additional air quality protection as needed. There are ten impact zones identified statewide, six of which fall within the planning area's airshed boundaries. They include Boise, Idaho Falls, Ketchum, Pocatello, Salmon, and Twin Falls (see Figure 3-8).

3.6.1.2.3 Class I Visibility Areas

In compliance with the EPA's Regional Haze Rule, the State of Idaho anticipates completingthe completion and implementing implementation of its visibility plan by the year 2004. Craters of the Moon National Monument and Preserve is the only Class I area located within the planning area boundary; however, there are eight other Class I areas within (or within portions of) the area of consideration, including the Sawtooth, Redrock Lakes, Jarbidge, Washakie, and Bridger wilderness areas and Grand Teton and Yellowstone National Parks (see Figure 3-8).

3.6.1.2.4 Attainment and Non-attainment Areas

IDEQ operates an extensive ambient air monitoring network to identify attainment and non-attainment areas. Within the planning area boundaries, there is one PM_{10} non-attainment area: which is the Fort Hall Indian Reservation (a Tribal/EPA PM_{10} non-attainment area). Previously, the Portneuf Valley (Pocatello area) had been considered a PM_{10} non-attainment area but recently has been redesignated to attainment status and is presently listed as a maintenance area. Other PM_{10} non-attainment areas within the area of consideration include the northern portion of Ada County (Boise area) and the northern portion of Davis County, Utah including the city of Ogden. Violations primarily consist of an exceedence of the 24-hour standard during the winter months, when strong inversions trap pollutants. Non-attainment areas are shown in Figure 3-8.

Attainment designations for $PM_{2.5}$ in Idaho would not be established until 2008 at the earliest. The Cache Valley (Logan, Utah and Franklin and Preston, Idaho) would be designated as $PM_{2.5}$ nonattainment area in 2008. Other areas in the state that may become non-attainment for $PM_{2.5}$ in 2008 include Boise (Treasure Valley), Salmon, and Pinehurst.

3.6.1.2.5 Sensitive Areas within the Planning Area

Sensitive areas are locations such as NAAQS non-attainment areas, counties with existing high levels of PM emissions, hospitals, airports, Class I visibility areas, and major transportation corridors. Fire treatments in these areas may cause additional concerns for sensitive populations. Table 3-28 shows sensitive locations in the planning area.

TABLE 3-28. SENSITIVE AREAS ACROSS THE PLANNING AREA

County	Sensitive Areas
Bannock	Maintenance Area, Northwestern Band of Shoshone Health Center, Pocatello Regional and Portneuf Regional Medical Centers, Hyde Memorial Airport, I-15, I-86, US 30, US 91
Bear Lake	Bear Lake Regional Hospital, Bear Lake County Airport, US 30, US 89, I-15
Bingham	Bingham Memorial and State Hospital South, Aberdeen Municipal Airport, McCarley Field, I-15, I-86, US 39, US 26, US 20, US 91
Blaine	Wood River Medical Center, Bellevue, Sun Valley, Class I (CRMO, Sawtooth National Rec. Area), Airport (Friedman Memorial), US 20, US 26, US 93, ID 75
Bonneville	Eastern Idaho Regional Medical Center, Fanning Field, Dubois Municipal Airport, I-15, US 22, US 26, US 91
Butte	Lost Rivers District Hospital, Class I (CRMO), I-15, I-86, US 20, US 26, US 93, Arco-Butte County Airport
Camas	US 20, ID 46, Camas County Airport
Caribou	Caribou Memorial Hospital, Allen H. Tigert and Bancroft Municipal Airport, I-15, US 30, US 34
Cassia	Cassia Regional Medical Center, I- 84, I- 86, US 30, Burley Municipal Airport, Oakley Municipal Airport
Clark	I-15
Elmore	I-84, US 20, US 26, US 30, ID 51, ID 67
Franklin	Franklin County Medical Center, Preston Airport, I-15, I-84, I-80, US 91
Fremont	Class I (Yellowstone National Park), Stanford Field, I-15, US 20
Gooding	Gooding County Memorial Hospital, Hagerman, I-84, US 26, US 30, ID 46, Gooding Memorial Airport
Jefferson	Class I (Camas NWR), I-15, US 20, US 26, Rigby-Jefferson County Airport
Jerome	St. Benedict's Medical Center, I-84, US 25, US 26, US 30, US 93, Hazelton Municipal, Jerome County Airport
Lincoln	Class I (CRMO), US 24, US 26, US 75, US 93
Madison	Madison Memorial Hospital, Rexburg-Madison County Airport, US 20
Minidoka	Class I (Minidoka NWR, CRMO), I-84, I-86, US 30
Oneida	Oneida County Hospital, Malad Airport, I-15, I-84
Power	Non-attainment (Fort Hall Indian Reservation), Maintenance area (state land) Harms Memorial Hospital, American Falls and Pocatello Regional Airports, Class I (CRMO), I-15, I-84, I-86
Teton	Class I (Grand Teton National Park), Driggs Municipal Airport, I-15, US 20, US 26
Twin Falls	Magic Valley Medical Center, Twin Falls Clinic and Hospital, Joslin Field, Buhl Municipal, I-84, US 30, US 74, US 93

3.6.1.3 Climate Change

Climate change is closely interrelated and synergistic with other important threats including wildfire and annual grasslands (ISAC 2006). The purpose and need for this plan amendment is based in part on the observable trend in the increase of natural fire occurrences and intensities in the planning area and all of the action alternatives address this purpose and need. The assessment of the impacts of climate change is in its formative phase; yet the evidence for human-induced climate change at the global level is increasing. The Intergovernmental Panel on Climate Change recently concluded that "warming of the climate system is unequivocal" and the "most of the observed increase in globally averaged temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic [man-made] greenhouse gas concentrations" (IPCC 2007). However, it remains difficult to accurately predict how climate change will impact any particular area with any credibility (Brown et al. 2005).

The Conservation Plan for the Greater Sage-grouse in Idaho (July 2006) identified climate change as one of the 19 greatest threats to sage-grouse and their habitat (ISAC 2006). This document, which is incorporated here by reference, describes the potential impacts of climate change on rangeland vegetation types and acknowledges "the response of rangeland vegetation to impending changes in the precipitation regime is likely to be complex and difficult to predict from existing knowledge." This document also recognizes that maintaining and enhancing ecosystem resilience will be a key to successfully managing rangelands in a changing climatic environment.

3.6.2 RISKS

Fire, either natural or managed, produces ozone, carbon monoxide, and particulate matter. While ozone is a byproduct of fire, ozone exposures are infrequent. Carbon monoxide production from fire poses little to no risk to public health because it is rapidly diluted at short distances from a burning area and is dispersed both spatially and temporally (Sandberg and Dost 1990). The pollutant of most concern to public health and safety is particulate matter. Large volumes of particulate matter can be produced from burning vegetation and, depending on meteorological conditions, may affect large areas for extended periods of time.

Without fire, fuels, and vegetation management planning, fuel loads in some areas have the potential to cause more intense wildland fires that can burn for long periods of times. Thus, there is the potential that that uncontrolled wildland fires can cause greater air pollutant emission levels, increasing air quality impacts.

3.6.3 OPPORTUNITIES

Reducing the occurrence of large wildland fire would also reduce negative impacts to air quality. Reduction in fuel loads would result in less overall risk to air quality. While RxFire and WFU are tools for reducing unwanted fires and could potentially contribute to temporary reductions in air quality, fire size and intensity would be much less over the long term than that of current wildland fire and would result in less air pollutant emissions over time. The Interim Air Quality Policy on Wildland and RxFires, which allows fire to function as a disturbance process on

federally managed wildlands, includes incentives for states to work with land managers to develop state smoke management programs.

3.7 SOILS

3.7.1 CURRENT CONDITIONS AND TRENDS

3.7.1.1 Geomorphology

The planning area falls into four physiographic provinces:

- Columbia Plateau – Snake River Plain Section
- Basin and Range – Great Basin Section
- Middle Rocky Mountains
- Northern Rocky Mountains

The Snake River Plain section of the Columbia Plateau province is located centrally in the planning area and contains the Snake River and a series of level to gently sloping Quaternary and Tertiary basalt lava fields, extending over much of the plain. Inactive volcanic cinder cones protrude from the relatively smooth lava fields. The lava fields abruptly meet on either side of the Snake River flood plain, occasionally forming steep, black cliffs (e.g., the Twin Falls area). Basalt fields were formed in south-central Idaho in the late Tertiary and volcanic activity migrated eastward into southeast Idaho through the early Quaternary (Link et al. 1988).

The Great Basin section of the Basin and Range province is characterized by a series of north-south trending mountain ranges and valleys. Bedrock geology in the mountains is complex with consolidated geologic deposits ranging in age from late Proterozoic (1,000 million years ago) to Tertiary (2.6 million years ago). Valleys typically consist of unconsolidated Quaternary (2.6 million years ago to present) sediments. Mountains in the Basin and Range were formed by the late Paleozoic Antler orogeny and the Mesozoic Sevier orogeny.

The Middle And Northern Rocky Mountains were formed at roughly the same time in the Mesozoic and early Tertiary, between 170 and 40 million years ago by three orogenic events. The final event, the Laramide orogeny, was responsible for raising the Rockies to their current height and extent. These two provinces are distinguished from each other in the following manner: the Northern Rockies form narrow valleys between densely clustered mountain ranges, and the Middle Rockies are composed of mountains ranges with many intermountain plains and basins. The Tetons form the northwestern-most boundary of the Middle Rocky Mountains province (Link et al. 1988).

3.7.1.2 Soils

Soil mapping and soil attribute data for the planning area were acquired from the State Soil Geographic (STATSGO) database. Soils data for most of the planning area are available from this database, but coverage is incomplete. STATSGO was designed for regional, multistate, river basin, state, and multicounty resource planning and management (USDA 1994). Soil attribute

data are assigned to each soil mapping unit, making large-scale management interpretations possible.

Soil depth in the planning area is generally deep (greater than 48 inches to bedrock) on flat, low terrain of the Snake River Plain (0 percent to 15 percent slope). On gently rolling uplands (0 percent to 30 percent slope), slightly altered bedrock is often more than 40 inches below the surface. On more rolling lands (20 percent to 50 percent slope), the depth to bedrock is approximately 20 inches to 40 inches. On steep slopes (30 percent to 60 percent slope), soil depths range from less than 10 inches to 20 inches and overlie partly weathered bedrock. Rock outcrops are common on steeper slopes with little or no soil development. Rock outcrops are exposed, rocky, erodible surfaces that do not have any soil development on them. Badlands are composed of unstable geologic deposits that exhibit little to no soil development and do not support plant growth. Table 3-29 summarizes the acreage of the soil orders, water bodies, rock outcrop, and badlands on BLM-administered lands in the planning area.

Soils of the planning area are primarily of five soil orders: (1) Entisols, (2) Inceptisols, (3) Aridisols, (4) Alfisols, and (5) Mollisols. These soil orders are described below. The geographic distribution of the five soil orders appears in Figure 3-9.

TABLE 3-29. ACREAGES OF SOILS AND OTHER LANDFORMS IN THE PLANNING AREA

Soil Order (or Land Type)	BLM-administered Acreage[1]	Total Acreage (Federal, State, and Private)[1]
Entisols	125,607	897,561
Inceptisols	231,075	778,998
Aridisols	2,693,501	5,976,233
Alfisols	55,960	337,887
Mollisols	2,169,412	10,633,633
Waterbodies	7,780	217,067
Rock Outcrop	52,390	596,778
Badlands	20,250	66,142

[1] Acreage calculations based on STATSGO-level soils data.

Entisols are immature, mainly azonal soils (soils that are not layered) that can be found in either dry or wet sites. Entisols tend to occur on the youngest geological deposits, where soil has not yet developed into distinct horizons. Examples of Entisols include floodplain soils, playa soils, and loess deposits commonly found overlying basalt flows in the eastern portion of the planning area.

Inceptisols are young soils with weakly developed horizons. Inceptisols are older and more developed than Entisols. Inceptisols tend to occur with Mollisols in montane regions of the planning area, on fairly stable mountain slopes (e.g., in the Island Park area), where these soils tend to be wet. Montane Inceptisols are susceptible to water erosion if unvegetated.

Aridisols are semi-desert and desert soils that occur on dry but more stable sites than Entisols and Inceptisols and exhibit more surface horizon development. Aridisols are widely distributed through the planning area and occur within the Snake River Plain and Portneuf River Valley (e.g., on lava flows). Aridisols tend to be high in calcium carbonate (lime), making these soils very basic in terms of pH. Older Aridisols may develop a clay-rich horizon as well. Organic matter production in Aridisols is minimal, but soil surfaces are relatively stable, which allows for the development of thin, darkened surface horizons. Aridisol surfaces with little vegetation are subject to wind erosion when dry and soil compaction when moist. Water erosion also occurs in Aridisols on steeper grades during infrequent rainstorms.

Alfisols are acidic, forested soils with a clay-rich subsurface horizon, and they tend to be older than Inceptisols and Entisols. High leaching rates in these soils reduce surface organic matter and soil productivity. Alfisols occur in higher elevation areas that are cooler and receive more precipitation than Inceptisols and Entisols. Alfisol surfaces are subject to water erosion and soil compaction when moist.

Mollisols are generally found in grasslands, shrub-steppe, Mountain Shrubland, and along riparian zones. These soils are neutral to alkaline, with an organically rich and productive surface horizon. Mollisols are found in a variety of precipitation zones throughout the planning area. These soils receive sufficient precipitation to allow for accumulation of organic matter that creates a relatively thick organic-rich surface horizon. Mollisols are very productive, relative to the other soils discussed above. Mollisol surfaces are subject to water erosion and soil compaction when moist. When their surfaces are exposed, Mollisols are also susceptible to wind erosion.

3.7.1.3 Biological Crusts

Biological crusts are composed of cyanobacteria, green algae, lichens, mosses, microfungi, and other bacteria. They are a common element of plant communities in arid and semiarid environments worldwide. Biological crusts reduce soil erosion by wind and water, fix atmospheric nitrogen and carbon, help retain soil moisture, and provide a living organic layer on the soil surface. Development of biological crusts is strongly influenced by a number of physical and environmental factors including soil texture and chemistry, as well as amount and timing of seasonal precipitation (Belnap et al. 2001). Biological crusts are components of several of the vegetation types within the planning area, including Salt Desert Shrub, Low Elevation Shrub, and Mid-Elevation Shrub. They are less abundant in vegetation types where plant densities naturally preclude their presence, including Mountain Shrub, Dry Conifer/Aspen, and Wet/Cold Conifer.

3.7.2 RISKS

3.7.2.1 Geomorphology

Active, historical, and prehistoric landslides are evident in the montane and steeply-sloped areas of the planning area. Landslides are caused by several factors acting separately or congruously, including:

- Steep slopes
- Saturation of sediments
- Wetting along planes of structural weakness
- Lithology (bedrock composition)
- Tectonic movement
- Human disturbance
- Loss of vegetation

Saturation and steep slopes are common conditions in most landslides. Saturation increased the weight of sediments on steep slopes, potentially triggering landslides. Wetting along planes of structural weakness can lubricate the contact between two masses, also leading to slippage. Bedrock geology can also influence landslide potential depending on the dip of the bedrock. Bedrock stratigraphic planes running parallel to the slope of the land can increase the chances of landslide occurrence as well. Again, wetting along planes of structural weakness in bedrock can cause entire slopes to slip.

Active faults are located throughout the planning area. Tectonic activity causes the movement of fault blocks, shifting the earth's surface and causing large erosion and landslides. Human disturbance such as mining can also destabilize slopes, leading to landslides (Othberg 1984).

Post-fire landslides include fast-moving, highly destructive debris. These events usually occur in response to high-intensity rainfall. Post-fire landslides are particularly hazardous because they can occur with little warning, sending loads of sediment onto objects in their paths, stripping vegetation, blocking drainage ways, damaging structures, and endangering human lives.

3.7.2.2 Soils

The responses of a soil to fire often vary with soil texture and soil chemistry, as well as topographic, climatic, and ecological attributes of the landscape; fire residence time and the fire severity also impact soil conditions. Burning off the protective vegetative cover exposes the soil to wind (particularly on sandy soils) and water erosion on steeper slopes, which contributes to the loss of organic matter and reduces productivity.

Water erosion is influenced by the intensity and duration of precipitation, soil texture, soil organic matter, permeability, topography, and cover by vegetation or artificial cover. Water erosion is exacerbated on burned slopes; runoff is increased (water infiltration rates are usually lower in burned soils [Martin and Moody 2001]). Burning in steep montane areas has the potential to increase soil erosion rates as much as 200 times the pre-fire condition (Martin and Moody 2001).

Wind erosion has the potential to move as much as 200 tons/ac in 3 months in exposed, burned areas. Wind erosion also decreases soil productivity and exposes plant roots, impeding revegetation efforts (Brady 1990).

Water erodible soils were determined from the slope percentage (greater than 10 percent) and the erodibility (K) factor. Figure 3-10 shows the extent of water erodible soils in the planning area.

Wind erodibility was determined from the Wind Erodibility Group (WEG), which ranges from 1 to 8. Soils in WEG 1 and 2 are severely erodible. Soils in WEG 3 to 5 are moderately erodible. Figure 3-10 displays soils with moderate and severe wind erodibility in the planning area. Table 3-30 summarizes acres of erodible soils. These thresholds were adapted from the BLM's Soil Suitability Extension (v. 1.0) User's Guide (BLM 2001).

TABLE 3-30. ACREAGES OF ERODIBLE SOILS IN PLANNING AREA

Erosion Type	BLM-administered Acreage[1]
Wind Erodible Soils	
Severely Erodible	421,381
Moderately Erodible	2,924,072
Water Erodible Soils	819,425

[1] Acreage calculations based on STATSGO-level soils data.

3.7.2.3 Biological Crusts

Severity, size, frequency, and timing influence the impact of disturbances on biological crusts. Disturbances that kill crustal organisms over large areas slow recovery. Factors that influence the presence of biological crusts on a site also affect recovery rates. For example, biological crusts on fine-textured soils may recover may recover more quickly than those on coarse-textured soils, because smaller soil particles are more easily stabilized. However, recovery rates ultimately depend on numerous site specific factors, including the severity and scale of the disturbance, type of biological crust present, overall recovery of the plant community, and type and frequency of subsequent disturbances (Belnap et al. 2001).

3.7.3 OPPORTUNITIES

3.7.3.1 Geomorphology

Reducing the occurrence of large wildland fire could reduce the consequences of wildland fire to geological resources, particularly for wind, water, and geologic erosion. The use of RxFire and other vegetation treatments to control large fire would result in lessened losses of vegetative cover, allowing for better infiltration of water, stabilization, and regrowth of vegetation, thereby reducing the risk of landslides.

3.7.3.2 Soils

Fire management actions could have short-term negative consequences on soil resources through the clearing of surface vegetation and exposure of bare soils. However, in the long term, it is expected that fire-related risks to soils would be reduced. RxFire and vegetation treatments would reduce fuel loads, fire severity, and fire size. This in turn, would allow the preservation of organic material and some vegetation on the soil surface, thereby reducing long-term risk of soil erosion.

3.7.3.3 Biological Crusts

Opportunities for biological crusts would be similar to those described above in Section 3.7.3.2 Soils.

3.8 WATER RESOURCES

3.8.1 CURRENT CONDITIONS AND TRENDS

Watersheds, aquifers, rivers, and streams are ecologically dynamic interfaces of atmosphere, soils, and water. Healthy watersheds capture precipitation and runoff, store water in the soil profile, and release it slowly back into the landscape surface waters. Denuded watersheds are subject to accelerated soil erosion, reduced soil moisture, poor plant growth, and the loss of other ecosystem components.

The geologic provinces of the region's landscape help define various types of surface waters: lakes, ponds, and reservoirs; ephemeral springs and seeps; steep brooks; meandering streams; seasonally flooded meadows and playas; rivers, rapids, and riffles; and reaches in narrow, rocky canyons. Figure 3-11 depicts the major surface water features within the planning area. Surface waters on or adjacent to planning area public lands total over 18 square miles and nearly 1,500 linear miles (Table 3-31).

TABLE 3-31. EXTENT OF RIVERS AND STREAMS IN THE PLANNING AREA, INCLUDING 303(D)-LISTED STREAMS

Field Office	River and Streams (acres)	River and Streams (miles)	303(d)-listed Streams (miles)
BFO	1,061	155	45
USFO	10,015	462	150
PFO	478	590	57
SFO	71	269	69
Planning Area Total	**11,625**	**1,476**	**321**
	(or 18.2 square miles)		

Source: D. Kotansky, BLM planning area hydrologist.

Watersheds within the Columbia Plateau and the Rocky Mountain system form part of the Interior Columbia hydrologic region, with the Snake River Plain functioning as a major hydrological surface feature. The Snake River Plain is broad lowland thought to have formed over the past 17 million years by the southwestward migration of the North American tectonic plate over a stationary "hot spot" of the earth's mantle currently located under the Yellowstone Plateau (Pierce and Morgan 1992).

Major rivers that drain the planning area include Snake River, Malad River, Henry's Fork of the Snake River, Blackfoot River, Portneuf River, Raft River, Salmon Falls Creek, Big and Little Wood Rivers, Big and Little Lost Rivers, Bannock Creek, Birch Creek, Camas Creek, Goose Creek, and Medicine Lodge Creek. Peak flows on the Snake River and its tributaries occur

between mid-April and mid-July as a result of snowmelt and rainfall; spring and early summer runoff may be 20 to 50 times average flow. Average flows are maintained during the remainder of the year by groundwater and spring discharges. During summer, high-intensity and widely dispersed convective thunderstorms may produce sporadically high discharges of short duration.

A portion of the Great Basin hydrologic region is present within the southeast corner of the planning area. The Bear River is the major drainage for this portion of the Great Basin. Additional tributaries of Bear River that are within the planning area include the Malad River and Deep Creek.

Water quality can be affected by numerous factors such as nitrogen and/or phosphorous loading, particulate suspension, sediment deposition, temperature flux, and oxygen deficits. Within the planning area, nitrogen, in the form of nitrate, is a major pollutant of groundwater that is being addressed by the State of Idaho to improve groundwater resources.

The Federal Water Pollution Control Act (FWPCA) of 1972 and the Clean Water Act (CWA) of 1977 and subsequent amendments/revisions are the dominant federal legislations that direct the management of water quality on BLM-administered lands. The CWA directs restoration and/or maintenance of the chemical, physical, and biological integrity of our nation's waters, while Section 303 primarily dictates further compliance to state and local water quality standards. The BLM must also comply with IDEQ water quality standards.

Water quality on BLM-administered land streams is largely directed towards achieving Total Maximum Daily Load (TMDL) compliance on 303(d)-listed streams. Water quality conditions vary due to a wide variety of natural perturbations and human-derived activities (e.g., forestry, livestock, agriculture, mining, recreational impacts, as well as diversions, canals, reservoirs, city, industrial, and residential water supplies, etc.). Taking all these contributing factors into account, while recognizing the complexity of land status adjacent to waterways in the planning area, the BLM recognizes that cooperation among individuals, municipalities, the IDEQ, and other agencies is required to achieve and maintain state water quality standards.

Under Section 303(d) of the CWA, the IDEQ is to list all waters that do not meet water quality standards or have impaired beneficial uses (e.g., drinking water, recreation, etc.). Streams in which water quality is impaired are referred to as "303(d)-listed streams" or "water quality-limited streams." The EPA and IDEQ monitor and evaluate TMDLs for listed streams. The TMDL estimates the maximum pollution that a water body can contain until it no longer supports beneficial uses (i.e., it is water quality-limited). Monitoring of TMDLs is coordinated among private, state, and federal entities. On BLM-administered lands, the BLM is mandated to reduce pollutants to 303(d).

Approximately 22 percent of the total miles of planning area streams are listed as 303(d)-listed streams. At present, Bitterroot Restoration, Inc. (Corvallis, Montana) maintains an online database for riparian and wetland health assessments for most of the planning area (Hansen et al. 1993 through 2000). This database contains assessments of the current proper functioning condition (PFC), functional-at-risk, and non-functional 303(d)-listed streams, as developed by the Montana Riparian and Wetland Association (MRWA), University of Montana (BLM 1993).

Overall, approximately 30 percent of 303(d)-listed stream miles in the planning area are PFC, approximately 49 percent are functional-at-risk, and approximately 8 percent are non-functional.

The BLM also manages two municipal watersheds, which provide drinking water for the communities of Downey in Bannock County (PFO) and Victor in Teton County (USFO). The Downey Municipal Watershed is a complex of protected springs composing a 1,800-acre watershed (BLM 1988). The Victor Municipal Watershed is a complex of forested springs comprising 1,360 acres (BLM 1985). Any vegetation treatments within these watersheds must amply protect these municipal water sources.

3.8.2 RISKS

Either wildland fire or human-controlled vegetation management can result in the modification to the timing and flow of surface water resources. These consequences could result from changes in the interception, infiltration, soil moisture storage, possibly snow accumulation, and snowmelt rate. The magnitude of these potential impacts would be a function of the intensity of a wildland fire, type of vegetation burned, the size and pattern of the burn, and precipitation pattern and quantity. Erosion caused by these impacts would be the most obvious, and would result in increases in stream sedimentation. Sedimentation has several indirect consequences, including decreased storage capacity of downstream public water supplies, increased turbidity, decreased dissolved oxygen, and temperature changes.

The amount of time between a burn and a significant precipitation event is another important factor influencing watershed response to fire. Light burns followed by intense thunderstorms can have large impacts; while high severity burns followed by a wet warm summer dominated by gentle rains could promote rapid revegetation and lessen watershed impacts.

As slope increases, soils dry quicker, the rate of revegetation can slow, and the susceptibility of erosion increases. While erosion after fire may be within the historical range of variation, impacts could be serious and undesirable if (1) erosion rates in a watershed are already elevated and accelerated by other management activities, (2) streams are already non-functional or functional-at-risk, or (3) important developments such as towns, reservoirs, and facilities exist in a floodplain, at a canyon mouth, or in other high-risk locations.

3.8.3 OPPORTUNITIES

Reducing the impacts of large wildland fire could reduce the risks discussed in Section 3.8.2. By reducing the burn area and wildland fire intensity, in conjunction with any and all vegetation treatments, vegetation cover can be maintained or restored/rehabilitated relatively quickly following a fire. Fire management actions followed by effective restoration/rehabilitation would reduce sedimentation and water quality impacts to surface water resources.

3.9 LIVESTOCK GRAZING MANAGEMENT

3.9.1 CURRENT CONDITIONS AND TRENDS

Livestock grazing occurs approximately on 4.6 million acres, or 85 percent of BLM-administered land in the planning area. For grazing administrative purposes, the planning area is divided into approximately 1,300 grazing allotments. Currently, approximately 90 percent are actively grazed, 2 percent are allocated but not currently grazed, and approximately 8 percent are not allocated but available for grazing. About 800,000 acres may or may not be available for livestock grazing, depending on the specific land-use plans.

BLM-administered grazing allotments can be used by one operator as an individual allotment, or by many operators in a common allotment. There are approximately 1,145 different livestock operators authorized to graze livestock on active grazing allotments. The grazing allotments vary in size from less then 10 acres to 318,000 acres. Several of the livestock operations include private, state, and NFS lands in addition to BLM-administered lands.

Each allotment has a specific geographical area of use, season of use, and permitted number of animal unit months (AUMs). One AUM is equal to the amount of forage used to support one cow and calf for one month (approximately 800 pounds of forage). Under normal conditions, the planning area would authorize the active preference of 668,206 AUMs annually. Cattle, horses, and sheep are currently grazed on lands included in the planning area. Table 3-32 identifies the distribution of AUMs Active Preference for the planning area by livestock type.

TABLE 3-32. ANIMAL UNIT MONTHS (AUMS) ACTIVE PREFERENCE WITHIN THE PLANNING AREA, BY LIVESTOCK TYPE

Livestock Type	AUMs Active Preference	Percent of AUMs
Cattle	489,905	73
Horses	1,807	<1
Sheep	172,619	26
Other (e.g., bison, goats)	3,875	<1
Total	**668,206**	**100**

Not all the permitted AUMs are licensed for use each year. Annual fluctuation in AUMs licensed each year is due to many factors, including weather conditions, livestock markets, and individual operator considerations. For the period of 1990 through 2001, the number of AUMS licensed annually for livestock grazing has increased from a low of 207,329 AUMs (1992) to a high of 513,438 AUMs (2000) with the average licensed use being 322,974 AUMs for this period.

Livestock grazing occurs to some extent in most cover types including Low-elevation Shrub and Mid-elevation Shrub, Invasive Annual Grass, Perennial Grass, Salt Desert Shrub, Mountain Shrub, Juniper, Aspen/Conifer, Dry Conifer, Wet/Cold Conifer, and Riparian. The season of use and the number of acres needed to produce forage to support one AUM depends upon the

particular cover types found within respective allotments. Across the planning area, livestock use is licensed from seasonal to year-long use. The majority of allotments are grazed in spring/summer/fall, spring, and spring/fall. Minimal grazing use occurs in the winter months (Table 3-33).

TABLE 3-33. SEASONS OF USE AND PERCENT OF ALLOTMENTS AUTHORIZED

Seasons of Use[1]	Percent of Allotments Grazed	Percent of AUMs Active Preference
Spring/Summer/Fall	31	33
Spring	29	5
Spring/Fall	17	19
Spring/Summer	8	8
Year-long	5	18
Summer/Fall	3	1
Summer	2	1
Fall	2	<1
Fall/Winter	1	<1
Spring/Fall/Winter	1	12
Winter	<1	<1
Summer/Winter	<1	<1
Spring/Winter	<1	1

[1] Spring (Mar-May), Summer (Jun-Aug), Fall (Sep-Nov), Winter (Dec-Feb).

3.9.2 RISKS

Wildland fires generally occur throughout the planning area beginning in July and ending mid-September. Rehabilitation of wildland-fire-burned areas are generally initiated in the fall and completed in the winter. Livestock operators with allotments that have grazing seasons beginning or extending into the summer and fall periods can be directly affected by wildland fire activity. After areas burn and/or rehabilitation activities occur, livestock grazing may be temporarily suspended. Available forage is lost and areas of use may be closed to promote recovery of burned perennial plants and/or the establishment of seeded species. On a case-by-case basis, livestock grazing of closed areas may resume when resource objectives identified in site-specific project plans and/or NEPA documents have been met and documented through project-specific monitoring.

During the period of 1990 through 2001, wildland fires have burned an average of approximately 110,500 acres within active grazing allotments. This resulted in an annual average of 2 entire allotments and portions of 56 allotments being burned. The burns and subsequent rehabilitation efforts resulted in an annual average of 3 allotments closed entirely to livestock grazing and portions of 23 allotments closed to livestock grazing per year. On average, there is a 10 percent

temporary reduction in AUMs annually due to the current fire regime, rehabilitation, and restoration efforts.

Treatments for reducing fire hazards are generally initiated in the fall and completed in the early winter. Livestock operators with allotments that have grazing seasons beginning or extending into the fall and winter periods can be directly affected by treatment activities. As these treatments are initiated, temporary removal of livestock is required to ensure success of the particular treatment and establishment of desired vegetation.

3.9.3 OPPORTUNITIES

Livestock grazing can experience long-term benefits from restoring the role of fire in the planning area ecosystems, treating areas identified for hazardous fuels reductions, preparing areas for seeding, improving wildlife habitat and improving vegetation condition. Treatments to reduce hazardous fuels, rehabilitate burned areas, control invasive species, and decrease wildland fire activity can result in the following: (1) less acres being burned by wildland fire activity, (2) reducing the number of allotment closures and AUMs temporarily unavailable, (3) maintaining or improving the health of the land, (4) improving wildlife habitat/watershed conditions, and (5) forage banking.

3.10 RECREATIONAL RESOURCES

3.10.1 CURRENT CONDITIONS AND TRENDS

BLM-administered lands provide a setting for dispersed as well as developed recreational opportunities, which in the planning area include, but are not limited to, hunting, fishing, sightseeing, mountain biking, hang gliding, Off-highway Vehicles (OHV) and snowmobile use, cross country and alpine skiing, hiking, camping, caving, river running and boating, horseback riding, and picnicking. These activities are managed through special recreation permits, camping and picnic facilities, roads and trails, information signs, and bulletin boards and kiosks. Some of the major attractions within the planning area include the Craters of the Moon National Monument and Preserve, City of Rocks National Reserve, Bald Mountain Recreation Area, the historic Oregon Trail, and the Snake River.

3.10.1.1 Developed Recreation Sites

The planning area supports 56 developed recreation sites. Those sites that are heavily used or visited, and might be impacted by fire or associated activities include:

- Milner Historic/Recreation Area
- Pocatello West Bench Area
- Black Rock Canyon
- Blackfoot River
- Oneida Narrows

- North Ketchum Special Recreation Management Area (SRMA) (see Section 3.10.1.2 below)
- Bennett Hills SRMA
- Magic Reservoir
- Big Wood River
- Thorn Creek Reservoir
- Silver Creek
- Bald Mountain SRMA
- Gooding City of Rocks
- South Fork of the Snake River Corridor
- Henry's Lake
- Salmon Falls Reservoir
- All hang-gliding staging areas
- All rock-climbing areas

3.10.1.2 Special Recreation Management Areas (SRMAs)

An SRMA is an area where a commitment has been made to provide specific recreational activity and experience opportunities. These areas include recreation sites, but recreation sites alone do not constitute SRMAs, as SRMAs usually require a higher level of recreational investment and/or management. There are 21 SRMAs within the planning area, listed in Table 3-34.

3.10.1.3 Wild and Scenic Rivers

Congress and the President have the authority to designate wild and scenic rivers or river segments on BLM-administered land as part of the National Wild and Scenic Rivers System. Each designated river or river segment may be classified as wild, scenic, or recreational. Currently, there are no designated wild and scenic rivers that lie within the planning area planning area; although, there are 11 stream segments in the planning area that have been found eligible for future suitability study. These would be reviewed to see if they are appropriate for addition to the Nationwide Wild and Scenic Rivers System. The eligible segments and their lengths are listed in Table 3-35.

Until the suitability study is completed, all of these eligible segments are being managed by their respective field offices to: (a) protect the streams' free-flowing character; (b) maintain the level of development that resulted in the segments' tentative classifications as wild, scenic, or recreational; and (c) protect the outstanding values, which qualified the stream segments as eligible for further study.

TABLE 3-34. SPECIAL RECREATION MANAGEMENT AREAS (SRMAS) WITHIN THE PLANNING AREA

SRMA	Acres	Major Recreational Activities
St. Anthony Sand Dunes (USFO)	36,900	OHV, horseback riding, hiking, camping, wildlife viewing, snow sports
Snake River System (USFO)	15,352	Fishing, camping, boating, hunting, hiking, skiing, wildlife viewing, picnicking
Birch Creek/Lost Valleys (USFO)	493,239	Camping, fishing, hunting, rock climbing, OHV and pleasure driving, hang-gliding, wildlife and cultural viewing
Big Desert (USFO)	834,225	Hunting, camping, OHV and pleasure driving, caving, wildlife/historic trail viewing, photography
Magic Reservoir (SFO)	3,740	Fishing, ice fishing, hunting, boating and water skiing, windsurfing, OHV, snowmobiling
Snake River Rim (SFO)	4,500	OHV, hunting, mountain biking, hiking, jogging, horseback riding, photography, bird watching, swimming
North Ketchum (SFO)	278	Fishing, biking, hiking, horseback riding, photography, picnicking, running events, cross country skiing
Bennett Hills (SFO)	650,000	Swimming, boating, OHV and snowmobiling, fishing, caving, hunting, camping, mountain biking, backpacking, horseback riding
Bald Mountain (SFO)	1,372	Alpine skiing and snowboarding
Thorn Creek (SFO)	2,000	Fishing, boating, hiking, hunting, camping
T-Maze Caves (SFO)	9,750	Caving
Cedar Fields (BFO)	2,300	Rock climbing, OHV
Cotterel Mountain (BFO)	40,967	Hunting, camping
Jim Sage Mountain (BFO)	11,227	Hunting, hiking, mountain biking
Milner (BFO)	2,055	Fishing, Oregon Trail, picnicking, boating
Raft River Crossing (BFO)	600	Oregon Trail
Salmon Falls Creek (BFO)	7,300	Nature study, solitude
Salmon Falls Reservoir	24,200	Fishing, camping, boating
Blackfoot River	16,000	Fishing, whitewater boating
Pocatello OHV	32,532	OHV use
Total SRMA Acres	**2,188,537**	

TABLE 3-35. ELIGIBLE SEGMENTS FOR FUTURE SUITABILITY STUDY FOR WILD AND SCENIC RIVERS DESIGNATION

Eligible Rivers	Field Office	Miles
Snake River (South Fork)	USFO	61.0
Bear River	PFO	11.1
Big Wood River	SFO	2.1
Blackfoot River	PFO	5.6
Box Canyon	PFO	1.2
Dry Creek	PFO	4.6
King Hill Creek	SFO	10.0
Snake River-Milner Section	BFO	8.5
Snake River-Murtaugh Section	BFO	13.0
Snake River-Hagerman or Wiley Section	SFO	7.2
Snake River-King Hill Section	SFO	12.8
Vineyard Lake	SFO	0.5
Total River Miles		**137.6**

3.10.1.4 Special Designations

There are five scenic byways and trails within the planning area: (1) the 68-mile Thousand Springs Scenic Byway along State Highway 30, from the town of Bliss to the Hanson Bridge; (2) the 116-mile Sawtooth Scenic Byway along State Highway 75, from the town of Shoshone to Salmon; (3) the National Scenic Trail segment of the Continental Divide Trail; (4) the City of Rocks Backcountry Byway; and (5) a 6-mile segment of the Continental Divide National Scenic Trail.

3.10.1.5 Off-highway Vehicles (OHVs)

OHV use within the planning area has increased substantially over the past few decades and is currently one of the more controversial issues on BLM-administered lands. Motorbike/All-terrain Vehicle (ATV) registrations in Southeast and South Central Idaho increased 149 percent from 1998 to 2003, and the BLM has identified OHV use as a national issue. BLM-administered lands within the planning area are designated as either open, limited, or closed to OHV use. The BLM's OHV designations are described below.

Open – The BLM designates areas as open for intensive OHV use where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel.

Limited – The agency designates areas as limited where it must restrict OHV use to meet specific resource management objectives. These limitations may include restricting the number or types of vehicles, limiting the time or season of use, limiting use to permitted or licensed use only, limiting use to existing roads and trails, and limiting use to designated roads and trails. The BLM

may place other limitations, as necessary, to protect resources, particularly in areas that motorized OHV enthusiasts use intensely or where they participate in competitive events.

Closed – The BLM designates areas as closed if closure to all vehicular use is necessary to protect resources, ensure visitor safety, or reduce use conflicts.

3.10.2 RISKS

Wildland fire and human-controlled methods of vegetation management may affect the recreation setting character of the planning area through changes in the experience, setting, and activity opportunities of an area. Disruption or elimination of some recreational opportunities could occur with the proposed management activities by temporarily impeding accessibility to sites or affecting the aesthetic qualities of an area. Temporary hazards for recreationists may exist in areas that have recently burned. Initially, burned areas may also have less recreational appeal to the public. Conversely, areas with heavy deadfall density or dense vegetation may preclude or detract from recreational experiences.

3.10.3 OPPORTUNITIES

In the long term, reducing the impacts of large wildland fire would improve recreational opportunities by improving the areas that recreationists use. Hunters, hikers, and other recreationists would have the opportunity to experience natural systems that exhibit greater scenic and habitat diversity. Additionally, the long-term, fire-related risk to the health and safety of recreationists would be reduced.

3.11 WILDERNESS RESOURCES

3.11.1 CURRENT CONDITIONS AND TRENDS

Wilderness study areas (WSAs) are areas that the BLM has evaluated and determined to be suitable for wilderness, but do not yet have a formal Congressional wilderness designation. WSAs are managed to preserve their wilderness values and continue to be managed in that manner until Congress either designates them as wilderness or releases them for other uses.

There is no designated wilderness on BLM-administered lands in the planning area; although, the NPS and USFS administer the Craters of the Moon National Monument and Preserve and Sawtooth Wildernesses, respectively. Additionally, the planning area contains 31 WSAs, which the BLM manages, some of which share administration with other planning areas (Boise Planning Area or agencies [NPS, USFS]) (Figure 3-12; Table 3-36).

TABLE 3-36. WILDERNESS STUDY AREAS (WSAS) IN THE PLANNING AREA

WSA Name	Total Acreage
Appendicitis Hill (USFO)	21,900
Bear Den Butte (SFO)	9,700
Black Butte (SFO)	4,068
Black Canyon (USFO)	5,400
Black Canyon (SFO)	10,371
Burnt Creek (USFO)	3,250 (24,980 total)
Cedar Butte (USFO)	35,700
China Cup Butte (USFO)	160
Deer Creek (SFO)	7,487
Friedman Creek (SFO)	9,773
Gooding City of Rocks East (SFO)	14,743
Gooding City of Rocks West (SFO)	6,287
Great Rift1 (USFO, BFO, SFO)	380,200
Hawley Mountain (USFO)	15,510
Hell's Half Acre (USFO)	66,200
Henrys Lake (USFO)	350
King Hill Creek (SFO split with Boise District)	6,000 (29,309 total)
Lava (SFO)	23,680
Little City of Rocks (SFO)	5,875
Little Deer (SFO)	33,531
Little Wood River (SFO)	4,265
Lower Salmon Falls (split with Burley Field Office/Jarbidge Field Office)	1,800 (3,500 total)
Petticoat Peak (PFO)	11,298
Raven's Eye (SFO)	67,110
Sand Butte (SFO)	22,543
Sand Mountain (USFO)	21,100
Shale Butte (SFO)	15,968
Shoshone (SFO)	6,914
South Fork Snake River Islands (USFO)	770
White Knob Mountains (SFO)	9,950
Worm Creek (PFO)	40
Totals	**821,943**

3.11.2 RISKS

Without proactive fire management, current WSAs are at risk for loss of key ecosystem components. The potential encroachment of non-native invasive species into many WSAs in the planning area require care in the use of fire as a tool for resource benefit. Fire management procedures in WSAs must rely on the most effective methods that are the least damaging to wilderness values, other resources, and the environment.

3.11.3 OPPORTUNITIES

Because WSAs are selected for potential wilderness designation for possessing unique values inherent to wilderness, the benefits of implementing fire management direction would further enhance WSAs by restoring fire to its historical role and reducing the overall risk of the loss of key ecosystem components.

3.12 VISUAL RESOURCES

3.12.1 CURRENT CONDITIONS AND TRENDS

3.12.1.1 General Conditions

Allowing or suppressing wildland fire and using RxFire and other vegetation treatments may affect visual resources. Smoke and visible on-the-ground activities are two direct impacts to visual resources resulting from fire and vegetation management activities that need to be considered. The landscape within the planning area that could be affected by wildland fire, and fire vegetation treatments exhibits an extraordinary range of visual diversity, as described below.

The Basin and Range province, located roughly in the southeastern portion of the planning area and south of the Snake River Plain, is characterized by a series of rugged northwest-southeast-trending mountains and flat valleys. As seen from a distance, the landscape, with vegetation comprising primarily shrubs, presents a uniform appearance broken by pinyon-juniper on the mountain slopes.

The Columbia Plateau, of which the Snake River Plain is a part, lies along the central and western portions of the planning area and is typified by geologically ancient and recent lava flows. Steep-sided extinct volcanoes, cinder cones, sand dunes, and widely spaced mountains occasionally interrupt and provide a visual contrast to the relatively flat landscape. As seen from a distance, the views of the area present an essentially natural, undeveloped landscape composed of distinct light-dark contrasts between the vegetation and volcanic rock.

The small portion of the Middle Rocky Mountain province lies within the southeastern corner of the planning area, and includes the northern portion of Bear Lake. This area is characterized by rugged, mountainous terrain (Stokes 1986). The Northern Rocky Mountain province lies along the northern boundary of the planning area, and like the Middle Rocky Mountain province, can be characterized as an area of high, rugged, glaciated mountains. Variations in topography and vegetation in this physiographic province tend to create strong visual contrasts sought out by sightseers and other recreationists. Spruce and fir forests at upper elevations are gradually

replaced by aspen and pine at lower elevations; aspen and pine are, in turn, replaced further downslope by woodlands and grasslands. Numerous snow-covered or dark, deeply incised bare rock peaks are visible, and deep, sheer-sided river gorges and glacier-carved valleys wind through the mountains. This diversity of topography, vegetation, and geological formations characteristic of the area provides a variety of scenic experiences to those who live, work, or recreate in the area.

The BLM uses a Visual Resource Management (VRM) system to inventory and manage visual resources on BLM-administered lands. The primary objective of VRM is to maintain the existing visual quality throughout the planning area and to protect unique and fragile resource values. The VRM system uses four classes to describe the different degrees of modification allowed to the landscape. VRM classes are visual ratings that describe an area in terms of visual quality, viewer sensitivity to the landscape, and the distance in which a viewer would observe an area. Once an area has been assigned a VRM class, the class can be used to analyze and to determine the visual impacts of proposed activities on the land and to gauge the amount of disturbance an area can tolerate before it exceeds the visual objectives of its VRM class (BLM 1980).

VRM classes are assigned to areas within the planning area through the resource management plan (RMP) process, and the assignment of VRM classes is ultimately based on the management decisions made in the RMPs. Interim VRM classes are established where a project is proposed and there are no RMP-approved VRM objectives. These classes must conform to the land-use allocations set forth in the RMP that covers the planning area and are assigned using the guidelines and management objectives for VRM Classes I through IV. The BLM's VRM classifications and objectives are defined in Appendix M. Table 3-37 lists the number of acres within the planning area that are managed under the visual objectives and restrictions of each VRM class.

TABLE 3-37. APPROXIMATE ACREAGES OF THE PLANNING AREA WITHIN EACH VISUAL RESOURCE MANAGEMENT (VRM) CLASS

VRM Class	Acreage
I	471,617
II	698,346
III	1,517,420
IV	2,320,373
Total Acres	**5,007,756**

Source: BLM 2002b

3.12.1.2 Key Observation Points (KOPs)

As describe above, the BLM uses the VRM system and the four VRM classes to analyze and to determine the visual impacts of proposed activities on the land and to gauge the level of disturbance an area can tolerate before it exceeds the visual objectives of each VRM class. The method that the BLM uses to determine whether proposed projects conform to approved VRM

class objectives is a contrast rating system that evaluates the effects of proposed projects on visual resources.

Contrast rating is done from critical viewpoints, known as KOPs, which are usually along commonly traveled routes or other points of view visible to people. A KOP can either be a single point of view that an observer/evaluator uses to rate an area or panorama, or a KOP can be a linear view along a roadway, trail, or river corridor. Six factors are considered when selecting KOPs: (1) the angle of observation or slope of the proposed planning area, (2) the number of viewers of the planning area, (3) the length of time that the project is in view, (4) the relative size of the project, (5) the season of use, and (6) light conditions. The evaluator rates the degree of visual contrasts based on form, line, color, and texture changes between the existing landscape and how the landscape would look after project disturbance. The contrast ratings can then be used to determine whether the level of disturbance associated with the proposed project would exceed the VRM objectives for that area (BLM 1986).

The primary public views of fire suppression, RxFires, and Rx vegetation treatments described in the alternatives would be from major travel routes, urban/public land boundary areas, and recreational use areas within the planning area. KOPs were selected to represent the effects of vegetation treatment on these highly visible areas. These areas were selected using the selection criteria described above. Each KOP is described in detail below (Figure 3-13).

3.12.1.2.1 KOP 1: Pocatello Creek Urban Boundary

This KOP is on an improved dirt road that overlooks Pocatello Creek, located on the north side of Pocatello Creek Canyon within the Pocatello metropolitan area. Views to the east are up the steep-sided canyon and include houses and heavily wooded canyon slopes in the foreground and middleground, and distant views of the Pocatello Range. The view to the south shows numerous houses, power lines, paved and unpaved roads in the middle and background, canyons and hillsides heavily vegetated with juniper and sagebrush in the middleground and background, and scrub oak and maple in the background.

3.12.1.2.2 KOP 2: Appendicitis Hill WSA

This viewpoint is on the shoulder of U.S. Route 93, approximately 2 miles north of the town of Moore. The WSA is a VRM Class I area and lies along a major thoroughfare used by travelers and recreationists to access the Pioneer and Lost River Ranges. Views to the west are of irrigated fields in the foreground and middleground, gently rolling hills in the middleground, and moderately steep slopes in the background. The sagebrush vegetation texture and color are relatively uniform, interrupted by occasional rock outcrops. The view to the northwest contains farmhouses and power lines in the middleground, and more rocky outcrops in the background.

3.12.1.2.3 KOP 3: Ohio Gulch

This viewpoint is located approximately one-quarter mile east of State Route 73, north of the town of Hailey. The views to the south and west are of flat to steep hillsides, heavily vegetated with sagebrush and grasses and interspersed with juniper in the foreground, middleground, and background. The view to the west includes an improved dirt road, buildings in the middleground, and background views of steeply sloped mountains. The northern view contains steeply sloped

foreground and middleground hillsides of sagebrush occasionally interrupted by rock outcrops. The steep terrain to the north obscures the background views.

3.12.2 RISKS

Public perception of fire and burned areas has traditionally been negative because burned areas have less visual appeal to the public for a short time following the fire. However, as the public becomes more educated on the role of fire in natural ecosystems this perception could change. Short-term impacts from smoke on scenic values may increase as a result of WFU, as well as impacts from mechanical and chemical treatments.

3.12.3 OPPORTUNITIES

Modifying the landscape during vegetation management activities and altering color, line, form, and texture could impact existing visual resources as treatments are made to move to more desirable FRCCs. However, long-term expectations would result in a visual landscape that resembles historical fire conditions with correspondingly smaller and less obtrusive burnt areas, and a more heterogeneous vegetation mosaic.

3.13 CULTURAL RESOURCES

3.13.1 CURRENT CONDITIONS AND TRENDS

The BLM is responsible for identifying, protecting, preserving, managing, and enhancing archaeological, historical, architectural, and traditional values located on BLM-administered lands, as well as those that might be affected by BLM undertakings on non-federal lands. The planning area cultural resources program manages archaeological remains, historical values, and traditional lifeway values important to Native Americans. Tribal cultural resource staff/representatives may also contribute significantly through historic and traditional knowledge and information.

3.13.1.1 Cultural Resource Inventories

Cultural resources are generally identified through field inventories conducted by qualified professionals to comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966. Historical records, ethnographic studies and consultation with tribes are also used to identify known or potential archaeological, historical, and traditional values. Three types of inventories—Class I, Class II, and Class III (see Glossary definition: cultural resource inventory) are conducted to identify and assess these values on BLM-administered lands. Class I inventories for the planning area have not been completed. Class III inventory is the most common inventory type used when complying with cultural resource identification requirements under Section 106 of the NHPA of 1966, as amended, and typically consists of a 100 percent bounded area and a (thorough) pedestrian inventory associated with a specific proposed project. Only approximately 10 percent of planning area lands have been subjected to Class III inventories: about 168,000 acres of the USFO, 22,500 acres of the PFO, 60,000 acres of the BFO, and 80,000 acres of the SFO.

3.13.1.2 Prehistoric Sites and History of Settlement

Despite the small percentage of lands that have been inventoried for cultural resources, approximately 9,100 sites have been documented within the planning area. These sites represent a variety of types and chronological periods, dating from at least 11,000 years old to the present. Identified prehistoric sites include lithic scatters, quarries, rockshelters, rock structures and piles, and pictographs/petroglyphs.

Historical sites include homesteads, railroad and trail corridors, agricultural or ranching sites, debris scatters, inscriptions, and other manifestations of historical exploration and occupation. The first European presence in the area was by fur trapping and exploratory expeditions in the early 1800s. The main route of the Oregon Trail, as well as several alternate routes (North Side Alternate, Goodale Cutoff, Lander Trail, Hudspeth Cutoff, and Nez Perce Trail) cross the planning area. During the early days of Euro-American settlement in southern Idaho, sheep and cattle grazing were the predominate economic pursuit in this area. Sheepherder camps, cairns, and dumps are common. Settlers were attracted to the rich soils on the broad bench and bottom lands along the Snake River and began farming the area in the mid-1800s. Irrigation operations to support larger agricultural pursuits began in the late 1800s. Silver, gold, and lead mining also took place in adjacent mountain ranges beginning in the 1860s. All of these activities have left their mark as archaeological sites across the planning area landscape.

3.13.1.3 Cultural Resources Conditions and Trends

Cultural resources conditions and trends within the planning area vary considerably due to the variability of terrain and geomorphology, access and visibility, and past and current land use. Exposed artifacts and features on the ground surface can be disturbed by elements such as wind and water erosion, animal and human intrusion, and development and maintenance activities. Based on limited site visitation and site form documentation, the trend of site condition is considered stable in most areas. Vandalism and unauthorized collection at sites constitutes the main source of cultural resource degradation.

3.13.2 RISKS

Several potential effects on cultural resources related to fire include: (1) artifacts/sites can be physically damaged by heat; (2) artifacts/sites can be damaged or buried by fire suppression activities; (3) artifacts/sites can be exposed by removal of vegetation, making them more obvious to agency resource specialists or the general public; and (4) artifacts/sites can be damaged or buried by rehabilitation methods (e.g., seeding by drilling or chaining) that result in soil surface disturbance. Normally, the Resource Advisor is aware of these risks and can take proactive measures to greatly reduce or eliminate these impacts to Cultural Resources.

3.13.3 OPPORTUNITIES

A fire event (either wildland fire, WFU, or RxFire) provides an opportunity for intensive cultural inventories to identify cultural resources in a given area. In the case of wildland fire and WFU, field inventories are generally conducted to identify and assess sites within the burned area prior to rehabilitation efforts should they be proposed. In the case of RxFire, pre-burn inventories are

conducted to assess the potential impacts of fire on resources that are present in the area. Other types of treatments could reveal previously unknown cultural sites, providing important historical information to the public and/or the tribal governments.

3.14 NATIVE AMERICAN TRIBAL CONCERNS

3.14.1 CURRENT CONDITIONS AND TRENDS

Regarding Shoshone-Paiute Tribal interest in these lands, the Boise Valley Treaty and the Bruneau Valley Treaty were never ratified. The Tribes believe that the title was not relinquished and they continue to claim title, rights and interests associated with these lands. The BLM recognizes the traditional use associated with the lands as well as the requirements of cultural resource laws. The planning area now includes portions of the traditional lands of the Shoshone-Bannock and Shoshone-Paiute Tribes (Hultkrantz 1974; Murphy and Murphy 1986; Thomas et al. 1986). Federally recognized tribal governments have rights to and/or legal interests in public lands administered by the BLM. Both Tribal Governments depend upon the lands for a myriad of uses. The lands retain social, economic and traditional value for the tribal people, as well as contemporary and ongoing spiritual and cultural uses. Through consultation with the Tribal Governments, the BLM is aware of their treaty/trust obligations and the tribes' desire to capitalize on opportunities that maintain or enhance resources critical to the exercise of treaty rights, traditional customs, subsistence, and cultural uses of the land.

The Shoshone-Bannock Tribes have treaty rights under the Fort Bridger Treaty of 1868 that extend to unoccupied federal lands off-reservation. Reserved treaty rights typically include hunting, fishing, erecting of curing structures, trapping, and gathering. The Shoshone-Bannock Tribes also retain pasturing (grazing) rights on ceded lands around Pocatello. The current reservation includes 544,000 acres in southeast Idaho. The Tribal Government is headquartered in Fort Hall, Idaho. The Tribes derive income from leases (business and land), mineral rights, and some agriculture. There are a number of tribal industries, and grazing permits also provide income to the Tribes. The Tribes are extremely interested in protecting the public lands and resources related to the exercise of their reserved treaty rights, as well as cultural resources, subsistence, spiritual, and traditional uses.

The Duck Valley Indian Reservation is the Shoshone-Paiute Tribes' current reservation includes 294,242 acres in Idaho and Nevada. The reservation is headquartered in Owyhee, Nevada, and the Tribal Government is housed there. The principal revenue sources of the Tribal Governments are farming and ranching. Businesses owned and managed by Tribal members, and grazing permits also provide income to the Tribes. Like most reservation communities, the area is geographically isolated and economically depressed. The people are tied traditionally, culturally and spiritually to the land, and they are very interested and involved in helping to shape how the lands and the resources are administered by the BLM. The Shoshone-Paiute Tribal Government is particularly concerned about cultural resources on public land, as well as subsistence, spiritual, and traditional use areas.

The BLM is obligated for maintaining a formal government-to-government relationship with federally recognized tribal governments. The Shoshone-Bannock Tribal Governments and Shoshone-Paiute Tribal Governments have both rights to and cultural/historical affiliation with

the lands in the planning area (Figure 3-14). The relationship between the federal government and these Tribal Governments focuses on ensuring the legal rights and/or interests of the Tribal Governments are protected and preserved in accordance with relevant treaties, executive orders, legislation, the U.S. Consitution and federal policies. This includes consulting with tribal representatives; identifying and protecting important archaeological, religious, and/or sacred sites; and providing tribal members with appropriate access to these sites.

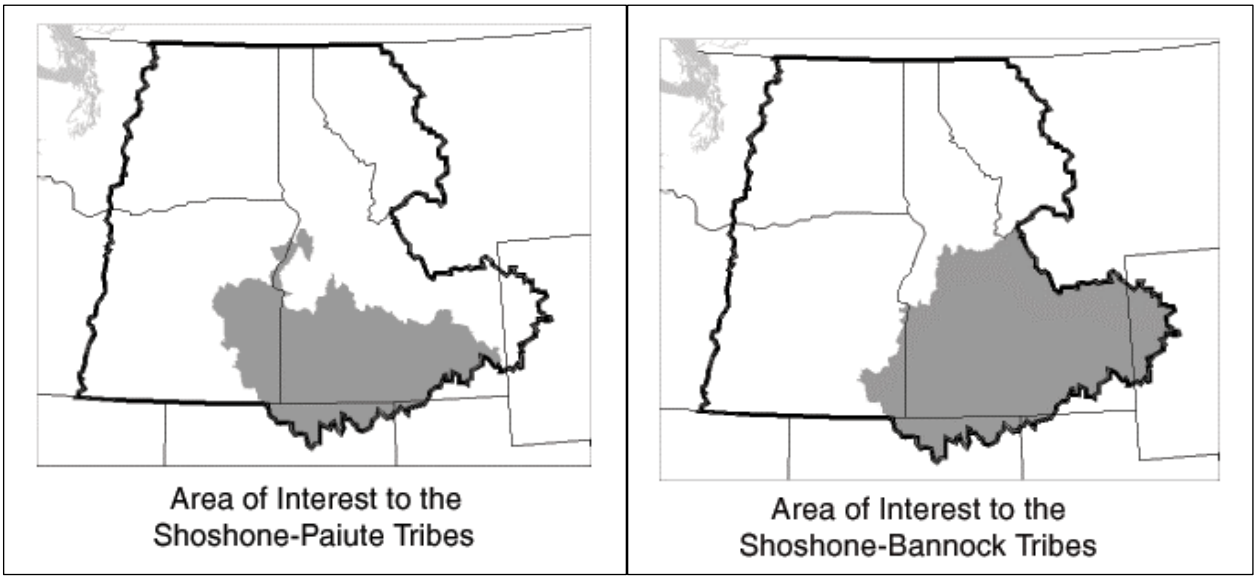


Figure 3-14. Areas of interest to local Tribal Governments.

In addition to ensuring maintenance of tribal treaty rights granting access to public lands within the planning area, the BLM is required under the Native American Graves Protection and Repatriation Act (NAGPRA) law to ensure the protection and proper treatment of human remains of Native American origin known to be present or discovered on lands under their jurisdiction. NAGPRA mandates that land managers consult with affiliated tribes to assign cultural patrimony of affiliation to human remains found as part of a federal undertaking and consult with the affiliated Tribes to arrange for repatriation of the remains, associated funerary objects and other objects. The BLM has a policy adhering to the NAGPRA legislation and requiring that in the event of an inadvertent discovery of Native American remains during an undertaking, including activities related to implementation of fire management plans (FMPs), all work in the area of the discovery would cease immediately and would remain halted until such time as the appropriate tribal governments have been contacted and consultation according to NAGPRA has taken place. Current guidance allows for NAGPRA materials encountered during the course of disturbance activities to be reburied as close as possible to the site, rather than being excavated.

3.14.2 Risks

Consultation has been undertaken between the BLM and the tribal governments regarding concerns over implementing the proposed plan amendment that would result as a process of this

EIS. To date, no issues have been identified, nor have sites within the planning area been officially documented and/or designated as traditional cultural properties or sacred sites through the Section 106 process.

3.14.3 OPPORTUNITIES

The Districts would continue to work with the Tribal Governments throughout the EIS process, other planning efforts, and on specific projects. Formal consultation would be conducted pending the identification of issues or sites.

3.15 SOCIOECONOMICS

3.15.1 CURRENT CONDITIONS AND TRENDS

The planning area encompasses a portion of Idaho with a socially diverse population and a broad economic base. While the diversity is evident, a common characteristic that binds this region is its rural nature. Out of 23 counties in the planning area, 20 are considered rural. In the State of Idaho, a county is defined as rural if there are no cities of 20,000 or more in population. According to this definition, all but three counties – Bonneville (Idaho Falls), Bannock (Pocatello), and Twin Falls (Twin Falls) – are rural. Each urban county, however, also has very rural areas that share characteristics with neighboring counties. Rural areas hold the majority of the state's natural resources. Abundant natural resources in rural areas define the important relationship between BLM-administered land management and the socio-economic condition of a region. The causal effect of decisions made on BLM-administered lands would be much greater in regions with more BLM-administered land and may affect social, economic, and governmental settings.

3.15.1.1 Social Setting

The planning area encompasses approximately one-third of the State of Idaho. The following twenty-three counties are within the planning area:

Bannock	Camas	Fremont	Minidoka
Bear Lake	Caribou	Gooding	Oneida
Bingham	Cassia	Jefferson	Power
Blaine	Clark	Jerome	Teton
Bonneville	Elmore	Lincoln	Twin Falls
Butte	Franklin	Madison	

3.15.1.1.1 Population Characteristics

According to the 2000 Census, the total population of the Snake River region is 467,287, which is 36 percent of the total population of Idaho (1,293,953). Of the regional population, nearly 137,000 of this number live in three urban areas: Pocatello, Idaho Falls, and Twin Falls.

3.15.1.1.2 Population Trends

Between 1990 and 2000, the Snake River Region grew by 16 percent, less than in the State of Idaho overall, which grew by 29 percent. Major growth in the last decade occurred mostly in Teton County (74 percent), Blaine County (40 percent), and Camas County (36 percent). Even with strong statewide and regional growth, some counties only grew minimally, or not at all. Butte County actually decreased in size, down 0.7 percent. Minidoka and Caribou counties grew less than 5 percent.

3.15.1.1.3 Population Growth and Urbanization

Population density in the counties within the planning area is increasing. Between 1990 and 2000, the population per square mile increased from 15.4 to 18.0. However, rural areas decreased by 1.2 percent, down from 66.2 percent to 65.0 percent. In 1990, the region was 33.8 percent urban, increasing to 35.0 percent in 2000. Between 1990 and 2000, Butte, Camas, and Clark, Lincoln, Oneida, and Teton counties saw no change and remain 100 percent rural. Other counties saw increases in urbanization, including Gooding (16 percent increase) and Twin Falls (6 percent increase) (Idaho Department of Commerce 2003).

Urbanization trends are most noticeable in existing urban areas, where the historical urban growth boundaries are being pushed further into undeveloped areas. The City of Pocatello, for example, has seen rampant growth in its foothills and adjacent to BLM-administered lands, placing pressure on communities for infrastructure and services. In Idaho Falls, agricultural farmland is being lost as these lands are being developed for housing. Although not considered an existing urban area, the communities of Driggs, Victor, and Tetonia in Teton County have seen 56 percent growth (U.S. Census Bureau 2000). Throughout the Upper Snake River planning area growth is noticeable as it pushes the urban limits of existing towns and spreads to visible foothills and adjoining agricultural farmland. Urbanization would require careful attention from managers, who would be faced with the challenge of balancing developed property and wildland fire.

3.15.1.1.4 Housing

The amount of seasonal housing in a county or community can reflect the type of economy it relies on. A large number of seasonal housing units reflect an economy can indicate a dependency on recreation and tourism. The following counties have a high proportion of seasonal housing:

- Fremont – 34 percent
- Blaine – 31 percent
- Clark – 24 percent
- Camas – 23 percent
- Bear Lake – 22 percent

Region-wide, homes are 88 percent occupied. Higher vacancy rates occur in areas with more seasonal housing and include the counties of Fremont (44 percent), Blaine (36 percent), Clark (35 percent), Camas (34 percent), and Bear Lake (31 percent) (U.S. Census Bureau 2000).

The median value of homes in the region is $105,752, comparable with the state average of 106,300. The highest home values are in Blaine ($288,000), Teton ($133,000), and Madison

($106,800) counties. The lowest median home value is in Clark ($64,600), Butte ($68,700), and Bear Lake counties ($72,600) (U.S. Census Bureau 2000).

3.15.1.2 Economic Setting

The major economic sectors that could be affected by fire management policy include the agriculture, tourism, government services, and retail trade services.

3.15.1.2.1 Agriculture and Grazing

A large proportion of industry is tied to land use. According to the Idaho Department of Commerce (2003), one-half of all land in the region (51 percent) is considered rangelands. The second highest land use is agricultural lands (25 percent). Counties with a high proportion of rangelands include:

- Blaine – 61 percent
- Butte – 65 percent
- Camas – 59 percent
- Caribou – 67 percent
- Cassia – 68 percent
- Clark – 76 percent
- Gooding – 53 percent
- Oneida – 64 percent
- Twin Falls – 68 percent

Jerome and Madison counties have a high proportion of agricultural lands with 52 percent and 67 percent, respectively (Table 3-38). A total of 8 percent of the region is considered urban land, reflecting the rural nature of the State of Idaho. A majority of the counties within the study are largely agricultural. Although agriculture may be a dominant land use, employment data suggests that it may not be the primary occupation of landholders.

Many of these counties also have a high proportion of BLM-administered lands, which indicates that management decision on BLM-administered lands would have a higher impact to farming and ranching communities with respect to social and economic settings.

3.15.1.2.2 Tourism

As noted in the introduction, rural counties typically have a high proportion of BLM-administered lands that often serve as recreation areas. Recreation is a high tourism draw in Idaho, as well as in the region. Fremont, Teton, and Blaine counties have high lodging sales per capita, high tourism-related employment, and a large portion of their housing stock classified as seasonal or recreational. Tax receipts for travel and tourism related services for Blaine County totaled over $635,000, significantly higher than the regional average of approximately $85,000. Fremont and Bonneville counties are all also well above the regional average (Idaho Department of Commerce 2003).

3.15.1.2.3 Government Services

Government services are most important in the following counties: Fremont, Butte, Camas, Lincoln, Oneida, and Bear Lake counties. The INL is a large presence in Butte County (Idaho Department of Commerce 2003). The INL covers 571,000 acres (893 square miles) in a rural,

sparsely populated sector of southeastern Idaho. The eastern boundary is 23 miles west of Idaho Falls. The INL also occupies numerous buildings and laboratories located in the City of Idaho Falls.

TABLE 3-38. AGRICULTURAL DATA FOR THE PLANNING AREA

	Total # Farms	Total Acres in Farms	Average Farm Size	Total Acres in Crops	Cattle and Calf Inventory
Bannock	664	309,281	466	166,700	23,795
Bear Lake	410	221,717	541	121,299	32,274
Bingham	1,168	796,065	682	377,753	81,747
Blaine	195	214,985	1,102	70,233	26,849
Bonneville	787	449,426	571	312,093	44,171
Butte	207	129,639	626	70,355	20,193
Camas	98	127,514	1,301	79,958	7,445
Caribou	427	469,381	1,099	265,388	31,540
Cassia	729	656,658	901	378,150	138,686
Clark	83	215,301	2,594	no data	15,758
Franklin	655	246,127	376	148,431	43,953
Fremont	493	334,151	678	193,394	24,517
Gooding	675	220,362	326	no data	140,974
Jefferson	773	332,535	430	234,334	62,730
Jerome	683	193,921	284	159,852	133,648
Lincoln	281	131,473	468	no data	36,422
Madison	470	222,817	474	174,147	16,302
Minidoka	674	206,882	307	no data	33,817
Oneida	387	271,108	701	187,730	23,233
Power	323	424,085	1,313	354,392	35,933
Teton	270	132,678	491	101,862	15,683
Twin Falls	1,439	456,378	317	308,139	126,184
Planning Area Average	**510**	**293,327**	**708**	**160,796**	**49,639**

Source: U.S. Census Bureau 2000.

3.15.1.2.4 Retail Trade Services

Retail trade and diversified trade and service centers include Bannock, Bonneville, Madison and Twin Falls counties (Idaho Department of Commerce 2003). Most often retail trade centers are in major cities that serve as economic centers for a region.

3.15.1.2.5 Economy of Fire Management

Costs and allocations for current fire management operations for the planning area are shown below. Costs are representative of annual fire operations for 2002 (Table 3-39 and 3-40). A total of $10 million dollars for restoration efforts was spent in 2002. Approximately 80 percent of the work completed under this program is contracted to local and regional companies and services. Specifically, the money was spent as follows:

- 50 percent - On the ground treatment.
- 35 percent - Community Programs, including WUI. WUI includes local community programs for monitoring, education, prevention, planning, weed control, and home inspections. Additional money is allocated for community assistance agreements.
- 15 percent - Fixed wages (BLM 2003).

TABLE 3-39. CURRENT FIRE TREATMENT COSTS PER ACRE IN THE PLANNING AREA, AS OF 2002

Fire Treatment	Approximate Cost Per Acre	Details
Restoration with RxFire	$105	$20/acre to burn, $40/acre to reseed, other costs associated. Typically, variable costs for RxFires decrease.
Fire Suppression for Wildland Fire	$140	This number is averaged between large and small fires.

Source: BLM 2003.

TABLE 3-40. CURRENT FIRE MANAGEMENT OPERATIONS IN THE PLANNING AREA

Approximate Dollar Amount	Description	Estimated Contribution to Local/Regional Economic Base
6 Million	Fixed labor costs to run the fire program	Salaries to local/regional population.
10 Million	Fire related costs including additional variable costs. This number fluctuates each year depending on the number and extent of fires. This number includes food, gas, maintenance, motels vehicles, administrative costs, warehousing, fuels, and seeding. Seeding alone was 1.7 million in costs in 2002.	Approximately 70% of services are locally based (7 Million).
4 Million	Other suppression costs including intangible services such as additional crews, planes or national resources devoted to fire.	Approximately 25% of services are locally based (1 Million). Specifically, Indian population is employed on fire crews.

Source: BLM 2003.

Table 3-41 reflects receipts from three separate funds for the FY in 2002. Grazing fees are collected in two separate funds. From the 715 Fund, 50 percent of the revenue is paid back to the state. From the 720 Fund, 12.5 percent is paid back to the state. A timber fund pays 4 percent of receipts back to the county or state.

TABLE 3-41. GRAZING AND TIMBER RECEIPTS IN THE PLANNING AREA, FISCAL YEAR (FY) 2002

Fund	Receipts	Highest Producing Counties
Grazing - 715	$30,532	Caribou, Bear Lake
Grazing - 720	$524,668	Cassia, Lincoln, Clark, Oneida, Custer, Twin Falls
Timber - 750	$1,458	No major producers compared with State

3.15.2 RISKS

By continuing existing fire management policies, several socio-economic conditions could be affected.

- WUI - the risk to the WUI would likely increase due to increased growth and continued high risk of frequent and/or large fire.
- Grazing - existing fire management policies could result in long-term adverse impacts to grazing allotments through frequent and/or large burning combined with continued invasion of Invasive Annual Grass.
- Tourism - tourism areas rely heavily on scenic character. If frequent large fires continue, adverse impacts to visual resources, and consequently, scenic character, would adversely affect the tourist economy.

3.15.3 OPPORTUNITIES

By changing fire management policies, expanded opportunities may be possible for:

- Housing – fire risk may be reduced for houses in fire-prone areas if fire suppression and fuels management is increased through future actions of the BLM and coordination with municipalities.
- Urban growth boundaries – revised fire management policies and coordination with municipalities could be used to control urban growth on benches, hillsides, or other WUI.
- Grazing allotments – managed under new fire and fuels management policies, grazing allotments could potentially return as better long-term grazing allotments as FRCC improves.
- Cost of fire suppression – this cost could decrease with more treatments and less wildland fire as FRCC improves.

- Changed fire management policies – these would maintain or improve vegetative resources. As this resource is improved, land uses such as recreational activities would increase as well. Tourism tied to these lands could increase, thus providing increased economic benefit to counties.
- FRCC – If FRCC is improved, quality of life could increase with a decrease in visible smoke, increased safety, and increased or preserved recreation opportunities.

CHAPTER FOUR - ENVIRONMENTAL CONSEQUENCES

The overall scientific and analytic basis for comparison among the five alternatives is presented in this chapter of the Environmental Impact Statement (EIS), along with the probable consequences (impacts or effects) of each alternative on selected environmental resources. This chapter offers an analysis of effects on the following:

- Vegetation Resources (Issue 1) (Section 4.2)
- Wildland Urban Interface (WUI) (Section 4.3)
- Sagebrush Steppe Ecosystem (Issue 2) (Section 4.4)
- Wildlife Resources and Federally-listed Threatened and Endangered (T&E) and BLM-Sensitive Species (Section 4.5)
- Air Quality (Section 4.6)
- Soils (Section 4.7)
- Water Resources (Section 4.8)
- Livestock Grazing Management (Section 4.9)
- Recreational Resources (Section 4.10)
- Wilderness Resources (Section 4.11)
- Visual Resources (Section 4.12)
- Cultural Resources (Section 4.13)
- Native American Tribal Concerns (Section 4.14)
- Socioeconomics (Section 4.15)

Lastly presented are the non-fire, fuels, and vegetation management related cumulative effects (Section 4.16).

These resources address the most critical resources affected by the treatment levels proposed in the alternatives. Each resourceis organized by field office to illustrate the differences in ecological issues and effects across the planning area.

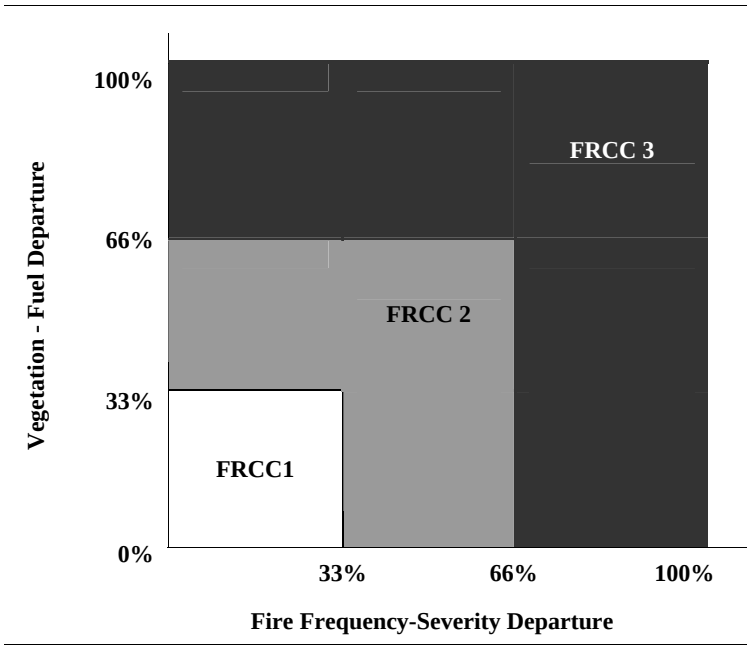
The analysis of effects in this chapter includes treatments considered within the Craters of the Moon National Monument and Preserve (Monument) in an effort to display the full range of direct and indirect effects resulting from changes in wildland fire management on the upper Snake River plain. The analysis is not specific to the Monument but rather is done by field office or planning area depending upon specific resources and or uses. Monument effects are included in the Shoshone Field Office (SFO) effects or planning area effects. Retaining the direct and indirect effects analysis facilitates the cumulative effects analysis. Fire management planning decisions for the Monument have been made through the Monument (National Park Service [NPS]/ Idaho Bureau of Land Management [BLM]) planning process (Chapter 1, Section 1.8.2).

4.1 INDICATORS AND GENERAL METHODOLOGY

In Sections 4.2 and 4.4 (Issues 1 and 2 respectively), the impacts of Alternatives A, B, C, D, and E were assessed using the indicators listed below. Section 4.3 impacts were assessed using only Footprint-acres.

- Footprint-acres - Footprint-acres indicate the levels of soil disturbance relative to the five alternatives.
- Percentages of sage grouse Source Habitat affected - Source Habitat indicates the relative proportion (percent) of sage grouse Stronghold and Isolated Habitat disturbed by each alternative.
- Desired Future Condition (DFC) (expressed as a percentage) - DFC is used as a long-term management objective for vegetation cover types. DFC can be compared to current conditions, as well as the relative merits of each alternative to achieve DFC within 30 years. For DFC analysis, vegetation cover types were split into different age classes (years since last fire) or seral stages to analyze the effects of the five alternatives.
- Fire Regime Condition Class (FRCC) 1 through FRCC 3 - FRCC is a landscape-level fire risk assessment index of to what extent current conditions deviate or depart from historical conditions in the areas of vegetation and fuels structure and composition and fire frequency. FRCC is used to compare the long-term effects of the five alternatives at 30 years after implementation. FRCC 1 indicates conditions that are within the range of historical variability, while FRCC 2 and 3 indicate how far current conditions depart from the historical range.

Figure 4-1 illustrates how the two types of departure are used to determine a single FRCC for each type. Departures of 0 percent to 33 percent are considered within the natural range of variability (FRCC 1) and are desirable, meaning that wildland fires that occur would display normal fire frequency severity and vegetation fuels conditions. Departures of 34 percent to 100 percent are considered outside the natural range of variability (FRCC 2 and 3). Moving toward and achieving FRCC 1 for each vegetation type is the most desirable condition.



Percent departure values within the white area are within the range of natural variability. The shaded area identifies percent departure values outside the range of natural variability.

Figure 4-1. FRCC 1, 2, and 3, representing the percent departure from the natural range of variability for fire frequency-severity and vegetation-fuels.

In Figures 4-2 through 4-26 below, FRCC is the product of both the x-axis, which indicates the departure of current fire frequency from the natural fire rotation, and the y-axis, which indicates the departure of current vegetation and fuels structure and composition from DFC. For each vegetation cover type, departure of fire frequency (x-axis) was based on the planning area's 32-year wildland fire history between 1970 and 2001. The departure of vegetation and fuels from DFC (y-axis) was determined by using age class/seral stage distributions and adding the percentages that each age class/seral stage contributes to DFC. FRCC categories are as follows:

- FRCC 1 = 0 percent to 33 percent departure from historical conditions
- FRCC 2 = 34 percent to 66 percent departure from historical conditions
- FRCC 3 = 67 percent to 99 percent departure from historical conditions

Note: The terms "age class," "seral stage," and "successional stage" are referenced throughout this chapter. Current and desired conditions were analyzed for each vegetation type using these concepts. Age class was estimated using fire occurrence data to determine time since disturbance. "Age Class" or time since disturbance was then equated to seral or successional stage. For example, in Low-elevation Shrub acres that have not burned within the last 15 years equate to early seral/successional. It is recognized that "time since disturbance" and seral/successional stages are not identical but for any one vegetation type, especially at the landscape scale, there are rough correspondences between age and seral/successional stage. At the scale of this analysis, the best data available to correlate with successional stage is "years since last fire". In this analysis, age class was determined using "years since last fire" and is used

to roughly approximate seral/successional stage percentages across the planning area. This data was used for the purpose of alternative comparison.

4.2 ANALYSIS OF EFFECTS ON VEGETATION RESOURCES (ISSUE 1)

This section details the effects of treatment levels on vegetation and fire ecology across the alternatives, including those treatment levels that are higher than what is proposed in Alternative B. In doing so, this section addresses Issue 1 as described in Section 1.4.1, Issues Driving Development of Alternatives.

Impacts described in this chapter were identified with the use of best professional judgment and were assessed quantitatively wherever possible. In those resources or actions where the effects could not be reasonably quantified the following intensity criteria were used to describe those impacts:

- Negligible – impacts would not be detectable through standard observation or readily apparent. Actions would result in frequencies and magnitudes of disruption that would be well within the natural range of variability.
- Minor – actions could result in a change to the resource but the change would be local or small. Effects would be detectable. Frequencies and magnitudes or disruption would be expected to remain within the natural range of variability.
- Moderate/Intermediate – Actions would result in a change to the resource that would be of consequence, yet would still be small. Changes would be noticeable in a local area and the frequencies and magnitudes of disruption would be outside the natural range of variability for short periods of time, but would return to the natural range of variability.
- Major – Actions would result in a dramatic change to the resource and the amount of disturbance would be large. The frequencies and magnitudes of disruption would be outside the natural range of variability for short to long periods of time.

In most instances major and moderate/intermediate effects are measurable and effects are quantified. In situations where this is not possible these terms have been utilized to describe the resulting effects within a common framework to adequately compare effects.

4.2.1 ANALYSIS OF EFFECTS FOR THE UPPER SNAKE FIELD OFFICE (USFO)

4.2.1.1 Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass

4.2.1.1.1 Short-term Effects

Alternative treatment levels for these cover types of the USFO range from approximately 4,300 acres (Alternative A) to 474,000 acres (Alternative D and E; Table 4-1). The goal is to improve vegetation structure and composition, as well as reduce frequency intervals and decrease fire size.

TABLE 4-1. VEGETATION COVER TYPES AND THEIR ACREAGES IN THE UPPER SNAKE FIELD OFFICE (USFO)

Cover type	Total Acres in USFO	Alternatives (footprint-acres)[1]				
		A	B	C	D	E
Low-elevation Shrub	913,183	2,500	101,500	55,200	216,790	216,790
Perennial Grass	470,003	1,750	52,600	172,000	257,000	257,000
Invasive Annual Grass	36[2]	0	0	36	0	0
Mid-elevation Shrub	231,518	16,500	56,990	161,700	78,220	78,220
Juniper	5,380	0	2,200	3,300	900	900
Salt Desert Shrub	27,410	0	0	0	0	0
Aspen/Conifer	10,276	200	6,100	500	0	500
Dry Conifer	20,132	1,000	4,950	800	0	800
Mountain Shrub	13,036	200	5,080	1,530	9,730	9,730
Riparian	15,690	320	0	429	0	0
Wet/Cold Conifer	14,094	220	0	1,075	0	1,075
Vegetated Rock/Lava	304,793	100	5,780	0	0	0
TOTAL	**2,025,551**	**22,790**	**235,200**	**396,570**	**562,640**	**565,015**

[1] Footprint-acres describe broad treatment levels over 10 years for rehabilitation and restoration.
[2] As mapped (100% coverage of Invasive Annual Grass).

The USFO has most of the Low-elevation Shrub cover types in the planning area. A minor proportion (less than 5 percent) of sagebrush steppe has been converted to Invasive Annual Grass. Aerial seeding of sagebrush would have negligible impacts on native vegetation. Fire would remove the biomass and canopy structure of sagebrush steppe. On the other hand, Perennial Grass wildland fires rarely burn at high intensity; thus, for Perennial Grasses, forbs, and shrubs that re-sprout, mortality is unlikely. Therefore, Perennial Grass would be expected to begin recovery during the growing season following a fire.

Rehabilitation and/or hazardous fuels reduction actions would seed shrubs and grasses to speed succession back to sagebrush steppe. Areas where cheatgrass (*Bromus tectorum*) has become established would also be seeded with Perennial Grasses and forbs to restore a healthy herbaceous understory. BLM would use approved chemicals to control cheatgrass and noxious weeds. Short-term effects of treatments would include the mortality of non-target plants due to herbicide use and from seeding methods that cause soil surface disturbance, affecting shallow-rooted species.

While Alternative A would treat the fewest acres (see Table 4-1) and have the least short-term impacts, Alternatives D and E would treat large areas (approximately 34 percent) of sagebrush steppe (sum of Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass). Alternatives B and C would treat approximately 11 percent and 16 percent of this cover type, respectively, and would have intermediate effects.

4.2.1.1.2 Long-term Effects

Treatments applied to poor condition Low-elevation Shrub would be positive, resulting in cover types with sagebrush canopy and a diverse, perennial understory. Alternatives B, C, D, and E would treat approximately 12 percent, 20 percent, 26 percent, and 28 percent of the existing sagebrush steppe, respectively, much of which is lacking in perennial understory and is at risk of encroachment by cheatgrass. Alternatives D and E would make the most progress toward creating a more resilient landscape. Alternative A would do little to improve or rehabilitate the Low-elevation Shrub cover type in the USFO.

Treatments in Perennial Grass would have long-term positive effects by reestablishing a shrub canopy and herbaceous understory on sagebrush steppe sites. Alternatives D and E would seed sagebrush on approximately 55 percent of this cover type, while Alternatives B and C would seed approximately 11 percent and 37 percent of this cover type, respectively (see Table 4-1). Alternatives D and E would better facilitate succession to a later successional state than the other alternatives. Alternative A would treat only a fraction of Perennial Grass acreage and would not affect succession and reestablishment of sagebrush in continuous or connected blocks.

Treatments in Invasive Annual Grass, Perennial Grass, and Low-elevation Shrub cover types would be directed toward achieving DFC, consistent with percentage values in Table 4-2. DFC consists of a plant mixture of different species and age classes/seral states with some allowable uncharacteristic vegetation. In Table 4-2, cheatgrass is considered an uncharacteristic species and could remain part of the cover type because it is not expected to be completely eradicated.

TABLE 4-2. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR LOW-ELEVATION SHRUB, PERENNIAL GRASS, AND INVASIVE ANNUAL GRASS, UPPER SNAKE FIELD OFFICE (USFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial Grass <15-year	14%	29%	25%	31%	24%	27%
Grass/Shrub 15-30-year	14%	1%	27%	32%	29%	29%
Shrub/Grass >30-year	52%	48%	37%	28%	40%	41%
Crested Wheatgrass	NA[2]	1%	1%	1%	1%	1%
Invasive Annual Grass in Understory[3]	<20%	21%	11%	9%	7%	3%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

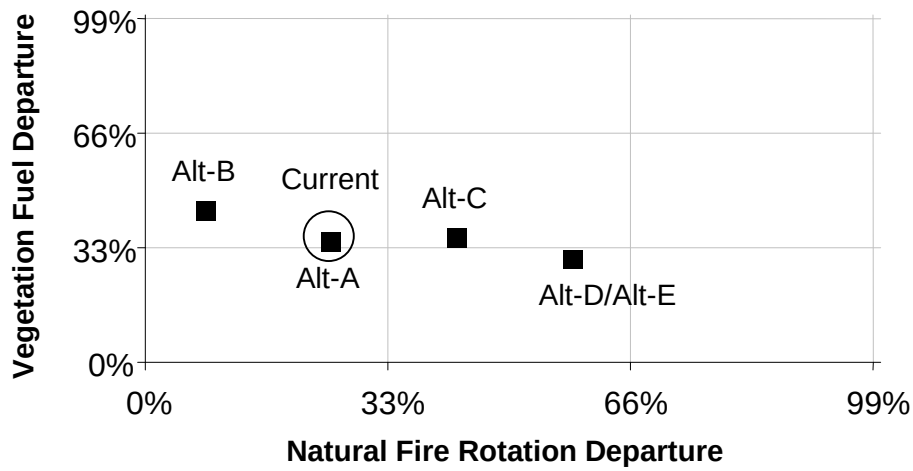
[2] Not applicable; no DFC objective was set for Crested wheatgrass. Crested wheatgrass percentages remain constant across the landscape over time due to the success of overseeding shrub species and through succession these areas become shrub dominated while minimal acres are seeded with Crested wheatgrass.

[3] Although absence of cheatgrass is desirable, these percentages have been deemed acceptable, since complete eradication of cheatgrass is impossible.

All alternatives would improve the overall condition Low-elevation Shrub, Perennial, and Invasive Annual Grass cover types in the USFO but to varying degrees. All alternatives improve the proportions of <15-year and 15-year to 30-year age class cover types and reduce >30-year

age class grass/shrub cover types. All alternatives assume some further loss of mature sagebrush steppe while Perennial Grass is reduced and early grass/shrub cover types are established. None of the alternatives would achieve DFC within 30 years of implementation because wildland fires would continue, though with reduced intensities, severities, and frequencies.

Under all alternatives, Low-elevation Shrub, Perennial Grass and Invasive Annual Grass would remain within the range of FRCC 2 after 30 years, and no alternative would achieve FRCC 1 (Figure 4-2). Alternative A would not change the current condition (i.e., no change in fire rotation or vegetation and fuels structure and composition). Alternative B would improve (lengthen) fire rotation, but would not improve vegetation and fuels structure and composition. Alternatives C, D, and E would reduce the frequency of wildland fires and produce fire rotations longer than the natural fire rotation; therefore, departures for Alternatives C and D/E show increases above 40 percent and 55 percent, respectively. Alternative C would maintain current vegetation and fuels structure and composition, while Alternatives D and E would slightly improve it.



Current FRCC condition is identified by the symbol - O. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-2. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass in the Upper Snake Field Office (USFO).

Alternatives C, D, and E would not affect early successional stages. They would, however, increase the proportion of mid-successional stages and substantially decrease the proportion of uncharacteristic vegetation. Vegetation and fuels structure and composition would most closely approach DFC under Alternatives D and E. In the USFO, longer fire frequency in these cover types would help reduce habitat fragmentation and/or aid the restoration of large areas of sagebrush steppe in adjacent portions of the planning area as well as reduce the potential for uncharacteristic vegetation to establish following wildland fire.

4.2.1.2 Mid-elevation Shrub and Juniper

4.2.1.2.1 Short-term Effects

Alternative treatment levels for these cover types of the USFO range from approximately 16,500 acres (Alternative A) to 165,000 (Alternative C) acres of Mid-elevation Shrub and Juniper, which includes areas of juniper encroachment (see Table 4-1), with the goal of improving vegetation structure and composition, as well as reintroducing fire in areas where juniper encroachment is a problem.

The Mid-elevation Shrub cover type has been affected by reduced wildland fire frequencies, juniper invasion in some areas, increased shrub densities, and the impoverishment of the herbaceous understory in other areas. This has reduced the quality of sagebrush steppe habitats. Treatments in Mid-elevation Shrub would focus on prescribed fire (RxFire) and wildland fire use (WFU), as well as mechanical methods, to reduce shrub and juniper density. Areas with invasive or noxious weeds would receive chemical treatments to reduce or eliminate infestations. Chemical treatments would also be used for selective thinning of shrub cover or to eliminate immature encroaching junipers within the Juniper cover type. Seeding could occur after fire and/or mechanical treatments in areas where the understory has been depleted.

Short-term effects of RxFire and WFU would include the reduction of shrub and tree canopy, as well as the temporary reduction in herbaceous cover due to the removal of biomass. Wildland fire could result in greater mortality and more continuous removal of canopy due to higher heat intensities than with RxFire. Herbaceous cover, particularly annual species, should increase within two growing seasons following a fire. Chemicals would be used to control invasive or noxious weeds on burned areas. Chemical treatments could result in the mortality of non-target species.

Mechanical treatments would be used in areas or situations where RxFire or WFU is not appropriate or effective, or where selective vegetation removal is desired. Mechanical treatments would have little short-term effect on non-target plants, due to the specificity of the treatments on target vegetation. One exception would be damage to shallow-rooted species when using chaining or a Dixie harrow. Seeding methods that result in soil surface disturbance (drilling, chaining, and harrowing) could result in similar disturbance. However, seeding grasses and forbs using these methods would be conducted primarily where the understory is depleted; therefore, the negative impacts would be minimal.

Alternative A would treat the fewest acres (approximately 7 percent of Mid-elevation Shrub and Juniper; see Table 4-1) and, therefore, would have the least short-term impact. This alternative, however, would do little to control juniper encroachment and restore landscape-level structural diversity. Alternative C, in contrast, would treat approximately 70 percent of the total acreage over 10 years, or approximately 16,500 acres annually, with the goal of restoring natural fire rotation intervals at a landscape scale. Alternatives B and D/E propose to treat 25 percent and 33 percent of the area, respectively, and would have intermediate effects on Alternative A and Alternative C.

4.2.1.2.2 Long-term Effects

Treatments applied to Mid-elevation Shrub and areas of juniper encroachment within Juniper would have long-term positive effects due to increasing the diversification of vegetation structure and composition. Alternative C is the most aggressive of the alternatives and would do the most to reintroduce the natural fire rotation on a landscape scale. However, given any of the alternatives juniper is anticipated to increase. Alternative C is the only alternative that would move the mix of desirable successional states for Mid-elevation Shrub toward DFC (Table 4-3). All alternatives would keep uncharacteristic vegetation below 15 percent, with Alternative B meeting DFC. Due to natural succession, juniper encroachment in USFO would increase given any alternative.

TABLE 4-3. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR MID-ELEVATION SHRUB AND JUNIPER, UPPER SNAKE FIELD OFFICE (USFO)

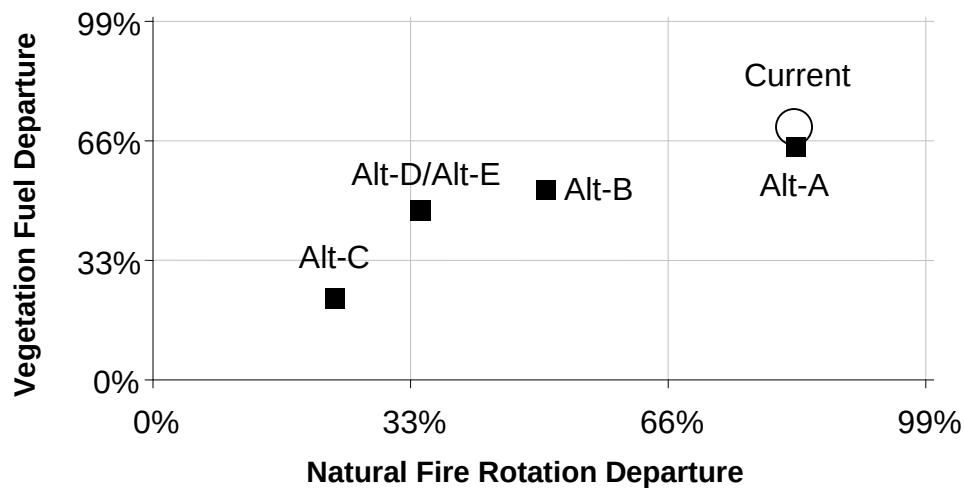
Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial Grass <15-year	23%	0%	3%	6%	20%	14%
Grass/Shrub 5-15-year	45%	7%	9%	18%	34%	16%
Shrub/Grass >15-year	23%	86%	73%	67%	35%	57%
Juniper	7%	2%	8%	7%	5%	6%
Invasive Annual Grass in Understory[2]	2%	5%	7%	2%	6%	7%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

[2] Although absence of cheatgrass is desirable, these percentages have been deemed acceptable, since complete eradication of cheatgrass is impossible.

All alternatives would treat Mid-elevation Shrub and Juniper with the intention of moving these cover types toward FRCC 1 (Figure 4-3). Alternative A, however, would maintain the current condition in FRCC 3 and would not increase fire frequency. Thus, Alternative A would permit the continued accumulation of fuels; the dominance of old, decadent shrubs; increased juniper densities; and/or increased encroachment of juniper into Mid-elevation Shrub. Increased juniper densities would increase wildland fire hazard by supporting larger, more intense and more large wildland fire.

Alternatives B, D, and E would move the current condition from FRCC 3 to FRCC 2. Fire frequency would be shortened in these cover types; however, none of the three alternatives proposes enough treatment, or decreases the vegetation/fuel departure enough, to achieve FRCC 1 in 30 years. Alternative C would move the current conditions to FRCC 1. Under Alternative C, fire frequency would approximate the natural fire rotation rate, and the mix of characteristic successional stages and vegetation and fuels structure and composition across the landscape would approach DFC.



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-3. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Mid-elevation Shrub and Juniper in the Upper Snake Field Office (USFO).

4.2.1.3 Salt Desert Shrub

There are no planned treatments in the Salt Desert Shrub cover type in the USFO.

4.2.1.4 Aspen/Conifer and Dry Conifer

4.2.1.4.1 Short-term Effects

Alternative treatment levels for these cover types range from 0 acres (Alternative D) to approximately 11,050 acres (Alternative B) of Aspen/Conifer and Dry Conifer (see Table 4-1), with the goal of rejuvenating aspen stands and creating a diversity of forest successional stages and associated forest structure and species composition across the landscape.

Short-term effects of restoration treatments in the Aspen/Conifer and Dry Conifer cover types would reduce Aspen and Dry Conifer densities, decrease overstory canopy cover, and increase gaps in forest structure that allow solar radiation to reach understory vegetation and/or soil surface. A temporary reduction in understory shrub, grass, and forb cover would occur with RxFire and WFU. The vast majority of shrubs found in this vegetation resprout after fire and would provide structure and shade to the soil surface within a year or two following treatment. Perennial grasses and forbs would also resprout or recolonize the treatment areas. Increased soil temperatures, aspen root scarification, and/or a decrease in the number of older aspen trees would encourage aspen regeneration via resprouting or suckering.

Alternative D would not treat any forest type, including Aspen/Conifer and Dry Conifer cover types and, therefore, would produce no short-term effects. Alternatives A and C would treat small levels of this cover type (4 percent and 9 percent, respectively) and would produce

relatively few short-term effects. Alternative B would treat the most acres (36 percent of these types) and would produce substantial short-term effects.

4.2.1.4.2 Long-term Effects

Long-term effects of treatment across alternatives in the Aspen/Conifer and Dry Conifer types are positive and would result in a diversity of forest successional stages which is currently overabundant across the landscape. Pure aspen stands would become larger and more numerous. Vegetation species richness across the landscape would increase as the proportion of forest successional stages becomes more even. The number of stands at high risk to forest insect and disease outbreaks and subsequent uncharacteristically large wildland fire would decrease.

Treatments for the Aspen/Conifer and Dry Conifer cover types would be applied with the intent of moving toward a vegetation/fuels DFC consisting of a 40:40:20 mix of early successional, mid-successional, and late successional forest cover types (Table 4-4). None of the alternatives would achieve DFC in 30 years; however, Alternatives B, C, and E would achieve a more even distribution of successional forest cover types across the landscape and would make the most progress toward DFC. All three of these alternatives increase the percentage of early and mid-successional forest and decrease the percentage of late successional forest. Alternative A and Alternative D move away from DFC, slightly increasing the amount of early successional forest, decreasing the amount of mid-successional forest and increasing the amount of late successional forest from current proportions.

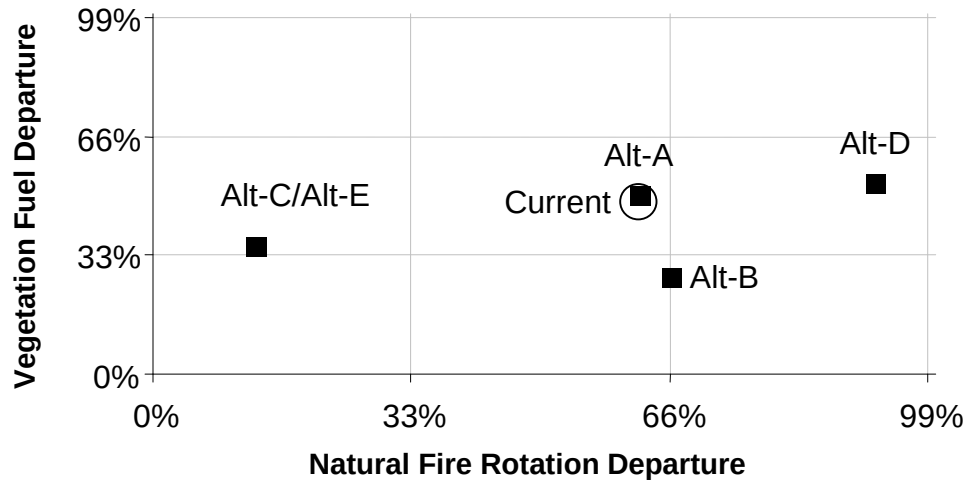
TABLE 4-4. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR ASPEN/CONIFER AND DRY CONIFER, UPPER SNAKE FIELD OFFICE (USFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C and E	D
Forb/grass with aspen trees/suckers, <25 years old	40%	3%	6%	13%	10%	5%
Aspen/Conifer/Shrub mix, 25-50 years old	40%	29%	24%	43%	34%	22%
Conifer-dominated, >50 years old	20%	68%	70%	44%	56%	73%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

All alternatives would treat Aspen/Conifer and Dry Conifer with the intention of moving these cover types toward FRCC 1 (Figure 4-4). Alternative A, however, would maintain (current) FRCC 2 and would permit accumulation of fuels, an increase in conifer tree densities, and higher rates of insect attacks and disease. Forests composed of Dry Conifer with a litter understory would pose a greater wildland fire hazard and would more likely burn with stand-replacement severity as opposed to Aspen/Conifer with a grass/forb/shrub understory. Wildland fire sizes and intensities would be greater in Dry Conifer-dominated areas, often leading to crown-fires. Under

Alternative A, the proportions of successional stages would be allowed for too many late successional stages, and over time, would increase the departure from DFC.



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-4. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Aspen/Conifer and Dry Conifer in the Upper Snake Field Office (USFO).

Alternative B would maintain FRCC 2 but would move vegetation and fuels structure and composition toward DFC and shorten the fire frequency. A shorter fire frequency would increase early and mid-successional stages and decrease late successional stages. In 30 years, Alternative B would decrease the departure of vegetation/fuels more than the other alternative; however, progress toward DFC would not be realized in the first decade.

Alternatives C and E would move these cover types close to FRCC 1 in 30 years. Fire frequency would approximate the natural fire rotation, creating the desired mix of successional forest cover types and vegetation and fuels structure and composition across the landscape. Alternative D would not treat these cover types and would permit a decline from FRCC 2 to FRCC 3 and an increase in hazardous conditions. Under Alternative D, fire frequency would remain at a rate less than historical, causing more acres to move toward late successional.

4.2.1.5 Mountain Shrub

4.2.1.5.1 Short-term Effects

Alternative treatment levels for this cover type in the USFO range from 200 acres (Alternative A) to approximately 9,700 acres (Alternatives D and E) of Mountain Shrub (see Table 4-1), with the goals of rejuvenating old, decadent shrubs; increasing cover and density of desirable herbaceous species (i.e., cheatgrass and noxious weeds); and creating a diversity of successional stages in a mosaic across the landscape.

Treatments primarily would be RxFire and WFU. Short-term effects of restoration treatments would include a temporary decrease in shrub, grass, and forb canopy cover. RxFire would kill some individual shrubs. This is particularly true for antelope bitterbrush at lower elevations and mountain mahogany. These changes would increase the amount of solar radiation reaching the soil surface. The vast majority of Mountain Shrub species resprout after low to moderate severity fire and would provide structure and shade to the soil surface within a year or two following treatment. Effects of fire on mountain mahogany, however, could persist for a number of years (and perhaps into the long term) due to a general lack of resprouting. Perennial grasses and forbs would resprout or recolonize the treatment areas. Shrub leader growth would be vigorous following treatment due to increased light and soil temperatures as well as a reduction in standing, dead, woody material.

Alternative A would treat the fewest acres (less than 2 percent of this cover type) and would have negligible short-term impacts. Alternatives D and E would treat the most acres (approximately 75 percent of this cover type) and would have substantial short-term impacts. Alternatives B and C propose intermediate amounts of treatment (39 percent and 12 percent of this cover type, respectively) and would result in an intermediate level of short-term effects.

4.2.1.5.2 Long-term Effects

Effects of treatment across alternatives in the Mountain Shrub cover type would be positive and would result in a diversity of shrub successional stages across the landscape. Stands of Mountain Shrub would become larger and more numerous. Across the landscape, species richness would increase as the proportion of shrub successional stages becomes more even. The number of shrub stands at risk of large wildland fire due to heavy fuel loading would decrease.

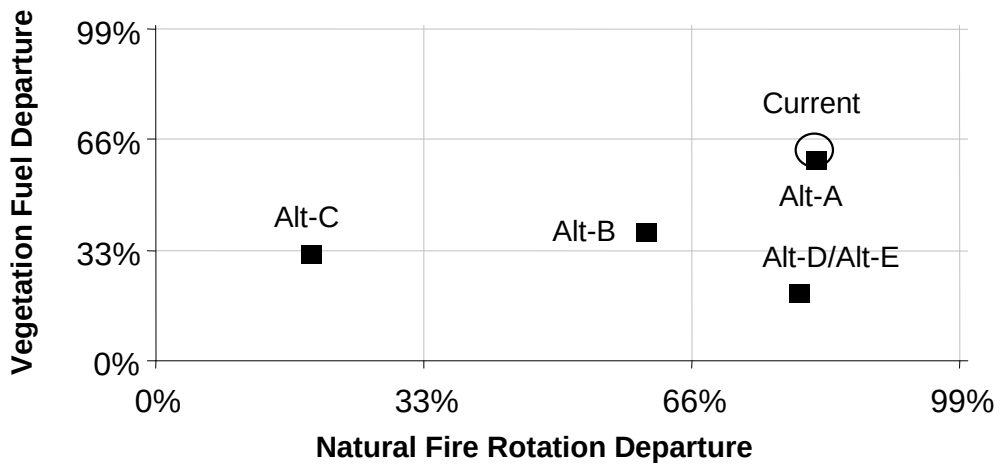
Treatments in Mountain Shrub would be applied with the intent of moving toward a vegetation/fuels DFC consisting of a 33:33:34 mix of early successional, mid-successional, and late successional shrub cover types (Table 4-5). None of the alternatives would achieve DFC in 30 years; however, three alternatives would achieve a more even distribution of successional stages across the landscape. Alternatives D and E would most closely approximate DFC followed by Alternative C. These three alternatives would increase the percentage of early and mid-successional shrub cover types and decrease the percentage of late successional shrub cover types. Alternative B would make limited progress toward DFC.

All alternatives would treat Mountain Shrub with the intention of moving toward FRCC 1 (Figure 4-5). Alternative A would maintain the current condition in FRCC 3, however, and permit the dominance of old, decadent shrubs; depletion of understory species; and woody fuel build-up. Increased fuel structure and composition would increase fire hazard by supporting larger, more intense and large wildland fires. Alternative B would improve the current condition to FRCC 2. Fire frequency would be shortened in this cover type; however, Alternative B would not treat enough vegetation or decrease the vegetation/fuel departure enough to achieve FRCC 1 in 30 years.

TABLE 4-5. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR MOUNTAIN SHRUB, UPPER SNAKE FIELD OFFICE (USFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial Grass/Shrub, <10 years old	33%	0%	4%	9%	11%	13%
Shrub/Perennial Grass 10-20 years old	33%	3%	2%	18%	23%	32%
Shrub dominated, >20 years old	34%	97%	94%	73%	66%	55%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-5. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Mountain Shrub in the Upper Snake Field Office (USFO).

Alternative C would achieve FRCC 1 in 30 years. Fire frequency would become shortened to approximate the natural fire rotation, and treatments would create a mix of successional stages and fuel loadings across the landscape that approach DFC. Alternatives D and E would maintain FRCC 3, due to an aggressive treatment regime, and would implement too much treatment over too short a period of time, making the disturbance rate shorter than the natural fire rotation and would move the proportion of successional stages across the landscape away from DFC.

4.2.1.6 Wet/Cold Conifer

4.2.1.6.1 Short-term Effects

Alternative treatment levels for this cover type in the USFO range from 0 acres (Alternatives B and D) to approximately 1,100 acres (Alternatives C and E) of Wet/Cold Conifer (Table 4-1), with the goals of reducing risk of insect infestation and disease as well as creating a diversity of forest successional stages and associated forest structure across the landscape. In areas where private landowners are intermingled with the forest, the goal of treatment would be to reduce threats to private land by reducing wildland fire intensity and spread.

Short-term effects of restoration treatments in Wet/Cold Conifer would reduce tree density, decrease overstory canopy cover, and increase the amount of solar radiation reaching the understory vegetation and/or soil surface. Where mechanical treatments are used, a reduction in mature and pole-sized lodgepole pine tree density would occur. Where WFU treatments are used, overstory trees would be replaced by understory shrubs, grasses, and forbs, while lodgepole pine would reproduce and grow above the understory vegetation within approximately 10 years following disturbance.

Alternatives B and D would not treat Wet/Cold Conifer and would have no short-term effects. Alternatives A, C, and E would treat few acres in this cover type (less than 0.5 percent) and would have negligible short-term effects.

4.2.1.6.2 Long-term Effects

Effects of treatment across alternatives in the Wet/Cold Conifer cover type would be positive and would result in more resilient forest stands and a diversity of forest successional stages across the landscape. Lodgepole pine stands would become more capable of withstanding insect and disease outbreaks. Vegetation species richness across the landscape would increase as the proportion of forest successional stages becomes more evenly distributed. In those areas where private land are intermingled with the forest and treatment is implemented as a measure of protection, fire intensity and spread would increase.

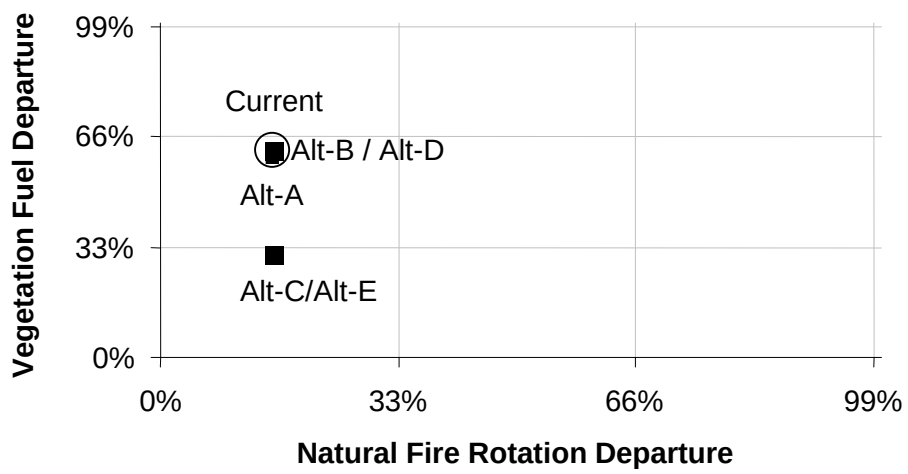
Treatments in Wet/Cold Conifer would move this cover type toward a vegetation/fuels DFC consisting of a 30:44:26 mix of early successional, mid-successional, and late successional forest cover types (Table 4-6). None of the alternatives would achieve DFC in 30 years. Alternatives C and E are the only alternatives that would achieve a more even distribution of successional forest cover types across the landscape. These alternatives would increase the percentage of early and mid-successional stages and decrease the percentage of late successional stages across the landscape. Furthermore, Alternatives C and E are the only alternatives that would substantially decrease the threats associated with wildland fire to private land in the WUI. Alternatives A, B, and D make very limited progress toward DFC (through limited treatment and/or wildland fire) by slightly increasing early successional stages and slightly decreasing late successional stages.

TABLE 4-6. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR WET/COLD CONIFER, UPPER SNAKE FIELD OFFICE (USFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C and E	D
Forb/grass with seedlings	30%	2%	5%	3%	26%	3%
Conifer Shrub mix	44%	10%	9%	9%	17%	9%
Conifer-dominated	26%	89%	86%	88%	57%	88%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

Alternatives A, C, and E would treat Wet/Cold Conifer with the intention of moving this cover type toward FRCC 1 (Figure 4-6). Alternative A, however, would treat very little of this cover type and maintain current FRCC 2. Alternatives B and D would not treat Wet/Cold Conifer. Because growth and succession rates are so slow in this cover type, lack of treatments would not exacerbate existing conditions. Forests in FRCC 2 would have moderate to high stocking densities, substantial ladder fuels (e.g., small trees and overlapping deadfall), and moderate to widespread insect and disease outbreaks.



Current FRCC condition is identified by the symbol - ○. Notes: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.
Due to the lack of long-term fire history data for this cover type, the FRCC rating is based on vegetation/fuel departure. For clarity, departure from the natural fire rotation was positioned at the midpoint of FRCC 1.

Figure 4-6. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Wet/Cold Conifer in the Upper Snake Field Office (USFO).

Alternatives C and E would achieve FRCC 1 in Wet/Cold Conifer within 30 years (see Figure 4-6). Forests in FRCC 1 would have a mix of successional stages and vegetation and fuels structure and composition close to DFC across the landscape. Treatments in WUI areas would

have priority, and threats to private land would be reduced. Departure from the natural fire rotation was not calculated for Wet/Cold Conifer due to long fire return intervals and incomplete fire history data. The FRCC for the current situation and all alternatives is based entirnely on departure from the vegetation/fuels DFC. Alternatives A, B, and D would maintain the current condition in FRCC 2. Forests in this condition would have moderate to high stocking densities, substantial ladder fuels (e.g., small trees and overlapping deadfall), and moderate to widespread insect and disease outbreaks.

4.2.1.7 Vegetated Rock/Lava

4.2.1.7.1 Short-term Effects

Alternative treatment levels for the Vegetated Rock/Lava cover type range from 0 acres (Alternatives C, D, and E) to approximately 5,800 acres (Alternative B) (see Table 4-1). These treatments would consist of WFU and chemical treatments to control noxious weeds.

WFU would be allowed on Vegetated Rock/Lava in Alternative A and Alternative B, with a minimal amount in Alternative A (see Table 4-1). Because wildland fire starts on Vegetated Rock/Lava are infrequent, it is assumed that only a small fraction of the existing acreage would burn. This cover type is discontinuous and limited to areas with some soil development; therefore, wildland fires would have minimal spread. Wildland fire is primarily allowed due to suppression difficulties. However, because cheatgrass is not a substantial problem in this type, WFU allows for historical successional processes to occur. Noxious weed invasions, usually found near the edges of Vegetated Rock/Lava, would be chemically treated to prevent or reduce spread.

WFU would permit historical successional processes to occur. Where cheatgrass or noxious weed invasions are found near the edges of Vegetated Rock/Lava, treatment would be conducted to prevent or reduce spread and maintain current percentages across the landscape. Vegetation mortality due to wildland fire would be most noticeable for long-lived shrubs and trees, such as Wyoming big sagebrush *(Artemisia tridentata* subsp. *wyomingensis)* and junipers. Because vegetation is patchy, fire effects would also be discontinuous, creating openings in areas with dense concentrations of fuels.

4.2.1.7.2 Long-term Effects

All alternatives would tend to increase the proportion of early to mid-seral vegetation in this cover type, while decreasing late seral shrub/tree cover types dominated by sagebrush and juniper (Table 4-7). Current conditions are very close to the DFC; however, over time, all alternatives would move this cover type in the wrong direction due to the continuance of wildland fire. Alternatives C, D, and E move current conditions away from DFC equally, while Alternative B is only slightly better. Alternative A would move this cover type away from DFC the least; however, the percentage of cheatgrass-infested acreage would not decrease from current proportions. Alternative B is the only alternative that includes proactive chemical treatments, and would slightly decrease the percentage of cheatgrass-infested acreage within this type.

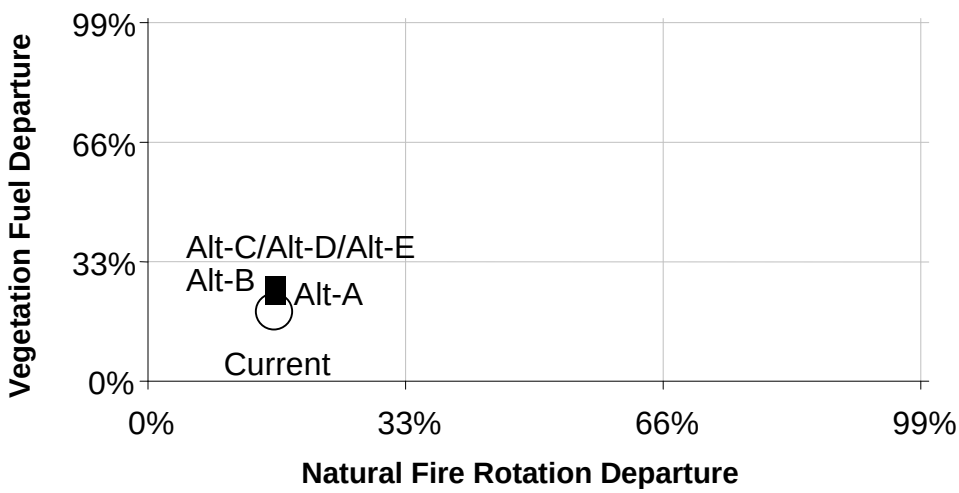
TABLE 4-7. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR VEGETATED ROCK/LAVA, UPPER SNAKE FIELD OFFICE (USFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial herbaceous	6%	11%	16%	22%	17%	17%
Tree/shrub/herbaceous	80%	75%	68%	66%	67%	67%
Invasive Annual Grass in Understory[2]	14%	14%	16%	12%	16%	16%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

[2] Although absence of cheatgrass is desirable, these percentages have been deemed acceptable, since complete eradication of cheatgrass is impossible.

All alternatives would maintain the Vegetated Rock/Lava in FRCC 1. Alternative A would have the least departure from the vegetation/fuels DFC (Figure 4-7). Alternative B is the only alternative with proactive chemical treatments proposed for cheatgrass control and, therefore, decreases the percentage of cheatgrass-infested acres more than any other alternative. Alternative B would also be the most flexible and would allow for an Appropriate Management Response when suppressing fires in, or adjacent to, this cover type. Due to the lack of long-term fire history data, departure from the natural fire rotation was not calculated for Vegetated Rock/Lava. The FRCC rating for the current situation and all alternatives are based entirely on departure from the vegetation/fuels DFC. All alternatives would maintain the current condition in FRCC 1.



Current FRCC condition is identified by the symbol - ○. Notes: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Due to the lack of long-term fire history data for this cover type, the FRCC rating is based on vegetation/fuel departure. For clarity, departure from the natural fire rotation was positioned at the midpoint of FRCC 1.

Figure 4-7. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Vegetated Rock/Lava in the Upper Snake Field Office (USFO).

4.2.2 ANALYSIS OF EFFECTS FOR THE POCATELLO FIELD OFFICE (PFO)

4.2.2.1 Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass

4.2.2.1.1 Short-term Effects

Alternative treatment levels for these cover types of the PFO range from 0 acres (Alternative A) to approximately 69,000 acres (Alternatives D and E) (Table 4-8), with the goal of improving vegetation structure and composition, as well as increasing fire rotation and decreasing fire size.

Aerial seeding of sagebrush would have negligible impacts on native vegetation. Fire would have a short-term impact of removing dried biomass. However, grassland fires rarely burn at high intensity; therefore, the mortality of herbaceous plants and resprouting shrubs is unlikely, and recovery would likely occur the following growing season.

Some Low-elevation Shrub would undoubtedly burn and be treated through seeding sagebrush, grasses, and forbs to speed succession back to shrub-steppe. Areas where cheatgrass has become established would also be seeded with sagebrush, grasses, and forbs to restore a healthy herbaceous understory. Chemical treatments would be used to control cheatgrass and noxious weeds. Short-term effects of treatments would be mortality of non-target plants from herbicide use and seeding methods that cause soil surface disturbance.

TABLE 4-8. VEGETATION COVER TYPES AND THEIR ACREAGES IN THE POCATELLO FIELD OFFICE (PFO)

Cover Type	Total Acres in PFO	Alternatives (footprint-acres)[1]				
		A	B	C	D	E
Low-elevation Shrub	38,244	0	0	2,700	18,950	18,950
Perennial Grass	108,255	0	1,300	53,300	50,200	50,200
Invasive Annual Grass	33[2]	0	0	33	0	0
Mid-elevation Shrub	143,599	0	5,700	102,000	21,900	21,900
Juniper	26,102	0	3,500	18,000	10,650	10,650
Salt Desert Shrub	346	0	0	0	0	0
Aspen/Conifer	40,395	1,600	7,000	4,391	0	4,391
Dry Conifer	49,022	1,800	6,200	5,366	0	5,366
Mountain Shrub	186,869	0	16,600	15,000	16,500	16,500
Wet/Cold Conifer	679	0	0	66	0	66
Vegetated Rock/Lava	16,386	0	0	200	0	0
TOTAL	**609,930**	**3,400**	**40,300**	**201,056**	**118,200**	**128,023**

[1] Footprint-acres describe broad treatment levels over 10 years for rehabilitation and restoration.
[2] As mapped (100% coverage of Invasive Annual Grass)

While Alternatives A and B would treat the fewest acres (see Table 4-8) and have the smallest short-term impacts, Alternatives C, D, and E would treat large acreages and restore sagebrush to large areas of Perennial Grass; Alternative C would be slightly more aggressive than Alternatives D and E. All of these alternatives would also treat or rehabilitate existing sagebrush steppe; although, Alternatives D and E would treat more acreage than Alternative C. Alternative B would treat less than 2 percent of the acreages proposed in Alternatives C, D, or E. Alternative A would not propose any treatments within these cover types.

4.2.2.1.2 Long-term Effects

Long-term effects of treatments applied to poor condition Low-elevation Shrub would be positive, resulting in cover types with sagebrush canopy and a diverse, perennial understory. Alternatives C and D/E would treat approximately 7 percent and 50 percent of this cover type, respectively, much of which is lacking in a perennial understory and is at risk of encroachment by cheatgrass. Alternatives D and E would make the most progress toward creating a more resilient landscape. Alternative A and Alternative B would do nothing to improve or rehabilitate Low-elevation Shrub in the PFO.

Treatments applied to Perennial Grass would have long-term positive effects due to the reestablishment of a sagebrush component. Alternatives C and D/E treat large areas of this cover type: 49 percent and 46 percent, respectively (see Table 4-8). All of these alternatives would reestablish sagebrush on approximately half the existing Perennial Grass thereby moving those acres to a later seral state. Alternative A would do nothing to speed the reestablishment of sagebrush.

Treatments for Invasive Annual Grass, Perennial Grass, and Low-elevation Shrub would be applied with the intent of moving these types toward a DFC that consists of a mix of desirable seral states with minimal composition of uncharacteristic vegetation (Table 4-9). Alternatives C, D, and E would be most effective of minimizing cheatgrass but do not necessarily move desired vegetation toward DFC. However, it appears that all three alternatives would result in a relatively even mix of seral states across the landscape, in addition to minimizing uncharacteristic vegetation. Alternative A and Alternative B also result in a relatively even mix of desired seral states; however, these alternatives would not reduce cheatgrass, which would have 35 percent and 34 percent coverage, respectively.

All alternatives would maintain the current condition in FRCC 2 after 30 years (Figure 4-8). Alternatives A, B, and C would maintain the fire frequency within the range of historical variability, while Alternatives D and E would lengthen the fire frequency beyond the natural fire rotation (given the analysis assumption that for every acre treated, there is a 1 acre reduction in wildfire). Alternatives B, C, D, and E would create a more desirable mix of successional stages across the landscape by reducing vegetation and fuels departure from DFC. Lengthened fire frequencies under Alternatives D and E would permit the development of a desirable mix of successional stages to recreate sagebrush steppe habitats. Alternatives C, D, and E would most reduce cheatgrass. Alternative A and Alternative B would permit an increase in cheatgrass over current levels (see Table 4-9) as a consequence of relatively small treatment levels.

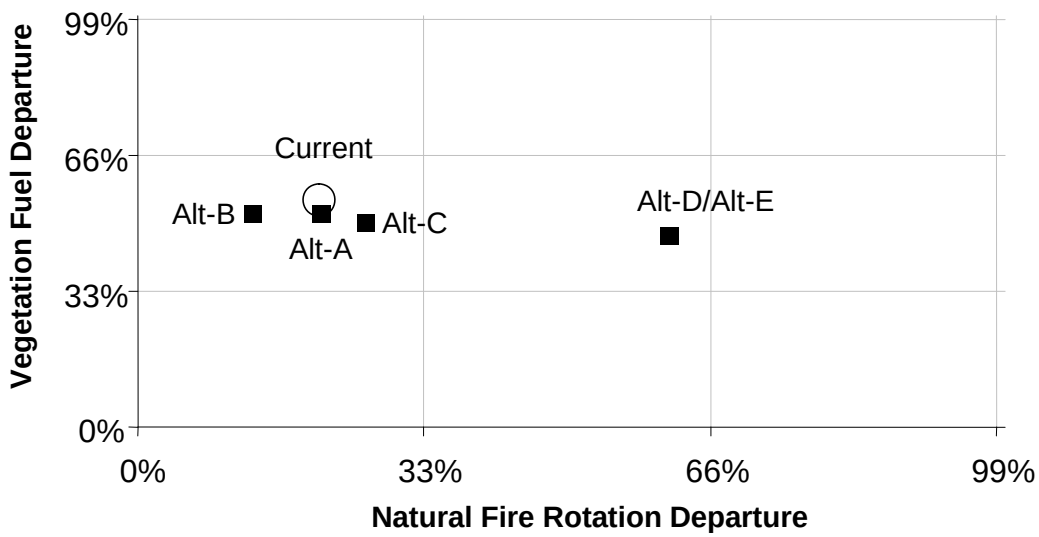
TABLE 4-9. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR LOW-ELEVATION SHRUB, PERENNIAL GRASS, AND INVASIVE ANNUAL GRASS, POCATELLO FIELD OFFICE (PFO)

Years Since Last Disturbance[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial Grass <15-year	14%	32%	18%	18%	35%	25%
Grass/Shrub 15-30-year	14%	5%	17%	18%	31%	36%
Shrub/Grass >30-year	52%	24%	20%	20%	22%	25%
Crested Wheatgrass	N/A[3]	10%	10%	10%	10%	10%
Invasive Annual Grass in Understory[2]	<20%	29%	35%	34%	2%	4%

[1] Disturbance = Wildland fire, RxFire, mechanical, chemical, and seeding treatments.

[2] Although absence of cheatgrass is desirable, these percentages have been deemed acceptable, since complete eradication of cheatgrass is impossible.

[3] Not applicable; no DFC objective was set for Crested wheatgrass. Crested wheatgrass percentages remain constant across the landscape over time die o the success of overseeding shrub species and through succession these areas become shrub dominated while minimal acres areseeded with Crested wheatgrass.



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-8. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass in the Pocatello Field Office (PFO).

4.2.2.2 Mid-elevation Shrub and Juniper

4.2.2.2.1 Short-term Effects

Alternative treatment levels for these cover types of the PFO range from 0 acres (Alternative A) to approximately 120,000 acres (Alternative C) of Mid-elevation Shrub and Juniper, which includes areas of juniper encroachment (see Table 4-8) with the goal of improving vegetation structure and composition, as well as reintroducing fire in areas where juniper encroachment is a problem.

The Mid-elevation Shrub cover type has been affected by reduced fire frequencies. This has increased shrub and juniper densities, reduced the herbaceous understory, and reduced the area of high-quality sagebrush habitats. Treatments would focus on increasing disturbances to mimic historical wildland fire through RxFire and WFU, as well as mechanical methods to reduce shrub and juniper density. Areas with invasive or noxious weeds would receive chemical treatments to reduce or eliminate infestations. Chemical treatments would also be used for selective thinning of shrub cover or to eliminate immature encroaching junipers. Seeding could occur after fire and/or mechanical treatments in areas where the understory has been depleted.

Short-term effects of RxFire and WFUs would be the reductions of shrub and tree canopies, as well as temporary reductions in herbaceous cover. Wildland fire could result in greater mortality and more continuous removal of canopy due to higher heat intensities than RxFires. Because herbaceous cover, particularly among annual species, could increase within two growing seasons following a fire, chemicals or other forms of integrated weed control would be used to control these undesirable plants. Chemical treatments could result in the mortality of non-target species.

Mechanical treatments would be used in areas or situations where RxFire or WFU is not appropriate or effective, or where selective vegetation removal is desired. Mechanical treatments would have little short-term effect on non-target plants, due to the specificity of the treatments on target vegetation. One exception would be damage to shallow-rooted species when using chaining or a Dixie harrow. Seeding methods that result in soil surface disturbances (drilling, chaining, and harrowing) could result in similar disturbances. However, seeding grasses and forbs using these methods would be conducted primarily where the understory is depleted; therefore, the negative impacts would be minimal.

Alternative A would treat none of these cover types (see Table 4-8) and would have no short-term impacts. However, Alternative A would do nothing to control juniper encroachment in Juniper or to restore landscape-level structural diversity in Mid-elevation Shrub. Alternative B would only treat approximately 5 percent of these cover types and would result in little short-term impact. By contrast, Alternative C would treat approximately 71 percent of the total acreage, or approximately 120,000 acres annually, with the goal of restoring historical fire-return intervals at a landscape scale. Alternatives D and E would treat approximately 19 percent of the total acreage or approximately 3,300 acres annually, which would result in relatively minor short-term impacts on a landscape scale.

4.2.2.2.2 Long-term Effects

Treatments applied to Mid-elevation Shrub and areas of juniper encroachment within Juniper would have long-term positive effects due to increasing the diversification of cover type structure and composition. Alternatives C, D, and E would be equally effective in moving the mix of desirable successional states toward DFC; although, all of these alternatives would fall short of achieving that goal (Table 4-10). Similarly, these three alternatives would have approximately the same impacts on uncharacteristic vegetation—while not meeting DFC, both juniper invasion and cheatgrass landscape composition would be maintained at less than 10 percent.

TABLE 4-10. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR MID-ELEVATION SHRUB AND JUNIPER, POCATELLO FIELD OFFICE (PFO)

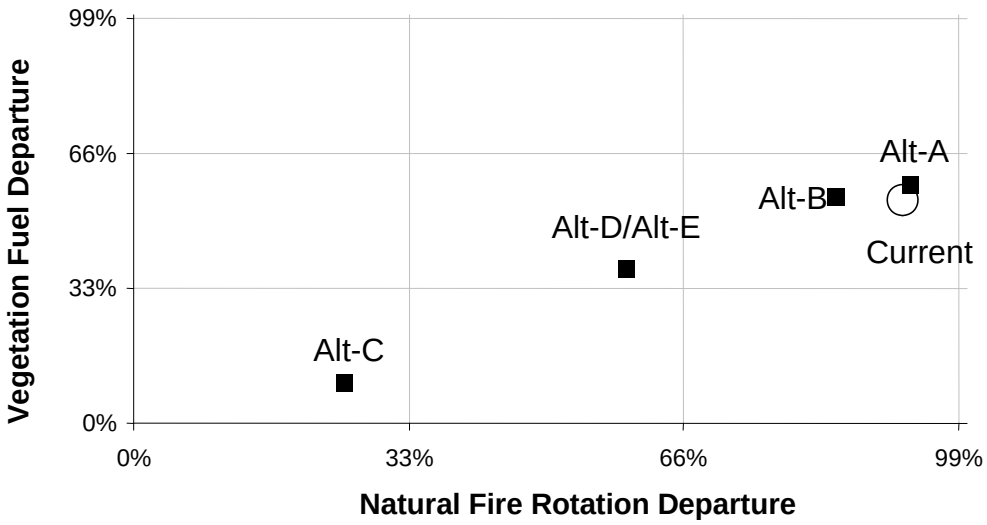
Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial Grass <15-year	23%	16%	11%	11%	12%	12%
Grass/Shrub 5-15-year	45%	7%	7%	10%	26%	27%
Shrub/Grass >15-year	23%	61%	60%	58%	46%	46%
Juniper	7%	11%	15%	14%	10%	9%
Invasive Annual Grass in Understory[2]	2%	5%	7%	7%	6%	6%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

[2] Although absence of cheatgrass is desirable, these percentages have been deemed acceptable, since complete eradication of cheatgrass is impossible.

Neither Alternative A nor Alternative B would substantially move these cover types toward DFC. Both alternatives achieve little change toward the desired mix of age classes/seral states. Uncharacteristic vegetation would actually increase under these alternatives due to lack of treatment.

All alternatives would treat Mid-elevation Shrub and Juniper with the intention of moving these cover types to FRCC 1 (Figure 4-9). Alternative A and Alternative B would maintain FRCC 3 with fire frequencies less than the natural fire rotation, which would permit increases in fuel accumulation; dominance of old, decadent shrubs; increased juniper densities; and/or conversion of Mid-elevation Shrub to Juniper. Increased juniper densities would also increase fire hazard by supporting larger, more intense and large wildland fires.



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-9. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Mid-elevation Shrub and Juniper in the Pocatello Field Office (PFO).

Alternatives D and E would move the current condition to FRCC 2. Treatment levels for this alternative would more closely approximate the natural fire rotation compared to Alternative A and Alternative B. However, Alternatives D and E would not propose enough treatment to create the desired mix of successional stages across the landscape in 30 years. Alternative C would achieve FRCC 1 in 30 years. It would most closely approximate the natural fire rotation and would be the most effective alternative at creating a mix of successional stages across the landscape that approach DFC.

4.2.2.3 Salt Desert Shrub

There are no planned treatments in the Salt Desert Shrub type in the PFO.

4.2.2.4 Aspen/Conifer and Dry Conifer

4.2.2.4.1 Short-term Effects

Alternative treatment levels for these cover types range from 0 acres (Alternative D) to approximately 13,000 acres (Alternative B) of Aspen/Conifer and Dry Conifer (see Table 4-8), with the goal of rejuvenating aspen stands and creating a diversity of forest successional stages and associated forest structure and species composition across the landscape.

Short-term effects of restoration treatments in the Aspen/Conifer and Dry Conifer would result in a reduction of tree densities, decrease canopy cover, and increase in the amount of solar radiation reaching the understory vegetation and/or soil surface. Where RxFire or WFU would be applied, a temporary reduction in understory shrub, grass, and forb cover would occur. The vast majority of shrubs found in the understory of this cover type resprout after fire and would provide

structure and shade to the soil surface within a year or two following treatment. Perennial grasses and forbs would resprout or recolonize the area following treatment. Increased soil temperature, aspen root scarification, and/or a decrease in the number of older aspen trees would encourage aspen regeneration via resprouting or suckering.

Alternative D would not treat any forest type, including Aspen/Conifer and Dry Conifer types and would permit fuel accumulation in these cover types. Alternative A would treat the fewest acres (less than 4 percent of these cover types) and would produce relatively few short-term effects. Alternative B would treat the most acres (15 percent of these cover types) and would produce moderate short-term effects. Alternatives C and E would treat an intermediate amount of acres (11 percent of these cover types) and would result in a moderate level of short-term effects.

4.2.2.4.2 Long-term Effects

Long-term effects of treatment in Aspen/Conifer and Dry Conifer are positive and would result in a diversity of forest successional stages across the landscape. Pure aspen stands would become larger and more numerous. Vegetation species richness across the landscape would increase as the proportion of forest successional stages becomes more even. The number of stands at high risk to forest insect and disease outbreaks and subsequent large wildland fires would decrease.

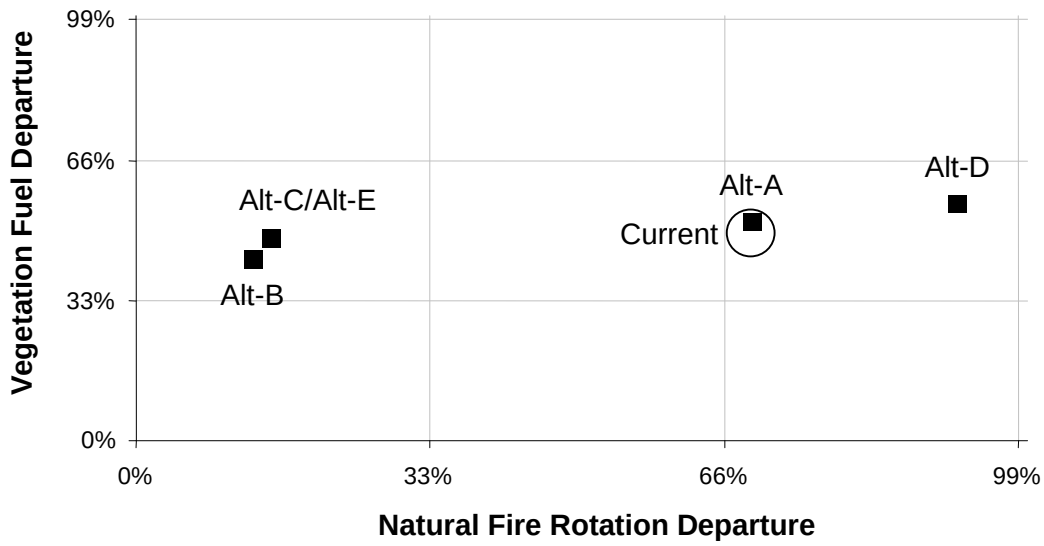
Treatments would be used in Aspen/Conifer and Dry Conifer types with the intention of moving these cover types toward a DFC consisting of a 40:40:20 mix of early successional, mid-successional, and late successional forest cover types (Table 4-11). None of the alternatives would achieve DFC in 30 years; however, three of the alternatives would achieve a somewhat more even distribution of successional forest cover types across the landscape. Alternatives B, C, and E would make progress toward the DFC while Alternative A and Alternative D would move away from DFC. Alternative B would increase the percentage of early and mid-successional forest and would decrease the percentage of late successional forest. Alternatives C and E would slightly increase the early successional forest, slightly decrease late successional forest, and not increase mid-successional forest. Alternative D would decrease mid-successional forest and substantially increase late successional forest.

TABLE 4-11. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR ASPEN/CONIFER AND DRY CONIFER, POCATELLO FIELD OFFICE (PFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C and E	D
Forb/grass with aspen trees/suckers, <25 years old	40%	2%	3%	6%	4%	2%
Aspen/Conifer/Shrub mix, 25-50 years old	40%	29%	25%	31%	28%	22%
Conifer-dominated, >50 years old	20%	69%	72%	63%	68%	76%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

Alternative A and Alternative D would maintain FRCC 3 over 30 years while Alternatives B, C, and E would achieve FRCC 2 within 30 years (Figure 4-10). Alternative D would not treat any Aspen/Conifer and Dry Conifer and departures from desired future condition and natural fire rotation would increase beyond current conditions.



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-10. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Aspen/Conifer and Dry Conifer in the Pocatello Field Office (PFO).

Fire frequency under Alternative A and Alternative D would maintain rates less than the natural fire rotation, permitting fuel build-up. Continued suppression of fire in the Aspen/Conifer and Dry Conifer would permit an increase in the conifer component, an increase in tree densities, and forests with higher rates of insect attacks and disease. Forests composed of Dry Conifer with a litter understory would pose a greater fire hazard and burn with stand replacement severity unlike Aspen/Conifer with a grass/forb/shrub understory. After 30 years, Alternative A and Alternative D would increase late successional forest cover types (Dry Conifer) with little early successional stages and an intermediate proportion of mid-successional stages (Aspen/Conifer and Dry Conifer).

Alternatives B, C, and E would achieve FRCC 2 within 30 years. The level of treatment in these alternatives would be aggressive and would result in a disturbance rate shorter than the natural fire rotation. With a shortened disturbance rate, the proportions of forest successional stages across the landscape would become unbalanced over time with an overabundance of early and mid-successional forest cover types and less-than-abundant, late successional forest cover types. In 30 years, Alternative B would make substantial progress toward the vegetation/fuels DFC; however, if the disturbance rate were to remain at this high level beyond the first decade, movement away from DFC would occur. Alternatives C and E would also approximate natural

fire rotation and improve the mix of successional forest cover types and vegetation and fuels structure and composition across the landscape.

4.2.2.5 Mountain Shrub

4.2.2.5.1 Short-term Effects

Alternative treatment levels for this cover type of the PFO range from 0 acres (Alternative A) to approximately 16,500 acres (Alternatives B, D, and E) of Mountain Shrub (see Table 4-8), with the goals of rejuvenating old, decadent shrubs; increasing density and cover of desirable herbaceous species; reducing density and cover of uncharacteristic vegetation (i.e., cheatgrass and noxious weeds); and creating a diverse mosaic of successional stages across the landscape.

Treatments in Mountain Shrub are primarily RxFire and WFU. Short-term effects of restoration treatments would include a temporary decrease in shrub, grass, and forb canopy cover. Some individual shrubs could be killed (particularly true for antelope bitterbrush at lower elevations and mountain mahogany) in high severity fires. These changes would temporarily increase the amount of solar radiation reaching the soil surface, which would increase production by resprouting shrubs. The vast majority of Mountain Shrub species resprout after low to moderate-severity fire and they would provide structure and shade to the soil surface within a year or two following treatment. Effects of fire on mountain mahogany however, could persist for a number of years (and perhaps into the long term) due to a general lack of resprouting. Perennial grasses and forbs would resprout or recolonize the treatment areas. Shrub leader growth would be vigorous following treatment due to increased light and soil temperatures as well as a reduction in standing, dead, woody material.

Alternative A would not treat any acres in this cover type and would have no short-term impacts. Alternative B, D, and E would treat the most acres (9 percent of the cover type) and would have moderate short-term impacts. Alternative C would treat a similar number of acres (8 percent of the cover type) that would also result in a moderate level of short-term effects.

4.2.2.5.2 Long-term Effects

Effects of treatment across alternatives in the Mountain Shrub cover type would be positive and would increase shrub successional diversity. Across the landscape, Mountain Shrub stands would become larger and more numerous. Vegetation species richness would increase as the proportions of shrub successional stages become even. The number of shrub stands at risk of large wildland fire due to increased vegetation and fuels structure and composition would decrease.

Treatments in Mountain Shrub would be applied with the intention of moving this cover type toward a vegetation/fuels DFC consisting of a 33:33:34 mix of early successional, mid-successional, and late successional shrub cover types (Table 4-12). None of the alternatives would achieve DFC in 30 years; however, four of the five alternatives would achieve a more even distribution of shrub successional stages across the landscape. Alternative C would most closely approximate DFC, followed by Alternatives B, D, and E, with higher percentages of early and mid-successional shrub cover types and lower percentages of late successional shrub

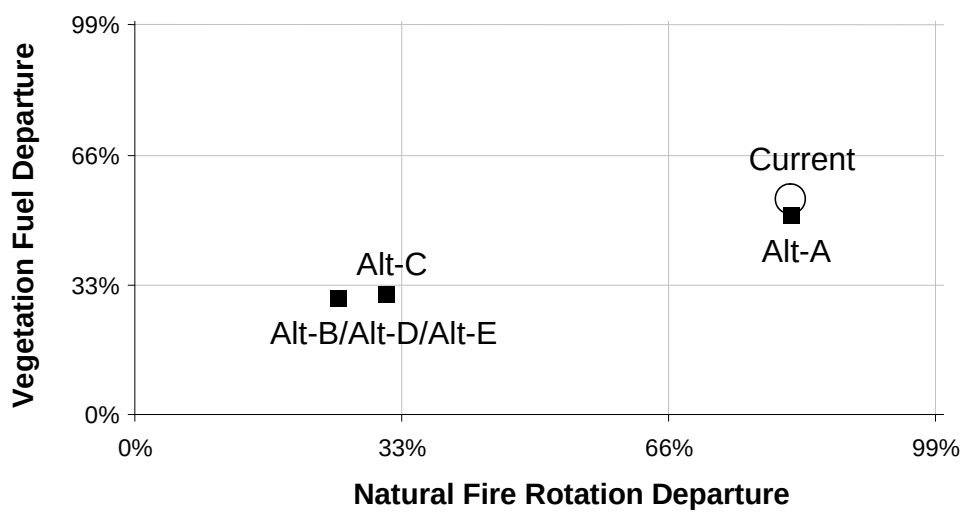
cover types from current proportions. Alternative A would make very limited progress toward DFC by increasing early successional stages and slightly decreasing late successional stages.

TABLE 4-12. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR MOUNTAIN SHRUB, POCATELLO FIELD OFFICE (PFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial Grass/Shrub, <10 years old	33%	1%	10%	3%	15%	3%
Shrub/Perennial Grass 10-20 years old	33%	10%	5%	38%	20%	38%
Shrub dominated, >20 years old	34%	90%	85%	59%	65%	59%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

Alternatives B, C, D, and E would achieve FRCC 1 within 30 years (Figure 4-11). Alternative A would maintain the current condition in FRCC 3 with fire frequency less than historical rates, which would permit dominance of old, decadent shrubs; depletion of understory species; and woody fuel build-up. Increased fuel accumulation would increase fire hazard by supporting larger, more intense and large wildland fires. Under Alternatives B, C, D, and E fire frequency would approximate the historical rate and would create the desired mix of successional stages across the landscape (vegetation/fuels DFC) and would have a disturbance rate similar to the natural fire rotation.



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-11. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Mountain Shrub in the Pocatello Field Office (PFO).

4.2.2.6 Wet/Cold Conifer

4.2.2.6.1 Short-term Effects

Alternative treatment levels for this cover type of the PFO range from 0 acres (Alternatives A, B, and D) to approximately 66 acres (Alternatives C and E) of Wet/Cold Conifer with the goals of reducing risk of insect infestation and disease as well as creating a diversity of forest successional stages and associated forest structure across the landscape. In areas where private landowners are intermingled with the forest, the goal of treatment would be to reduce threats to private land by reducing wildland fire intensity and spread.

Short-term effects of restoration treatments in the Wet/Cold Conifer would reduce tree densities, decrease canopy cover, and increase the amount of solar radiation reaching the understory vegetation and/or soil surface. Where mechanical treatments are used, a reduction in mature and pole-sized lodgepole pine and/or spruce/fir tree densities would occur. Where WFU treatments are used, overstory trees would be replaced by understory shrubs, grasses, and forbs. Lodgepole pines would reproduce and grow above the understory within approximately 10 years following disturbance. Engelmann spruce *(Picea engelmannii)* and subalpine fir *(Abies lasiocarpa)* seedlings would begin to grow once the lodgepole pine canopy cover is established.

Alternatives A, B, and D would not treat any acres for Wet/Cold Conifer and would have no short-term effects. Alternatives C and E would treat approximately 10 percent of this cover type and have a low-level, short-term effect.

4.2.2.6.2 Long-term Effects

Effects of treatment across alternatives in the Wet/Cold Conifer cover type are positive and would result in more resilient forest stands and a diversity of forest successional stages across the landscape. Lodgepole pine and/or spruce/fir stands would become more capable of withstanding insect and disease outbreaks. Vegetation species richness across the landscape would increase as the proportion of forest successional stages becomes more even. In those areas where private land are intermingled with the forest and treatment is implemented as a measure of protection, fire intensity and spread would increase.

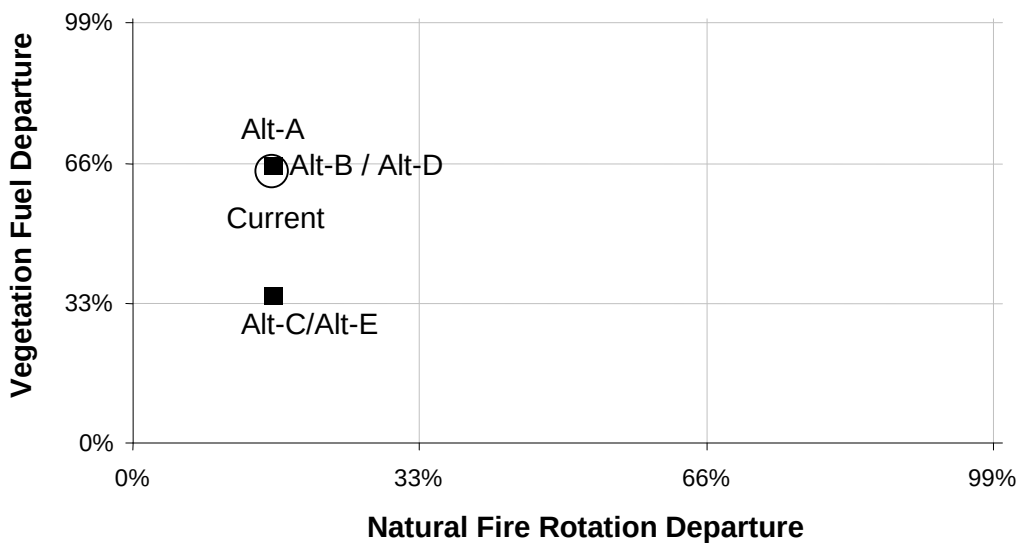
Treatments in Wet/Cold Conifer type would be applied to moving toward a vegetation/fuels DFC consisting of a 30:44:26 mix of early successional, mid-successional, and late successional forest cover types (Table 4-13). None of the alternatives would achieve DFC in 30 years. Alternatives C and E are the only alternatives that would achieve a more even distribution of successional forest cover types across the landscape. These alternatives would increase the percentage of early and mid-successional stages and decrease the percentage of late successional stages across the landscape. Alternatives A, B, and D would move the Wet/Cold Conifer type further from DFC than current conditions.

TABLE 4-13. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR WET/COLD CONIFER, POCATELLO FIELD OFFICE (PFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C and E	D
Forb/grass with seedlings	30%	0%	0%	0%	22%	0%
Conifer Shrub mix	44%	10%	8%	8%	17%	8%
Conifer-dominated	26%	90%	92%	92%	61%	92%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

None of the alternatives achieve FRCC 1 in Wet/Cold Conifer within 30 years (Figure 4-12). Alternatives A, B, and D would not treat this cover type; however, lack of treatments would not affect the current fire frequency or vegetation and fuels structure and composition within 30 years. Forests in this condition would have moderate to high stocking densities, substantial ladder fuels (e.g., small trees and overlapping deadfall), and moderate to widespread insect and disease outbreaks. Alternatives C and E would apply treatments in this cover type and change conditions that approach but not achieve FRCC 1. Forests in this condition would have the desired mix of successional stages and fuel loadings close to DFC across the landscape. In WUI areas, threats to private land would be more fully mitigated by Alternatives C and E than any of the other alternatives.



Current FRCC condition is identified by the symbol - ○. Notes: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Due to the lack of long-term fire history data for this cover type, the FRCC rating is based on vegetation/fuel departure. For clarity, departure from the natural fire rotation was positioned at the midpoint of FRCC 1.

Figure 4-12. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Wet/Cold Conifer in the Pocatello Field Office (PFO).

4.2.2.7 Vegetated Rock/Lava

4.2.2.7.1 Short-term Effects

Alternative treatment levels for the Vegetated Rock/Lava cover type range from 0 acres (Alternatives A, B, D, and E) to approximately 200 acres (Alternative C). These treatments would consist of WFU and chemical treatments to control noxious weeds.

Wildland fire would be allowed on Vegetated Rock/Lava in Alternative C, with only a minimal amount this cover type treated (see Table 4-8). WFU would permit historical successional processes to occur. Cheatgrass or noxious weed invasions near the edges of Vegetated Rock/Lava would be treated to prevent or reduce spread and maintain current percentages.

Short-term effects would include the mortality of vegetation due to wildland fire. This would be most noticeable for long-lived shrubs and trees, such as Wyoming big sagebrush and junipers. Because vegetation is patchy, fire effects would also be discontinuous, creating openings in areas with dense concentrations of fuels.

4.2.2.7.2 Long-term Effects

With the exception of Alternative C, all alternatives would tend to slightly increase the proportion of early to mid-successional shrub/tree cover types while maintaining or slightly decreasing late successional shrub/tree cover types dominated by sagebrush and juniper (Table 4-14). Alternatives A, B, D, and E would move vegetation condition away from DFC while Alternative C would move it toward DFC by reducing the proportion of cheatgrass infested acreage.

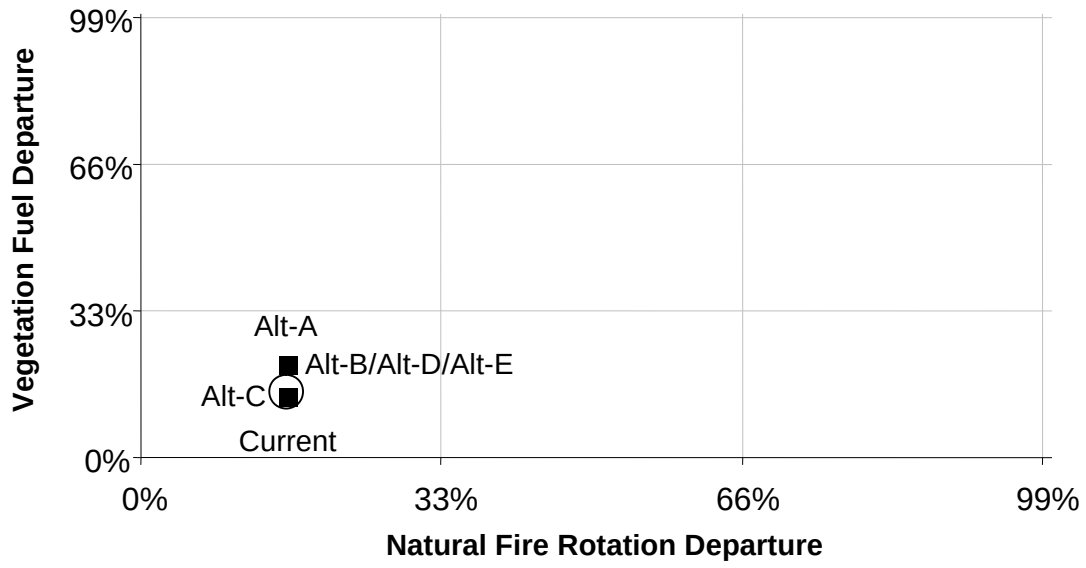
TABLE 4-14. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR VEGETATED ROCK/LAVA, POCATELLO FIELD OFFICE (PFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial herbaceous	6%	7%	12%	12%	13%	12%
Tree/shrub/herbaceous	80%	79%	73%	73%	80%	73%
Invasive Annual Grass in Understory[2]	14%	14%	15%	15%	7%	15%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

[2] Although absence of cheatgrass is desirable, these percentages have been deemed acceptable, since complete eradication of cheatgrass is impossible.

Alternative C would apply treatments in the Vegetated Rock/Lava cover type with the intent of moving toward the desired FRCC 1 (Figure 4-13); due to a lack of long-term fire history data, departure from the natural fire rotation was not calculated for this cover type. This FRCC rating is based entirely on vegetation/fuel departure, indicated along the y-axis in Figure 4-13. All alternatives would maintain the current condition in FRCC 1. Alternative C, however, would reduce the largest proportion of uncharacteristic vegetation (cheatgrass understory acreage).



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-13. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Vegetated Rock/Lava in the Pocatello Field Office (PFO).

All alternatives would maintain this cover type in FRCC 1, but the proportion of early successional stages (perennial herbaceous) would increase from current conditions, moving away from DFC. Alternative C would result in the least departure from the vegetation/fuels DFC and the greatest reduction in cheatgrass.

4.2.3 ANALYSIS OF EFFECTS FOR THE BURLEY FIELD OFFICE (BFO)

4.2.3.1 Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass

4.2.3.1.1 Short-term Effects

Alternative treatment levels for these cover types range from approximately 50,000 acres (Alternative B) to 185,000 acres (Alternatives A, C, D, and E) of potential or existing Low-elevation Shrub steppe (Table 4-15), with the goal of reducing fire frequency and decreasing fire size.

Some of the Low-elevation Shrub in the BFO area has been converted to Invasive Annual Grass by the degradation of sagebrush steppe, invasion of cheatgrass, and frequent fires. Short-term effects of restoration treatments would occur in Invasive Annual Grass where perennials would be topped killed, most seedlings would be killed, and early emerging forbs may also be killed. Additionally drill seeding methods would cause soil surface disturbance. These treatments would follow RxFire or WFUs to prevent the perpetuation of Invasive Annual Grass. Considering the ecologically altered condition of Invasive Annual Grass, the short-term negative impacts would be minimal, even when treatments occur at a large scale.

TABLE 4-15. VEGETATION COVER TYPES AND THEIR ACREAGES IN THE BURLEY FIELD OFFICE (BFO)

Cover type	Total Acres in BFO	Alternatives (footprint-acres)[1]				
		A	B	C	D	E
Low-elevation Shrub	164,756	25,175	15,750	26,300	29,300	29,300
Perennial Grass	309,128	57,625	9,600	109,600	107,300	107,300
Invasive Annual Grass	49,150[3]	15,925	24,850	49,069	48,850	48,850
Mid-elevation Shrub	162,524	7,575	14,200	106,063	72,500	72,500
Juniper	59,480	800	24,650	39,229	17,600	17,600
Salt Desert Shrub	10,037	975	0	0	0	0
Aspen/Conifer	1,177	0	500	147	0	147
Dry Conifer	373	0	0	46	0	46
Mountain Shrub	128,091	2,625	0	12,000	16,500	12,000
Wet/Cold Conifer	804	0	0	46	0	46
Vegetated Rock/Lava	94,090[2]	3,350	0	1,500	0	0
TOTAL	**979,610**	**114,050**	**89,550**	**344,000**	**292,050**	**287,789**

[1] Footprint-acres describe broad treatment levels over 10 years for rehabilitation and restoration.
[2] Due to changes in field office boundaries, this acreage is now located in the Shoshone Field Office.
[3] As mapped (100% coverage of Invasive Annual Grass).

Alternative B would treat the fewest acres (see Table 4-15) and have the smallest short-term effects. Alternative A treatments would have an intermediate effect. Alternatives C, D, and E would treat acreages large enough to stabilize landscape-level areas of degraded vegetation. All of these alternatives would treat nearly all of the mapped Invasive Annual Grass in the BFO. Treating these areas would protect adjacent, intact, sagebrush steppe over both the short and long term (see discussion below). Alternative B would treat approximately half the Invasive Annual Grass and have an intermediate effect, while Alternative A would treat the least Invasive Annual Grass for the smallest effect, and Alternatives C, D, and E would treat almost all of Invasive Annual Grass for the largest effect.

Large acreages of Low-elevation Shrub in the BFO have lost their shrub component and have been converted to Perennial Grass. Treating Perennial Grass types would involve seeding sagebrush following fire to speed succession back to sagebrush steppe cover types.

Treatment of Low-elevation Shrub could result in slightly greater short-term impacts to existing vegetation. However, because the acreages treated in the BFO area would consist primarily of degraded cover types with little native understory, these effects would be relatively minor. Acreages burned by wildland fires would be rehabilitated to stabilize sites against noxious weed and non-native Invasive Annual Grass invasion.

Short-term effects of treatments in Low-elevation Shrub would be similar to those for Invasive Annual Grass with mortality of non-target plants from herbicide use and seeding methods that cause soil surface disturbance. Areas containing stands of old, even aged sagebrush could be

mechanically treated to improve community structure. These treatments (e.g., thinning small areas using a Dixie harrow) would remove some older shrubs, as well as shallow-rooted plants. However, treatments would be done on small acreages and effects would occur in localized patches. All of the alternatives treat less than 20 percent of the Low-elevation Shrub and would have minimal short-term impacts. Alternative B would impact the least amount (approximately 10 percent) of Perennial Grass, while Alternative A would impact an intermediate level (19 percent) and Alternatives C, D, and E would impact the most Perennial Grass approximately 35 percent. Alternatives C, D, and E would impact more than 99 percent of Invasive Annual Grass, while Alternative B would impact approximately 50 percent, and Alternative A would impact approximately 32 percent of this undesirable cover type.

4.2.3.1.2 Long-term Effects

Effects of treatments in Low-elevation Shrub would be positive, resulting in cover types with sagebrush canopy and a diverse, perennial understory. Because little of the existing sagebrush steppe would be treated under any of the alternatives, effects on a landscape scale would be minimal. Alternatives D and E would make the most progress toward creating more resilient cover types. Alternative B would do little to improve or rehabilitate the degraded Low-elevation Shrub cover types in this area.

Treatments applied to Perennial Grass would have long-term positive effects due to the reestablishment of a sagebrush component. Alternatives C, D, and E would seed sagebrush on approximately 35 percent of existing Perennial Grass. Alternative A would treat an intermediate level (approximately 19 percent) of this cover type, while Alternative B would treat the least amount of this cover type (approximately 3 percent) and would do little to enhance the reestablishment of sagebrush on a landscape scale.

Long-term effects of treatment in Invasive Annual Grass are positive and result in replacing annual non-native plants with Perennial Grasses and forbs, and reestablishing a sagebrush overstory. Alternatives C, D, and E would all treat adequate acreages to move Invasive Annual Grass toward a Perennial Grass and shrub cover type, as well as protect existing sagebrush steppe with strategically placed treatments (see Table 4-15). Alternative A and Alternative B would treat approximately one-third and one-half of the existing Invasive Annual Grass, respectively. These alternatives would treat smaller areas of landscape, which would do less to enhance or protect the Low-elevation Shrub.

Treatments would be applied with the intention of moving these three cover types toward a DFC that consists of a mix of desirable seral states with minimal composition of uncharacteristic vegetation (Table 4-16). None of the alternatives would achieve DFC in 30 years; however, all alternatives achieve a more even distribution of characteristic seral states across the landscape. Alternatives C, D, and E would decrease cheatgrass cover types over the landscape and achieve DFC. None of the alternatives actually move the grass/shrub >30 years stage, due to a continued occurrence of wildland fire on the landscape.

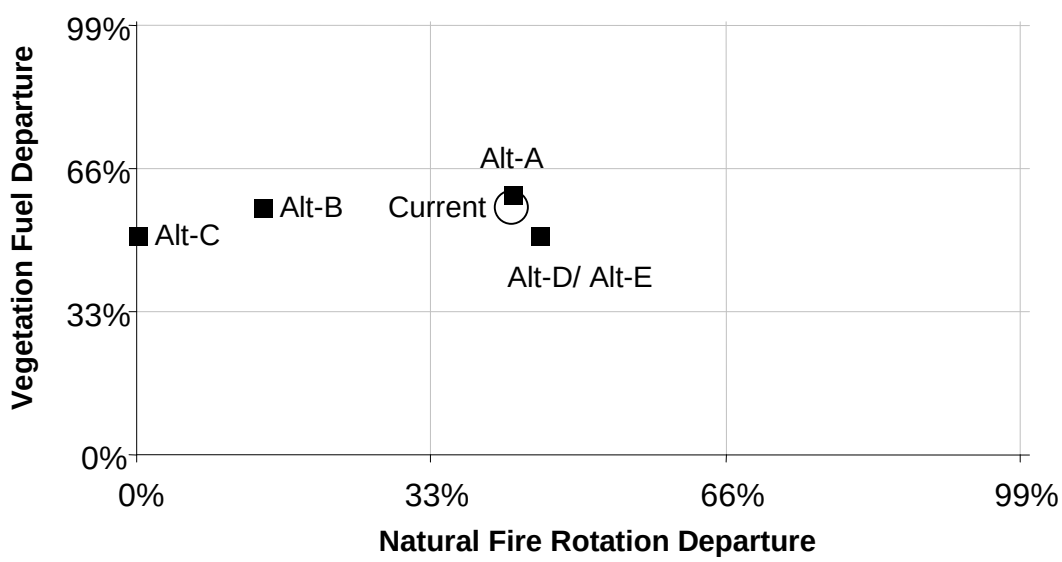
None of the alternatives achieve FRCC 1 in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass within 30 years (Figure 4-14). Alternative A and Alternatives D/E would not make any appreciable improvement in fire frequency; although Alternatives D and E would slightly

improve vegetation and fuels structure and composition. Alternatives B and C would reduce the fire frequency departure. Alternative C would achieve zero departure from the natural fire rotation. Neither alternative, however, would substantially improve vegetation and fuels structure and composition over current condition.

TABLE 4-16. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC) CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR LOW-ELEVATION SHRUB, PERENNIAL GRASS, AND INVASIVE ANNUAL GRASS, BURLEY FIELD OFFICE (BFO)

Years Since Last Disturbance[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial Grass <15-year	14%	23%	26%	20%	27%	23%
Grass/Shrub 15-30-year	14%	7%	22%	17%	27%	31%
Shrub/Grass >30-year	52%	22%	12%	15%	21%	21%
Crested Wheatgrass	N/A[3]	15%	15%	15%	15%	15%
Invasive Annual Grass in Understory[2]	<20%	33%	25%	33%	10%	10%

[1] Disturbance = Wildland fire, RxFire, mechanical, chemical, and seeding treatments.
[2] Although absence of cheatgrass is desirable, these percentages have been deemed acceptable, since complete eradication of cheatgrass is impossible.
[3] Not applicable; no DFC objective was set for Crested wheatgrass. Crested wheatgrass percentages remain constant across the landscape over time due to the success of overseeding shrub species and through succession these areas become shrub dominated while minimal acres are seeded with Crested wheatgrass.



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-14. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass in the Burley Field Office (BFO).

4.2.3.2 Mid-elevation Shrub and Juniper

4.2.3.2.1 Short-term Effects

Alternative treatment levels for these cover types of the BFO range from approximately 8,400 acres (Alternative A) to 145,000 acres (Alternative C) of Mid-elevation Shrub and Juniper (see Table 4-15), including areas of juniper encroachment. The goal is to improve vegetation structure and composition, as well as reintroduce fire in areas where juniper encroachment is a problem. In recognition of the unique value of Pinyon pine stands, there would be no treatment of Pinyon-juniper sites (fire-resistant) under any of the five alternatives.

The Mid-elevation Shrub in the BFO has been affected by reduced fire frequencies. This has increased shrub and juniper densities, reduced the diversity and cover of herbaceous understory, and resulted in the loss of high-quality sagebrush habitats. Treatments would focus on increasing disturbance to mimic historical fire. This would be accomplished through RxFire and WFU, as well as mechanical methods, to reduce shrub and juniper densities. Areas with invasive or noxious weeds would receive chemical treatments to reduce or eliminate infestations. Chemical treatments would also be used for selective thinning of shrub cover or to eliminate immature encroaching junipers. Seeding could occur after fire and/or mechanical treatments in areas where the understory has been depleted.

Short-term effects of RxFire and WFU would reduce shrub and tree canopies and temporarily reduce herbaceous canopy. Wildland fire could result in greater mortality and more continuous removal of canopy due to higher heat intensities than what occurs during RxFire. Herbaceous cover, particularly among annual species, should increase within two growing seasons following a fire. There could be an increase in invasive or noxious weeds on burned areas, requiring chemical or other forms of integrated weed control. Chemical treatments could result in the mortality of non-target species.

Mechanical treatments would be used in areas or situations where RxFire or WFU is not appropriate or effective, or where selective vegetation removal is desired. Mechanical treatments would have little short-term effect on non-target plants, due to the specificity of the treatments on target vegetation. One exception would be damage to shallow-rooted species when using chaining or a Dixie harrow. Seeding methods that result in soil surface disturbances (drilling, chaining, and harrowing) could result in similar disturbances. However, seeding grasses and forbs using these methods would be conducted primarily where the understory is depleted; therefore, the negative impacts would be minimal.

Alternative A would treat the fewest acres over a 10-year period (approximately 4 percent of the total Mid-elevation Shrub and Juniper) (see Table 4-15) and would have little short-term impact. But this alternative would do nothing to control juniper encroachment or to restore landscape-level structural diversity in Mid-elevation Shrub. Alternative B would treat approximately 18 percent of the total Mid-elevation Shrub and Juniper types, which would result in short-term impacts to approximately 3,900 acres annually. By contrast, Alternative C would treat approximately 65 percent of the total acreage over a 10-year period, or approximately 15,000 acres annually, with the goal of restoring historical fire-return intervals at a landscape scale. Alternatives D and E would treat approximately 41 percent of the total acreage, or approximately

9,000 acres annually, causing intermediate effects that would fall between Alternatives B and C. However, Alternatives D and E would allow treatment of landscape-level areas of vegetation.

4.2.3.2.2 Long-term Effects

Due to lack of recent fire, Mid-elevation Shrub in the BFO tends to be dominated by dense, even-aged sagebrush stands or areas of high juniper density. Treatments applied to Mid-elevation Shrub and areas of juniper encroachment within Juniper would have long-term positive effects due to diversification of cover type structure and composition.

Alternative C would be the most effective in moving the mix of desirable seral states toward DFC (Table 4-17) with Alternative D close behind. However, both alternatives would fall short of achieving DFC. Neither Alternative A nor B would make any substantial progress toward meeting DFC. None of the alternatives would effectively result in control of juniper invasion; although, Alternative C would be slightly better than the others. All of the alternatives would maintain cheatgrass composition over the landscape at less than 10 percent; although, the only alternatives that would meet DFC are Alternatives D and E. Alternative A would actually allow an increase of uncharacteristic vegetation due to low levels of treatment.

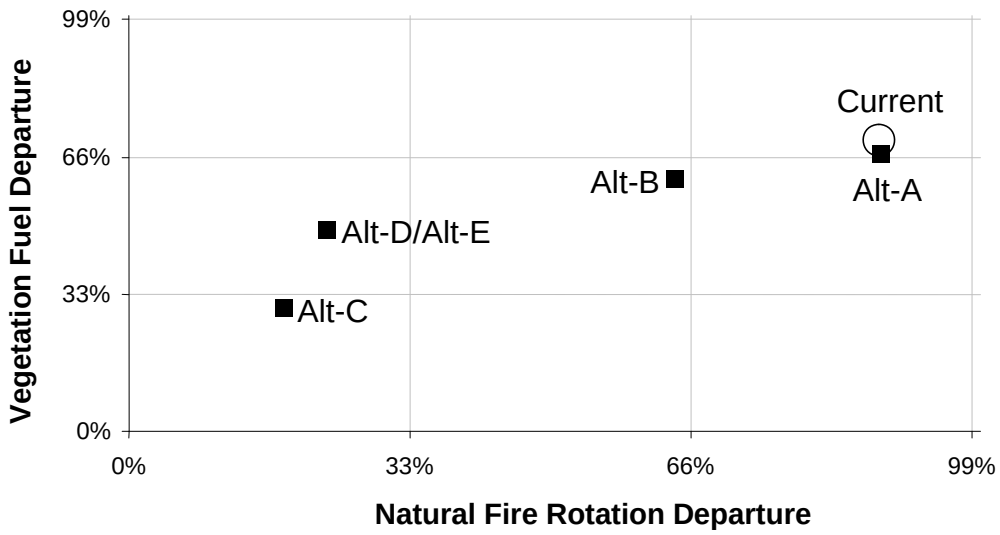
TABLE 4-17. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR MID-ELEVATION SHRUB AND JUNIPER, BURLEY FIELD OFFICE (BFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial Grass <15-year	23%	1%	5%	7%	10%	10%
Grass/Shrub 5-15-year	45%	6%	5%	9%	24%	18%
Shrub/Grass >15-year	23%	63%	55%	56%	40%	48%
Juniper	7%	23%	27%	21%	19%	23%
Invasive Annual Grass in Understory[2]	2%	7%	8%	7%	7%	1%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

[2] Although absence of cheatgrass is desirable, these percentages have been deemed acceptable, since complete eradication of cheatgrass is impossible.

Alternative A would maintain the current condition of Mid-elevation Shrub in FRCC 3 over 30 years (Figure 4-15). Alternatives B, D, and E would achieve FRCC 2, while Alternative C would achieve FRCC 1 within 30 years. Alternative A and Alternative B would maintain fire frequency at less than historical rates, though Alternative B would shorten fire frequency better than Alternative A. Fire frequency greater than natural fire rotation would cause fuel accumulation; dominance of old, decadent shrubs; increased juniper densities; and/or conversion of Mid-elevation Shrub to Juniper. These would all contribute to an increased potential of larger, more intense, and more large wildland fires.



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-15. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Mid-elevation Shrub and Juniper encroachment in the Burley Field Office (BFO).

Alternatives D and E would move the current condition to FRCC 2 and approach FRCC 1. Treatments would lengthen the time between wildland fires and permit a more natural fire rotation. Treatments would also improve vegetation and fuels structure and composition over current conditions. There would not be sufficient treatments under Alternatives D and E to create the desired mix of successional stages across the landscape (vegetation/fuels DFC) in 30 years. Alternative C, however, would achieve FRCC 1 in 30 years. Treatment levels in this alternative would most closely approximate the natural fire rotation and would be the most effective at creating the desired mix of successional stages across the landscape (vegetation/fuels DFC).

4.2.3.3 Salt Desert Shrub

4.2.3.3.1 Short-term Effects

Alternative treatment levels for this cover type of the BFO range from 0 acres (Alternatives B, C, D, and E) to approximately 1,000 acres (Alternative A) of Salt Desert Shrub (see Table 4-15), with the goal of controlling Invasive Annual Grasses and noxious weeds to restore a perennial herbaceous understory.

Salt Desert Shrub in the BFO merges in places with the lowest precipitation areas of the Low-elevation Shrub. Soil chemistry, coupled with low precipitation (at or below an average of 8 inches annually) creates difficult conditions for rehabilitation and restoration. Salt Desert Shrub cover types would receive chemical treatments to reduce the cover of cheatgrass and invasive weeds (primarily halogeton), with some emergency stabilization and rehabilitation (ESR) following wildland fire. Chemical treatments could result in the mortality of non-target species, depending on the chemical and concentration used. Seeding treatments that result in soil surface

disturbance could result in the mortality of shallow-rooted species and the disturbance of biological soil crusts.

Only Alternative A would treat Salt Desert Shrub cover types in the BFO. These treatments would all be in the form of ESR treatments following wildland fires. Treatments for chemical suppression of weedy species and seeding would impact approximately 10 percent of the total Salt Desert Shrub. The other alternatives would not treat Salt Desert Shrub and would have no impacts.

4.2.3.3.2 Long-term Effects

The present mix of desirable seral states for Salt Desert Shrub is reasonably near DFC. All alternatives would move the current condition toward DFC by increasing Perennial Grass. Alternative A would reduce cheatgrass to slightly exceed DFC (Table 4-18). In this cover type, all alternatives are approximately equal in achieving later successional stages due to the slowness of ecological processes and plant growth. Only Alternative A would achieve DFC for composition of uncharacteristic vegetation. Treatments would decrease cheatgrass to less than 10 percent throughout the type.

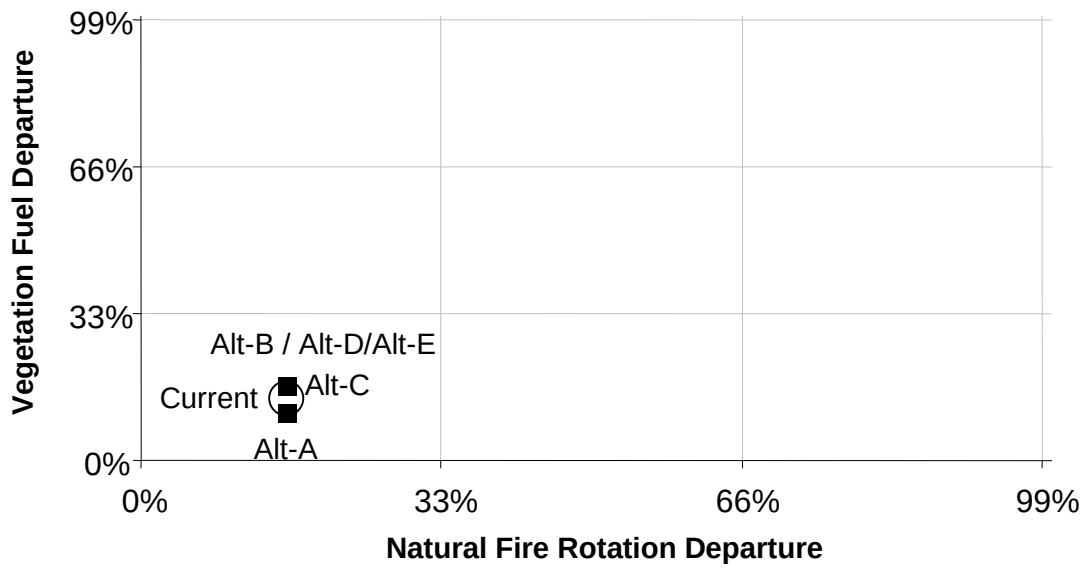
TABLE 4-18. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR SALT DESERT SHRUB, BURLEY FIELD OFFICE (BFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial Grass and Forb	20%	11%	23%	13%	15%	14%
Shrub/Grass-Forb	76%	75%	69%	69%	68%	68%
Invasive Annual Grass in Understory[2]	4%	14%	8%	18%	17%	18%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

[2] Although absence of cheatgrass is desirable, these percentages have been deemed acceptable, since complete eradication of cheatgrass is impossible.

Essentially, all alternatives would maintain Salt Desert Shrub in FRCC 1, even though Alternative A is the only alternative that would propose treatments (Figure 4-16). Vegetation and fuels tend to be sparse in this cover type. Ignitions are relatively rare and wildland fires are infrequent. Little wildland fire is expected to occur in this cover type over 30 years. Alternative A would treat a small portion of this Salt Desert Shrub (less than 10 percent) (see Table 4-15). Alternative A would maintain fire frequency, reduce uncharacteristic cheatgrass, and improve the proportions of perennial shrubs and grasses.



Current FRCC condition is identified by the symbol - ○. Notes: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Due to the lack of long-term fire history data for this cover type, the FRCC rating is based on vegetation/fuel departure. For clarity, departure from the natural fire rotation was positioned at the midpoint of FRCC 1.

Figure 4-16. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Salt Desert Shrub in the Burley Field Office (BFO).

4.2.3.4 Aspen/Conifer and Dry Conifer

4.2.3.4.1 Short-term Effects

Alternative treatment levels for these cover types of the BFO range from 0 acres (Alternative A and Alternative D) to approximately 500 acres (Alternative B) of Aspen/Conifer and Dry Conifer (see Table 4-15) with the goal of rejuvenating aspen stands and creating a diversity of forest successional stages, associated forest structure, and species composition across the landscape.

Short-term effects of restoration treatments in Aspen/Conifer and Dry Conifer would reduce tree densities, decrease overstory canopy cover, and increase the amount of solar radiation reaching the understory vegetation and/or soil surface. Where RxFire or WFU treatments are applied, a temporary reduction in understory shrub, grass, and forb cover would occur. The vast majority of shrubs found in the understory of this cover type resprout after fire and would provide structure and shade to the soil surface within a year or two following treatment. Perennial grasses and forbs would also resprout or recolonize the area following treatment. Increased soil temperature, aspen root scarification, and/or a decrease in the number of older aspen trees would encourage aspen regeneration via resprouting or *suckering*.

The total acreage of Aspen/Conifer and Dry Conifer is minimal (approximately 1,550 acres) and occurs as scattered stands intermingled with Mountain Shrub. Because the proposed treatment-acreages are quite small, substantial short-term effects would not be anticipated. Alternative A and Alternative D would not propose treatments in this cover type and have no short-term

effects. Alternative B proposes the most treatments (32 percent of these cover types); however, due to the scattered nature of treatments, this alternative would also produce a low level of short-term effects. Alternatives C and E propose fewer treatments (13 percent of the cover type) and would produce few short-term effects.

4.2.3.4.2 Long-term Effects

Treatments in Aspen/Conifer and Dry Conifer would be positive and result in a greater diversity of forest successional stages across the landscape. This would improve the health of these cover types, including enhancing structural and species diversity and decreasing insect and disease outbreaks.

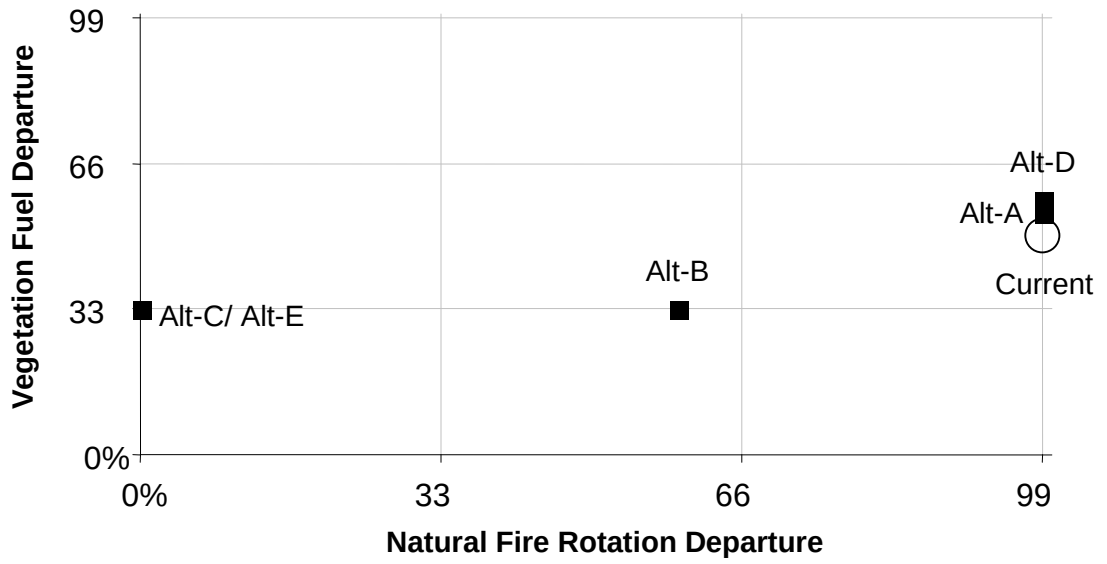
Treatments would move these cover types toward a DFC consisting of a 40:40:20 mix of early successional, mid-successional, and late successional stages (Table 4-19). None of the alternatives would achieve DFC within 30 years; however, treatments applied under Alternatives B, C, and E would be equally effective in moving the vegetation toward DFC, particularly with regards to the proportion of mid-successional stages. The lack of treatments under Alternative A and Alternative D would result in a complete lack of early seral stages, a decrease in mid-seral, and an increase in the landscape-level proportion of late seral.

TABLE 4-19. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR ASPEN/CONIFER AND DRY CONIFER, BURLEY FIELD OFFICE (BFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C and E	D
Forb/grass with aspen trees/suckers, <25 years old	40%	0%	0%	7%	7%	0%
Aspen/Conifer/Shrub mix, 25-50 years old	40%	30%	25%	43%	43%	22%
Conifer-dominated, >50 years old	20%	70%	75%	50%	50%	78%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

Only Alternatives B, C, and E would treat Aspen/Conifer and Dry Conifer; Alternative A and Alternative D would not propose any treatments in these cover types. Alternatives B, C, and E would improve conditions to FRCC 2 and FRCC 1, respectively, within 30 years (Figure 4-17).



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-17. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Aspen/Conifer and Dry Conifer in the Burley Field Office (BFO).

The level of 10-year treatment would result in lower levels of vegetation fuel departure; however, some communities would move through successional stages and reach the mid and late-seral stages again within 30 years. Alternative A and Alternative D, on the other hand, would maintain current FRCC 3 over 30 years because no treatments are proposed.

Alternatives B, C, and E would reduce departures of fire frequency, vegetation and fuels structure, and composition and improve current conditions. Alternatives C and E would achieve a natural fire rotation for these cover types as well as a small increase in early seral stages, a substantial increase in mid-seral stages near to DFC, and a decrease in late seral stages that would improve current conditions. Alternative B would achieve an intermediate fire frequency, but would improve vegetation and fuels structure and composition as well as Alternatives C and E. Ten year treatment levels (see Table 4-15) would result in lower levels of vegetation fuel departure. Some successional stages would move through succession and reach the mid and late seral stages again within 30 years.

4.2.3.5 Mountain Shrub

4.2.3.5.1 Short-term Effects

Alternative treatment levels for Mountain Shrub in the BFO range from approximately 0 acres (Alternatives B) to 16,500 acres (Alternative D) (see Table 4-15), with the goals of rejuvenating old, decadent cover types or maintaining healthy cover types; increasing cover and density of desirable herbaceous species; reducing cover and density of uncharacteristic vegetation; and creating a mosaic of successional stages within cover types as well as the mosaic of Mountain Shrub with other cover types (e.g., Aspen/Conifer and Dry Conifer) across the landscape.

Treatments in this cover type would primarily be RxFire and WFU. Short-term effects of these treatments would be a temporary decrease in shrub, grass, and forb canopy cover. In the event of a high severity fire, individual shrubs could be killed (especially antelope bitterbrush, at lower elevations, and mountain mahogany). These changes would increase the amount of solar radiation reaching the soils surface and stimulate resprouting and regrowth. The majority of Mountain Shrubs resprout after low to moderate severity fire and would provide structure and shade to the soil surface within a year or two following treatment. Effects of fire on mountain mahogany however, could persist for a number of years (and perhaps into the long term) due to a general lack of resprouting. Perennial grasses and forbs would also resprout or recolonize the treatment areas. Shrub leader growth would increase due to increased light and soil temperatures, as well as a reduction in standing, dead, woody material.

Alternatives B, D, and E propose no treatment-acres in this cover type and, therefore, would have no short-term effects (see Table 4-15). Alternative A proposes the fewest treatment-acres (2 percent of this cover type) would have minimal impacts at the landscape scale. Alternative C would treat approximately 9 percent of the total Mountain Shrub acreage, or approximately 1,200 acres annually. This would result in more substantial impacts than the other alternatives, primarily in the form of temporary removal of vegetative cover.

4.2.3.5.2 Long-term Effects

Treatment in Mountain Shrub would result in a greater structural and compositional diversity in this cover type. Species richness would increase as the proportion of different successional stages becomes more diverse. Landscape-level fuel loading would decrease with a decrease in dense, woody vegetation.

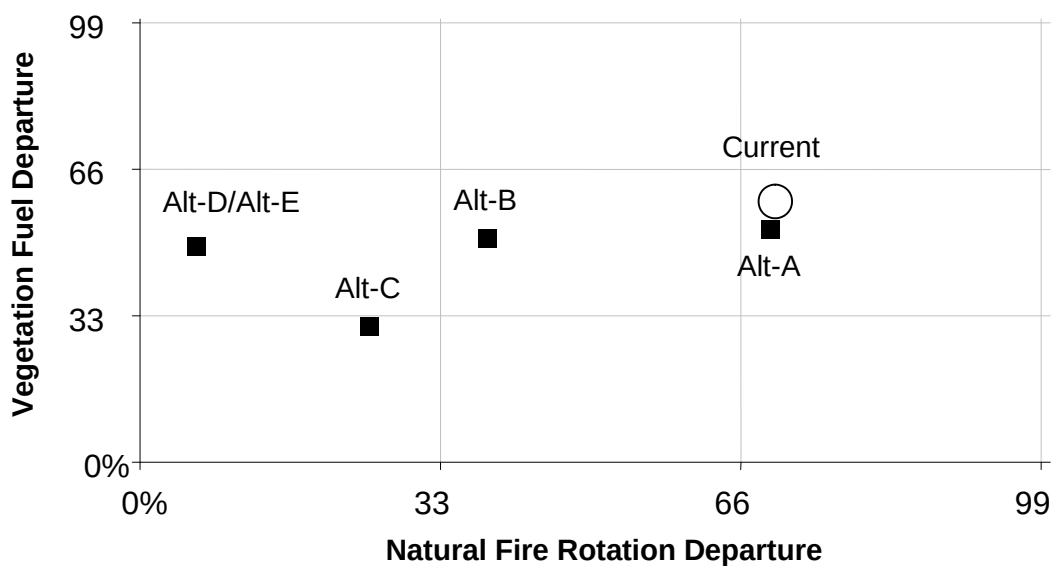
Treatments would move Mountain Shrub toward an even distribution of successional stages (Table 4-20). None of the alternatives would achieve DFC in 30 years. All alternatives would increase the proportion of early successional stages and decrease the proportion of late successional stages. However, only Alternative C would substantially move all three successional states toward a more even distribution. Treatment levels in Alternative A would essentially have the same effect as no treatment.

TABLE 4-20. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR MOUNTAIN SHRUB, BURLEY FIELD OFFICE (BFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial Grass/Shrub, <10 years old	33%	1%	9%	9%	13%	10%
Shrub/Perennial Grass 10-20 years old	33%	5%	4%	6%	22%	7%
Shrub dominated, >20 years old	34%	94%	87%	85%	65%	83%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

Alternative A and Alternative C would treat Mountain Shrub, while Alternatives B, D, and E would not treat this cover type. Alternative A would maintain current FRCC 1, while Alternatives B, D, and E would achieve FRCC 2, and Alternative C would achieve FRCC 1 within 30 years (Figure 4-18). Alternative A would maintain the current fire frequency in this cover type, but not do much to improve vegetation and fuels structure and composition. Alternatives B, D, and E would shorten the fire frequency in this cover type; departure from natural fire rotation would decrease to 40 percent for Alternative B, and to less than 10 percent for Alternatives D and E. However, departure of vegetation and fuels structure and composition under these two alternatives would not decrease substantially within 30 years. Alternative C would substantially increase fire frequency over current conditions and bring wildland fire regime within the historical range of variability. Of the five alternatives, Alternative C would create the best mix of successional stages across the landscape (vegetation/fuels DFC) and would have a disturbance rate most similar to the natural fire rotation.



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-18. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Mountain Shrub in the Burley Field Office (BFO).

4.2.3.6 Wet/Cold Conifer

4.2.3.6.1 Short-term Effects

Alternative treatment levels for the Wet/Cold Conifer cover type range from 0 acres (Alternatives A, B, and D) to approximately 50 acres (Alternatives C and E) over a 10-year period (see Table 4-15). Treatment goals include reducing the risk of insect infestation and disease, creating a more diverse mosaic of successional stages across the landscape, and reducing wildland fire intensity and spread.

Short-term effects of restoration treatments in Wet/Cold Conifer would reduce tree densities, decrease canopy cover, and increase the amount of solar radiation reaching the understory vegetation and/or soil surface. Mechanical treatments would result in a reduction in mature and pole-sized tree density. WFU treatments would remove overstory trees and increase understory shrubs, grasses, and forbs. Trees would regenerate and grow above the understory vegetation within approximately 10 years.

Alternatives A, B, and D would not treat Wet/Cold Conifer and would have no short-term effects (see Table 4-15). Alternatives C and E would treat approximately 6 percent of this cover type. Short-term effects associated with Alternatives C and E would be minimal due to the small acreages proposed for treatment.

4.2.3.6.2 Long-term Effects

Effects of treatments across alternatives in the Wet/Cold Conifer cover type would be positive and result in greater structural and compositional diversity, as well as resistance and resilience to fire disturbance, within the areas treated.

Treatments would move this cover type toward a DFC consisting of a 30:44:26 mix of early successional, mid-successional, and late successional forest cover types (Table 4-21). Alternatives A, B, and D would not treat this cover type, would not move the vegetation toward DFC, and would have no impacts in this cover type. Only Alternatives C and E would treat this cover type; although, these alternatives would not meet DFC, but they would result in a more even distribution of successional stages across the landscape within 30 years.

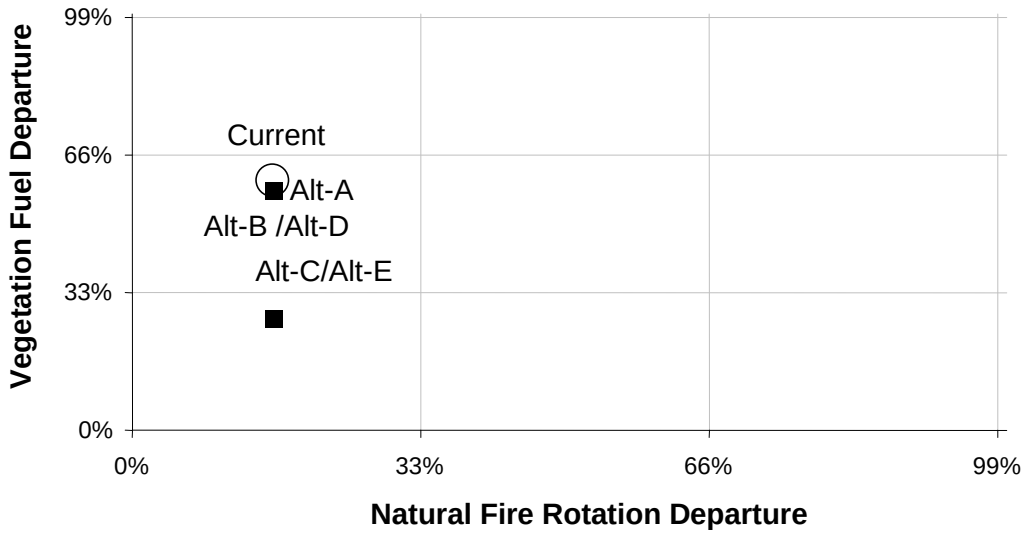
TABLE 4-21. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR WET/COLD CONIFER, BURLEY FIELD OFFICE (BFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C and E	D
Forb/grass with seedlings	30%	4%	7%	7%	30%	7%
Conifer Shrub mix	44%	10%	9%	9%	17%	9%
Conifer-dominated	26%	86%	84%	84%	53%	84%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

Alternatives A, B, and D would not treat this cover type; however, lack of treatments would not affect the current fire frequency or vegetation and fuels structure and composition within 30 years (Figure 4-19). Forests in this condition would have moderate to high stocking densities, substantial ladder fuels (e.g., small trees and overlapping deadfall), and moderate to widespread insect and disease outbreaks. Alternative C, on the other hand, would achieve FRCC 1 within 30 years. Even though only approximately 6 percent of this cover type would be treated under Alternatives C and E, treatment levels would be sufficient to increase fire frequency to natural fire rotation rates and improve vegetation and fuels structure and composition to closer approach DFC. Forests close to DFC would have the desired mix of successional stages and fuel loadings

across the landscape. In WUI areas, threats to life and property would be more fully mitigated by Alternatives C and E than any of the other three alternatives.



Current FRCC condition is identified by the symbol - ○. Notes: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Due to the lack of long-term fire history data for this cover type, the FRCC rating is based on vegetation/fuel departure. For clarity, departure from the natural fire rotation was positioned at the midpoint of FRCC 1.

Figure 4-19. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Wet/Cold Conifer in the Burley Field Office (BFO).

4.2.3.7 Vegetated Rock/Lava

4.2.3.7.1 Short-term Effects

Alternative treatment levels for the Vegetated Rock/Lava type range from 0 acres (Alternatives B, D, and E) to approximately 3,300 acres (Alternative A) (see Table 4-15). These treatments would consist of WFU and chemical treatments to control noxious weeds.

WFU would be allowed on Vegetated Rock/Lava primarily in Alternative A and Alternative C (see Table 4-15). Because starts on this cover type are infrequent, it is assumed that only a small fraction of the existing acreage would burn. WFU would permit historical successional processes to occur. Where cheatgrass or noxious weed invasions are found near the edges of Vegetated Rock/Lava, treatment would be conducted to prevent or reduce spread and maintain current percentages across the landscape. Short-term effects would include the mortality of vegetation due to wildland fire. This would be most noticeable for long-lived shrubs and trees, such as Wyoming big sagebrush and junipers. Because vegetation is patchy, fire effects would also be discontinuous, creating openings in areas with dense concentrations of fuels.

4.2.3.7.2 Long-term Effects

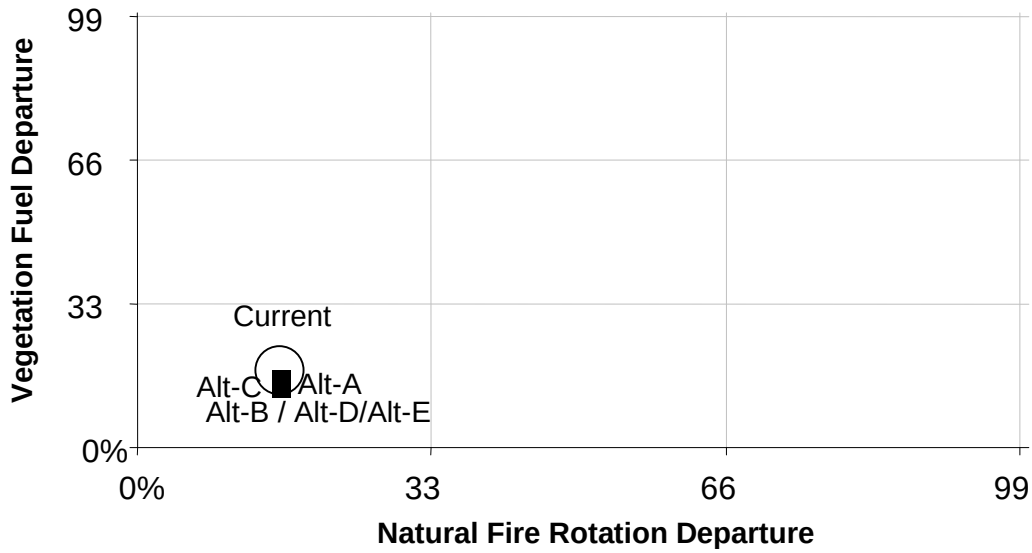
All alternatives would move Vegetated Rock/Lava toward DFC (Table 4-22), with Alternative C being slightly best. Greater number of acres burned under Alternative A would result in a slightly greater proportion of this cover type being dominated by herbaceous cover types, lacking sagebrush and juniper. All the alternatives would keep the composition of cheatgrass at or below 15 percent within this cover type; however, Alternative A and Alternative C would slightly decrease this proportion due to fire or chemical treatment.

TABLE 4-22. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR VEGETATED ROCK/LAVA, BURLEY FIELD OFFICE (BFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial herbaceous	6%	2%	10%	7%	7%	7%
Tree/shrub/herbaceous	80%	84%	79%	78%	80%	78%
Invasive Annual Grass in Understory	14%	14%	11%	15%	13%	15%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

Alternative A and Alternative C would treat Vegetated Rock/Lava, while Alternatives B, D, and E would not treat this cover type. All alternatives would maintain FRCC 1, while they slightly reduce departures from the natural fire rotation and vegetation and fuels structure and composition (Figure 4-20). All alternatives would slightly improve fire frequency, as well as improve vegetation and fuels structure and composition similar to DFC. Alternative A and Alternative C would apply proactive restoration treatments and allow for flexibility in the Appropriate Management Response when suppressing fires in Vegetated Rock/Lava. Due to the small and fragmented nature of fire in this cover type, however, long-term changes in landscape composition and the resulting fuel and fire dynamics would be minimal.



Current FRCC condition is identified by the symbol - ○. Notes: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Due to the lack of long-term fire history data for this cover type, the FRCC rating is based on vegetation/fuel departure. For clarity, departure from the natural fire rotation was positioned at the midpoint of FRCC 1.

Figure 4-20. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Vegetated Rock/Lava in the Burley Field Office (BFO).

4.2.4 Analysis of Effects for the Shoshone Field Office (SFO)

4.2.4.1 Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass

4.2.4.1.1 Short-term Effects

Alternative treatment levels for these cover types of the SFO range from approximately 109,000 acres (Alternative A) to 534,000 acres (Alternative C) of potential or existing Low-elevation Shrub (Table 4-23), with the goal of reducing fire frequency and decreasing fire size.

Large acreages of Low-elevation Shrub have been converted to Invasive Annual Grass by the invasion of cheatgrass and medusahead wildrye (*Taeniatherum caput-medusae*), frequent fires, and degradation of native cover types. Therefore, most treatments are in the Invasive Annual Grass cover type. Short-term effects of restoration treatments are mainly mortality of non-target plants from herbicide use and seeding methods that cause soil surface disturbance. These treatments would follow wildland fire and RxFire to prevent expansion of Invasive Annual Grass. Considering the overall poor ecological condition of areas that support Invasive Annual Grass, the short-term negative impacts are minimal, even when treatments occur at a large scale. While Alternative A treats the fewest acres (see Table 4-23) and would have the smallest short-term impacts, Alternatives C, D, and E would treat acreages large enough to stabilize landscape-level areas of degraded vegetation. Placed correctly, large projects would protect adjacent, intact, sagebrush steppe, on both the short and long term (see discussion below).

TABLE 4-23. VEGETATION COVER TYPES AND THEIR ACREAGES IN THE SHOSHONE FIELD OFFICE (SFO)

Cover type	Total Acres in SFO	Alternatives (footprint-acres)[1]				
		A	B	C	D	E
Low-elevation Shrub	415,308	5,525	84,000	62,831	112,230	112,230
Perennial Grass	548,807	96,505	70,500	193,619	113,500	113,500
Invasive Annual Grass	281,362[2]	6,700	102,500	281,362	281,600	281,600
Mid-elevation Shrub	311,194	850	17,550	200,000	58,000	58,000
Juniper	4	0	0	0	0	0
Salt Desert Shrub	0	0	0	0	0	0
Aspen/Conifer	4,441	0	750	479	0	479
Dry Conifer	19,241	0	5,150	2,043	0	2,043
Mountain Shrub	11,901	0	550	1,345	550	550
Wet/Cold Conifer	9,388	0	0	793	0	793
Vegetated Rock/Lava	166,787	370	0	2,300	0	0
TOTAL	**1,768,433**	**109,950**	**281,000**	**744,772**	**565,880**	**569,195**

[1] Footprint-acres describe broad treatment levels over 10 years for rehabilitation and restoration.
[2] As mapped (100% coverage of Invasive Annual Grass).

Treating Perennial Grass may involve seeding with sagebrush following fire to speed succession back to sagebrush steppe cover types; this cover type primarily consists of seedings established following past wildland fires and some native Perennial Grass areas that resulted from past fires in Low-elevation Shrub. There would be no negative short-term impacts from the former treatments because aerial seedings are performed following wildland fires.

Treating Low-elevation Shrub would result in moderate short-term impacts, but because the acres primarily would be cover types with little native understory, these effects would be relatively minor.

Wildland fire burn areas would be rehabilitated to stabilize them against noxious weed and non-native Invasive Annual Grass invasion. Short-term effects of treatments would be similar to those for Invasive Annual Grass: the mortality of non-target plants from herbicide use and seeding methods that cause soil surface disturbance. Areas containing stands of old, even-aged sagebrush could be mechanically treated to improve cover type structure. These treatments (e.g., thinning small areas using a Dixie harrow) would remove some older shrubs, as well as shallow-rooted plants. However, the treatments would be done on small acreages; therefore, effects would occur in localized patches.

4.2.4.1.2 Long-term Effects

Treatments in degraded Low-elevation Shrub would restore the sagebrush canopy and establish diverse, perennial understories. Alternatives C, B, and D/E would treat 15 percent, 20 percent, and 27 percent of this cover type, respectively, much of which is lacking a perennial understory and is either dominated by or at risk of dominance by cheatgrass and/or medusahead wildrye. Alternatives D and E would make the most progress toward creating a more resilient landscape. Alternative A would do little to improve or rehabilitate the degraded Low-elevation Shrub cover types in this area.

Treatments in Perennial Grass would have long-term, positive effects due to the reestablishment of sagebrush canopy. Alternative C would treat the most acres (approximately 35 percent) of this cover type; almost twice as many acres as Alternatives A (approximately 18 percent) and B (approximately 13 percent). Alternatives D and E would treat approximately 21 percent. Alternative C would result in reestablishing sagebrush on approximately 35 percent of existing Perennial Grass and moving the greatest number of acres toward a later seral state.

Long-term effects in Invasive Annual Grass are positive and would replace uncharacteristic, invasive annuals with Perennial Grasses, forbs, and a sagebrush overstory. Alternatives C, D, and E would treat large acres, approximately 28,000 acres annually, to restore functional Low-elevation Shrub where Invasive Annual Grass exists (see Table 4-23). Alternative B would treat approximately 10,000 acres annually, and Alternative A would treat less than 1,000 acres annually. Alternatives B, C, D, and E would convert large areas of Invasive Annual Grass to sagebrush steppe, as well as protect existing sagebrush steppe. Both Alternatives C and D would restore all acreages currently mapped as Invasive Annual Grass. Alternative A would do little to enhance or protect the sagebrush steppe.

Treatments in Invasive Annual Grass, Perennial Grass, and Low-elevation Shrub would move these cover types toward a DFC, which would consist of a mix of desirable seral states and minimal uncharacteristic vegetation (Table 4-24). While all alternatives somewhat modify the distribution of desirable early and mid-seral states toward DFC, only Alternatives C, D, and E would substantially decrease the dominance of cheatgrass; Alternatives D and E would be slightly more effective than Alternative C. None of the alternatives actually move the grass/shrub >30 years state toward DFC. This would be due to the continued occurrence of wildland fires across the landscape.

All alternatives would maintain FRCC 2 over 30 years; no alternative would achieve FRCC 1 in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass cover types (Figure 4-21); although, Alternatives B, C, D, and E would show improvement over current conditions. Alternative A would not treat enough of these cover types to change current conditions; although, it would maintain current fire frequency and vegetation and fuels structure and composition. Alternative B would reduce the departure from the natural fire rotation, but would not substantially improve vegetation and fuels structure and composition, even though it would slightly reduce uncharacteristic cheatgrass.

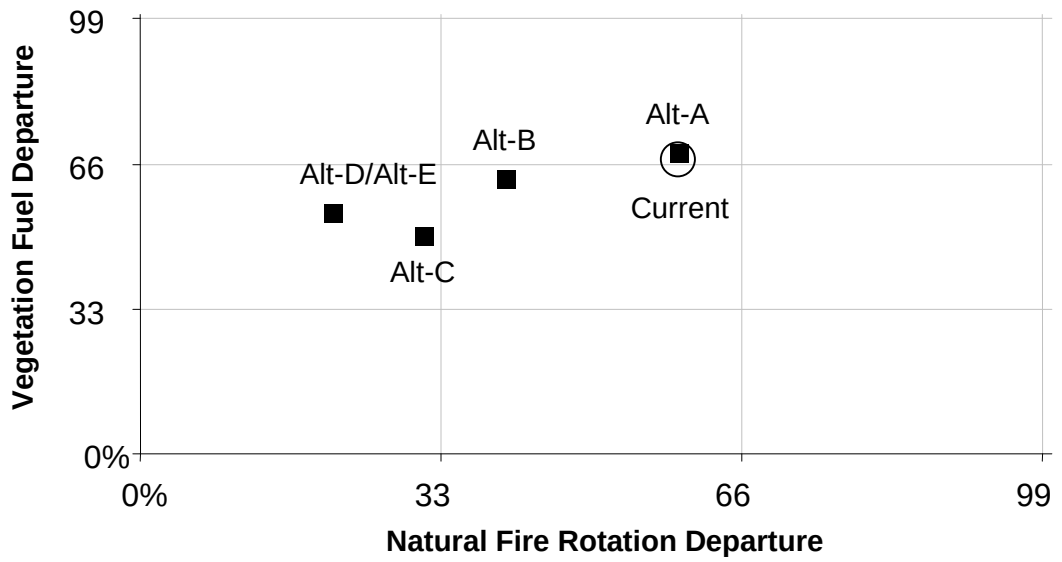
TABLE 4-24. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR LOW-ELEVATION SHRUB, PERENNIAL GRASS, AND INVASIVE ANNUAL GRASS, SHOSHONE FIELD OFFICE (SFO)

Years Since Last Disturbance[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial Grass <15-year	14%	3%	18%	9%	17%	18%
Grass/Shrub 15-30-year	14%	2%	5%	15%	12%	21%
Shrub/Grass >30-year	52%	28%	12%	14%	24%	17%
Crested Wheatgrass	N/A[3]	25%	25%	25%	25%	25%
Invasive Annual Grass in Understory[2]	<20%	42%	40%	37%	22%	19%

[1] Disturbance = Wildland fire, RxFire, mechanical, chemical, and seeding treatments.

[2] Although absence of cheatgrass is desirable, these percentages have been deemed acceptable, since complete eradication of cheatgrass is impossible.

[3] Not applicable; no DFC objective was set for Crested wheatgrass. Crested wheatgrass percentages remain constant across the landscape over time die o the success of overseeding shrub species and through succession these areas become shrub dominated while minimal acres are seeded with Crested wheatgrass.



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-21. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass in the Shoshone Field Office (SFO).

Alternatives C, D, and E would reduce fire frequency sufficiently to approximate the natural fire rotation. However, none of the alternatives would reduce the vegetation/fuels departures sufficiently to achieve FRCC 1 in 30 years. Alternatives C, D, and E make similar progress in improving the vegetation and fuels structure and composition with a mix of successional stages, and substantially reduce the number of acres with uncharacteristic vegetation across the landscape. Alternative C would best improve the vegetation and fuels structure and composition by making large reductions in uncharacteristic cheatgrass (above) while increasing the proportion of early and mid-successional stages, though at the slight cost of reducing late successional stages.

4.2.4.2 Mid-elevation Shrub and Juniper

There are no planned treatments in the Juniper cover type in the SFO.

4.2.4.2.1 Short-term Effects

Alternative treatment levels for Mid-elevation Shrub range from 850 acres (Alternative A) to 200,000 acres (Alternative C) of (see Table 4-23), with the goal of improving vegetation structure and composition, as well as reintroducing fire at a more historical regime.

The Mid-elevation Shrub has been affected by reduced fire frequencies. This has increased shrub densities, reduced the diversity and cover of the herbaceous understory, and reduced the area of high-quality sagebrush habitats. Juniper only occurs as scattered trees in the SFO and does not present a threat to this cover type. Treatments would focus on increasing disturbance to mimic the effects of historical fire. Treatments would use RxFire and WFU, as well as mechanical methods, to reduce shrub densities. Areas with invasive or noxious weeds would receive chemical treatments to reduce or eliminate infestations. Chemical treatments would also be used for selective thinning of shrub cover. Seeding would occur after fire and/or mechanical treatments in areas where the understory has been depleted.

RxFire and WFU would reduce shrub and herbaceous canopy due to removing biomass. Wildland fire could result in greater mortality and more continuous removal of canopy due to higher heat intensities than in RxFire. Herbaceous cover, particularly annual species, would increase within two growing seasons following a fire. Chemical or other forms of integrated weed control would be used to minimize the expansion of invasive and noxious weeds. Chemical treatments could result in mortality of non-target species.

Mechanical treatments would be used where RxFire or WFU is not appropriate or effective, or where selective vegetation removal is desired. Mechanical treatments would have little short-term effect on non-target plants, due to the selectivity of the treatments on target vegetation. One exception would be damage to shallow-rooted species when using chaining or a Dixie harrow. Seeding methods that result in soil surface disturbances (drilling, chaining, and harrowing) could result in similar disturbances. However, seeding grasses and forbs using these methods would be performed where the understory is depleted; therefore, the negative impacts would be minimal. Much of this cover type would be aerially seeded with negligible impacts.

Alternative A would treat the fewest acres (less than 1 percent of this cover type) (see Table 4-23) and would have negligible short-term impacts. However, this alternative would do nothing

to restore landscape-level structural diversity in the Mid-elevation Shrub. In contrast, Alternative C would treatment approximately 64 percent of this cover type, or approximately 20,000 acres annually, with the goal of restoring historical fire-return intervals at a landscape scale. Primarily, this would be accomplished with RxFire or WFU. Alternatives B and D/E would treat 6 percent and 19 percent of this cover type, respectively, and would have intermediate effects compared to Alternative A and Alternative C.

4.2.4.2.2 Long-term Effects

Treatments in Mid-elevation Shrub would diversify the vegetation structure and composition, which would be a positive effect over the long term. Alternative C is the most aggressive of the alternatives and would move the current vegetation toward DFC (Table 4-25); none of the alternatives, however, would achieve DFC in 30 years. All alternatives would decrease the proportion of early seral stages from the current 40 percent to percentages below DFC, and increase the proportion of mid-seral toward DFC. Alternatives A, B, D, and E would not reduce the proportion of late seral stages to DFC. The proportion of late seral stages would be maintained under Alternative C. All alternatives would allow an increase in juniper, while they would have little effect on cheatgrass conditions.

TABLE 4-25. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR MID-ELEVATION SHRUB JUNIPER, SHOSHONE FIELD OFFICE (SFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial Grass <15-year	23%	40%	10%	9%	12%	10%
Grass/Shrub 5-15-year	45%	2%	17%	18%	26%	21%
Shrub/Grass >15-year	23%	54%	63%	62%	53%	60%
Juniper[2]	7%	<1%	7%	7%	6%	6%
Invasive Annual Grass in Understory[3]	2%	3%	3%	4%	3%	3%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

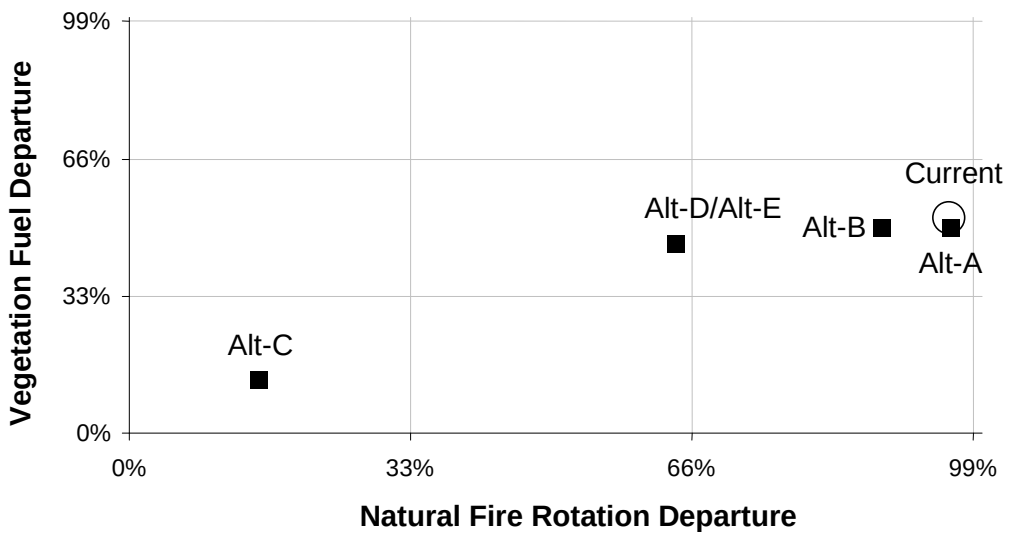
[2] The SFO has only 4 acres of juniper invasion mapped in the area; the DFC listed is for the planning area as a whole.

[3] Although absence of cheatgrass is desirable, these percentages have been deemed acceptable, since complete eradication of cheatgrass is impossible.

Alternative A and Alternative B would maintain current FRCC 3. Alternatives D and E would achieve FRCC 2, but only Alternative C would achieve FRCC 1 in Mid-elevation Shrub within 30 years (Figure 4-22).[1] Alternative A would treat a small proportion (less than 3 percent) of this cover type and maintain the current fire frequency and vegetation and fuels structure and composition conditions. Alternative B would reduce the fire frequency departure, but not substantially change the current vegetation and fuels structure and composition. For both

[1] Only 4 acres of juniper are mapped in the SFO, so there were no treatments proposed in juniper by any of the five alternatives (see Table 4-23).

Alternative A and Alternative B, fire frequency would continue at rates less than the natural fire rotation, which would permit the accumulation of fuels; continued dominance of old, decadent shrubs; and a decline in desired herbaceous species. Neither alternative would make substantial progress toward achieving the desired mix of successional stages across the landscape (vegetation/fuels DFC).



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-22. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Mid-elevation Shrub and Juniper encroachment in the Shoshone Field Office (SFO).

Alternatives D and E would reduce the departure of fire frequency, but not appreciably reduce the current departure from vegetation and fuels structure and composition. Treatments would reduce early successional stages, increase mid-successional stages, and do little to change the proportion of uncharacteristic vegetation; however, Alternatives D and E would also increase late successional stages, which could make these stands more prone to stand-replacing fires.

Alternative C would reduce departures of fire frequency, vegetation and fuels structure, and composition to levels that approach historical conditions and DFC. Treatments would reduce early successional stages, increase mid-successional stages, maintain late successional stages, and do little to change the proportion of uncharacteristic vegetation. Treatment levels in this alternative would most closely approximate the natural fire rotation and would be the most effective at creating the desired mix of successional stages across the landscape (vegetation/fuels DFC).

4.2.4.3 Salt Desert Shrub

There are no planned treatments in the Salt Desert Shrub cover type in the SFO.

4.2.4.4 Aspen/Conifer and Dry Conifer

4.2.4.4.1 Short-term Effects

Alternative treatment levels for these cover types of the SFO range from 0 acres (Alternatives A and D) to approximately 5,900 acres (Alternative B) (see Table 4-23). Treatment goals would include rejuvenating aspen stands and creating a diversity of forest successional stages and associated forest structure and species composition across the landscape.

Fire rotation goals for Aspen/Conifer and Dry Conifer include restoring fire rotation to its natural level (25 years to 100 years), allowing for aspen regeneration and the recolonization of Perennial Grasses and forbs. Short-term effects of proactive restoration treatments in Aspen/Conifer and Dry Conifer would reduce tree densities, decrease canopy cover, and increase the amount of solar radiation reaching the understory vegetation and/or soil surface. Where RxFire or WFU is applied, a temporary reduction in understory shrub, grass, and forb cover would occur. The vast majority of shrubs found in the understory of this cover type resprout after a fire and would provide structure and shade to the soil surface within a year or two following treatment. Perennial grasses and forbs would also resprout or recolonize the area following treatment. Increased soil temperature, aspen root scarification, and/or a decrease in the number of older aspen trees would encourage aspen regeneration via resprouting or *suckering*.

Alternatives A and D would not treat any Aspen/Conifer or Dry Conifer and would have no short-term effects (see Table 4-23). Alternatives C and E would treat the fewest acres (approximately 11 percent of this cover type or approximately 250 acres annually) and would produce few short-term effects due to small treatment-acreages. Alternative B proposes the highest treatment-acreage (approximately 25 percent of the cover type or approximately 600 acres annually). This would have a greater level of short-term treatment effects, particularly if all acres treated were in one area, but even these treatment levels are small in the SFO.

4.2.4.4.2 Long-term Effects

Alternatives B, C, and E would treat Aspen/Conifer and Dry Conifer, diversifying forest successional stages. Pure aspen stands would become larger and more numerous. Vegetation species richness would increase as the proportion of forest successional stages becomes more even. The number of stands at high risk to insect and disease outbreaks and subsequent large wildland fire would decrease.

Treatments in Aspen/Conifer and Dry Conifer would move these cover types toward DFC consisting of a 40:40:20 mix of early successional, mid-successional, and late successional forest cover types (Table 4-26). None of the alternatives would achieve DFC in 30 years. No treatments would be applied under Alternative A and Alternative D, and essentially, no progress would be made toward DFC. Treatments applied under Alternatives B, C, and E would result in some progress toward DFC, with increases in the proportion of early and mid-seral stages and decreases in late seral stages. Vegetation treated under Alternative B would progress more quickly toward DFC due to higher levels of treatment.

TABLE 4-26. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR ASPEN/CONIFER AND DRY CONIFER, SHOSHONE FIELD OFFICE (SFO)

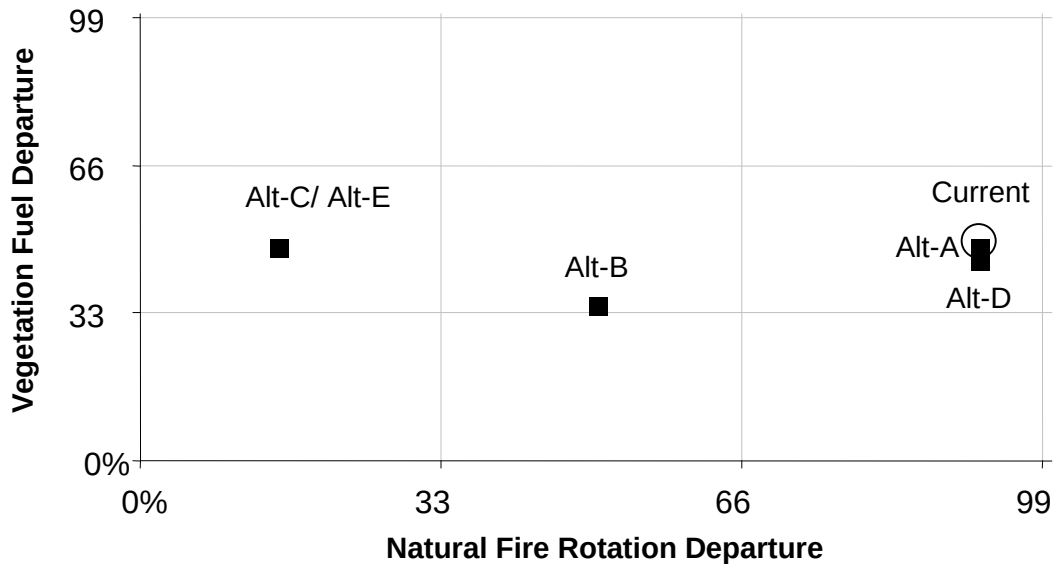
Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C and E	D
Forb/grass with aspen trees/suckers, <25 years old	40%	2%	2%	8%	6%	2%
Aspen/Conifer/Shrub mix, 25-50 years old	40%	29%	30%	37%	34%	30%
Conifer-dominated, >50 years old	20%	69%	68%	55%	60%	68%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

Alternative A and Alternative D would not treat Aspen/Conifer and Dry Conifer cover types, while Alternatives B, C, and E would treat them. Alternative A and Alternative D would maintain vegetation in FRCC 3, and Alternatives B, C, and E would achieve FRCC 2 over 30 years (Figure 4-23). Under Alternative A and Alternative D, portions of forest successional stages would continue to be unbalanced in favor of the late seral stage, moving away from the vegetation/fuels DFC. Fire frequency would be maintained at a rate less frequent than the natural fire rotation, permitting fuel build-up. Excluding fire in Aspen/Conifer and Dry Conifer would permit an increase in conifer density (including conifers encroaching into aspen stands) and a greater incidence of insect infestations and disease. Late seral forests would pose a greater fire hazard than stands with mixed species and structural composition. Wildland fires in late seral, Dry Conifer stands would be larger and burn with higher intensities than mixed stands, often resulting in stand-replacing crown fires.

Alternative B would reduce departures of fire frequency and vegetation and fuels structure and composition. The levels of treatments would substantially improve fire frequency, but not achieve a natural fire rotation. However, the treatments would improve vegetation and fuels structure and composition to approach the historical range of DFC and increase the relative proportions of early and mid-seral stages across the landscape. The level of 10-year treatments would result in lower levels of vegetation fuels departure; however, some cover types would move through successional stages and reach the mid and late seral stages again within 30 years.

Alternatives C and E would reduce departure of fire frequency to within the historical range of variability (see Figure 4-23). Alternatives C and E, however, would have little effect on current departure of vegetation and fuels structure and composition. While there would be a slight increase in early and mid-seral vegetation over the current conditions, the proportion of late seral vegetation would maintain currently high proportions of these cover types. Alternatives C and E would have a disturbance rate that is closer to the natural fire rotation and would make slower progress toward the vegetation/fuels DFC than Alternative B.



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-23. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Aspen/Conifer and Dry Conifer in the Shoshone Field Office (SFO).

4.2.4.5 Mountain Shrub

4.2.4.5.1 Short-term Effects

Fire rotation goals for Mountain Shrub include restoring fire rotation to natural levels (25 years to 100 years). Alternative treatment levels for this cover type in the SFO range from 0 acres (Alternative A) to approximately 1,300 acres (Alternative C) (see Table 4-23). Treatment goals include rejuvenating old, decadent cover types or maintaining healthy cover types; increasing cover and density of desirable herbaceous species; reducing cover and density of uncharacteristic vegetation; and creating a mosaic of successional stages within cover types, as well as a mosaic of Mountain Shrub with other cover types (e.g., Aspen/Conifer and Dry Conifer) across the landscape.

RxFire and WFU would be used to treat this vegetation. Short-term effects of these treatments would include a temporary decrease in shrub, grass, and forb canopy cover. Individual shrubs could be killed by high-severity fires, especially antelope bitterbrush at lower elevations. These changes would increase the amount of solar radiation reaching the soil surface, which would stimulate resprouting and regrowth of shrubs. The majority of Mountain Shrubs resprout after low to moderate severity fire and would provide structure and shade to the soil surface within a year or two following treatment. Perennial grasses and forbs would also resprout or recolonize the treatment areas. Shrub leader growth would increase following treatment due to increased light and soil temperatures, as well as a reduction in standing, dead, woody material.

Alternative A proposes no treatment-acres in Mountain Shrub and would have no short-term effects (see Table 4-23). Alternatives B, D, and E would treat the fewest acres, approximately 5 percent of this cover type. Impacts would be minimal at a landscape scale due to the small acreages treated over 10 years and on an annual basis. Alternative C would treat approximately 11 percent of this vegetation or approximately 130 acres annually. Effects from treatments proposed in Alternative C would be minimal; annual acreages would not be large. Most Mountain Shrub (e.g., buckbrush [*Ceanothus*], mountain snowberry [*Symphoricarpos oreophilus*], as well as herbaceous grasses and forbs) would provide good cover within one to two years.

4.2.4.5.2 Long-term Effects

The long-term effects of treatments in Mountain Shrub would be positive and increase structural and compositional diversity across the landscape. Vegetation species richness would increase as the proportion of different successional stages becomes more varied. Hazardous fuels would decrease across the landscape with a reduction in Mountain Shrub densities.

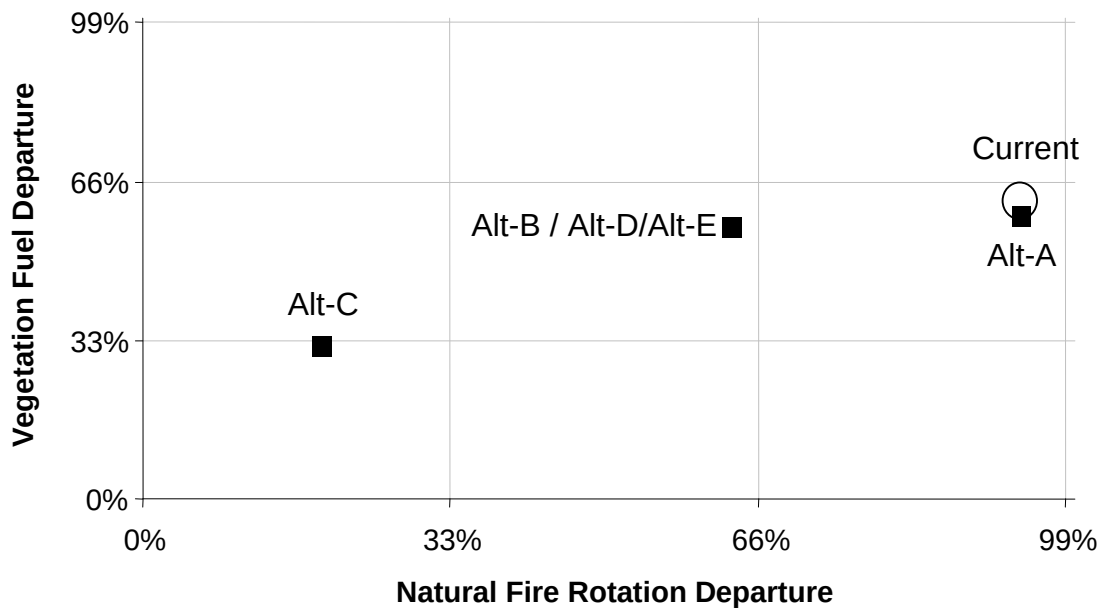
Treatments would move this cover type toward an even distribution of successional stages (Table 4-27). None of the alternatives would achieve DFC in 30 years. Alternatives A, B, D, and E would have little effect on early successional, mid-successional, and late successional stages in this cover type. Alternatives B, D, and E would do little to move the vegetation toward DFC. Only Alternative C would substantially move all three successional states toward a more even distribution and move this cover type toward DFC.

TABLE 4-27. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR MOUNTAIN SHRUB, SHOSHONE FIELD OFFICE (SFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial Grass/Shrub, <10 years old	33%	2%	5%	5%	12%	5%
Shrub/Perennial Grass 10-20 years old	33%	2%	2%	4%	22%	4%
Shrub dominated, >20 years old	34%	96%	93%	91%	66%	91%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

Alternative A would not treat Mountain Shrub, while Alternatives B, C, D, and E would. Alternative A would maintain FRCC 3. Alternatives B, D, and E would achieve FRCC 2, and Alternative C would achieve FRCC 1 in 30 years (Figure 4-24). Under Alternative A, departures of fire frequency and vegetation and fuels structure and composition would be maintained over 30 years. Alternatives B, D, and E would reduce departures of fire frequency to approximately 60 percent though not so much as to achieve fire frequencies within the range of historical variability. Alternative C would reduce the departure of fire frequency to within the range of historical variability.



Current FRCC condition is identified by the symbol - ○. Note: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Figure 4-24. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Mountain Shrub in the Shoshone Field Office (SFO).

Alternatives B, D, and E would not appreciably reduce the departure of vegetation and fuels structure and composition from current conditions. Alternatives A, B, D, and E would maintain the dominance of late seral stages, depletion of understory herbaceous species, and build-up of woody fuel. Increased fuel accumulations would increase fire hazards by supporting larger, more intense and large wildland fires. Alternative C, however, would reduce the departure of vegetation and fuels structure and composition so as to approach DFC by increasing early and mid-successional stages, while substantially reducing late seral stages. This alternative would most closely create the desired mix of successional stages across the landscape (vegetation/fuels DFC) and would have a disturbance rate most similar to the natural fire rotation.

4.2.4.6 Wet/Cold Conifer

4.2.4.6.1 Short-term Effects

Alternative treatment levels for this cover type in the SFO range from 0 acres (Alternatives A, B, and D) to approximately 800 acres (Alternatives C and E) over a 10-year period (see Table 4-23). Treatment goals include reducing risk of insect infestation and disease, creating a more diverse mosaic of successional stages across the landscape, and reducing wildland fire intensity and spread.

Short-term effects of proactive restoration treatments in Wet/Cold Conifer would reduce tree densities, decrease canopy cover, and increase the amount of solar radiation reaching the understory vegetation and/or soil surface. Mechanical treatments would reduce mature and pole-

sized tree densities. WFU treatments would remove overstory trees and increase understory shrubs, grasses, and forbs. Trees would regenerate and grow above the understory vegetation within approximately 10 years.

Alternatives A, B, and D would not treat Wet/Cold Conifer and would produce no short-term effects (see Table 4-23). Alternatives C and E would treat approximately 9 percent of this cover type. Short-term effects would be minimal with Alternatives C and E due to the small acreages proposed for treatment.

4.2.4.6.2 Long-term Effects

Effects of treatment across alternatives in Wet/Cold Conifer would be positive and increase structural and compositional diversity, as well as increase resistance and resilience to wildland fires.

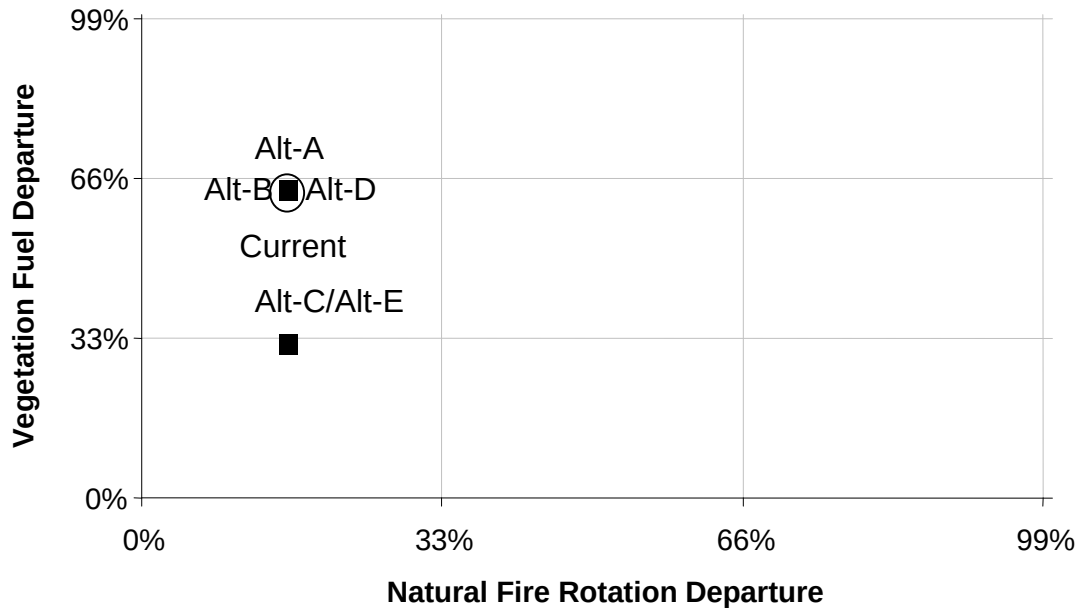
Only Alternatives C and E would treat this cover type. Treatments would be applied with the intention of moving the vegetation toward a DFC, which would consist of a 30:44:26 mix of early successional, mid-successional, and late successional forest cover types (Table 4-28). Alternatives A, B, and D do not propose treatments and would not move the vegetation toward DFC. While not achieving DFC, Alternatives C and E would result in a more even distribution of successional stages across the landscape within 30 years.

TABLE 4-28. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR WET/COLD CONIFER, SHOSHONE FIELD OFFICE (SFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C and E	D
Early, forb/grass with seedlings	30%	1%	2%	2%	25%	2%
Mid, conifer shrub mix	44%	10%	8%	8%	17%	8%
Late, conifer-dominated	26%	89%	90%	90%	58%	90%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

Alternatives A, B, and D would not treat Wet/Cold Conifer, while Alternatives C and E would treat this cover type. Alternatives A, B, and D would maintain FRCC 2, and Alternatives C and E would achieve FRCC 1 in this cover type within 30 years (Figure 4-25). Alternatives A, B, and D would maintain current fire frequency and vegetation and fuels structure and composition over 30 years. Alternatives C and E, on the other hand, would substantially reduce departure of fire frequency to within the range of historical variability. Furthermore, this alternative would substantially reduce departure of vegetation and fuels structure and composition to approach DFC. Treatments applied under this alternative would most closely create the desired mix of successional stages across the landscape (vegetation/fuels DFC).



Current FRCC condition is identified by the symbol - ○. Notes: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Due to the lack of long-term fire history data for this cover type, the FRCC rating is based on vegetation/fuel departure. For clarity, departure from the natural fire rotation was positioned at the midpoint of FRCC 1.

Figure 4-25. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Wet/Cold Conifer in the Shoshone Field Office (SFO).

4.2.4.7 Vegetated Rock/Lava

4.2.4.7.1 Short-term Effects

In the SFO area, alternative treatment levels for the Vegetated Rock/Lava cover type range from 0 acres (Alternatives B, D, and E) to approximately 2,300 acres (Alternative C) (see Table 4-23). These treatments consist of WFU and chemical treatments to control noxious weeds.

Wildland fire would be allowed on Vegetated Rock/Lava, primarily in Alternative A and Alternative C (see Table 4-23). It is assumed that only a small fraction of the existing acreage would burn because this vegetation is discontinuous and limited to areas with some soil development. Wildland fire would be allowed to burn, primarily due to suppression difficulties and safety concerns in this cover type. WFU would permit historical successional processes to occur. Where cheatgrass or noxious weed invasions are found near the edges of Vegetated Rock/Lava, treatment would be conducted to prevent or reduce spread and maintain current percentages across the landscape.

Short-term effects in this cover type would include the mortality of vegetation. This would most substaintially affect long-lived shrubs and trees, such as Wyoming big sagebrush, limber pine, and junipers. Because vegetation is patchy, fire effects would also be discontinuous, creating openings in areas with dense concentrations of fuels.

4.2.4.7.2 Long-term Effects

All alternatives would move the Vegetated Rock/Lava cover type toward DFC in the SFO (Table 4-29). (All the alternatives would maintain composition of cheatgrass at or below 15 percent within this type.

TABLE 4-29. VEGETATION/AGE CLASS, DESIRED FUTURE CONDITION (DFC), CURRENT CONDITION, AND EFFECTS OF FIVE ALTERNATIVES FOR VEGETATED ROCK/LAVA, SHOSHONE FIELD OFFICE (SFO)

Vegetation/Age Class[1]	DFC	Current	Alternatives Over 30 Years			
			A	B	C	D and E
Perennial herbaceous	6%	3%	7%	7%	8%	7%
Tree/shrub/herbaceous	80%	83%	78%	78%	78%	78%
Invasive Annual Grass in Understory[2]	14%	14%	15%	15%	14%	15%

[1] Age Class is the number of years since last fire, which is used as an approximation of seral stage in this analysis.

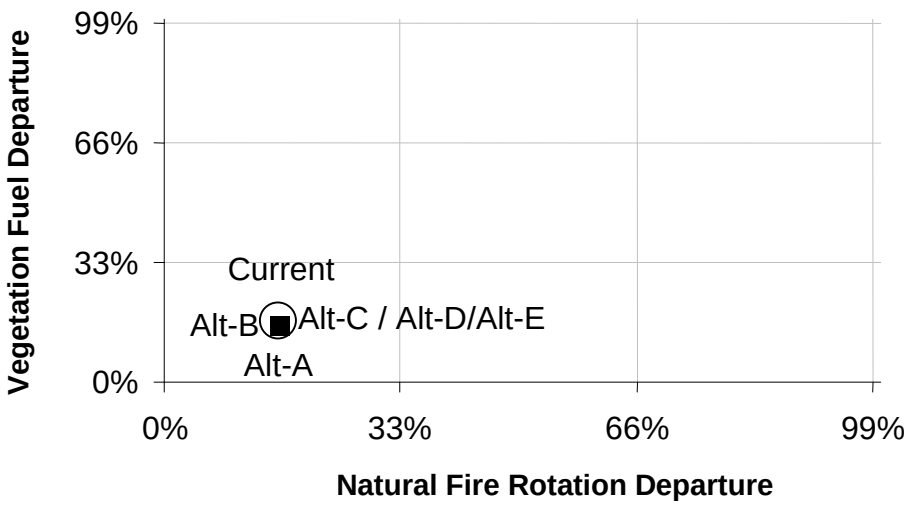
[2] Although absence of cheatgrass is desirable, these percentages have been deemed acceptable, since complete eradication of cheatgrass is impossible.

Alternative A and Alternative C would treat Vegetated Rock/Lava, while Alternatives B, D, and E would not treat this cover type. All alternatives, however, would maintain this cover type in FRCC 1 over 30 years. All alternatives would maintain current departures of fire frequency and vegetation and fuels structure and composition (Figure 4-26). Due to the small and fragmented nature of fire in this cover type, long-term changes in landscape composition and the resulting fuel and fire dynamics would be minimal.

4.2.5 T&E AND BLM-SENSITIVE PLANT SPECIES

T&E and BLM-Sensitive plants occur in nearly all the vegetation types within the planning area but are limited to a particular soil, aspect, drainage, or succesional stage in a particular vegetation type. Rarity is usually associated with an affinity for unique habitat conditions (soil or vegetation cover characteristics), narrow endemism, and/or impacts that result in a decline in population size or number. These impacts include habitat alteration resulting from changes in the natural fire cycle, with either too little fire (as is the current situation in the higher elevation vegetation types) or too much (e.g., low elevation shrub steppe).

Because the effects of treatments to T&E and BLM-Sensitive plants, in part, depend on the surrounding vegetation or the type of habitat or community that a plant occupies, this analysis of impacts is organized by vegetation types and would consider the types of treatments proposed for each alternative on a planning area level. Vegetation types are grouped as in Section 4.1. Impacts to T&E and BLM-Sensitive plants may be similar to and at least depend in part on the effects of treatment on the plant community as a whole.



Current FRCC condition is identified by the symbol - ○. Notes: FRCC 1 = 0-33%; FRCC 2 = 33-66%; FRCC 3 = 66-99%.

Due to the lack of long-term fire history data for this cover type, the FRCC rating is based on vegetation/fuel departure. For clarity, departure from the natural fire rotation was positioned at the midpoint of FRCC 1.

Figure 4-26. The effects of each alternative on Fire Regime Condition Class (FRCC) rating for Vegetated Rock/Lava in the Shoshone Field Office (SFO).

In all cases, BLM policy requires inventory and evaluation of project effects on T&E and BLM-Sensitive plants (BLM Manual 6840). Treatments that might result in potential negative effects on T&E and BLM-Sensitive plants would need to be evaluated in light of the status of the taxa, population health and integrity, ecology and response to disturbance, and habitat quality. In many cases, the ecology of T&E and BLM-Sensitive plants is not well understood, if studied at all. Therefore, careful observation of trends within populations and relative to habitat conditions would be necessary to anticipate short-term and long-term effects of vegetation treatments.

T&E and BLM-Sensitive plants in the planning area, their status, field offices of occurrence, and the vegetation types where they occur are listed in Appendix F. Proposed treatment acreages by vegetation type are listed for each of the five alternatives in Table 2-3 through Table 2-6.

4.2.5.1 Low-Elevation Shrub, Perennial Grassland, Invasive Annual Grass

4.2.5.1.1 Short-term Effects

T&E and BLM-Sensitive plants occurring in the Low-elevation Shrub are impacted by large-scale habitat conversions, primarily to non-native Invasive Annual Grasslands and non-native seedings following fire. Conversion from Low-elevation Shrub steppe to Invasive Annual Grass results in a change in vegetation structure as well as species composition. While some T&E and BLM-Sensitive taxa might be tolerant of this conversion (e.g., mourning milkvetch [*Astragalus atratus* var. *inseptus*]), habitat quality is marginal, and the status of plants, as well as other natives in the community, might be precarious due to competition and repeated fire. The effects of native and non-native seedings following fire are primarily due to the soil disturbance associated with the seeding process (usually drill-seeding or chaining). However, some

competition, as well as change in community structure, can occur with establishment of non-native seedings. Seedings that replicate as closely as possible the structure, species composition, and seral dynamics of the native community would improve T&E and BLM-Sensitive plant habitat over post-burn invasion of non-native Invasive Annual Grasses. The short-term effects of aerial seeding of sagebrush and other taxa would be negligible due to lack of soil disturbance.

In cases where an herbicide is needed to control Invasive Annual Grasses or noxious weeds, treatment of areas supporting T&E and BLM-Sensitive plants would need to be carefully planned or avoided in light of the following: (1) effects of the herbicide (e.g., broad vs. narrow spectrum), (2) phenology of the plant (active growing phases vs. dormancy), (3) the level of impact relative to the distribution of the taxon or taxa as a whole, and (4) quality of habitat with and without treatment. For example, T&E and BLM-Sensitive plants that are narrowly endemic with small, localized populations would be more impacted than taxa that are endemic but are relatively common within that range. Applying herbicide while a T&E and BLM-Sensitive plant is actively growing, flowering, or setting fruit could result in mortality, lack of seed production, and negative impacts to the population.

The effect of natural post-fire conversion to native grassland and/or RxFire and WFU treatments on a T&E and BLM-Sensitive plant would depend on the ecology of the taxon and whether it is (1) fire tolerant or (2) associated with a specific seral state of the native plant community. It could be assumed that sensitive plants occurring as an entity of a healthy native plant community would assume their natural role in succession, given a natural disturbance. This could mean that the plant might exist in undisturbed pockets of vegetation, or as part of the seed bank, until environmental conditions (e.g., light, competition) are appropriate. Some taxa (e.g., Picabo milkvetch [*Astragalus oniciformis*]) (Moseley & Popvich 1995) are poor competitors and need open light and vegetation conditions. Such taxa benefit somewhat from disturbances that recreate the openings of the early seral to mid-seral community. T&E and BLM-Sensitive plants tied to late seral communities would possibly be less tolerant of burning treatments due to shading or nutrient requirements. However, it is unlikely that late seral communities containing T&E and BLM-Sensitive plant habitat would be targeted for any treatment unless they were highly degraded and at risk for conversion to Invasive Annual Grassland or stand-replacement fire.

Alternatives D and E propose the greatest level of overall (footprint) treatment within the Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass vegetation types, followed by Alternatives C, B, and A, respectively (Table 2-3 through Table 2-6). Alternatives C, D, and E include large 10-year treatment acreages (approximately 1.0 million acres and 1.2 million acres, respectively) with the primary focus on chemical control of invasive and noxious weed and seeding perennial vegetation and sagebrush, employing both mechanical and aerial methods. Alternatives A and B have similar emphasis but considerably less acreage (approximately 200,000 acres and 400,000 acres, respectively). RxFire would be used under all alternatives to prepare Invasive Annual Grass and Perennial Grass areas for subsequent chemical/seeding treatment and for creating mosaics in healthy but old, even-aged sagebrush stands. The amount of proposed RxFire is greatest in Alternatives D and E (about 500,000 acres) and about one-half of that in Alternatives B and C. Alternative A proposes very little use of RxFire (about 14,000 acres). Both of these alternatives include using wildland fire, with a nearly 10-fold increase in Alternative B (about 70,000 acres) vs. Alternative C (about 8,000 acres). Neither Alternative A, D, nor E would allow WFU.

4.2.5.1.2 Long-term Effects

Two important aspects of T&E and BLM-Sensitive plant conservation are (1) protecting existing habitat and (2) restoring degraded habitat. The proposed treatments in each of the alternatives speak to both aspects, at different levels of intensity, with a primary objective of reducing wildland fire frequency and size in the Low-elevation Shrub. Because project-level analysis provides for the protection of T&E and BLM-Sensitive plants due to treatment (including protection for populations), long-term effects of the alternatives relate to their effectiveness in protection and restoration of habitat. Alternatives C, D, and E propose to treat similar acreages of similar magnitudes, with Alternatives D and E being slightly more aggressive (Table 2-3 through Table 2-6). Alternatives C, D, and E focus on restoring nearly all Invasive Annual Grass acres within the planning area. Because Invasive Annual Grass provides little in the way of quality habitat for T&E and BLM-Sensitive plants, long-term effects of habitat restoration would be positive. This would provide for connectivity between pockets of existing sagebrush steppe habitat and possibly allow the expansion of T&E and BLM-Sensitive Species back into former habitats. Alternative B would treat approximately 38 percent of the total Invasive Annual Grass acreage and would provide only limited opportunity for expanding and connecting existing habitats, while Alternative A would treat only about 6 percent and would provide little to no opportunity.

Treatments in Low-elevation Shrub and Perennial Grass focus on controlling invasive and noxious weeds and diversifying the plant community both locally and on a landscape level though the use of fire, mechanical treatments, and seeding. T&E and BLM-Sensitive plants adapted to early successional or mid-successional stages of the Low-elevation Shrub vegetation type might decrease over time due to increases in shrub densities or competition resulting from successful seeding treatments; although, long-term goals for treatments aim toward creating a diverse mosaic of seral stages across the landscape. As discussed throughout Section 4.2, Alternatives A and B would do little to reduce uncharacteristic vegetation in these types and move the vegetation toward a desired composition and more natural, longer fire cycle. Alternatives C, D, and E would have similar effects, with Alternatives D and E being slightly more effective. Improved habitat quality, structural and species diversity, and reduced fire size and occurrence would, in the long-term, contribute to greater potential for T&E and BLM-Sensitive plant protection and conservation.

4.2.5.2 Mid-Elevation Shrub, Juniper, and Juniper-Encroachment

4.2.5.2.1 Short-term Effects

Communities in the Mid-elevation Shrub vegetation type have been altered by lengthened fire cycles (due to long-term suppression), resulting in less patterning of seral stages across the landscape and juniper encroachment. This has resulted in a need to reintroduce fire or other types of disturbance to this type, while controlling potential invasive or noxious weeds.

True juniper and pinyon-juniper, mountain mahogany, and black sagebrush communities tend to occur on relatively fire-resistant and/or rocky sites. T&E and BLM-Sensitive plants occurring on these types of sites would not be impacted due to a lack of need to treat this type of site. Treatments in Mid-elevation Shrub would be focused on areas where natural processes, and thus habitat quality, have been altered by lack of fire disturbance. Juniper encroachment results in a

decrease in herbaceous plant cover in the understory, which could have a negative effect on T&E and BLM-Sensitive plants that are part of the Mid-elevation Shrub vegetation type. As discussed in the previous section on Low-elevation Shrub, treatment effects would depend on the seral status of a T&E and BLM-Sensitive plant within a specific community and its tolerance of fire as well as competitive ability and shade tolerance. Species such as obscure phacelia (*Phacelia inconspicua*) occur in openings in this vegetation type (as well as Aspen and Mountain Shrub), indicating a need for disturbance (Murphy 2002). Treatments involving soil surface disturbance and/or chemical application would need to be evaluated relative to T&E and BLM-Sensitive plant populations (see the discussion for low elevation shrub steppe above).

Alternative C would treat approximately one-half the acreage of Mid-elevation Shrub and Juniper encroachment areas in the planning area over a 10-year period. Alternatives A, B, and D/E would treat approximately 3 percent, 15 percent, and 28 percent of the area, respectively (Table 2-3 through Table 2-6). Each alternative would employ RxFire to reintroduce disturbance into the system with Alternative C placing the greatest emphasis on RxFire and WFU. Alternatives D and E place a greater emphasis than the other alternatives on mechanical and chemical means to control unwanted vegetation and less emphasis than Alternative C on RxFire and WFU. Seeding treatments would be used in areas needing reestablishment of herbaceous or shrub by vegetation. Aerial seeding for the reestablishment of sagebrush in all alternatives would have essentially no short-term impact.

4.2.5.2.2 Long-term Effects

Treating this vegetation type would focus on restoring structural and species diversity, as well as reintroducing fire to maintain historical processes and patterns. T&E and BLM-Sensitive plants are protected by site-specific project evaluation projects could positively affect taxa by maintaining a seral community and/or expanding potential habitat on a landscape scale. Alternative C is the only alternative that proposes adequate acreage to move the current vegetation toward a desired seral composition, reduce undesirable vegetation, and return the fire cycle to more natural (historical) conditions within a 30-year period. Alternatives A and B would treat less acreage and therefore would have fewer direct, short-term impacts, but would possibly in the long-term have a greater negative effect on T&E and BLM-Sensitive plants due to lack of treatment and continued degradation of habitat. Alternatives D and E would be less effective than Alternative C, but still would provide for relatively aggressive treatment.

4.2.5.3 Salt Desert Shrub

Fire in the Salt Desert Shrub vegetation type is a rare occurrence in the planning area. Treatments are proposed for Alternative A only, as most of this vegetation type is currently in FRCC 1 (see Table 2-2). Treatments proposed under Alternative A are chemical, and seeding treatments that would occur in response to wildland fire and are proposed on less than 3 percent of the total acreage of Salt Desert Shrub over a 10-year period (Table 2-3). Due to the relatively small proportion of acreage proposed for treatment, it is highly unlikely that these treatments would impact any T&E and BLM-Sensitive plant populations. No treatments are proposed under Alternatives B, C, D, or E.

4.2.5.4 Aspen/Dry Conifer

4.2.5.4.1 Short-term Effects

Communities in the Aspen/Dry Conifer vegetation type have be altered by lengthened fire cycles (due to long-term suppression), resulting in less patterning of seral stages across the planning area. This has resulted in a need to reintroduce fire or other types of disturbance to this type, while controlling potential invasive or noxious weeds. Treatments in this vegetation type would be focused on areas where natural processes and patterns have been altered by lack of fire disturbance. As discussed in the previous section on Low-elevation Shrub, treatment effects would depend on the seral status of a T&E and BLM-Sensitive plant within a specific community and its tolerance of fire as well as competitive ability and shade tolerance. Species such as obscure phacelia (*Phacelia inconspicua*) occur in openings in the aspen vegetation type (as well as Mid-elevation Shrub and Mountain Shrub), indicating a need for low-levels of disturbance to maintain those openings (Murphy 2002). Unnatural buildup of fuels in this type would lead to higher intensity fires that could damage, rather than invigorate, the community and potentially T&E and BLM-Sensitive plant populations. Treatments involving soil surface disturbance and/or chemical application would need to be evaluated relative to T&E and BLM-Sensitive plant populations (see the discussion for Low-elevation Shrub).

Alternative B would treat about 21 percent of the Aspen/Dry Conifer type in the planning area over a 10-year period. Alternatives A, C, D/E would treat approximately 3 percent, 14 percent, and 0 percent of the area, respectively (Tables 2-3–2.6). Treatments would focus primarily on mechanical, RxFire, and WFU treatments to thin woody vegetation and stimulate aspen reproduction and understory diversity.

4.2.5.4.2 Long-term Effects

Treating this vegetation type would focus on restoring structural and species diversity, as well as reintroducing fire to maintain historical processes. T&E and BLM-Sensitive plants are protected by site-specific project evaluation; projects could positively affect taxa by maintaining a seral community and/or expanding potential habitat on a landscape scale. Alternatives B and C propose adequate acreage to move the current vegetation toward a desired seral composition and reduce undesirable vegetation; however, Alternative B would return the fire cycle to more natural (historical) conditions within a 30-year period. Alternatives A, D, and E would do nothing to ecological problems in this vegetation type. While these alternatives would treat little to no acreage and therefore would have no direct, short-term impacts, they would possibly in the long-term have a greater negative effect on T&E and BLM-Sensitive plants due to lack of treatment and continued degradation of habitat.

4.2.5.5 Mountain Shrub

4.2.5.5.1 Short-term Effects

Communities in the Mountain Shrub vegetation type have been altered by lengthened fire cycles (due to long-term suppression), resulting in less patterning of seral stages across the landscape and juniper encroachment. This has resulted in a need to reintroduce fire or other types of disturbance to this type, while controlling potential invasive or noxious weeds.

Several of the T&E and BLM-Sensitive plants in this vegetation type, including tufted (cryptantha *Cryptantha caespitosa*), Welsh's buckwheat (*Eriogonum capistratum* var. *welshii*), and tufted milkvetch (*Astragalus gilviflorus*) tend to occur on relatively fire-resistant, sparsely vegetated, and rocky sites. Plants occurring on these types of sites would not be impacted due to lack of need for treatment. Treatments in the Mountain Shrub vegetation type would be focused on areas where natural processes and patterns have been altered by lack of fire disturbance. Closing the shrub canopy can decrease herbaceous plant cover in the understory, which could have a negative effect on T&E and BLM-Sensitive plants that are part of Mountain Shrub vegetation cover type. As discussed in the previous section on Low-elevation Shrub, treatment effects would depend on the specific T&E and BLM-Sensitive plant within a specific community and its tolerance of fire as well as competitive ability and shade tolerance. Species such as obscure phacelia (*Phacelia inconspicua*) occur in openings in this vegetation type (as well as in the Aspen and Mountain Shrub vegetation types), indicating a need for disturbance (Murphy 2002). Treatments involving soil surface disturbance and/or chemical application would need to be evaluated relative to T&E and BLM-Sensitive plant populations (see the discussion for Low-elevation Shrub above).

Alternative C would treat approximately 42 percent the acreage of Mountain Shrub vegetation type in the planning area over a 10-year period. Alternatives A, B, D/E would treat <1 percent, 9 percent, and 13 percent of the area, respectively (Tables 2-3–2.6).

4.2.5.5.2 Long-term Effects

Treating this vegetation type would focus on restoring structural and species diversity, as well as reintroducing fire to maintain historical processes. T&E and BLM-Sensitive plants are protected by site-specific project evaluation; projects could positively affect taxa by maintaining a seral community and/or expanding potential habitat on a landscape scale. While Alternatives B, C, D, and E all make progress toward DFC, Alternative C is the only alternative that proposes adequate acreage to move the current vegetation toward a desired seral composition, reduce undesirable vegetation, and return the fire cycle to more natural (historical) conditions within a 30-year period (see discussion Section 4.1). Alternatives B, C, D, and E would treat less acreage and therefore would have fewer direct, short-term impacts, but would possibly, in the long-term, have a greater negative effect on T&E and BLM-Sensitive plants due to lack of treatment and continued degradation of habitat.

4.2.5.6 Wet/Cold Conifer

There are currently no T&E and BLM-Sensitive Species associated with the Wet/Cold Conifer vegetation type.

4.2.5.7 Riparian

Riparian areas in the planning area tend to occur primarily as small inclusions within other vegetation types, with the exception of the broader riparian zones adjacent to large water bodies such as the Main and South Fork Snake River. Therefore, fire frequency and the effects of fire on the riparian vegetation largely depends on the type of adjacent vegetation. T&E and BLM-Sensitive plants associated with the riparian vegetation type include alkali primrose (*Primula alcalina*), Marsh felwort (*Lomatogonium rotatum*), hoary willow (*Salix candida*), and the

planning area's only listed plant, Ute's-ladies tresses (*Spiranthes diluvialis*). These species occur in areas where the soil is saturated for much, if not all, of the growing season, and vegetation remains green until late in the year. These areas are usually broad with little to no gradient.

Riparian areas in the planning area would be treated under Alternatives A and C as part of the treatment of adjacent vegetation types. RxFire and seeding treatments proposed under Alternative A would comprise only about 1 percent of the total riparian acreage over a 10-year period. RxFire, WFU, mechanical, chemical, and seeding treatments proposed under Alternative C would comprise approximately 2 percent of the total riparian acreage over a 10-year period. No treatments are proposed under Alternatives B, D, and E, however, it is possible that some small riparian areas may unintentionally be treated in association with the treatment of adjacent areas. It is also possible that riparian areas may be impacted by wildland fires under all alternatives.

It is unlikely, due to the minute acreage proposed in Alternatives A and C, that treatments would have any short-term negative effect on T&E and BLM-Sensitive plants. It is not anticipated that areas supporting T&E and BLM-Sensitive plants would be treated, unless site-specific information indicates that small-scale RxFire use would be used to maintain a seral community and be beneficial to the taxa.

4.2.5.8 Vegetated Rock/Lava/Other

There are no current T&E and BLM-Sensitive plants that occur on Vegetated Rock/Lava. Taxa occurring in *Other* habitats include St. Anthony evening primrose (*Oenothera psammophila*), which occurs on sparsely vegetated sand dunes, and small-flowered ricegrass (*Piptatherum micranthum*), which occurs in cracks and on ledges of limestone cliffs. Such habitats would not receive treatments under any alternative and therefore would not be subject to treatment effects.

4.2.6 MITIGATION AND MONITORING

The management restrictions listed in Appendix Q, Management Restrictions, are incorporated into management practices common to all alternatives. These practices would be implemented to avoid adverse impacts to vegetation. Because of this, no further mitigation would be required to protect the vegetation resource.

Prior to any vegetation treatment, site-specific National Environmental Protection Act (NEPA) analysis would occur. The impacts analysis would include consideration for T&E and BLM-Sensitive plant species and habitats, including mitigation to prevent significant adverse impacts to these species.

4.2.7 UNAVOIDABLE ADVERSE IMPACTS

Short-term unavoidable adverse impacts to vegetation would include the same short-term vegetation treatment disturbances described above. Long-term unavoidable adverse impacts would persist in cover types remaining in FRCC 3 under all alternatives. In these FRCCs, vegetation of the planning area would continue to experience unnatural fire regimes and associated negative effects. Vegetation-related processes and T&E and BLM-Sensitive Species

would be adversely impacted, and noxious weed problems would continue. The lack of vegetation management would increase the risk of losing key ecosystem components, producing unavoidable adverse impacts.

4.2.8 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

Irretrievable impacts to vegetation would include the short-term vegetation treatment disturbances described above. There would be no irreversible impacts, as these vegetation resources could be restored through the effective implementation of the ESR program.

4.2.9 CUMULATIVE EFFECTS

The spatial scale for cumulative impacts includes the planning area and immediately adjacent areas. For this analysis, past, present, and reasonably foreseeable future actions include fire management activities only.

In general, the action alternatives would positively contribute to the goals of other past, present, and reasonably foreseeable future plans in or adjacent to the planning area. The action alternatives would be consistent with the Interior Columbia Basin Ecosystem Management Project, designed to improve the health of the sagebrush steppe ecosystem, and the BLM's Memorandum of Understanding (MOU) of 2003, which aims to successfully implement this project.

The action alternatives, especially Alternatives D and E, would contribute positively to meeting the vegetative goals of the Idaho National Laboratory (INL) management plans by emphasizing the protection of sagebrush steppe habitat, including Low-elevation Shrub. Management plans for these areas would also need to concur with national-level fire management policy and direction, and as such, would be consistent with the objectives of this EIS. Negative cumulative impacts would not be anticipated.

A cumulatively positive effect would also occur when considering the action alternatives in conjunction with the Caribou-Targhee National Forest and Sawthooth National Forest fire management plans. Objectives to restore natural fire regimes and the associated vegetation composition and structure would positively extend to these adjacent federal lands. The action alternatives are also consistent with the *Idaho Statewide Implementation Strategy for the National Fire Plan* (2006) and would not result in cumulative adverse impacts to the vegetation resource. However, it should be noted that the scale of these fire management activities is very small in comparison with the action alternatives.

The NPS and the BLM have prepared a joint monument management plan for Craters of the Moon National Monument and Preserve, which is located entirely within the administrative boundary of the FMDA planning area. This management plan includes fire management decisions for the Monument and Preserve that, when considered in conjunction with the action alternatives, would result in cumulatively positive long-term impacts on vegetation resources.

It is not likely that the action alternatives, when considered in conjunction with past, present, or reasonably foreseeable future actions, would cause short-term or long-term cumulative

significant adverse impacts to the vegetation resource of the planning area. While short-term impacts to vegetation composition, structure, and productivity would occur with the above-mentioned projects, the difference in scale when comparing other plans to the planning area plan precludes the possibility for adverse cumulative impacts. Also, the long-term impacts of improving fire regimes across the planning area would positively affect other land management issues of the planning area and the immediately adjacent area.

4.3 ANALYSIS OF EFFECTS ON WILDLAND URBAN INTERFACE (WUI)

This section details the effects of treatment levels on WUI areas and communities-at-risk across the alternatives.

4.3.1 ANALYSIS ASSUMPTIONS AND METHODS

This section examines the impacts of each alternative to assess how to best meet select objectives of the National Fire Plan and Cohesive Strategy within the planning area. This primarily involves reducing the potential for wildland fire in and around WUI using tools such as creating anchored fuel breaks, reducing tree densities in juniper woodlands and conifer forests, and replacing continuous patches of Invasive Annual Grasses/non-native weeds with Perennial Grasses and shrubs in Low- and Mid-elevation Shrub, so that WUI areas have acceptable fuel loads and are defensible from wildland fires.

Management actions associated with this objective include:

- Using an Appropriate Management Response to safely manage and suppress fires.
- Using mechanical, chemical, and seeding treatments, as well as small-scale fire operations (e.g., pile burning), to change vegetation and/or reduce fuel loading and facilitate the use of RxFire treatments where applicable in the future.
- Developing mitigation plans and implementing plan actions, including fuels reduction work, rural fire department assistance, and public education in cooperation with state, county, and local governments and fire departments.

Table 4-30 through Table 4-33 compare alternatives by field office; although, the discussion below summarizes projected outcomes based on the alternatives. Communities presented in the first column of each table are grouped together based on proximity to each other (referred to as WUI Areas of Concern), and were analyzed together as a group. Appendix I lists communities in the vicinity of public lands at risk from wildland fire in Idaho as published in the Federal Register (Volume 66, August 17, 2001). Appendix J lists communities considered by BLM personnel to be at the highest risk from unwanted wildland fire.

The columns in the tables labeled "Proposed Treatment-acres" used the 10-year treatment footprint-acres as the basis to compare among alternatives, which could include any combination of any mechanical, chemical, seeding, and RxFire treatments depending on management objectives for a given area.

The columns in the tables labeled "Relative Potential Risk to Public and Fire-fighter Health and Safety" establish a risk factor/category that one would expect to see after 10 years or longer, as a product of specific management goals for a given alternative. Impacts were analyzed based on the projected number of unwanted high intensity wildland fire acres. Ideally, impacts to public and firefighter health and safety would be analyzed using intensity level of unwanted wildland fire in conjunction with number of acres burned. Unfortunately, historical fire intensity data does not exist. Because number of acres burned historically was used for this analysis without additional information on fire intensity levels, some of the risk ratings for WUI Areas of Concern are too low and do not adequately represent the real risk associated with high intensity wildland fire (e.g., American Falls, Chubbuck, Fort Hall, Inkom, Pocatello, Arimo, Downey, Lava Hot Springs, McCammon, Virginia).

Using the projected number of wildland fire acres and proposed treatment acres, inference was made as to what the relative potential risk to public and fire-fighter health and safety would be from wildland fire based on best professional judgment and past experience. An assumption was made that an acre of treatment occurring within or around a WUI area would reduce fire intensity to an acceptable risk level on that acre for a minimum of 10 years. Note that risk categories do not take into account topographical considerations, population density, fuel types, and other similar considerations that could influence fire behavior in and around WUI areas. A more comprehensive statewide assessment of relative risk to communities and ecosystems in Idaho was completed in 2003 by an interagency group that included the BLM, U.S. Forest Service (USFS), and Idaho Department of Lands (IDL). The data generated by this group would be used by the Idaho State Fire Plan Working Group to assist with prioritizing National Fire Plan related projects across ownerships and jurisdictions, at a subwatershed or county level, throughout the state. More information on this project can be found at http://www.fs.fed.us/r4/id_fire_assessment/id_haz_risk.html.

For the purposes of this analysis, risk categories include:

- Low Risk - projected high intensity fire acres of less than or equal to 1,000 acres
- Moderate Risk - projected high intensity fire acres between 1,001 acres and 30,000 acres
- High Risk - projected high intensity fire acres of greater than 30,000 acres

Assumptions for these analyses include the following: (1) all proposed WUI treatments occur on BLM-administered land near communities-at-risk so that treatments have a direct and immediate impact to communities-at-risk, and (2) counties and communities-at-risk continue to create defensible space as well as wildland fire compatible fire-wise homes and communities so that damage from public land fires, and risks from wildland fires escaping from private land to BLM-administered lands are diminished.

4.3.2 DIRECT AND INDIRECT IMPACTS

In general, the consequences of implementing the National Fire Plan and Cohesive Strategy would benefit WUI areas because one of the main objectives of this plan is to reduce fire risks within WUI areas. To accomplish this, the BLM must reduce woody and/or herbaceous fuel loads and maintain low-risk fire conditions within the cover types that are within and adjacent to WUI areas. Site-specific management plans would propose using various chemical, mechanical,

and seeding techniques, and to a lesser degree, RxFire to reduce fuel loads and maintain low-risk condition within WUI areas. In general, the more treatments a WUI area receives, the lower the long-term risk of that community experiencing a large fire. When RxFire is used, there would be some increased risk to public and fire-fighter health and safety, which is inherent to using any kind of fire treatment. These risks are short term and much lower than the risks associated with unwanted wildland fire. Mitigation measures and contingency plans would be in place to minimize the risk of an escaped RxFire.

Some WUI Areas of Concern have low relative potential risk projected for them under Alternative A (see Table 4-30 through Table 4-33), due to a low level of wildland fire historically. In those WUI Areas of Concern, where there have been high levels of wildland fire historically, without treatment, fuel loads and associated fire behavior would not diminish. Full-scale suppression would continue to be the primary tool in reacting to wildland fires, wildland fire damage to property would continue, financial and labor costs would increase, and the risk to public and fire-fighter health and safety would be ever increasing as more public land managers and property owners are faced with wildland fires.

Alternatives B, C, D, and E have low to high relative potential risks to WUI Areas of Concern, depending on historical levels of wildland fire and the amount of treatment proposed. Where treatment involves using RxFire, there would be a small increase in risk to public and fighter health and safety due to the unlikely possibility of an escaped fire. The small increase in risk due to using RxFire is overshadowed, however, by the benefits associated with treatment (i.e., substantially reduced risk to public and firefighter health and safety over the long run) Treatments over time would reduce the incidence of large wildland fire by reducing woody and/or herbaceous fuel loading, reducing fire intensity levels, increasing defensible space, and restoring native vegetation where feasible.

Of the five alternatives, the least amount of WUI acreage would be treated under Alternative A. Overall, the number of acres treated under Alternative A would be a minimum of 2.6 times less than that proposed under the other alternatives. Thus, potential consequences under Alternative A include worsening fuel conditions (e.g., increased fuel loads) for those communities that border areas with little or no vegetation treatments. It is expected that larger fires would be seen in these areas, increasing risk to public and fire-fighter health and safety.

TABLE 4-30. UPPER SNAKE FIELD OFFICE (USFO) WILDLAND URBAN INTERFACE (WUI) ALTERNATIVES

	Alternative A		Alternative B		Alternative C		Alternative D		Alternative E	
WUI Area Of Concern	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**
Butte City, Howe	0	Moderate	6,000	Low	15,650	Low	42,000	Low	42,000	Low
Chester, Dubois, Garfield, Hamer, Lewisville, Parker, Rigby, Roberts, St. Anthony, Ucon	10,720	Moderate	60,000	Moderate	83,669	Moderate	47,200	Moderate	83,669	Moderate
Aberdeen, Atomic City, Pingree, Rockford, Springfield, Sterling	1,850	High	70,000	Moderate	108,840	Moderate	270,800	Low	270,800	Low
Arco, Darlington, Lost River, Moore	0	Moderate	5,000	Low	29,680	Low	32,000	Low	32,000	Low
Blackfoot, Firth, Moreland, Riverside, Shelley	0	Low	1,000	Low	60	Low	290	Low	290	Low
Monteview, Mud Lake, Terreton	0	Moderate	10,000	Low	17,515	Low	48,000	Low	48,000	Low

TABLE 4-30. UPPER SNAKE FIELD OFFICE (USFO) WILDLAND URBAN INTERFACE (WUI) ALTERNATIVES

	Alternative A		Alternative B		Alternative C		Alternative D		Alternative E	
WUI Area Of Concern	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**
Ashton, Island Park, Kilgore, Macks Inn, Marysville, Spencer, Warm River	4,770	Low	7,000	Low	14,960	Low	3,500	Low	14,960	Low
Heise, Irwin, Lorenzo, Ririe, Swan Valley, Thornton	0	Low	2,000	Low	830	Low	3,000	Low	3,000	Low
Bone, Idaho Falls, Iona, Lincoln	0	Low	1,000	Low	1,100	Low	3,000	Low	3,000	Low
Driggs, Drummond, Felt, Newdale, Rexburg, Sugar City, Teton, Tetonia, Victor	0	Low	2,200	Low	550	Low	1,150	Low	1,150	Low
TOTAL	**17,340**		**164,200**		**272,854**		**456,940**		**498,869**	

[1] Includes chemical, mechanical, seeding, and RxFire treatments.

[2] Includes the risks associated with unwanted wildland fire over 10 years.

TABLE 4-31. POCATELLO FIELD OFFICE (PFO) WILDLAND URBAN INTERFACE (WUI) ALTERNATIVES

	Alternative A		Alternative B		Alternative C		Alternative D		Alternative E	
WUI Area Of Concern	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**
Basalt, Wayan	750	Low	500	Low	11,425	Low	13,850	Low	13,850	Low
American Falls, Chubbuck, Fort Hall, Inkom, Pocatello,	250	Moderate	8,500	Low	13,169	Low	7,000	Low	13,169	Low
Bennington, Bern, Bloomington, Dingle, Fish Haven, Georgetown, Montpelier, Ovid, Paris, St. Charles	0	Low	600	Low	2,166	Low	300	Low	2,166	Low
Geneva	0	Low	0	Low	19,600	Low	17,750	Low	19,600	Low
Bancroft, Conda, Soda Springs	200	Low	3,900	Low	5,400	Low	4,200	Low	5,400	Low
Arimo, Downey, Lava Hot Springs, McCammon, Virginia	175	Low	2,350	Low	6,054	Low	2,150	Low	6,054	Low
Banida, Grace, Mink Creek, Oxford, Samaria, Swanlake, Thatcher	100	Low	3,000	Low	6,025	Low	2,500	Low	6,025	Low

TABLE 4-31. POCATELLO FIELD OFFICE (PFO) WILDLAND URBAN INTERFACE (WUI) ALTERNATIVES

	Alternative A		Alternative B		Alternative C		Alternative D		Alternative E	
WUI Area Of Concern	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**
Clifton, Dayton, Franklin, Malad City, Preston, Weston	0	Low	300	Low	1,000	Low	300	Low	1,000	Low
Arbon, Pauline	500	Moderate	9,800	Low	48,371	Low	9,000	Low	48,371	Low
Holbrook, Stone	0	Low	6,000	Low	68,010	Low	42,000	Low	68,010	Low
Rockland	0	Moderate	600	Low	2,000	Low	600	Low	2,000	Low
TOTAL	**1,975**		**35,550**		**183,220**		**99,650**		**185,645**	

[1] Includes chemical, mechanical, seeding, and RxFire treatments.

[2] Includes the risks associated with unwanted wildland fire over 10 years.

TABLE 4-32. BURLEY FIELD OFFICE (BFO) WILDLAND URBAN INTERFACE (WUI) ALTERNATIVES

	Alternative A		Alternative B		Alternative C		Alternative D		Alternative E	
WUI Area Of Concern	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**
Buhl, Castleford, Hollister, Rogerson	3,200	Moderate	4,500	Moderate	15,763	Low	16,350	Low	16,350	Low
Acequia, Albion, Burley, Declo, Filer, Hansen, Heyburn, Kimberly, Minidoka, Murtaugh, Norland, Oakley, Paul, Rock, Creek, Rupert, Twin Falls	250	Moderate	1,850	Low	9,450	Low	6,550	Low	9,450	Low
Conner, Elba, Malta	4,875	Moderate	12,550	Moderate	24,583	Low	8,500	Moderate	24,583	Low
Almo	825	Moderate	3,000	Low	7,900	Low	3,200	Low	7,900	Low
TOTAL	**9,150**		**21,900**		**57,696**		**34,600**		**58,283**	

[1] Includes chemical, mechanical, seeding, and RxFire treatments.

[2] Includes the risks associated with unwanted wildland fire over 10 years.

TABLE 4-33. SHOSHONE FIELD OFFICE (SFO) WILDLAND URBAN INTERFACE (WUI) ALTERNATIVES

	Alternative A		Alternative B		Alternative C		Alternative D		Alternative E	
WUI Area Of Concern	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**	**Proposed Treatment-acres[1] (10-Yr Footprint-acres)**	**Relative Potential Risk to Public and Fire-fighter Health and Safety[2]**
Fairfield	8,725	Moderate	4,000	Moderate	27,100	Moderate	23,500	Moderate	27,100	Moderate
Bellevue, Hailey, Ketchum, Sun Valley	400	Low	3,000	Low	18,200	Low	5,950	Low	18,200	Low
Gannett, Picabo	0	Low	8,000	Low	38,117	Low	7,400	Low	38,117	Low
Dietrich	6,125	High	86,000	Moderate	166,526	Moderate	188,000	Moderate	188,000	Moderate
Richfield, Shoshone	780	High	27,000	Low	57,870	Low	48,730	Low	57,870	Low
Carey	37,995	High	6,000	High	68,608	Moderate	31,000	High	68,608	Moderate
Eden, Hagerman, Hazelton, Jerome, Wendell	0	Moderate	20,000	Low	30,822	Low	33,000	Low	33,000	Low
Corral, Hill City	0	Moderate	5,000	Low	85,493	Low	10,800	Low	85,493	Low
Bliss, Gooding, King Hill	0	Moderate	34,000	Low	56,326	Low	47,000	Low	56,326	Low
TOTAL	**54,025**		**193,000**		**549,062**		**395,380**		**572,714**	

[1] Includes chemical, mechanical, seeding, and RxFire treatments.

[2] Includes the risks associated with unwanted wildland fire over 10 years.

Alternatives C, D, and E propose the highest amount of treatment acres and therefore, would decrease risks to communities the most. Alternative D, however, focuses only on Low-elevation and Mid-elevation Shrub, Mountain Shrub, Perennial Grass, and Invasive Annual Grass vegetation cover types. For those WUI Areas of Concern that border forested BLM land, there would be no improvement and a likely worsening of existing conditions. Long-term impacts may be similar to Alternative A for those communities bordering forested BLM land. Alternative B proposed a moderate amount of treatment-acreage (in between Alternative A and Alternatives C/D). Those WUI Areas of Concern that are of highest priority (see Appendix J) would have a reduced risk to public and firefighter health and safety over the long term. Alternative E is the combination of Alternatives C and D in that it proposes the highest amount of treatment in Low-elevation and Mid-elevation Shrub, Mountain Shrub, Perennial Grass Invasive Annual Grass, Dry Conifer, Aspen, and Wet/Cold Conifer. Accordingly, it would make the most progress toward creating fire safe communities of all of the alternatives.

4.3.3 Mitigation and Monitoring

The management restrictions listed in Appendix Q, Management Restrictions, are incorporated into management practices common to all alternatives. These practices would be implemented to avoid adverse impacts to WUI. Because of this, no further mitigation would be required to protect the WUI.

4.3.4 Unavoidable Adverse Impacts

None of the action alternatives would have unavoidable adverse impacts on WUI in the planning area.

4.3.5 Irretrievable and Irreversible Commitment of Resources

None of the action alternatives would result in irretrievable or irreversible impacts on WUI.

4.3.6 Cumulative Effects

The most beneficial impact to WUI is the completion and implementation of the community-at-risk assessment by the counties and BLM. Also, the fire planning work undertaken in similar plans include the Sawtooth, Caribou, and Targhee National Forests management plans, and the Idaho Statewide Implementation Strategy for the National Fire Plan (2006) would help reduce the intensity and duration of fires in the planning area.

Additionally, the IDL, in conjunction with the BLM and other federal agencies, signed the Idaho Statewide Implementation Strategy for the National Fire Plan. The implementation plan focuses on fire preventions and suppression, hazardous fuels reduction, restoration of fire-adapted ecosystems, and the promotion of community assistance in fire management (IDL 2002). During 2002, IDL, in cooperation with federal agencies, disbursed $1.9 million to WUI projects and for the development of defensible space. Additional money was used for hazardous fuels reduction programs for several communities, including Island Park, Idaho (IDL 2002b). The development of risk assessments and mitigation plans would allow counties and communities within the planning area to determine their current fire hazard risk and to develop effective mitigation to

minimize urban-wildland risks to persons and property. Additionally, implementing community-based fuels reduction programs provides opportunities for private landowners to work with public land management agencies to manage the WUI. The projects that result from the Idaho Statewide Implementation Strategy for the National Fire Plan would likely contribute cumulatively to the decrease in fire risks to people and property at the WUI. Also, the community-based fuel reduction programs would help decrease the risk of large, intense fires, with associated lessened cumulative impacts to air quality, water quality, wildlife habitat, and soils.

4.4 ANALYSIS OF EFFECTS ON THE SAGEBRUSH STEPPE ECOSYSTEM (ISSUE 2)

This section details the effects of treatment levels on habitats for the Sagebrush Guild species across the alternatives. In doing so, this section addresses Issue 2 as described in Section 1.4.1, Issues Driving Development of Alternatives.

4.4.1 GENERAL ANALYSIS OF EFFECTS BY VEGETATION COVER TYPE

Short-term impacts to Sagebrush Guild habitats depend on which cover types are considered, as well as the kinds of treatments applied. Treatments of cheatgrass-dominated Invasive Annual Grass result in different effects than treatments in Perennial Grass, Low-elevation and Mid-elevation Shrub, and areas of juniper encroachment within Juniper. For purposes of analyzing the impacts on the Sagebrush Guild, Invasive Annual Grass (e.g., cheatgrass) is generally considered to be low-quality habitat. Treating Invasive Annual Grass results in few negative impacts on the Sagebrush Guild because this habitat provides little value to these species, and this trade-off benefits the habitat for the guild in the long-term. Treatments in Perennial Grass would rapidly recover and result in relatively light impact to the Sagebrush Guild. Treatments in Low-elevation and Mid-elevation Shrub and areas of juniper encroachment within Juniper would result in decreased habitat quality over the short-term due to reduced canopy cover and structural diversity. This would be a negative impact to Sagebrush Guild species. However, these treatments would occur in small areas within larger areas of sagebrush cover, and the impact to the Sagebrush Guild would be expected to be minimal. Generally, the Mid-elevation Shrub cover types would receive lesser levels of treatment. Treating juniper would improve and enhance habitat values for the Sagebrush Guild by replacing juniper with sagebrush steppe habitat.

4.4.2 ANALYSIS OF EFFECTS FOR THE UPPER SNAKE FIELD OFFICE (USFO)

4.4.2.1 Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass

4.4.2.1.1 Short-term Effects

Alternative treatment levels in these cover types range between approximately 4,250 acres (Alternative A) and 474,000 acres (Alternatives D and E) of sagebrush steppe, which is generally considered potential Sagebrush Guild habitat (Table 4-34).

Most of the Low-elevation Shrub, Perennial, and Invasive Annual Grass cover types in the USFO have been affected by increased fire frequencies. Among the five alternatives (see Table

4-34), Alternative A would have the least effect on these cover types. Alternative A would not restore cheatgrass and/or perennial-dominated areas to sagebrush, nor would it reconnect areas of relatively intact sagebrush canopy (Low-elevation Shrub). Alternatives D and E would improve and enhance more sagebrush steppe than the other alternatives. Alternatives B and C would improve intermediate levels of unsatisfactory sagebrush habitat.

TABLE 4-34. SAGEBRUSH STEPPE COVER TYPES AND THEIR ACREAGES IN THE UPPER SNAKE RIVER FIELD OFFICE (USFO)

Cover type	Total Acres in USFO	Alternatives (footprint-acres)[1]			
		A	B	C	D and E
Low-elevation Shrub	913,183	2,500	101,500	55,200	216,790
Perennial Grass	470,003	1,750	52,600	172,000	257,000
Invasive Annual Grass	36[3]	0	0	36	0
Mid-elevation Shrub	231,518	16,500	56,990	161,700	78,220
Juniper	5,380	0	2,200	3,300	900
Source Habitat[2]	776,333	0%	6.9%	7.7%	9.9%

[1] Footprint-acres describe broad treatment levels over 10 years for rehabilitation and restoration.

[2] Total acres of sage grouse Source Habitat and percentage of the area disturbed.

[3] As mapped (100% coverage of Invasive Annual Grass)

Other Notes: Fire and non-fire treatments over 10 years are also presented. Apparent precision of the acreages is a product of spreadsheet analysis.

Invasion of the sagebrush steppe by Invasive Annual Grass has been relatively minor in the Sands region (20 percent invasion) compared to Big Butte and Big Desert areas (more than 80 percent invasion). Perennial grass habitat in the USFO is predominately native grassland and provides essential habitat for Grassland Guild species. Alternatives D and E would treat approximately 257,000 acres of Perennial Grass (see Table 4-34) by seeding sagebrush to speed up the conversion to sagebrush steppe habitat, improving conditions for the Sagebrush Guild, and would have minimal short-term impact. The proposed treatments in Perennial Grass would have no short-term impact on the Grassland Guild.

4.4.2.1.2 Long-term Effects

Historically, Low-elevation Shrub had a relatively long fire frequency (approximately 60 years to 110 years); therefore, a fairly large percentage of the cover type should be mature grass and shrub that is greater than 30 years old (see Table 4-2), which provides quality habitat for the Sagebrush Guild. The <15-year and 15-year to 30-year age classes represent transitional (seral) states that are part of the historical ecology of sagebrush steppe. The percentage of uncharacteristic cheatgrass reflects the currently disturbed state of this vegetation type. Even though up to 20 percent of these conditions would be allowed, reducing them to a smaller percentage is desirable. The DFC cover type, which represents a historical sagebrush steppe cover type, would best benefit Sagebrush Guild species.

The current condition of the sagebrush steppe reflects the high degree of disturbance that has occurred in the past 30 years (see Table 4-2). Altered fire regimes have resulted in a significant decline in the quality of Sagebrush Guild habitat due to invasion by Invasive Annual Grass and noxious weeds, a scarcity of mid-seral vegetation, and fragmentation of the remaining late-seral sagebrush steppe habitat (e.g., the south and west portions of the Great Rift region). Invasive annual grasses and noxious weeds have altered this cover type's historical fire regime and successional framework. Some >30-year-old canopy structure remains, but much lacks a quality understory. The abundance of Perennial Grass (<15-year-old cover types-Table 4-2) illustrates recent, dramatic increases in wildland fire occurrences that have expanded this age class. The scarcity of the 15-year-old cover type also reflects the impact of repeated burns in the Perennial Grass which keeps this cover type in the early seral stage and prevents the development of an intermediate age class.

The current abundance of early seral stages, the absence of mid-seral stages, the loss of understory in late seral stages, the invasion by non-native vegetation and its accompanying altered fire regimes has placed the Sagebrush Guild at risk due to overall loss of habitat (see Table 4-2). Because of changes in fire ecology and succession, these cover types would not be expected to recover sufficiently to produce quality habitat for the Sagebrush Guild without implementing treatments.

The five alternatives would improve and enhance the quality of habitats for the Sagebrush Guild species to varying degrees. While all alternatives would significantly reduce cheatgrass, Alternatives D and E would be most effective. Alternatives D and E would also be best in keeping a relatively large proportion of mature, >30-year-old grass/shrub cover types while substantially improving the proportion of the 15-year-old to 30-year-old age class. These changes would provide a better distribution of age-classes (seral stages) of improved habitats for the Sagebrush Guild and improved herbaceous understory diversity; Alternatives D and E achieve this slightly better than the other alternatives.

For Sagebrush Guild species, the total acreage of mature, >30-year-old grass/shrub Low-elevation Shrub and loss of the intermediate, 15-year-old to 30-year grass/shrub are the major limiting factors in the sagebrush steppe. Current conditions emphasize the importance of the remaining >30-year-old age class, even though part of the understory is less than satisfactory. Alternatives D and E would provide the largest proportion of this mature habitat for the Sagebrush Guild.

Most of the improvement accomplished by all alternatives is the replacement of uncharacteristic cheatgrass-dominated cover types to native/native-like cover types and the movement of early seral stages into more mature cover types with a shrub overstory.

4.4.2.2 Mid-elevation Shrub and Juniper

4.4.2.2.1 Short-term Effects

Alternative treatment levels in these cover types range between approximately 16,500 acres (Alternative A) and 165,000 acres (Alternative C) of sagebrush steppe, which is generally considered potential Sagebrush Guild habitat (see Table 4-34).

Mid-elevation Shrub and Juniper have been affected by reduced fire frequencies and contain practically no cheatgrass-dominated areas. This, however, has aided the expansion of juniper into Mid-elevation Shrub and the loss of sagebrush steppe habitat. Mid-elevation Shrub would have high treatment levels under Alternative C and lesser levels under the other three alternatives (see Table 4-1). In recognition of the importance of the sagebrush cover that remains today, Alternatives D and E would treat less areas of juniper encroachment within Juniper and would disturb less intact sagebrush canopy in the Mid-elevation Shrub than Alternative C.

The greatest proportion of Source Habitat (approximately 10 percent) would be affected by Alternatives D and E (see Table 4-1). The rationale for treatment levels within Source Habitats in Alternatives D and E is to improve and enhance sagebrush steppe habitat. Alternatives D and E recognize the value of the Source Habitats that exist today to the Sagebrush Guild.

4.4.2.2.2 Long-term Effects

Historically, Mid-elevation Shrub had a short fire frequency (approximately 10 years to 25 years); therefore, a smaller percentage of the cover type would be greater than 15 years old. The <5-year-old and 5-years-old to 15-years-old age classes represent transitional (seral) states that are part of the historical ecology of Mid-elevation Shrub (see Table 4-3), with the mid-seral stage making up the greatest proportion of this cover type.

Current percentages of uncharacteristic juniper and cheatgrass (see Table 4-3) reflect the disturbed state of this cover type. Even though up to 9 percent of these uncharacteristic conditions would be allowed, reducing them to a smaller percentage is desirable. Because DFC without non-native species represents a historical sagebrush steppe cover type, this would be the most beneficial situation for the Sagebrush Guild of wildlife species by providing the necessary vegetation composition and structure for this habitat.

The current condition of Mid-elevation Shrub reflects the low degree of fire disturbance that has occurred in the past 30 years (see Table 4-3). This low degree of disturbance has resulted in a high proportion of late seral stages with dense, closed canopies and a lack of quality understory in portions of this cover type. This has affected its historical fire regime and successional framework. Mid-elevation Shrub is particularly crucial to Sagebrush Guild species because a relatively large portion of Low-elevation Shrub habitat has been adversely impacted by cheatgrass and frequent wildland fires. The Mid-elevation Shrub needs to be carefully managed. The proposed treatment areas (see Table 4-34) were designed to improve and enhance the quality of the understory without significantly reducing shrub cover, to replace the uncharacteristic cheatgrass-dominated cover types with native/native-like cover types, and to move early seral stages into more mature cover types with a shrub overstory. The low proportions of <5-years-old and 5-years-old to 15-years-old cover types demonstrate the recent decrease in wildland fire occurrences, which has resulted in the presence of virtually no early seral habitats.

The absence of early seral stages, the presence of few mid-seral stages, and the abundance of late seral stages has placed Sagebrush Guild species at risk due to overall loss of habitat quality (see Table 4-3). Under the current altered fire ecology, Mid-elevation Shrub would not recover to a satisfactory habitat quality for the Sagebrush Guild without implementing treatments.

The five alternatives would improve habitat quality for the Sagebrush Guild species to varying degrees. Alternative A provides for the least improvement, while Alternatives B, C, D, and E all provide for greater improvement. Alternatives D and E retains a large proportion of mid to late seral sagebrush (grass/shrub) habitat in Mid-elevation Shrub for the Sagebrush Guild, which would help offset the loss in Low-elevation Shrub cover types and help meet the short-term needs of these wildlife species. However, it would also place the vegetation type at highest risk of uncharacteristic large fire. Even though Alternative C more closely mimics the historical fire regime, it is not sensitive to the short-term needs of the Sagebrush Guild.

For the Sagebrush Guild, the total acreage of the 5-year-old to 15-year-old and >15-years-old age classes of Mid-elevation Shrub cover type is crucial. The lack of early seral stages does not adversely affect the sagebrush steppe in and of itself, yet the lack of replacement by younger-aged shrub cover types enables more cover types to reach a late seral stage, which would be more vulnerable to excessive wildland fire activity that could result in a loss of these stands.

4.4.3 Analysis of Effects for the Pocatello Field Office (PFO)

4.4.3.1 Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass

4.4.3.1.1 Short-term Effects

Alternative treatment levels in these cover types range between 0 acres (Alternative A) to approximately 69,000 acres (Alternatives D and E) of sagebrush steppe, which is generally considered potential Sagebrush Guild habitat (Table 4-35).

Table 4-35. Sagebrush Steppe Cover Types and Their Acreages in the Pocatello Field Office (PFO)

Cover type	Total Acres in PFO	Alternatives (footprint-acres)[1]			
		A	B	C	D and E
Low-elevation Shrub	38,244	0	0	2,700	18,950
Perennial Grass	108,255	0	1,300	53,300	50,200
Invasive Annual Grass	33[3]	0	0	33	0
Mid-elevation Shrub	143,599	0	5,700	102,000	21,900
Juniper	26,102	0	3,500	18,000	10,650
Source Habitat[2]	182,263	0%	0%	24%	26%

[1] Footprint-acres describe broad treatment levels over 10 years for rehabilitation and restoration.

[2] Total acres of sage grouse Source Habitat and percentage of the area disturbed.

[3] As mapped (100% coverage of Invasive Annual Grass).

Other Notes: Fire and non-fire treatments over 10 years are also presented. Apparent precision of the acreages is a product of spreadsheet analysis.

Compared to the planning area's other field offices, Low-elevation Shrub, Perennial, and Invasive Annual Grass cover types in the PFO have been least affected by recently increased wildland fire frequencies as very little Low-elevation Shrub or Perennial Grass have been

converted to Invasive Annual Grass (see Table 4-8). Among the five alternatives (see Table 4-35), Alternative A would have the least effect on sagebrush steppe. Alternative A would not restore any potential sagebrush steppe, while Alternative B would restore a very small proportion of sagebrush steppe. The higher treatment levels proposed in Alternatives D and E would improve habitat quality for the benefit of the Sagebrush Guild; whereas, the high treatment levels in Alternative C would restore historical fire regimes. Alternatives D and E would improve more low-quality sagebrush steppe habitat than the other three alternatives. The proposal to treat approximately 50,000 acres of Perennial Grass under Alternatives D and E is to re-establish sagebrush. This would result in an improvement of habitat for the Sagebrush Guild and would have minimal short-term impact on these wildlife species.

4.4.3.1.2 Long-term Effects

Historically, Low-elevation Shrub had a relatively long fire frequency (approximately 60 years to 110 years); therefore, a fairly large percentage of the cover type should be mature grass and shrub that is greater than 30 years old (see Table 4-9), which provides quality habitat for the Sagebrush Guild. The <15-year and 15- to 30-year age classes represent Perennial Grass and grass/shrub seral stages, respectively, that are part of the historical ecology of sagebrush steppe. The percentage of uncharacteristic cheatgrass reflects the currently disturbed state of this vegetation type. Even though up to 20 percent of these uncharacteristic conditions would be allowed, reducing them to a smaller percentage is desirable. Because DFC without non-native species represents a historical sagebrush steppe cover type, this would be the most beneficial situation for the Sagebrush Guild by providing the necessary vegetation composition and structure for this habitat.

The current condition of Low-elevation Shrub reflects the high degree of disturbance that has occurred in the past 30 years (see Table 4-9). This disturbance has resulted in the scarcity of intermediate (15-year to 30-year) and mature (>30-year) grass/shrub cover types, an overabundance of uncharacteristic cheatgrass-dominated stands, fragmentation of the sagebrush steppe habitat, increased wildland fire frequencies, and a significant decline in the quality of the habitat for the Sagebrush Guild. This currently altered fire regime has affected the historical successional framework and the ability of the sagebrush steppe ecosystem to be maintained. The >30-year old habitat lacks a quality understory. The current predominance (32 percent) of the early seral, <15-year old cover types demonstrate the current altered fire regime (see Table 4-9). The scarcity of mid-seral, 15-year to 30-year old cover types (5 percent) also reflects the occurrence of frequent wildland fires that prevent early seral stages from developing into mid-seral stages (grass/shrub).

The currently altered habitat with an abundance of early seral stages, limited mid-seral stages, and degraded late seral stages has placed Sagebrush Guild species at risk. Because of changes in fire ecology and succession, these cover types would not be expected to recover quality habitat for the Sagebrush Guild without implementing proactive treatments.

The five alternatives would improve the quality of habitats for the Sagebrush Guild to varying degrees (see Table 4-9). Alternative A and Alternative B would provide the least improvement. Alternatives C, D, and E would both provide the best improvement (i.e., mid-seral and late seral, grass/shrub) for the Sagebrush Guild, while D and E are slightly better (sum of mid-seral and late

seral grass/shrub = 53 percent and 61 percent, respectively) and would produce the largest proportion of this mature habitat for the Sagebrush Guild.

For the Sagebrush Guild, the reduced proportions of the >30-year and 15-year to 30-year cover types provide the most adverse impact to the sagebrush steppe. Even though parts of their understories are less than satisfactory, the total combination of acreages in these age classes is the most important habitat for the Sagebrush Guild in the PFO.

Most of the improvement provided by Alternatives C, D, and E would occur through replacing the uncharacteristic cheatgrass-dominated cover types with native/native-like cover types and moving early seral stages into more mature cover types with a shrub overstory.

4.4.3.2 Mid-elevation Shrub and Juniper

4.4.3.2.1 Short-term Effects

Alternative treatment levels in these cover types range between 0 acres (Alternative A) to approximately 120,000 acres (Alternative C) of sagebrush steppe, which is generally considered potential Sagebrush Guild habitat (see Table 4-35). Mid-elevation Shrub and Juniper have been affected by reduced wildland fire frequencies. The reduced frequencies have provided the means for juniper to expand into Mid-elevation Shrub with the loss of sagebrush steppe habitat. Alternative C would treat more of these cover types than the other alternatives (see Table 4-35). Alternatives D and E, in recognition of the importance of remaining sagebrush cover, would treat less areas of juniper encroachment within Juniper. They would disturb less intact sagebrush canopy in the Mid-elevation Shrub than Alternative C, but would treat more sagebrush steppe than Alternative A and Alternative B.

The greatest proportion of Source Habitat (approximately 24 percent) would be affected by Alternative C, while the more desirable treatment level (approximately 16 percent) would be found under Alternatives D and E (see Table 4-35). Treatments within Source Habitats would improve sagebrush steppe habitat, benefiting the Sagebrush Guild by not reducing shrub canopy.

4.4.3.2.2 Long-term Effects

Historically, Mid-elevation Shrub had a short fire frequency (approximately 10 years to 25 years); therefore, under DFC, a small percentage of the cover type would be greater than 15 years old ((see Table 4-10). The <5-year and 5-year to 15-year age classes represent transitional seral states that are part of the historical ecology of Mid-elevation Shrub with the mid-seral stage making up the greatest proportion of this cover type.

The percentages of uncharacteristic juniper and cheatgrass reflect the current disturbed state of this cover type. Even though up to 9 percent of these uncharacteristic conditions would be allowed, reducing them to a smaller percentage is desirable. Because DFC represents a historical sagebrush steppe cover type, this would be the most beneficial situation for the Sagebrush Guild by providing the necessary vegetation composition and structure for this habitat.

The current condition of Mid-elevation Shrub reflects the low degree of fire disturbance that has occurred in the past 30 years (see Table 4-10). This low degree of disturbance has resulted in a

higher (61 percent) than desirable (23 percent) percentage of late seral stages. Due to the loss of Low-elevation Shrub through recent wildland fires, however, this Mid-elevation Shrub is crucial to the Sagebrush Guild; and, therefore, needs to be carefully managed. The proposed treatments would improve the quality of the understory without significantly reducing shrub cover and would replace uncharacteristic cheatgrass-dominated cover types with native/native-like cover types, reducing juniper encroachment and moving early seral stages into more mature cover types with a shrub overstory. The current percentages of <5-year old cover types (16 percent) and 5-year to 15-year old cover types (7 percent) illustrate the lack of wildland fire in these age classes and reflect little to no succession from early seral to higher successional states in the past 30 years.

The amount of early seral stages, the presence of few mid-seral stages, and the abundance of late seral stages in this cover type has placed the Sagebrush Guild at risk due to an overall loss of habitat quality and an increased potential for large wildland fire. All alternatives would have practically the same effect on Perennial Grasses and their related wildlife species. Alternative A and Alternative B would permit small increases in juniper, but this would exacerbate juniper encroachment in the PFO. Alternative A and Alternative B would do little to change current conditions, leaving habitat quality to decline with juniper encroachment. Alternatives C, D, and E would significantly increase the 5-year to 15-year grass/shrub cover type and retain more than half of the >15-year grass/shrub cover type. These three alternatives would increase the combined percentages of the grass/shrub components (72 percent and 73 percent, respectively), which would benefit Sagebrush Guild species. For the Sagebrush Guild, the total percentages of the 5-year to 15-year and >15-year age classes within Mid-elevation Shrub are crucial. The lack of early seral stages does not adversely affect the sagebrush steppe in and of itself, yet the lack of replacement by younger-aged shrub cover types enables more cover types to reach a late seral stage, which would be more vulnerable to excessive wildland fire activity that could result in a loss of these stands.

In returning wildland fire to a more historical role in the ecosystem, a greater proportion of Alternative C treatments would occur outside of Sagebrush Guild habitats; those treatments within guild habitats would maintain less shrub cover than Alternatives D and E. Alternative C is not designed to be sensitive to the needs of the Sagebrush Guild. On the other hand, Alternatives D and E would enhance and restore the current shortage of sagebrush steppe, recognizing that remaining habitats are crucial to the maintenance of remaining Sagebrush Guild populations. Treatment-acres in Alternatives D and E would be located on the landscape to have the maximum benefit in restoring Sagebrush Guild habitats.

4.4.4 Analysis of Effects for the Burley Field Office (BFO)

4.4.4.1 Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass

4.4.4.1.1 Short-term Effects

Alternative treatment levels in these cover types range between approximately 50,000 acres (Alternative B) and 185,000 acres (Alternative C, D, and E) of sagebrush steppe (Table 4-36), which is generally considered potential Sagebrush Guild habitat.

Most of the Low-elevation Shrub, Perennial, and Invasive Annual Grass cover types in the BFO have been affected by increased wildland fire frequencies. Among the five alternatives, Alternative A would do the least to restore cheatgrass and would restore a moderate level of Perennial Grass and Low-elevation Shrub (see Table 4-36). Alternative B would do less to fix the deficiencies in the Low-elevation Shrub and Perennial Grass with a moderate increase of treatments in Invasive Annual Grass. The magnitude of treatments in Alternatives C, D, and E would be similar in the Low-elevation Shrub, Perennial, and Invasive Annual Grass cover types.

TABLE 4-36. SAGEBRUSH STEPPE COVER TYPES AND PROPOSED TREATMENTS BY ALTERNATIVE IN THE BURLEY FIELD OFFICE (BFO)

Cover Type	Total Acres in BFO	Alternatives (footprint-acres)[1]			
		A	B	C	D and E
Low-elevation Shrub	164,756	25,175	15,750	26,300	29,300
Perennial Grass	309,128	57,625	9,600	109,600	107,300
Invasive Annual Grass	49,150[3]	15,925	24,850	49,069	48,850
Mid-elevation Shrub	162,524	7,575	14,200	106,063	72,500
Juniper	59,480	800	24,650	39,229	17,600
Source Habitat[2]	172,396	0%	36%	14%	12%

[1] Footprint-acres describe broad treatment levels over 10 years for rehabilitation and restoration.
[2] Total acres of sage grouse Source Habitat and percentage of the area disturbed.
[3] As mapped (100% coverage of Invasive Annual Grass).
Note: Apparent precision of the acreages is a product of spreadsheet analysis.

Converting the sagebrush steppe to annual and Perennial Grass cover types has had a major impact on the sagebrush ecosystem. Invasive annual grass provides minimal habitat values for the Sagebrush Guild. Perennial grass is a mixture of non-native and native grasses, which provides essential habitat for the Grassland Guild species, but not the Sagebrush Guild species. Some of the older, non-native perennial seedings have been extensively re-established by sagebrush and are beginning to provide suitable habitat values for the Sagebrush Guild. The proposal to treat more than 100,000 acres of Perennial Grass (see Table 4-36) under Alternatives C, D, and E would facilitate the restoration of sagebrush steppe habitat and would have minimal short-term impacts. The proposed treatments in Perennial Grass would have no significant short-term impact on the Grassland Guild.

4.4.4.1.2 Long-term Effects

Historically, Low-elevation Shrub had a relatively long fire frequency (approximately 60 years to 110 years); therefore, a fairly large percentage of the cover type should be mature grass and shrub that is greater than 30 years old (see 4.16), which provides quality habitat for the Sagebrush Guild. The <15-year and 15-year to 30-year age classes represent transitional (seral) states that are part of the historical ecology of Low-elevation Shrub. The percentage of uncharacteristic cheatgrass reflects the currently disturbed state of this vegetation type. Even though up to 20 percent of these uncharacteristic conditions would be allowed, reducing them to a smaller percentage is desirable. Because DFC without non-native species represents a historical

sagebrush steppe cover type, this would be the most beneficial situation for the Sagebrush Guild by providing the necessary vegetation composition and structure for this habitat.

The current condition of this cover type reflects the high degree of disturbance that has occurred in the past 30 years (see Table 4-16). This disturbance has resulted in the scarcity of intermediate (15 years to 30 years) and mature (> 30-years) grass/shrub cover types, an overabundance of uncharacteristic cheatgrass-dominated stands (e.g., the desert north of Minidoka), fragmentation of the sagebrush steppe habitat, increased wildland fire frequencies, and a significant decline in the quality of the habitat for the Sagebrush Guild. This currently altered fire regime has affected the historical successional framework and the ability of the sagebrush steppe ecosystem to be maintained. These impacts have affected its historical fire regime and successional framework. The >30-year-old habitat lacks quality understory. The scarcity of intermediate, 15-year to 30-year grass/shrub cover types and the abundance of <15-year old cover types reflect the recent dramatic increase in wildland fire occurrences, which have resulted in cheatgrass-dominated areas, and little successional transition into the mid-seral, 15-year-old to 30-year-old age class.

An abundance of early seral stages, a near absence of mid-seral stages, and the degradation of late seral stages have placed the Sagebrush Guild at risk from an overall loss of habitat. Adversely affected by changes in fire regime and succession, Low-elevation Shrub would not be expected to recover sufficiently to produce quality habitat for the Sagebrush Guild without implementing treatments.

The five alternatives would improve habitat quality for the Sagebrush Guild to varying degrees. Alternative A and Alternative B would have little to no effect on the present conditions of Low-elevation Shrub, Perennial, and Invasive Annual Grass (see Table 4-16) in the BFO. Alternatives C, D, and E would both improve habitat quality. Alternatives D and E, however, would provide slightly more acres in mid-seral stages than Alternative C. Alternatives C, D, and E would equally maintain the current >30-year, mature grass/shrub cover types and provide the greatest reductions in cheatgrass from 33 percent to 10 percent composition. Alternatives D and E would make the largest increase in the mid-seral (15 to 30 years) cover types. Restoring these acres to sagebrush steppe would significantly increase habitat quality for Sagebrush Guild species.

For the Sagebrush Guild, total acreage of mature, late seral Low-elevation Shrub is the most limiting factor in this habitat. Even though part of the understory is less than satisfactory, the total acreage of late and mid-seral grass/shrub mixture stages (>30-year and 15-year to 30-year age classes) is the most important habitat factor. Alternatives D and E would result in the greatest increase in acres of these two age classes.

Most of the improvement from the current situation provided by the alternatives would occur in replacing the uncharacteristic cheatgrass-dominated cover types to native/native-like cover types and moving early seral stages into more mature cover types with a shrub overstory.

4.4.4.2 Mid-elevation Shrub and Juniper

4.4.4.2.1 Short-term Effects

Alternative treatment levels in these cover types range between approximately 8,400 acres (Alternative A) and 145,000 acres (Alternative C) of sagebrush steppe (see Table 4-36), which is generally considered potential Sagebrush Guild habitat.

Mid-elevation Shrub and Juniper in the BFO have been affected by reduced wildland fire frequencies and areas of juniper encroachment within Juniper (e.g., portions of the Upper Raft River Valley), resulting in the loss of sagebrush steppe habitat. Alternative A would do the least to restore Mid-elevation Shrub and areas of juniper encroachment within Juniper. Alternative B would provide a moderate increase of treatments in Mid-elevation Shrub, yet permit a significant increase in juniper encroachment.

Similar to Low-elevation Shrub (above), treatment levels in Alternative C would be higher than in the other alternatives. Nevertheless, Alternatives D and E would treat large areas of potential sagebrush steppe (approximately 18,000 acres of juniper encroachment), but it would treat less juniper encroachment within Juniper and disturb less intact sagebrush canopy than Alternative C. Compared to Alternative C, Alternatives D and E would have less effect on Mid-elevation Shrub and Juniper.

In returning fire to a more historical role in the ecosystem, a greater proportion of treatments in Alternative C would occur outside of Sagebrush Guild habitats; those treatments within guild habitats would maintain less shrub cover than Alternatives D and E. Alternative C would not be sensitive to the needs of the Sagebrush Guild. Under Alternative D, treatments would enhance sagebrush steppe habitat and would attempt to address its current shortage, recognizing that remaining habitats are crucial to the maintenance of remaining Sagebrush Guild populations. Treatment-acres in Alternatives D and E would be located on the landscape for maximum benefit in restoring Sagebrush Guild habitats.

Approximately 12 percent of sage grouse Source Habitats would be affected by Alternatives D and E (see Table 4-36). The rationale for treatment levels within Source Habitats in Alternatives D and E is to improve and enhance sagebrush steppe habitat. These alternatives recognize the value of the Source Habitats that exist today to the Sagebrush Guild.

4.4.4.2.2 Long-term Effects

Historically, Mid-elevation Shrub had a short fire frequency (approximately 10 years to 25 years); therefore, a relatively small percentage of the cover type should be greater than 15 years old (see Table 4-17). The <5-year and 5-year to 15-year age classes represent early and mid-seral seral stages that are part of the historical ecology of the Mid-elevation Shrub, with the mid-seral stage making up the greatest proportion of this cover type. The percentages for juniper and cheatgrass in Table 4-17 reflect the current disturbed state of this cover type. Even though up to 9 percent of these uncharacteristic conditions would be allowed, reducing them to a smaller percentage is desirable. Because DFC without non-native species represents a historical sagebrush steppe cover type, this would be the most beneficial situation for the Sagebrush Guild.

The current condition of this cover type reflects both large areas that have experienced too much wildland fire and smaller areas that have not experienced enough wildland fire in the past 30 years (see Table 4-17); both situations exist in the South Hills. This has produced fragmentation of the sagebrush steppe and a decline in habitat quality that is further aggravated, in part, by juniper encroachment within Juniper and the invasion of Invasive Annual Grass and noxious weeds (see Table 4-17). These altered cover types have affected the Mid-elevation Shrub's historical fire regime and successional framework. The limiting factor in the >15-year old habitat is primarily the loss of sagebrush from juniper encroachment. The current low percentage of <5-year cover types (1 percent) and 5-year to 15-year old cover types (6 percent) reflects the lack of wildland fire in these age classes and the little to no succession from early seral to higher successional states in the past 30 years.

The current lack of early seral stages, the presence of few mid-seral stages, and the abundance of mature, late seral stages has placed the Sagebrush Guild at risk by loss of habitat from large wildland fires. Furthermore, encroachment by juniper and the invasion of non-native species have affected this cover type's historical fire regime and successional framework.

The five alternatives would improve habitat quality for Sagebrush Guild species to varying degrees. Alternative A would provide the least improvement; Alternative B would do only slightly better than Alternative A (see Table 4-17). Alternatives D and E would provide for the greatest improvement in habitat quality. Alternatives D and E would create the largest portions of mid-seral and late seral sagebrush habitats for the Sagebrush Guild. For improving the Mid-elevation Shrub cover type, Alternative C would reduce most of the >15-year age class from 63 percent to 40 percent, while Alternatives D and E would reduce it to 48 percent. Most of the improvement under Alternatives C, D, and E would be in the increase of the <5-year and 5-year to 15-year age classes, the reduction of the >15-year age class, and the replacement of the uncharacteristic juniper and cheatgrass-dominated cover types with native/native-like cover types, which would facilitate the movement of early seral stages into more mature cover types with a shrub overstory.

In returning fire to a more historical role in the ecosystem, a greater proportion of Alternative C treatments would occur outside of Sagebrush Guild habitats; those treatments within guild habitats, however, would maintain less shrub cover than under Alternatives D and E. Alternative C would not be sensitive to the needs of the Sagebrush Guild. Under Alternatives D and E, treatments would enhance sagebrush steppe habitat and would attempt to address its current shortage, recognizing that remaining habitats are crucial to the maintenance of remaining Sagebrush Guild populations. Treatment-acres in Alternatives D and E would be located on the landscape for maximum benefit in restoring Sagebrush Guild habitats.

4.4.5 ANALYSIS OF EFFECTS FOR THE SHOSHONE FIELD OFFICE (SFO)

4.4.5.1 Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass

4.4.5.1.1 Short-term Effects

Alternative treatment levels in these cover types range between approximately 109,000 acres (Alternative A) and 534,000 acres (Alternative C) of sagebrush steppe, which is generally considered potential Sagebrush Guild habitat (Table 4-3).

Most of the Low-elevation Shrub, Perennial, and Invasive Annual Grass cover types in the SFO have been affected by increased wildland fire frequencies. Among the five alternatives (see Table 4-37), Alternative A would have the least effect on sagebrush steppe, would do little to restore cheatgrass-dominated areas and Perennial Grass, and would do little to reconnect areas of relatively intact sagebrush canopy (Low-elevation Shrub). Treatment levels in Alternative B would be intermediate. The higher treatment levels proposed in Alternatives C, D, and E would correct existing, altered ecological conditions. Because large acreages are now of low quality, Alternatives C, D, and E would improve more sagebrush steppe than the other alternatives, but Alternatives D and E would affect less intact shrub canopy than Alternative C.

TABLE 4-37. SAGEBRUSH STEPPE COVER TYPES AND THEIR ACREAGES IN THE SHOSHONE FIELD OFFICE (SFO)

Cover type	Total Acres in SFO	Alternatives (footprint-acres)[1]			
		A	B	C	D and E
Low-elevation Shrub	415,308	5,525	84,000	62,831	112,230
Perennial Grass	548,807	96,505	70,500	193,619	113,500
Invasive annual grass	281,362[3]	6,700	102,500	281,362	281,600
Mid-elevation Shrub	311,194	850	17,550	200,000	58,000
Juniper	4	0	0	0	0
Source Habitat[2]	332,187	0%	0%	2%	9%

[1] Footprint-acres describe broad treatment levels over 10 years for rehabilitation and restoration.

[2] Total acres of sage grouse Source Habitat and percentage of the area disturbed.

[3] As mapped (100% coverage of Invasive Annual Grass).

Other Notes: Fire and non-fire treatments over 10 years are also presented. Apparent precision of the acreages is a product of spreadsheet analysis.

In returning fire to a more historical role in the ecosystem, a greater proportion of Alternative C treatments would occur outside of Sagebrush Guild habitats; treatments within guild habitats would maintain less shrub cover than under Alternatives D and E. Alternative C would not be sensitive to the needs of the Sagebrush Guild. Under Alternatives D and E, treatments would enhance sagebrush steppe habitat and would attempt to address its current shortage, recognizing that remaining habitats are crucial to the maintenance of remaining Sagebrush Guild populations. Treatment-acres in Alternatives D and E would be located on the landscape for maximum benefit in restoring Sagebrush Guild habitats.

In the SFO, conversion of sagebrush steppe to Invasive Annual Grass has been significantly greater than in the other field offices. At lower elevations, Perennial Grass is predominately seeded grassland and provides habitat for Grassland Guild species. Alternatives D and E would treat approximately 114,000 acres of sagebrush steppe habitat to enhance the conversion of Perennial Grass to sagebrush steppe habitat and would have minimal short-term impact. The proposed treatments in Perennial Grass would have no significant short-term impact on the Grassland Guild.

4.4.5.1.2 Long-term Effects

Historically, Low-elevation Shrub had a relatively long fire frequency (approximately 60 years to 110 years); therefore, a fairly large percentage of the cover type should be mature grass and shrub that is greater than 30 years old (see Table 4-24). This mature vegetation provides quality habitat for the Sagebrush Guild. The <15-year and 15-year to 30-year age classes represent early and mid-seral stages that are part of the historical ecology of Low-elevation Shrub. The percentage of uncharacteristic cheatgrass reflects the currently disturbed state of this vegetation type. Even though up to 20 percent of these uncharacteristic conditions would be allowed, reducing them to a smaller percentage is desirable. Because DFC without non-native species represents a historical sagebrush steppe cover type, this would be the most beneficial situation for the Sagebrush Guild by providing the necessary vegetation composition and structure for this habitat.

The current condition of Low-elevation Shrub reflects the high degree of disturbance that has occurred in the past 30 years (see Table 4-24) and the current scarcity of mature grass/shrub cover types in the SFO. Disturbance has resulted in fragmentation of the sagebrush steppe habitat and a significant decline in habitat quality due to the loss of the mature shrub canopy and the invasion of Invasive Annual Grass and noxious weeds. These species have affected this cover type's historical fire regime and successional framework. The limiting factors in the >30-year old habitat is primarily the scarcity of sagebrush cover across the landscape and the lack of quality understory. The near absences of early <15-year old and intermediate 15-year to 30-year-old cover types also illustrate the recent dramatic increases in wildland fires in Low-elevation Shrub, which have resulted in an abundance of cheatgrass-dominated vegetation and an altered fire ecology in which sagebrush is limited in its ability to replace itself.

The current abundance of uncharacteristic cheatgrass communities, which accounts for 42 percent (see Table 4-24) and near absence of early-seral and mid-seral communities, about 5 percent (Table 4-24) have placed the Sagebrush Guild species at risk due to overall loss of habitat. Because of changes in fire ecology and succession, Low-elevation Shrub would not be expected to recover sufficiently to produce quality habitat for the Sagebrush Guild without implementing proactive treatments.

The five alternatives would improve habitat quality for Sagebrush Guild species to varying degrees. Alternative C would be best at maintaining the current proportion of mature grass/Shrub cover types for the Sagebrush Guild, while the other alternatives would permit some losses of this habitat. Alternatives D and E, on the other hand, would be slightly better in restoring early and mid-seral stages and reducing the abundance of cheatgrass. For the Sagebrush Guild, the total acreage of the mature, >30-year grass/shrub cover type is the most limiting factor in the

sagebrush steppe. Even though part of the >30-year age class understory is less than satisfactory, the total acreage of >30-year age classes is the most important habitat factor. Alternative A and Alternative B would have the greatest negative impact on the Sagebrush Guild due to permitting large reductions in the mature habitat, >30-year age classes, from 28 percent to 12 and 14 percent, respectively. Alternatives D and E would have an intermediate impact on mature habitat, while Alternative C would more or less maintain the existing mature sagebrush cover >30 years old.

Most of the improvement under all alternatives would be to replace the uncharacteristic cheatgrass-dominated cover types with native/native-like cover types and to move early seral stages into more mature cover types with a shrub overstory.

4.4.5.2 Mid-elevation Shrub and Juniper

4.4.5.2.1 Short-term Effects

In the SFO, alternative treatment levels in these cover types range between 850 acres (Alternative A) and 200,000 acres (Alternative C) of sagebrush steppe, which is generally considered potential Sagebrush Guild habitat (see Table 4-37).

Mid-elevation Shrub and Juniper have been affected by increased wildland fire frequencies. This has caused the loss of sagebrush steppe habitat. Alternative C would treat more acres than the other alternatives (see Table 4-25). Alternatives D and E, in recognition of the importance of remaining sagebrush cover, would disturb less intact sagebrush canopy in the Mid-elevation Shrub than Alternative C.

The greatest proportion of sage grouse Source Habitat (approximately 9 percent) would be affected by Alternatives D and E (see Table 4-37). The rationale for treatment levels within Source Habitats (e.g., Laidlaw Park) in Alternatives D and E is to improve and enhance sagebrush steppe habitat. These alternatives recognize the value of the Source Habitats that exist today to the Sagebrush Guild.

4.4.5.2.2 Long-term Effects

Historically, Mid-elevation Shrub had a short fire frequency (approximately 10 years to 25 years); therefore, a smaller percentage of the cover type would be greater than 15 years old (see Table 4-25). The <5-year and 5-year to 15-year age classes represent early to mid-seral stages that are part of the historical ecology of Mid-elevation Shrub, with the mid-seral stage making up the greatest proportion of this cover type.

The percentages of uncharacteristic juniper and cheatgrass reflect the current disturbed state of the Mid-elevation Shrub (see Table 4-25). Even though up to 9 percent of these uncharacteristic conditions would be allowed, reducing them to a smaller percentage is desirable. Because DFC without non-native species represents a historical sagebrush steppe cover type, this would be the most beneficial situation for the Sagebrush Guild by providing the necessary vegetation composition and structure for this habitat.

The current condition of Mid-elevation Shrub reflects the moderate degree of wildland fire disturbance that has occurred in the past 30 years. This moderate degree of disturbance has resulted in a higher (40 percent) than desirable (23 percent) percentage of early seral stages. Because of the loss of Low-elevation Shrub through recent wildland fires, this existing Mid-elevation Shrub is crucial to maintaining the Sagebrush Guild; it therefore needs to be carefully managed. The proposed level of treatments under Alternatives C, D, and E (see Table 4-37) would improve and enhance the quality of the understory without significantly reducing shrub cover, while replacing the uncharacteristic cheatgrass-dominated cover types with native/native-like cover types and moving early seral stages into more mature cover types with a shrub overstory. The current low percentage of 5-year-old to 15-year-old cover types illustrates the combination of recent wildland fire occurrences and the lack of succession from early seral in the past 30 years.

The abundance of early seral stages (40 percent), the presence of few mid-seral stages (2 percent), and the abundance of decadent, late seral stages (54 percent) have placed the Sagebrush Guild at risk from overall loss of habitat quality. All five alternatives would cause similar long-term impacts to the Sagebrush Guild; although, Alternatives D and E would provide the highest percentage of grass/shrub cover type restoration, which would benefit the Sagebrush Guild by providing the necessary vegetation composition and structure for this habitat. All alternatives would result in an increase in the 5-year to 15-year grass/shrub age class through treatments in <5-year Perennial Grass. This conversion would have a positive effect on habitat for the Sagebrush Guild by providing the necessary vegetation composition and structure for this habitat.

4.4.6 Mitigation and Monitoring

The management restrictions listed in Appendix Q, Management Restrictions, are incorporated into management practices common to all alternatives. These practices would be implemented to avoid adverse impacts to vegetation. Because of this, no further mitigation would be required to protect the vegetation resource.

Prior to any vegetation treatment, preparation of site-specific NEPA analysis would occur. The impacts analysis would include consideration for T&E and BLM-Sensitive plant species and habitats, including mitigation to prevent significant adverse impacts to these species. Management restrictions for T&E and BLM-Sensitive Species are found in Appendix Q, Management Restrictions.

4.4.7 Unavoidable Adverse Impacts

The action alternatives would result in unavoidable short-term impacts to sagebrush steppe wildlife habitat during vegetation treatments as described above. However, these unavoidable impacts mimic a natural disturbance and succession pattern that would have long-term benefits on this resource.

4.4.8 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

The action alternatives would result in irretrievable short-term losses to sagebrush steppe wildlife habitat during vegetation treatments as described above. However, these losses are not irreversible and would be restored through implementing a rehabilitation and restoration program as described in Chapter 2.

4.4.9 CUMULATIVE EFFECTS

Settlement of the Snake River Plain and Southeast Idaho resulted in significant fragmentation of the sagebrush ecosystem into two large blocks of habitat and several small isolated populations of Sagebrush Guild species. A large block of sagebrush steppe remained north of the Snake River, generally within the Bennett Hills-Big Desert region and extending to and beyond the St. Anthony Dunes region. These areas have been further fragmented by agricultural development. South of the Snake River, the sagebrush steppe ecosystem was somewhat fragmented due to the influences of the Basin and Range, mountain, and valley topography. Settlement of many of the valley areas further isolated the sagebrush steppe habitats to the mountains and foothills. Some of these areas are connected to sagebrush habitats to the south in Utah and Nevada. Other habitats were completely isolated from other sagebrush areas. There is no continuous sagebrush steppe habitat link crossing the Snake River north to south. This area has been converted to non-native annual and Perennial Grass.

As a result of habitat fragmentation, less mobile populations of wildlife have been isolated from other populations of the same species. Mobile species had access to large habitat areas until the large-scale wildland fires that began to regularly occur in the 1990s. In the planning area, there was a large Sagebrush Guild population in the Big Desert and adjacent areas north of the Snake River, and numerous, mostly fragmented, populations south and east of the river. The Big Desert area provided habitat for all Sagebrush Guild species except for the California bighorn sheep (*Ovis canadensis californiana)*. All of these populations were generally considered to be healthy and viable until the wildland fire proliferation began. As the result of these vast burned areas and the invasion of cheatgrass and noxious weeds, there is now significant concern for many wildlife populations, particularly sage grouse, pygmy rabbit (*Brachylagus idahoensis*), and others as well.

The wildlife populations in the fragmented habitats are all facing great risk to their prolonged viability due to genetic isolation and general inadequacy of habitat quality and quantity. Sedentary and wide-ranging species both face serious risk. Sedentary species are very sensitive to patch size and are at risk due to habitat loss and fragmentation and population isolation. Wide-ranging species, that need large landscape habitats, such as sage grouse and pronghorn (*Antilocapra americana*), may be able to use some remaining habitat fragments if they are not too isolated, but are still very significantly affected by the overall loss of habitat (U.S. Geological Survey [USGS] 2004).

All alternatives would treat existing and potential sagebrush steppe cover types and wildlife habitats. Alternative A, however, would be least effective in improving sagebrush habitat for the Sagebrush Guild. Alternative B would have a more beneficial effect, while Alternatives C, D, and E would have the greatest beneficial effects. Although the footprint-acreage of Alternative C

is large, there is no particular landscape strategy proposed to maximize the benefit of these treatments to the Sagebrush Guild. Only Alternatives D and E contain a landscape strategy that would not treat intact shrub canopy in sage grouse Source Habitats and would provide the greatest benefit to sage grouse and the Sagebrush Guild by providing the necessary vegetation composition, continuity, and structure for this habitat.

Environmental and non-environmental factors (e.g., weather, predation, disease, forage competition, hunter harvest, and loss of suitable habitat on private lands from urban expansion and agricultural development) may limit the productivity and viability of Sagebrush Guild species, including sage grouse, over the long term.

Habitat conditions on adjacent USFS lands (including management of roads and fuels treatments) may also affect the Sagebrush Guild species, which depends on both USFS and adjacent public lands. However, due to relatively low amounts of sagebrush habitat on USFS lands, actions there would have less affect to the Sagebrush Guild populations than the adjacent BLM-administered lands, which generally have much less resilient conditions and more significant acreages of sagebrush habitats.

Implementing management direction that improves vegetation conditions would contribute to improving habitat for the Sagebrush Guild, while maintaining and/or improving populations of Sagebrush Guild species. Emphasis on suppression of wildland fires on public, private, state, and USFS lands in the planning area would continue to be emphasized at present levels until a NEPA evaluation was performed for site-specific projects.

Due to the emphasis of treatments, some species of the Sagebrush Guild may decline or be displaced to adjacent sagebrush areas in the short term while the activity is occurring. FMDA stipulations on sagebrush steppe cover types, buffer zones around riparian areas, sensitive raptor nests, the maintenance of sage grouse Source Habitat, and other sagebrush steppe and fire management actions would assist in mitigating these declines.

4.5 ANALYSIS OF EFFECTS ON WILDLIFE RESOURCES AND T&E AND BLM-SENSITIVE SPECIES

To facilitate the analysis of existing wildlife resources at the planning area-wide level required for this EIS, it was decided to categorize wildlife species into guilds associated with the cover types described in Section 3.2, Vegetation Resources and Fire's Natural Role (Issue 1). This allows the analysis to focus impacts analysis on key wildlife species representative of the typical wildlife species that use each cover type. Impacts to special-status plant species within these cover types are also described in this section. A summary of the impacts to T&E and BLM-Sensitive Species is given in Table 4-38.

4.5.1 INVASIVE ANNUAL GRASS HABITAT

Representative species in the planning area that inhabit or use the Invasive Annual Grass cover type include the long-billed curlew (*Numenius americanus*) and burrowing owl (*Speotyto cunicularia*).

Burrowing owl would likely experience some positive impacts from fuels and vegetation treatments. These treatments would cause the short-term removal of vegetation, which would open areas for foraging. Open areas also benefit large areas with little cover for predators. However, mechanical and RxFire/WFU treatments also have the potential to cause some individual mortality. It should be noted that management restrictions that apply to all alternatives impose time constraints on fire management activities in habitat supporting nesting raptors. These restrictions include limited or no management treatments during nesting season in raptor and breeding and nesting areas. These management restrictions would minimize potential short-term impacts from all alternatives on burrowing owl reproductive success.

Although curlew typically inhabit areas near water sources and riparian habitats, they also use grasslands for nesting. Within the planning area, nesting habitat for curlew is primarily grasslands. Accordingly, it is possible that some nest mortality could occur from mechanical treatment or RxFire/WFU. Additionally, treatments in uplands occupied by curlew could have some impact on upland forage used by curlew. Adverse impacts to long-billed curlew can be minimized by avoiding treatments during the nesting season within favored nesting areas. Habitat would likely be poor the year following treatments, but should be productive curlew habitat in the following years. Because curlew do not require or prefer dense grassland vegetation for nesting, their use of treated habitats should quickly reestablish. However, it is possible that some nest mortality or bird displacement could occur from mechanical treatment, RxFire, or WFU.

Under Alternative A, approximately 22,600 acres of Invasive Annual Grass habitat would be treated. In contrast, Alternative B would treat approximately 127,300 acres, and Alternatives C, D and E would treat 330,500 acres each. Accordingly, Alternative A would provide the least short-term loss of habitat to burrowing owl, and curlew, followed by Alternative B, C, D, and E, respectively. Long-term alternative impacts on these species would be similar throughout the planning area as all alternatives provide similar percentages of the early seral stages that provide the low-ground cover with open areas that these species use. Additionally, all alternatives would result in FRCC 2 in this cover type, resulting in a moderate risk of long-term loss of ecosystem components that support these species. An exception would be in the PFO, where Alternatives C, D, and E provide almost twice as much early seral stage grassland than Alternative A and Alternative B. It should also be noted that effective restoration and rehabilitation would replace a large percentage of existing cheatgrass in Invasive Annual Grass habitat with Perennial Grass and forbs. These plants are typically of much more forage value for the rodents, small birds, and lizards, which are the potential prey of burrowing owl. Accordingly, Alternatives C, D, and E would have the greatest long-term benefit to burrowing owl, followed by Alternative B, and Alternative A, respectively.

4.5.2 PERENNIAL GRASS HABITAT

Representative wildlife species that inhabit the Perennial Grass cover type include Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*), Western meadowlark (*Sturnella neglecta*), short-eared owl (*Asio flammeus*), and Montane vole (*Microtus montanus*).

Vegetation treatments in Perennial Grass habitat occupied by sharp-tailed grouse can result in individual mortality and nest mortality. Removing cover vegetation during RxFire or mechanical

and chemical treatment would also likely increase predation risk on sharp-tailed grouse by decreasing refuge. Long-term benefits for vegetation treatment would include the restoration of cheatgrass-infested areas with forbs, native Perennial Grass species, and placeholder species with greater forage benefit.

Vegetation treatments in Perennial Grass habitat occupied by western meadowlark would have similar impacts to those described for sharp-tailed grouse. Meadowlarks typically are ground-foragers and nesters, and any large-scale disturbances, such as mechanical treatments or RxFire, can result in individual and nest mortality. As with the sharp-tailed grouse, long-term benefits of treatment would result from increased forage quality.

Short-eared owls appear to be negatively affected by the use of herbicides. Accordingly, chemical treatments under any of the alternatives have the potential to increase owl mortality. However, mechanical and RxFire treatments, while contributing to individual mortality, would also open up areas, allowing owls to hunt more effectively than they would in areas with a preponderance of late seral-stage shrub habitat.

Montane voles would be susceptible to mortality from mechanical treatments. Harrowing, disking, and drilling all have the potential to destroy vole burrows and runways, as well as causing individual mortality. RxFire would also contribute to vole mortality. Long-term benefits to voles would be similar to those described for the meadowlarks and grouse; an improvement in forage quality and quantity.

Alternatives C, D, and E would have the highest amount of treatment in Perennial Grass with 528,400 acres each. Alternative A would have the next highest with 155,900 acres of treatment, followed by Alternative B with 134,000 acres. Accordingly, Alternatives C, D, and E would have the greatest short-term risk to wildlife species inhabiting Perennial Grass habitat, followed by Alternative B and A, respectively. Conversely, Alternatives C, D, and E are likely to have the greatest long-term benefit to wildlife occupying this habitat by ensuring that large areas of Perennial Grass are treated as needed to halt the invasion of cheatgrass and by opening up areas previously dominated by decadent shrub stands. Long-term risk of loss of key ecosystem components supporting wildlife in this guild would be similar for all alternatives because all alternatives would result in FRCC 2.

It should be noted that management restrictions that apply to all alternatives impose time constraints on fire management activities in habitat supporting nesting raptors and sharp-tailed grouse. These restrictions include limited or no management treatments during nesting season in raptor and grouse breeding and nesting areas. Restrictions on winter and early spring vegetation treatments would also be implemented in sharp-tailed grouse wintering habitats. These management restrictions would further reduce potential short-term impacts from all alternatives on the population viability of sharp-tailed grouse and short-eared owls.

4.5.3 Low-elevation and Mid-elevation Shrub Habitat

The representative guild species for Low-elevation and Mid-elevation Shrub cover type in the planning area include California bighorn sheep, pronghorn, pygmy rabbit, greater sage grouse, sage sparrow, sagebrush lizard, and short-horned lizard. Please note that the potential impacts to

this guild are discussed at the field office level in Section 4.4, Analysis of the Effects on the Sagebrush Steppe Ecosystem (Issue 2).

Fire management activities can result in short-term disturbance to bighorn sheep, as well as the removal of Perennial Grass cover types, which bighorn sheep rely on for forage. However, these treatments typically would be concentrated in areas where cheatgrass invasion has occurred; therefore, the treatments would likely be removing a cover type with limited forage value for bighorn sheep and replacing it with a higher value forage in the form of native perennials or perennial placeholder species, such as crested wheatgrass. Bighorn sheep generally occur in steep, rocky habitat that has limited potential for treatments other than RxFire and WFU.

As with other big game, pronghorn may be displaced after fire and vegetation treatments while the activity is occuring due to the lack of forage and cover. However, once vegetation in treatment areas begins to regenerate, many wildlife species are often attracted to the area to take advantage of the newly sprouted forage. Similar to other treatment methods, short-term indirect impacts associated with vegetation treatments may include disturbance from increased traffic and noise from mechanical equipment, which may displace pronghorn from the treatment area.

As with other small mammals, short-term impacts from fuels and vegetation treatments include loss of habitat and individual mortality. Clearing would also decrease cover, potentially increasing predation on pygmy rabbit. However, restoration and rehabilitation of these cover types would increase forage quality by eliminating cheatgrass and replacing it with Perennial Grasses, forbs, and placeholder species with higher forage value, such as crested wheatgrass.

A large, high-intensity fire may be extremely detrimental to wildlife species such as mule deer, greater sage grouse, sage sparrow, and the pygmy rabbit, which rely largely on climax sagebrush cover types. Vegetation treatments have been shown to be an effective tool to enhance some greater sage grouse brooding habitat, particularly in areas where sagebrush is nearby and abundant, a *good* population of native forbs is present, and non-native plant species are limited (Miller and Eddleman 2000). However, sage grouse nesting, cover, and wintering habitats should be protected from wildland fire (Robertson 1991; Fischer 1994). Any wildland fire in Wyoming big sage, which is associated with the Low-elevation Shrub cover type, would likely negatively impact greater sage grouse populations across the planning area, especially during periods of drought (Miller and Eddleman 2000). Similar to other treatment methods, indirect impacts associated with vegetation treatments may include disturbance from increased traffic and noise from mechanical equipment, which may displace wildlife from the treatment area.

Both the sagebrush lizard and short-horned lizard would experience short-term habitat loss from vegetation treatments. Individual mortality from vegetation treatments could also occur due to the lizard's limited mobility and tendency to use low shrubs, rocks, and loose soil for refuge when threatened. Clearing associated with vegetation treatments would also decrease shrub cover for lizards, potentially increasing predation. Upon restoration, some cover would be restored.

Alternative C would have the greatest amount of treatment in Low-elevation and Mid-elevation Shrub with 716,800 footprint-acres over a 10-year period. Additionally, Alternative C would have the greatest amount of total RxFire with approximately 500,000 acres in Mid-elevation Shrub and approximately 60,000 acres in Low-elevation Shrub. Accordingly, Alternative C

would have the greatest short-term impact on the Low-elevation And Mid-elevation Shrub Guild. However, impacts to greater sage grouse would be reduced somewhat by management restrictions that limit treatments in habitats supporting sage grouse Key and Source Habitat. Alternatives D and E would have the next greatest amount of treatment with 607,800 acres of treatment over a 10-year period. Alternatives D and E would have much less RxFire in sagebrush habitat than Alternative C, with approximately 150,000 acres of total RxFire treatment in Mid-elevation Shrub and 120,000 acres of total RxFire treatment in Low-elevation Shrub. Additionally, Alternatives D and E would have no WFU treatments; therefore, they would have less risk to Low-elevation And Mid-elevation Shrub Guild species than Alternative C.

Alternative B would have 295,600 footprint-acres of total treatment in a 10-year period. Accordingly, it would have proportionally less short-term impacts to the Sagebrush Guild than Alternatives C, D, and E. Alternative A would have the least short-term impacts to the Sagebrush Guild with 58,100 total footprint-acres of treatment.

Within each alternative it is recognized that Low-elevation Shrub species are affected more under the No Action Alternative. Disturbance within each vegetation type would decrease with each action alternative compared to the No Action alternative. In the long term, Alternatives C, D, and E provide the greatest long-term benefits for the Sagebrush Guild. Although all alternatives provide similar percentages of early seral, mid-seral, and late seral vegetation stages, Alternatives C, D, and E provide from 17 percent to 41 percent of mature sagebrush at field offices across the planning area. In contrast, Alternative B provides 14 to 28 percent mature sagebrush, and Alternative A provides from 12 to 37 percent (see Section 4.4, Analysis of the Effects on the Sagebrush Steppe Ecosystem (Issue 2) for details on seral stage proportions by field office across the planning area.). Additionally, long-term risk to key ecosystem components supporting this guild would be lessened under Alternatives C, D, and E, which would result in a long-term FRCC in Mid-elevation Shrub of 1 and 2, respectively. In contrast, Alternative A would have an FRCC of 3 and Alternative B would have an FRCC of 2 to 3 for this cover type. Low-elevation Shrub FRCC would be 2 for all alternatives. Alternatives D and E would provide a greater benefit to the Sagebrush Guild than Alternative C by focusing vegetation treatments at the most appropriate locations on the landscape for maximum benefit to these species.

4.5.4 SALT DESERT SHRUB HABITAT

The horned lark is the only guild species analyzed for the Salt Desert Shrub cover type. Potential impacts to horned lark would be confined to Alternative A, which would treat 1,000 footprint-acres of Salt Desert Shrub habitat over a 10-year period. Potential short-term impacts include individual and nest mortality as the horned-lark is a ground nester. Other potential impacts include the short-term removal of ground cover providing forage such as insects, spiders, and seeds. Long-term benefits would be a slight increase in early native seral stages for this cover type across the planning area, approximately 13 percent to 23 percent early seral stage native Perennial Grass versus existing conditions of 4 percent to 11 percent early-stage Perennial Grass and 14 percent cheatgrass and noxious weeds. It should be noted that these long-term benefits would be minimal due to the limited amount of acreage (less than 3 percent of the total Salt Desert Shrub habitat) that would be treated. Long-term risk to key ecosystem components supporting this guild would be low with all alternatives resulting in an FRCC of 1.

4.5.5 RIPARIAN HABITAT

Species analyzed as part of the Riparian Guild include white-tailed deer, bald eagle, western yellow-billed cuckoo, northern leopard frog, boreal toad, common garter snake, and Yellowstone cutthroat trout. Alternative A would treat approximately 400 acres of riparian habitat; however, none of the action alternatives have any treatment in riparian habitat. Accordingly, fire management activities would have little to no direct impact on species inhabiting riparian habitat. However, treatment in sagebrush steppe and wooded area areas surrounding riparian habitat would potentially have indirect impacts on these species. These impacts could include the loss of riparian habitat from RxFire or wildland fire that spreads into riparian areas. Sedimentation of streams and the subsequent loss of riparian habitat quality can also occur when upland areas around riparian zones are cleared as a result of RxFire or WFU.

White-tailed deer populations in the planning area are associated with riparian areas but often use sagebrush steppe and wooded areas near these riparian areas. Vegetation treatments in these areas could spread to riparian areas, causing individual mortality, removing cover essential to white tail deer, and decreasing available forage. However, these treatments would also remove shrub and wooded species, opening up areas and stimulating the growth of early seral stage species such as forbs and grasses, which would provide enhanced forage for white tail deer. However, in general, short-term impacts of fire management actions would be minimal for white-tail deer populations.

Bald eagle seasonal habitat occurs throughout the planning area with the majority of nesting, brood-rearing, and winter habitat occupations occur near major rivers. The western yellow-billed cuckoo is presently the only candidate species in the planning area. Candidate species are those for which the USFWS has enough information to warrant proposing them for listing as endangered or threatened, but the listing proposal is precluded by other species or listing actions that have higher priority. The present range and known habitat occupation include the South Fork of the Snake River where the associated cottonwood/Riparian cover type provides nesting and brood-rearing habitat. However, vegetation treatments would be planned and implemented to avoid impacts to these crucial bald eagle and western yellow-billed cuckoo habitats. Accordingly, none of the alternatives would adversely impact either species (Appendix Q, Management Restrictions).

Northern leopard frogs are found in all grasslands, shrublands, woodlands, and forest habitats in the planning area. They are associated with springs, slowly moving streams, marshes, bogs, ponds, canals, and reservoirs. The boreal toad, an Idaho state sensitive species, inhabits areas near springs, streams, meadows, and woodlands between 7,000 feet and 12,000 feet elevation. The common garter snake occurs throughout Idaho in many similar habitats, including grassland and wooded areas in or near water sources. Although care would be taken in treatments in and around riparian areas, these species could still be impacted by treatments in upland areas bordering riparian areas. Vegetation treatments could remove vegetation in upland areas near riparian habitat, increasing the potential for sedimentation to streams and wetland areas supporting habitat for these species. The use of chemical treatments, in particular, has the potential to impact boreal toad and leopard frogs. However, excluding vegetation treatments within the 300-foot buffer zones around riparian areas, combined with prompt rehabilitation and

restoration would minimize short-term adverse impacts to these species from fire management activities (Appendix Q, Management Restrictions).

Yellowstone cutthroat trout are found in various tributaries of the Snake River in the planning area. Fire management activities have the potential of impacting water quality, and consequently, habitat quality in these tributaries. However, management restrictions under all alternatives would require consultation with the USFWS for any vegetation treatments that could impact the water or habitat quality of these tributaries (Appendix Q, Management Restrictions) because they serve as habitat for endangered Snake River molluscs. This consultation would include appropriate mitigation and avoidance to ensure the maintenance of existing habitat. Accordingly, none of the alternatives are likely to have adverse impacts on Yellowstone cutthroat trout.

All alternatives would result in a long-term FRCC of 1 in this cover type. Accordingly, they would all result in low risk to key ecosystem components supporting this Wildlife Guild.

4.5.6 JUNIPER AND MOUNTAIN SHRUB HABITATS

Wildlife species representative of the Juniper and Mountain Shrub cover types include mule deer, mountain lion, ferruginous hawk, juniper titmouse, and gray flycatcher. Mountain Shrub can also be very important winter habitat for Columbian sharp-tailed grouse, a species that should also be considered during site-specific fire-management project design and development.

The use of RxFire and other vegetation management in the Juniper and Mountain Shrub cover types may result in a short-term decrease of both forage and cover habitat for wildlife species (Crouch 1974; Valentine 1980). However, Juniper and Mountain Shrub cover types generally provide more forage for wildlife like mule deer after recovering from a fire. An advantage of conducting RxFire or mechanical control in the Mountain Shrub and Juniper cover types is that land managers have greater control to preserve Juniper and Mountain Shrub as hiding and thermal cover habitats.

Similar to other treatment methods, indirect impacts associated with RxFire may include disturbance from increased traffic and noise from mechanical equipment, which may displace wildlife from the treatment area.

Because of the dependency of mountain lion on both white tail and mule deer populations for food, the previously described impacts to these deer populations would generally have similar impacts on mountain lion populations.

Fire management activities in juniper stands would potentially increase hawk nest mortality. Additionally, ferruginous hawks are highly sensitive to human disturbance; therefore, fire management activities involving heavy equipment or hand operated machinery would likely result in nest abandonment and/or the hawks not using areas where treatments occur for foraging. However, it should be noted that restrictions on fuels and vegetation treatment projects may be imposed in areas supporting nesting raptors. These restrictions would occur from February 1 through August 15 and would be designed to prevent adverse impacts to nesting raptors, including ferruginous hawks. Accordingly, alternative impacts would be confined to short-term losses of potential foraging habitat. Many non-game wildlife species, including small rodents and

wildlife species that use Juniper cover types on a transitory basis, may also be temporarily displaced while the activity is occurring. This, in turn may displace predators like ferruginous hawks that rely on these species for prey.

The juniper titmouse is a year-round resident of the pinyon-juniper and pine woodlands. Fire management activities that remove dead fuel have the potential to adversely impact the juniper titmouse by removing the snags or dying timber used for cavity nesting. Additionally, RxFire would result in nest and individual mortality. Human-created noise associated with fire management activities is unlikely to adversely affect the titmouse, which is highly tolerant of human disturbance.

The gray flycatcher could be adversely impacted by fire management activities that remove juniper from sagebrush stands. Flycatchers use juniper and sagebrush for nesting and these activities could result in nest mortality or loss of nesting habitat. Fire management activities are unlikely to impact flycatcher foraging as flycatchers forage exclusively on insects and fuels management projects. Removing encroaching juniper is unlikely to have a noticeable impact on available insect forage.

Alternative C would have the greatest short-term impact on habitat for the Juniper and Mountain Shrub Guild of wildlife species with 90,400 acres (29,900 Mountain Shrub, 60,500 Juniper) of total footprint treatment-acreage in these cover types over a 10-year period (approximately 13 percent of the total available habitat). The next greatest impact would be Alternatives D and E with 56,000 footprint-acres of treatment (26,800 Mountain Shrub, 29,200 Juniper), which is approximately 8 percent of the total available habitat. Alternative B would have similar impacts to Alternatives D and E with 52,600 footprint-acres of treatment (22,200 acres Mountain Shrub, 30,400 acres Juniper). Alternative A would have negligible short-term adverse impacts to the Juniper/Mountain Shrub Guild with 3,600 footprint-acres of treatment (2,800 acres Mountain Shrub, 800 acres of Juniper), which is less than 1 percent of the total available habitat.

Long-term impacts of fire management activities on the Juniper/Mountain Shrub Guild of wildlife species would be beneficial in many cases with lessened long-term risk of large wildland fires. This, in turn, would decrease long-term, fire-caused mortality. Additionally, fire management would help slow juniper encroachment and would increase early and mid-seral vegetation stages that provide forage for mule deer. In the long term (30 years), Alternatives C, D, and E provide the greatest percentage of early seral vegetation stages in the Juniper cover type over the long term with percentages being 10 percent to 20 percent of the total plant acreage throughout the planning area. This compares with Alternative A and Alternative B, whose percentages range from 3 percent to 10 percent. Similarly, Alternatives C, D, and E provide greater mid-seral vegetation stages with percentages ranging from 16 percent to 34 percent. In comparison, Alternative A and Alternative B range from 5 percent to 18 percent. Long-term cover for mule deer would be reduced somewhat under Alternatives C, D, and E as would nesting habitat for juniper titmouse and grey flycatcher. However the proportion of late seral stages of both Juniper and Mountain Shrub under these alternatives would still range from 35 percent to 94 percent, providing more than adequate cover and nesting habitat to support existing populations for this Wildlife Guild.

Long-term risk to key juniper ecosystem components supporting this guild would be lessened under Alternatives C, D, and E, which would result in a long-term FRCC in juniper of 1 and 2, respectively. In contrast, Alternative A would have an FRCC of 3, and Alternative B would have an FRCC of 2 to 3 for this cover type. Long-term risk to Mountain Shrub ecosystem components would be greatest for Alternative A with an FRCC of 3. Alternatives D and E would have the next greatest long-term risk to Mountain Shrub habitat with FRCC ranging from 2 to 3. Alternatives C and B would have the least long-term risk to Mountain Shrub habitat with FRCCs 1 to 2 and 1 to 3, respectively.

4.5.7 WET/COLD CONIFER, DRY CONIFER, AND ASPEN/CONIFER HABITATS

Wildlife species representative of the Wet/Cold Conifer, Dry Conifer, and Aspen/Conifer cover types include the Rocky Mountain elk, moose, snowshoe hare, northern goshawk, three-toed woodpecker, ruffed grouse, and red-naped sapsucker.

Short-term impacts from RxFire and WFU in the Aspen/Conifer and Dry Conifer vegetation are largely on the intensity and area of the fire. Low-intensity fires in these cover types typically improve wildlife habitat both spatially and temporally by clearing underbrush and encouraging the sprouting of new vegetation. Higher-intensity fires in these cover types typically improve wildlife habitat by creating clearings and movement corridors. Many wildlife species, including elk and moose, have been shown to benefit from the maintenance of small clearings and regeneration of forage vegetation following fires in the Aspen/Conifer and Dry Conifer cover types (Hansen et al. 1973; Kramp et al. 1983). Similar to other treatment methods, indirect impacts associated with RxFire may include disturbance from increased traffic and noise from mechanical equipment, which may cause short-term displacement of wildlife from the treatment area.

Fire management activities can displace both snowshoe hare and ruffed grouse from Conifer and Aspen habitat. However, these activities can also remove decadent timber stands and allow the growth of grasses, forbs, and young shrubs that snowshoe hare use for forage in the spring and summer. These early seral stages also provide herbaceous cover for ruffed-grouse brood-rearing, which directly impacts areas of use and brood survival (Harju 1974; Zwickel 1972). Ruffed grouse can also benefit from the additional forage these early seral stages provide in the form of berries and seeds. However, removing aspen and conifer stands can also deprive both species of winter forage such as tree bark, and spruce, fir, and cedar needles.

Fire management activities can cause a short-term loss of nesting habitat for northern goshawks, as well as create disturbances that would cause goshawks to seek out new habitat. However, as with the other raptors previously mentioned, restrictions on fuels and vegetation treatment projects may be imposed in areas supporting nesting raptors. Accordingly, alternative impacts would be confined to short-term losses of potential foraging habitat. Many non-game wildlife species, including small rodents as well as wildlife species that use conifer or aspen cover type types on at least a transitory basis, may also be temporarily displaced while the activity is occurring. This, in turn may displace predators like northern goshawk that rely on these species for prey.

Fire management activities would have a short-term adverse impact on three-toed woodpecker foraging and nesting habitat as it would remove decadent timber stands and dog-hair spruce thickets that provide potential nesting locations and habitat for wood-boring insects. However, these activities would also decrease the risk of large fires that would cause long-term loss of forested habitat. Short-term impacts to the red-naped sapsucker would be similar to those described for the three-toed woodpecker.

Alternative D would have no short-term adverse impacts on Aspen/Conifer wildlife species as it would have no treatments in these cover types. Alternative A would have the next least short-term adverse impact to wildlife species using the Aspen/Conifer cover types as it would treat a total footprint of 4,800 acres of these habitats (less than 3 percent of the total available habitat) over a 10-year period. Alternatives C and E would both treat a 15,800-acre footprint (9 percent of total available habitat). Alternative B would have the greatest short-term loss of habitat with a total treatment footprint of 30,700 acres (18 percent of total available habitat).

In the fire management activities, Alternatives A, C, D, and E would provide similar long-term impacts to Aspen and Dry Conifer habitat with each providing a relatively high percentage of late seral stages, which may include decadent aspen stands and older conifer stands with high-fuel loading. The percentages of these late seral stages under these alternatives would range from 56 percent to 78 percent of the total habitat. Alternative B would provide the highest percentage and the closest proportions of seral stage in relation to DFC, with late seral stages ranging from 44 percent to 63 percent, early seral stages ranging from 6 percent to 13 percent, and mid-seral stages ranging from 31 percent to 43 percent. Accordingly, Alternative B would have the greatest long-term benefit to Aspen/Conifer wildlife species inhabiting Aspen and Dry Conifer habitat by providing the most balanced proportion of forage and cover for these species.

Conversely, Alternatives C and E provide the greatest positive benefit to wildlife species inhabiting Wet/Cold Conifer cover types. Alternatives C and E provide the closest match to DFC with early seral stages ranging from 22 percent to 30 percent of total habitat, mid-seral stages at 17 percent, and late seral stages ranging from 53 percent to 71 percent. By contrast, Alternatives A, B, and D have early seral stages ranging from 0 percent to 7 percent, mid-seral stages ranging from 8 percent to 9 percent, and late seral stages ranging from 84 percent to 92 percent.

In terms of FRCC, Alternative B would result in moderate risk to key ecosystem components supporting this guild with a long-term FRCC of 2. Alternatives A, C, and E would result in moderate to high risk with FRCC of 2 to 3. Alternative D would result in high risk with an FRCC of 3 in this habitat type.

4.5.8 T&E AND BLM-SENSITIVE WILDLIFE SPECIES

Forty-one T&E and BLM-Sensitive animal taxa are known to occur in the planning area. Section 3.5.2, T&E and BLM-Sensitive Wildlife Species, outlines these T&E and BLM-Sensitive Species that are known to occur throughout the planning area and the cover types they are associated with. A list of these T&E and BLM-Sensitive Species and a life history discussion of the T&E and BLM-Sensitive Species are also included in Appendix K. A summary of potential impacts to these species is provided below in Table 4-38. A detailed description of the potential impacts of the proposed project on T&E Species in the planning area is provided in the Final

Biological Assessment for Fire, Fuels, and Related Vegetation Management Direction Draft Plan Amendment and EIS in Appendix O.

TABLE 4-38. IMPACTS TO T&E AND SENSITIVE SPECIES IN THE PLANNING AREA, BY VEGETATION COVER TYPE

Vegetation Cover Type	Sensitive Species List	Potential Impacts
Low-elevation and Mid-elevation Shrub Cover type	Type 2: Pygmy rabbit, greater sage grouse, St. Anthony Dunes tiger beetle, Idaho point-headed grasshopper. Type 3: Loggerhead shrike, Brewer's sparrow, Sage sparrow, Townsend's big-eared bat, California bighorn sheep, Piute ground squirrel. Type 4: Cliff chipmunk, Uintah chipmunk, Wyoming ground squirrel, Kit fox, Black-throated sparrow.	Impacts to sensitive species that are small mammals, birds, and big-game would be similar to those described above (Section 4.5.3) for similar species in the Low-elevation and Mid-elevation Shrub Guild of Wildlife Species. All treatments would likely result in positive impacts to St. Anthony Dunes tiger beetle by clearing sandy areas of cheatgrass and other invading weeds. Impacts to Idaho point-headed grasshopper would be similar to impacts described for Low-elevation and Mid-elevation Shrub wildlife species that depend on grasses and forbs. Townsend's big-eared bat has the potential for substantial short-term disturbance impacts from all alternatives due to their low tolerance for human disturbance. Long-term impacts to Townsend's big-eared bat would be identical to those described for Low-elevation and Mid-elevation Shrub Guild described above.
Perennial Grass	Type 3: Columbian sharp-tailed grouse.	Same as those described above (Section 4.5.2) for sharp-tailed grouse.
Juniper, Mountain Shrub, and Salt Desert Shrub	Type 3: California bighorn sheep, Prairie falcon, Ferruginous hawk, Piute ground squirrel. Type 4: Cliff chipmunk, Uintah chipmunk, Wyoming ground squirrel, Little pocket mouse, Virginia's warbler.	Impacts would be similar to those described above (Section 4.5.6) for small mammals, big game, and birds in the Juniper/Mountain Shrub and Salt Desert Shrub Guilds.
Riparian Areas	Type 1: Bald eagle[1], Western yellow-billed cuckoo, bull trout, Columbia spotted frog Type 2: Northern leopard frog, boreal toad, greater sage grouse, redband trout, Westslope cutthroat, Bonneville cutthroat, Yellowstone cutthroat, Shoshone sculpin, Wood River sculpin. Type 3: Columbian sharp-tailed grouse, Calliope hummingbird, Willow flycatcher, Common garter snake, Western toad, leatherside chub.	Impacts would be similar to those described above (Section 4.5.5) for the birds, amphibians, fish, and reptiles in the Riparian Guild.

TABLE 4-38. IMPACTS TO T&E AND SENSITIVE SPECIES IN THE PLANNING AREA, BY VEGETATION COVER TYPE

Vegetation Cover Type	Sensitive Species List	Potential Impacts
Dry Conifer, Aspen/Conifer cover types	Type 3: Fisher, Lewis woodpecker, flammulated owl, Northern goshawk, Williamson's sapsucker, Hammond's flycatcher, Olive-sided flycatcher.	Impacts would be similar to those described above (Section 4.5.7) for birds in the Aspen/Conifer and Dry Conifer Guild.
Wet/Cold Conifer cover types	Type 1: Gray wolf, Grizzly bear, Canada lynx. Type 3: Fisher, Northern goshawk, Williamson's sapsucker, Hammond's flycatcher, Olive-sided flycatcher.	Impacts would be similar to those described above (Section 4.5.7) for big game and birds in the Wet/Cold Conifer Guild. Management restrictions, which apply to all alternatives, require that all fuels management and vegetation treatments comply with the Draft Conservation Strategy for the Grizzly Bear in the Yellowstone Area, the 1997 Targhee National Forest Revised Forest Plan, and the Yellowstone Conservation Strategy. Additionally, presence or absence of Gray wolf would be determined before fuels and vegetation management projects are initiated on the planning area. Accordingly, impacts to gray wolf and grizzly bear populations would be minimal. Potential impacts to Canada lynx habitat would be identical to those described above for snowshoe hare because of the lynx's reliance on this prey.
Invasive Annual Grass cover type	None.	N/A.

[1] The Bald eagle was delisted as a Threatened species on June 28, 2007.

T-1. Federally Threatened, Endangered, Proposed and Candidate Species

Idaho Sensitive Species

T-2. Rangewide / Globally Imperiled Species

T-3. Regional / State Imperiled Species

T-4. Peripheral Species

T-5. Watch Species (not considered as sensitive species)

As stated in management common to all, the BLM is required to consult with the USFWS on potential impacts to listed and candidate plant and animal species. Sensitive species is a BLM classification equivalent to Idaho Department of Fish and Game's (IDFG's) species of special concern. An agreement between the BLM and IDFG makes these two lists identical. BLM sensitive species are designated by the State Director under 16 U.S. Code [USC] 1536 (a)(2). BLM policy includes a commitment to conserve federally-listed T&E and BLM-Sensitive species and the habitats on which they depend, and a commitment to manage other T&E and BLM-Sensitive species so that BLM actions do not contribute to a need to list these species. The Master MOU between the IDFG and BLM states that the BLM and IDFG agree to manage and/or conserve habitats and populations of the sensitive species listed in the MOU, to minimize the need for listing these animals as T&E and BLM-Sensitive Species. Accordingly, none of the fire management activities proposed under any of the alternatives would have a significant

adverse impact on T&E and BLM-Sensitive species in the planning area. As stated previously, a detailed description of the potential impacts of the proposed project on T&E and BLM-Sensitive species in the planning area is provided in the Final Biological Assessment for Fire, Fuels, and Related Vegetation Management Direction Draft Plan Amendment and EIS in Appendix O.

4.5.9 MITIGATION AND MONITORING

The management restrictions listed in Appendix Q, Management Restrictions are incorporated into management practices common to all alternatives. These practices would be implemented to avoid significant adverse impacts to wildlife resources. However, there would be short-term unmitigatable but reversible impacts to these resources. These impacts are noted below in Section 4.5.11.

4.5.10 UNAVOIDABLE ADVERSE IMPACTS

From 250,200 to 1,686,600 footprint acres of wildlife habitat would be temporarily unavailable to wildlife for the next 10-years, depending on which alternative is chosen. This would result in an unavoidable loss of this habitat. However, the unavoidable adverse impact from this habitat loss would not have a significant long-term impact on wildlife or T&E and BLM-Sensitive populations in the planning area if established wildlife management restrictions and recommendations are followed in the project-specific development of vegetation treatments. Short-term adverse impacts to ESA candidate, proposed, or listed species or to proposed or designated critical habitat will be avoided or minimized to the greatest extent possible.

4.5.11 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

Irretrievable impacts to wildlife and T&E and BLM-Sensitive species habitat would include the short-term loss of habitat as described above. However, this short-term habitat loss would not be irreversible, as it would be restored through implementation of vegetation treatment.

4.5.12 CUMULATIVE EFFECTS

Wildlife associated with the planning area regularly transverse lands managed by other federal and state agencies as well as private lands. To ensure the continued viability of the wildlife populations associated with the planning area, efforts must be made between these groups to coordinate land use directions. There are several planning efforts for these lands currently underway which may, in conjunction with this planning effort, affect the wildlife associated with the planning area. The cumulative effects to wildlife are considered relative to the long-term effects of Alternatives A through E in relation to other similar plans developed or being developed by these other federal and state agencies. These plans include the Interior Columbia Basin Ecosystem Management Project, the Sawtooth and Caribou-Targhee National Forests management plans, and the Idaho Statewide Implementation Strategy for the National Fire Plan. The principal goal of these plans is to reduce the severity of wildland fires in the planning area. The means proposed to meet this goal is broadly similar to many actions proposed under the various alternatives in this EIS, and include RxFire, WFU, ESR, and restoration activities.

Impacts of wildland fire to wildlife populations and their habitats in the planning area predominantly relate to the severity and frequency of the fire. High intensity, large fires burning frequently through the sagebrush steppe, in general, result in more negative impacts to wildlife populations and their habitats. Thus, reducing the intensity, area, and frequency of wildland fires in the sagebrush steppe would, over the long run, reduce impacts to wildlife resources in the planning area. There would be short-term impacts relating to RxFire, WFU, ESR and restoration, or other fire management practices.

All vegetation treatments would occur in accordance with established management plans and guidelines for wildlife species associated with the habitats being treated. Cumulative impacts may vary, however, depending on each alternative; thus cumulative impacts must be examined relative to the alternatives in terms of their contribution to other plans for reducing the intensity and duration of fires.

In general, the cumulative effects on wildlife resources for each alternative action of the various fire management plans being developed would be related to the amount of acreage moving from FRCC 3 to FRCC 1. Because the general goals of the other fire management plans and regional strategies are to, in essence, reduce the amount of acreage in FRCC 3 and increase the amount in FRCC 1, these plans should have a positive long-term effect on wildlife resources by reducing wildland fire severities and frequencies. Consequently, the alternatives proposed in this EIS should also be considered in terms of their overall contribution to reducing the intensity and area of wildland fires. Alternatives that achieve a reduction in the area and frequency of fires would, in combination with the actions undertaken in other regional plans, have a greater positive effect than those that do not reduce, or reduce in lower amounts, the area and frequency of wildland fires.

Of the five alternatives described in this EIS, Alternative A results in the least long-term improvement in habitat quality because it moves the least amount of acreage to improved FRCC. Thus, Alternative A would have the least positive cumulative impact on the other plans and management strategies in the foreseeable future. Alternative B would result in the next most improved FRCC, and therefore, habitat quality relative to Alternative A. Relative to Alternative A, Alternative B would have a greater positive cumulative impact. Alternatives C, D, and E all result in substantially better FRCC and associated wildlife habitat conditions than Alternative A and Alternative B. Thus, these alternatives would have an additional positive cumulative impact on wildlife populations and their habitat when considered with the other fire management plans in the planning area. These impacts would be greater than either Alternative A or Alternative B. It should be noted that the project would have a much greater contribution to the positive cumulative impacts of fire management on wildlife habitat in the planning area and surrounding area than the previously described fire management activities that are or would be implemented by other agencies.

4.6 ANALYSIS OF EFFECTS ON AIR QUALITY

4.6.1 ANALYSIS ASSUMPTIONS AND METHODS

Impacts to air quality associated with fire, fuels, and related vegetation management over a 10-year period have been assessed for each BLM field office in the planning area. Fine particulates

with an aerodynamic diameter of 10µm or less (PM_{10}) and fine particulates with an aerodynamic diameter of 2.5 µm or less ($PM_{2.5}$) emissions associated with RxFire or WFU were estimated by multiplying the number of acres of each cover type to be treated under each alternative by emission factors specific to each of those types. The amount and type of vegetation to be treated within a Generalized Project Areas (GPA) differs by alternative; thus, associated emission levels would also vary. Regional geographic features and meteorological patterns at an airshed scale, as described in the airshed characterization report (Trinity 2003), were incorporated into the analysis to assess how these emissions would disperse across the planning area. This information, combined with known treatment area locations, predicted whether sensitive receptors would be affected, and whether National Ambient Air Quality Standards (NAAQS) would be met under each alternative scenario. Sensitive receptors included impact zones, PM_{10} non-attainment areas, Class I visibility areas, hospitals, airports, and transportation corridors. Decreases in PM_{10} and $PM_{2.5}$ emission levels over the long term (30 years into the future) were estimated for each alternative based on the assumption that treatment would result in a decrease in wildland fire acreage proportional to the percentage of treatment relative to total existing vegetation. The severity of these potential impacts under each alternative scenario is based on estimates of particulate matter emissions and their occurrences relative to sensitive receptors.

4.6.1.1 Locations of Sensitive Receptors

Impact assessments must consider where communities and other sensitive facilities lie with respect to emission sources and regional airflow. Smoke impacts to human health and safety are intensified near hospitals/medical centers. Visibility may be impaired near Class I areas, airports, and transportation corridors. Sensitive receptors included impact zones, PM_{10} non-attainment areas, Class I visibility areas, hospitals, airports, and transportation corridors.

4.6.1.2 Generalized Project Areas (GPA)

Treatment-acres were assigned to GPAs by alternative for planning purposes. Identifying treatment-acreage within these spatial boundaries allows for a more site-specific impact analysis that takes into account meteorological patterns and proximity of sensitive receptors.

4.6.1.3 Dispersion Characteristics

Regional wind patterns greatly influence air quality. Generally, wind across the planning area prevails from the southwest to the northeast. Winds are strongest in the summer, with April and July recording the highest wind speeds. With changes in seasons and localized conditions, wind direction can vary. Wind patterns and local mixing heights primarily determine whether air particulates disperse throughout the airshed or settle and concentrate in a valley.

4.6.1.4 Geography

Local topographic features influence smoke dispersion characteristics. For example, canyon gradients often produce diurnal wind fluctuations corresponding to warm and cold air exchange. Low-lying floodplains act as sinks for cold air, where it settles and may become stagnant. At a larger, landscape-scale, mountain ranges surrounding a valley may hinder air movement and contribute to the formation of inversions. Mountain barriers may also restrict airflow to a single direction out of a valley.

4.6.1.5 Mixing Heights

Smoke may concentrate at low elevations in the cooler hours of the day, before temperatures increase and heated air rises. Lower elevations and cooling temperatures (especially at night) result in lower mixing heights (below 1,640 feet), which can produce stagnate air conditions. Timing burns to avoid low mixing heights or inversions is crucial near population centers.

4.6.1.6 Additional Sources of Particulate Matter (PM_{10} and $PM_{2.5}$)

Smoke produced by fire and fuels management activities would combine with existing emissions from other sources. Some areas within the planning area already experience high emissions concentrations from fugitive dust, wood and waste burning, and agricultural/forestry activities (EPA 2003). Also, particulates produced from wildland fires in areas not burned under a prescribed management scenario would still occur in the absence of the proposed project. It is assumed that, by maintaining cover types in FRCC 1, less smoke would be produced.

4.6.2 EFFECTS COMMON TO ALL ALTERNATIVES

4.6.2.1 Treatments

RxFire and WFU: Management-ignited fires and WFU under prescribed conditions decrease fuel loads at specific times over pre-determined areas, thus reducing both instantaneous and long-term air quality impacts. Values would not necessarily be less than what would occur when these areas eventually burn naturally (e.g., wildland fire events without control), but under conditions, prescribed conditions smoke is produced in smaller amounts over a longer time period, thereby lessening fire intensity and instantaneous smoke production, and increasing the effectiveness of smoke dispersal. Controlling the time and duration of a burn also considers existing particulate levels. If PM_{10} and $PM_{2.5}$ concentrations are already high, burns would be postponed.

Chemical: Aerial applications of herbicides in the vicinity of sensitive receptors would pose a public health and safety risk. Chemical activities are subject to strict guidelines designed to reduce these impacts by considering the timing and location of applications.

Mechanical: Fugitive dust would be produced by ground-disturbing vegetation treatments such as mowing, chaining, and seed drilling. Mechanical treatments provide an alternative method to reduce fuel loads in areas where fire risk is too great to employ RxFire or WFU. Impacts from dust would be less than what would occur if these areas burned naturally.

Seeding: Aerial applications of seed would not impact air quality. However, some ground disturbance occurs with seeding activities, such as seed drilling and chaining, which help bury the seed. PM_{10} levels could increase due to entrained dust.

4.6.2.2 Sensitive Receptors by Airshed

Impacts to sensitive receptors could occur throughout the planning area depending on their locations relative to sources of smoke. Sensitive receptors are listed here by airshed, with reference to the field office in closest proximity.

Airsheds 17, 18, and 19 (USFO and *a small portion of PFO):* Teton Valley Hospital and Surgicenter, Northwestern Band of Shoshone Health Center, Pocatello Regional Medical Center, Portneuf Medical Center, Bingham Memorial Hospital, State Hospital South, Eastern Idaho Regional Medical Center, Lost Rivers planning area Hospital, Madison Memorial Hospital, Harms Memorial Hospital, and Craters of the Moon National Monument and Preserve.

Transportation facilities: Pocatello Regional Airport, Aberdeen Municipal Airport, McCarley Field, Fanning Field, Arco-Butte County Airport, Stanford Field, Rigby-Jefferson County Airport, Rexburg-Madison County Airport, American Falls Airport, Pocatello Regional Airport, and Dubois and Driggs Municipal airports. Transportation corridors include: I-15, I-86, I-84, U.S. 30, U.S. 39, U.S. 26, U.S. 20, U.S. 91, and U.S. 93.

Airshed 25 (BFO and SFO): Cassia Regional Medical Center, Gooding County Memorial Hospital, Hagerman, Jerome, Rupert, Magic Valley Regional Medical Center, Twin Falls Clinic and Hospital, Twin Falls, and Sun Valley.

Sensitive transportation-related facilities include: Carey Airfield, Burley Municipal Airport, Oakley Municipal Airport, Gooding Municipal Airport, Hazelton Municipal, Jerome County Airport, Buhl Municipal, Joslin Field, I-84, I-86, U.S. 30, U.S. 93, U.S. 20, U.S. 25, U.S. 26, and U.S. 74.

Airshed 20 (PFO): Bear Lake Regional Hospital, Caribou Memorial Hospital and Living Center, Franklin County Medical Center, and Oneida County Hospital. These health facilities are concentrated in the southeast corner of the field office.

Transportation-related facilities: Hyde Memorial Airport, Bear Lake County Airport, Allen H. Tigert Airport, Bancroft Municipal Airport, Preston Airport, Malad Airport, I-15, I-91, I-84, I-80, U.S. 40, U.S. 30, U.S. 89, U.S. 34, and U.S. 91.

Airshed 24 (SFO): Wood River Medical Center, Bellevue, and Sun Valley (hospitals). Transportation-related receptors include: U.S. 20, U.S. 75, Friedman Memorial Airport, and Camas County Airport.

4.6.2.3 Fire Regime Condition Class (FRCC)

Particulate estimates reported by alternative are those associated with the prescribed restoration of areas in FRCC 2 and 3 to FRCC 1. Cover types were assigned to a FRCC based on departure from the historical fire regime and existing vegetation composition and structure. Smoke production, measured as PM_{10} and $PM_{2.5}$ concentrations, varies among FRCC depending on the degree of departure from fire frequency and severity. It is assumed that areas classified as FRCC 2 or 3 would eventually burn naturally, but that these areas, characterized by high fine and/or woody fuel loads and vegetation that is greatly altered from historical composition and structure, would burn more intensely and/or severely. Under this scenario, smoke is produced in large volumes and does not disperse efficiently.

Smoke production is one of five key ecosystem attributes in the descriptions of each FRCC, and it is assumed that returning areas to FRCC 1 would decrease the chance of large smoke impacts

in the future. The relation between each FRCC and smoke production is described further in Section 3.6, Air Quality.

4.6.3 ALTERNATIVE A

4.6.3.1 Direct and Indirect Impacts

Table 4-39 shows estimated 10-year emissions associated with the fire, fuels, and related vegetation management objectives of Alternative A. Values reflect emissions that occur under existing management practices. They do not include additional emissions from naturally occurring wildland fire events. WFU is not currently a management tool in the planning area. Therefore, smoke production under Alternative A is attributed to RxFire practices. The majority of these RxFires occur within the Low-elevation Shrub, Invasive Annual Grass, and Mid-elevation Shrub cover types, with some also in the Perennial Grass and Dry Conifer.

TABLE 4-39. PARTICULATE MATTER (TONS) RESULTING FROM RXFIRE OVER 10 YEARS – ALTERNATIVE A

Field Office	PM_{10}	$PM_{2.5}$
Upper Snake	545	453
Pocatello	797	678
Burley/Shoshone	121	102
TOTAL	**1,463**	**1,233**

4.6.3.2 Contribution by Field Office

The majority of burn treatments would occur in the PFO and USFO under this alternative, resulting in more particulate emissions here than in the other areas of the planning area. Estimates of total PM_{10} and $PM_{2.5}$ emissions from non-project related sources over a 10-year period for this area range from 14,420 tons to 256,100 tons and 3,030 tons to 45,680 tons, respectively (based on annual average from 1995-1999 [Trinity 2003]).

Small amounts of PM_{10} and $PM_{2.5}$ emissions from RxFire would also generate from the BFO. Estimates of total PM_{10} and $PM_{2.5}$ emissions from non-project related sources over a 10-year period for this area range from 36,670 tons to 255,640 tons and 6,620 tons to 52,980 tons, respectively (based on an annual average from 1995-1999 [Trinity 2003]).

Overall, these contributions from RxFire to other particulate sources under Alternative A would not substantially change existing air quality in this area.

4.6.3.3 Affected Airsheds

Under Alternative A, smoke-producing activities would affect portions of Airsheds 17, 18, 19, 20, and 25 (see Figure 3-8). These airsheds connect over the low-lying Snake River Plain. Seasonal fluctuations in general wind patterns coincide with the orientation of this river valley, which traverses the USFO and BFO, and lies on the northwest border of the PFO. Airshed 18 lies

high in the northeast corner of the planning area, bounded by the Centennial Mountains and Yellowstone National Park whereas, Airshed 19 consists primarily of the low-elevation Snake River Plain. The small portion of airshed 17 included in this discussion is the mountainous region of the Lemhi and Lost River ranges.

Smoke produced in Airshed 25, which is bounded by hills to the north and southeast, would disperse toward Airsheds 19 and 18 in the summer and spring, as winds blow to the northeast. This pattern may reverse in the fall, and may blow smoke from activities in Airsheds 18 and 19. However, winds change direction in the fall and blow from to the southwest and are typically not as strong. Depending on the season and associated wind patterns, particulates from activities in the higher-elevational areas may blow into and settle in the Snake River Plain during the fall, potentially increasing effects to air quality such as impacts from particulate matter and haze.

Of the RxFire activities under Alternative A, the majority would occur in GPAs located in Airsheds 18, 19, and 20 (i.e., Sands, Medicine Lodge, Island Park, Blackfoot, Stump Creek, Bancroft GPAs). Potential adverse air quality impacts could occur to the sensitive receptors in the Idaho Falls area of Airshed 19. Prevailing winds from the northeast in the fall could blow smoke south toward the impact zone surrounding Idaho Falls, and the community of Rexburg. Effects could include inversions, increased haze, and decreased air quality. Particulates are relatively low under Alternative A; therefore, impacts would be less than with other alternatives.

Airshed 19 contains 15 PM_{10} ambient air quality monitors. The NAAQS 24-hour average limit (150 µg/m3) has been exceeded three times in Pocatello, which lies on the boundary of Airsheds 19 and 20 (Trinity 2003). Airshed 20 has three PM_{10} ambient air quality monitors (Inkom and Soda Springs). NAAQS 24-hour average limits have not been exceeded in Airshed 20.

Additional particulate emissions could increase the potential to exceed NAAQS standards. Sources to consider originate from agriculture/forestry activities, which currently contribute 11 percent of the PM_{10} and 10 percent of the $PM_{2.5}$ emissions in Bannock County where Pocatello is located. Analysis of adjacent Power County emission sources attributes 41 percent of PM_{10} and 22 percent of $PM_{2.5}$ to agriculture/forestry activities. Particulate levels from these other sources would be considered prior to planning treatment activities in the Pocatello or adjacent GPAs.

The planning area contains one federally designated PM_{10} non-attainment area, which is the Fort Hall Reservation, located in Airshed 20. Portneuf Valley had previously been considered non-attainment but recently reached attainment status. Two other federally designated PM_{10} non-attainment areas, Boise, Idaho and Ogden, Utah, are within the 100-km buffer zone surrounding the planning area. These areas would not likely experience adverse air quality impacts, as particulate emissions from Alternative A are relatively low and are not planned in the immediate proximity or are generally upwind from potential treatment areas.

Also within the 100-km buffer zone is the Class I visibility areas of Yellowstone and Grand Teton National Parks and the Bridger Wilderness. Smoke carried to the northeast by strong winds during the spring and summer, in particular smoke from activities in Airshed 18, could travel to nearby Yellowstone National Park. However, as emissions associated with Alternative A are relatively low, smoke would likely disperse and would not result in adverse air quality impacts to this or other FRCC 1 and sensitive areas within the 100-km buffer zone.

Burning in close proximity to sensitive receptors and impact zones would increase the potential for adverse impacts to air quality. However, emission totals from Alternative A are relatively low. The smoke sensitive impact zones of Twin Falls, Sun Valley, Idaho Falls, and Portneuf are not likely to be affected under Alternative A. Burning activities close to these population centers could affect air quality if wind carries smoke directly into cities or if particulates are trapped in the Snake River Valley by inversions. However, because of the relatively low amounts of emissions produced under Alternative A, impacts would be minimal and could be further alleviated by carefully planning timing and season of burn activities scheduled to occur in close proximity to these sensitive areas.

Overall, adverse air quality impacts associated with Alternative A would be minimal. Some negative impacts could occur if burning activities are located within close proximity of sensitive receptors (e.g., Idaho Falls, Rexburg, Craters of the Moon National Monument and Preserve); however, effects could be avoided with careful planning. Emissions are projected to be low and would likely disperse prior to reaching these areas of concern. No impacts would be expected to Class I visibility areas and areas within the 100-km buffer zone.

While fewer direct air quality impacts would occur under Alternative A due to the limited amount of planned vegetation management activities, adverse indirect air quality impacts over the long term would occur. The absence of management aimed at returning vegetation to FRCC 1 would increase the risk of large and/or large fires in areas now designated FRCC 3 or 2. Fires of this scale are unpredictable, often producing large quantities of smoke over large areas of land at times when ambient air quality is already poor. High, instantaneous volumes of smoke may settle and concentrate, or be blown into sensitive areas, producing adverse impacts to human health and safety.

Limited fire-related fuels management would continue under this alternative, producing the least amount of particulate emissions as compared to the other alternatives. However, Alternative A would result in a higher level of emissions from unplanned wildland fires. Based on existing wildland fire data for the last 32 years, it is estimated that approximately 767,474 acres of unplanned wildland fire would occur in the planning area over the next 10 years. Assuming this wildland fire would burn cover types in proportion to their abundance, this would produce approximately 153,495 tons of PM_{10} and 130,471 tons of $PM_{2.5}$ under Alternative A over the next 10 years.

Under Alternative A, FRCC of the primary cover types of the planning area proposed for treatment are predicted to be as follows:

- Low-elevation Shrub, Perennial and Invasive Annual Grass, and Aspen/Dry Conifer would be FRCC 2-3.
- Mid-elevation Shrub and Juniper, and Mountain Shrub would remain FRCC 3.

It is predicted that this remaining area would be highly susceptible to large wildland fire.

4.6.4 ALTERNATIVE B

4.6.4.1 Direct and Indirect Impacts

Table 4-40 shows estimated emissions over a 10-year period associated with the fire, fuels, and related vegetation management activities of Alternative B. Values include emissions from RxFire and WFU management activities only. Treatments are focused on the Invasive Annual Grass, Low-elevation Shrub, Mid-elevation Shrub, Perennial Grass, Dry Conifer, Aspen/Conifer, and Mountain Shrub cover types.

TABLE 4-40. PARTICULATE MATTER (TONS) RESULTING FROM WILDLAND FIRE USE (WFU) AND RXFIRE OVER 10 YEARS – ALTERNATIVE B

Field Office	PM_{10}	$PM_{2.5}$
Upper Snake	8,004	6,767
Pocatello	7,642	6,485
Shoshone	3,379	2,785
Burley	1,210	1,017
TOTAL	**20,235**	**17,054**

4.6.4.2 Contribution by Field Office

The majority of particulate emissions under this alternative would originate from fire activities within the USFO and PFO, which compose the eastern side of the planning area. With Alternative B, total PM_{10} and $PM_{2.5}$ emissions would increase 14 times over Alternative A (existing fire management scenario). However, it is assumed that these increases would be offset by decreases in PM_{10} and $PM_{2.5}$ emissions that would result from the associated reduction in wildland fire. Over the 10-year period, wildland fire could potentially occur on the remaining acreage in the planning area that is not proposed for treatment, causing additional impacts to air quality (see further discussion below).

Existing PM_{10} and $PM_{2.5}$ emissions from all other sources in the USFO range from 14,420 tons to 256,100 tons and 3,030 tons to 45,680 tons, respectively, over a 10-year period. In the PFO, PM_{10} and $PM_{2.5}$ emissions over 10 years range from 45,230 tons to 256,100 tons and 8,730 tons to 45,680 tons, respectively (based on the annual average from 1995-1999 [Trinity 2003]).

To a lesser degree, PM_{10} and $PM_{2.5}$ emissions would also increase in the SFO and BFO. Although less in absolute numbers, emissions from fuels management activities proposed in these field offices would substantially increase compared to Alternative A.

Existing 10-year totals of PM_{10} and $PM_{2.5}$ emissions from other sources in the BFO and the southern half of the SFO range from 36,670 tons to 255,640 tons and 6,620 tons to 52,980 tons, respectively. Estimates of total PM_{10} and $PM_{2.5}$ over a 10-year period range from 32,919 tons to 89,280 tons and 6,000 tons to 40,410 tons, respectively for the northern half of the SFO (based on the annual average from 1995-1999 [Trinity 2003]).

4.6.4.3 Affected Airsheds

Alternative B would affect all airsheds within the planning area. Particulate sources would be concentrated in Airsheds 18, 19, 20, and some of 17. Activities would also occur in Airsheds 24 and 25, which would also contribute to total emissions of this alternative.

During periods of stagnant air, particulates that settle in the low-lying Snake River Plain would concentrate and adversely impact air quality. Stream valleys and other topographic features of Airshed 20 drain toward the Snake River, creating elevational gradients that funnel winds northward into the Snake River Plain. These topographic features combined with characteristic northeast-trending winds across the planning area in the spring and summer would carry smoke from activities in Airshed 20 toward Airsheds 17, 18, and 19, and across the stateline into Wyoming. These seasonal winds could also blow smoke produced in Airshed 25 toward Airshed 19.

Mountains and hills on the northern and southern sides of Airshed 24 limit the horizontal smoke dispersion potential. Mixing heights must exceed these terrain features for successful dispersion; otherwise, inversions may occur in this airshed, which includes the Ketchum impact zone. Treatments are proposed in nearby generalized project areas of Fish Creek, Little Wood, and Sun Valley, which could directly impact the Ketchum impact zone.

Smoke that settles in the centrally located Snake River Plain may affect impact zones and other sensitive receptors in cover types along the I-15 corridor. Idaho Falls and Portneuf, two impact zones centrally located between Airsheds 19 and 20, and the town of Rexburg could be impacted by the increases in smoke associated with Alternative B. The Portneuf Valley (Airshed 20) and Fort Hall Indian Reservation (Airshed 19) are non-attainment (PM_{10}) areas in this vicinity as well.

Smoke originating from the Sands and Teton Basin GPAs could impact sensitive receptors in Idaho Falls in the fall, as winds blow from the northeast. Smoke from fire treatments within Airshed 18 (Island Park, Medicine Lodge GPAs) could also blow toward Idaho Falls and Rexburg in the fall.

Fires in the Pocatello GPA would affect sensitive receptors in the Portneuf urban impact zone. Pocatello could also experience indirect effects from smoke originating from Sands and Teton Basin GPAs in the fall. Smoke originating from the Deep Creek/Pleasantview, Curlew, and Lava/Downey GPAs could adversely impact air quality in Pocatello in the spring and summer. These areas would likely experience increases in particulates.

Although treatments are not concentrated in GPAs adjacent to Twin Falls (impact zone in Airshed 25), adverse air quality impacts could still occur in the form of increased haze. However, these impacts would be confined to the fall months of the year when relatively low-strength prevailing winds flow from the northeast. The Craters of the Moon National Monument and Preserve could also experience adverse air quality impacts in the fall from fires originating in the Big Lost and Little Lost generalized project areas. In general, adverse impacts would include reduced visibility from haze and decreases in air quality.

Few treatments would occur under Alternative B that could potentially affect visibility in the Class I area of Craters of the Moon National Monument and Preserve during the spring and summer. Haze accumulations could occur due to burning activities in Airsheds 18 and 19 in the fall. These particulates could also travel further into the Ketchum urban impact zone.

Airshed 19 contains 15 PM_{10} ambient air quality monitors. The NAAQS 24-hour average limit (150 µg/m3) has been exceeded three times in Pocatello (Trinity 2003). Additional particulate emissions in this area would contribute to the exceedences of NAAQS. Additional contributing sources originate from agriculture/forestry activities, which currently contribute 11 percent of the PM_{10} and 10 percent of the $PM_{2.5}$ emissions in Bannock County where Pocatello is located. Adjacent Power County attributes 41 percent of PM_{10} and 22 percent of $PM_{2.5}$ to agriculture/forestry activities. Particulate levels from these other sources would be considered prior to planning treatment activities near the Pocatello or adjacent GPAs.

Data from three ambient air quality monitors located within Airshed 20 show 24-hour PM_{10} average levels are below the NAAQS limit of 150 µg/m3. However, Pocatello is adjacent to this airshed and has exceeded the 24-hr PM_{10} average in the past. Additional smoke in this area would contribute to adverse air quality impacts. There are no federally designated PM_{10} non-attainment areas in Airshed 24 or 25. Data from one ambient air quality monitor, located in Ketchum (airshed 24), shows 24-hr PM_{10} average levels are below the NAAQS limit of 150 µg/m3. No exceedence has occurred between 1997 and 2002.

Within the 100-km buffer zone, federally mandated Class I visibility areas include Yellowstone and Grand Teton National Parks, and the Bridger and Sawtooth Wilderness areas. Impacts to these areas could occur in the spring and summer due to the prevailing wind patterns, evidenced primarily as haze accumulations. Other sensitive areas within the 100-km buffer zone include Boise, Idaho and population centers along the Wasatch Front in Utah. Smoke produced in Airsheds 24 and 25 would likely disperse, and therefore not adversely affect air quality in Boise, Idaho. However, the large volumes of smoke produced in Airshed 20 would potentially carry to the south and may accumulate as haze in areas such as Cache, Box Elder, and Davis counties, Utah. Adverse air quality impacts to these sensitive areas could result.

Overall, the additional particulates associated with Alternative B are not likely to adversely change existing air quality. The larger amounts of particulates produced in Airsheds 17,18,19, and 20 have a greater potential to adversely impact air quality during burning periods than do volumes produced in Airsheds 24 and 25. Site-specific impacts could occur across the planning area if burning is allowed in close proximity to sensitive receptors/impact zones. Large volumes of smoke could travel to low-lying areas or be trapped in terrain-restricted valleys, such as in Airshed 24, resulting in haze and decreases in air quality.

Reducing fuel loads and restoring areas to historical fire regimes would improve air quality in the future. Eventually returning vegetation to FRCC 1 would reduce the chance of large and/or large wildland fires; thus, air quality impacts from large, instantaneous volumes of smoke would be avoided. Based on predicted percentages of treatment, changes in FRCC under Alternative B would reduce potential wildland fire to 330,473 acres. Assuming cover types are burned in proportion to their areal coverage, this would produce an estimated 66,095 tons of PM_{10} and 56,180 tons of $PM_{2.5}$, approximately 43 percent less than Alternative A.

Under Alternative B, FRCC of the primary cover types of the planning area would be as follows:

- Low-elevation Shrub, Perennial and Invasive Annual Grass, Mid-elevation Shrub and Juniper, and Aspen/Dry Conifer would be FRCC 2-3.
- Mountain Shrub would become FRCC 1-2.

It is predicted that the areas not moved to FRCC 1 or 2 would be highly susceptible to large wildland fire.

4.6.5 ALTERNATIVE C

4.6.5.1 Direct and Indirect Impacts

Table 4-41 shows estimated emissions associated with the fire, fuels, and related vegetation management objectives of Alternative C. The Mid-elevation Shrub, Perennial Grass, and Mountain Shrub cover types would receive the greatest amount of RxFire and WFU under this alternative. Low-elevation Shrub, Invasive Annual Grass, and Juniper would also receive substantial treatment by RxFire and WFU.

TABLE 4-41. PARTICULATE MATTER (TONS) RESULTING FROM WILDLAND FIRE USE (WFU) AND RXFIRE OVER 10 YEARS – ALTERNATIVE C

Field Office	PM_{10}	$PM_{2.5}$
Upper Snake	3,284	2,694
Pocatello	9,122	7,686
Shoshone	5,025	4,082
Burley	8,741	7,335
TOTAL	**26,172**	**21,797**

Alternative C represents the most aggressive management to return areas to FRCC 1, and as such, would produce the highest particulate emissions of all fire management alternatives. Total PM_{10} and $PM_{2.5}$ emissions resulting from fire management activities would increase by 18 times over Alternative A. It is important to note that values are emissions from RxFire and WFU activities under prescribed conditions and do not reflect the difference between these values and what would occur solely by wildland fire events. It is assumed that smoke production of at least similar magnitude would occur if these areas were left to burn naturally, but timing, location, and size of fire events would be unpredictable, and impacts to air quality from existing unmanaged fires would likely be greater than those resulting from managed events (see further discussion below).

4.6.5.2 Contribution by Field Office

The highest particulate increases would occur from activities in the PFO and BFO. Impacts to air quality from fire-related management activities would be expected. Particulate emissions in the USFO and SFO would be similar to those described for Alternative B. However, the potential for

adverse impacts across the planning area overall would be greater due to the higher amounts of particulates originating from the BFO and PFO.

4.6.5.3 Affected Airsheds

All airsheds of the planning area would be affected under this alternative. Air quality in the vicinity of sensitive receptors would likely experience instantaneous adverse impacts. Prevailing winds from the southwest in the spring and summer would likely result in short-term air quality impacts to Airsheds 24, the northern half of 25, 17, 18, and 19. Sensitive receptors in the Portneuf urban impact zone would likely experience short-term spikes in pollution during burn spring/summer events that originate in Pocatello, Curlew, Deep Creek/Pleasantview, Lava/Downey, Conner, Cotterel, Samaria, and Goose Creek GPAs. Pocatello would be affected by activities planned for the fall in Blackfoot River and Bancroft GPAs.

Idaho Falls would be affected by spring/summer treatments originating in the Blackfoot River, Pocatello, and Bancroft GPAs. Sensitive receptors along the I-15 corridor would also be affected. Periods of haze and reduced air quality would result. As winds shift in the fall, Idaho Falls impact zone and sensitive receptors would be affected by burn activities originating in the Sands GPA.

The Ketchum urban impact zone would experience adverse air quality impacts and impaired visibility from burn treatments originating in the Sun Valley GPA.

The Craters of the Moon National Monument and Preserve would potentially experience increased haze from fires originating in the Big Lost GPA in the fall.

A concentrated area of treatments occurs south of Burley and Twin Falls (impact zone) in Cotterel, Conner, City of Rocks, Middle Mountain, Goose Creek, South Hills, and Shoshone Basin/ Backwaters GPAs. Sensitive receptors in local communities would experience adverse air quality impacts in the spring and summer, as prevailing winds blow smoke to the northeast. Particulates may settle in the Snake River Valley. Smoke originating from this localized concentration of treatments could also affect areas within the 100-km buffer zone to the south.

Sensitive areas within the 100-km buffer would be affected by the high amounts of smoke generated under this alternative. Visibility could be impacted in population centers of Cache Valley and along the Wasatch front in Utah.

Direct and indirect impacts to air quality from smoke would be greatly reduced in the long term. Based on percentage of treatment, changes in FRCC would reduce the area remaining susceptible to wildland fire to 160,026 acres. This would result in estimated wildland fire emissions of PM_{10} totaling 32,005 tons and $PM_{2.5}$ totaling 27,204 tons, approximately 21 percent less than Alternative A.

Under Alternative C, FRCC of the primary cover types of the planning area would be as follows:

- Low-elevation Shrub, Perennial, and Invasive Annual Grass would be FRCC 2, Mid-elevation Shrub and Juniper, and Mountain Shrub would be FRCC 1.
- Aspen/Dry Conifer would become FRCC 1–2.

It is predicted that the areas not moved to FRCC 1 or 2 would be more susceptible to large wildland fire. The risk of large wildland fire would be substantially reduced in the future under this alternative.

Reducing fuel loads and restoring areas to historical fire regimes would decrease future air quality impacts. Eventually returning vegetation to FRCC 1 would reduce the chance of large and/or large fires; thus, air quality impacts from large volumes of smoke would be avoided.

4.6.6 ALTERNATIVE D

4.6.6.1 Direct and Indirect Impacts

Table 4-42 shows estimated emissions associated with the fire, fuels, and related vegetation management objectives of Alternative D. Low-elevation and Mid-elevation Shrub cover types would receive the greatest amount of RxFire treatments, with treatments also occurring in the Juniper and Mountain Shrub cover types.

TABLE 4-42. PARTICULATE MATTER (TONS) RESULTING FROM WILDLAND FIRE USE (WFU) AND RXFIRE OVER 10 YEARS – ALTERNATIVE D

Field Office	PM_{10}	$PM_{2.5}$
Upper Snake	2,540	2,082
Pocatello	1,625	1,373
Shoshone	1,905	1,517
Burley	2,982	2,496
TOTAL	**9,052**	**7,468**

Relative to Alternative A, total PM_{10} and $PM_{2.5}$ would increase six times. It is important to note that values are emissions from RxFire activities under prescribed conditions and do not reflect the difference between these values and emissions that would occur with wildland fire events. It is assumed that smoke production of at least similar magnitude would occur in the absence of the proposed management activities, as susceptible areas would eventually burn naturally. However, timing and size of wildland fire events would be unpredictable, resulting in potentially greater impacts.

4.6.6.2 Affected Airsheds

Isolated areas in all airsheds in the planning area would experience instantaneous increases in particulates under Alternative D, but levels would be less than what would occur under the other action alternatives. In general, summer high winds would disperse smoke northward, reducing the potential of localized, adverse air quality impacts. As winds shift and slow in the fall, particulates could settle in low-lying areas such as the Snake River Plain.

Direct impacts to sensitive receptors could occur in Pocatello during spring/ summer burning in the Deep Creek/Pleasantview GPA.

Particulates would increase in the Idaho Falls impact zone from fires originating in Teton Basin, Sands, and Island Park GPAs during the fall.

Fires originating in Walcott and Wildhorse West GPAs could increase haze in the Snake River Plain in the spring and summer as winds blow smoke to the northeast. Air quality and visibility in Pocatello and along the interstate corridor could be affected.

Collectively, smoke from North Bliss, North Rim, and North Shoshone GPAs could affect air quality in and around Shoshone if burns occur in the spring and summer.

Fires proposed in Big Lost and Little Lost GPAs could affect visibility in the Craters of the Moon National Monument and Preserve Class I Area if burns occur in the fall.

Direct and indirect impacts to air quality from smoke would be greatly reduced in the long term. Based on predicted treatment-acreage, changes in FRCC would reduce wildland fire to 171,446 acres. This would reduce wildland fire emissions of PM_{10} to 34,289 tons and $PM_{2.5}$ to 29,146 tons, approximately 22 percent less than Alternative A.

Under Alternative D, FRCC of the primary cover types of the planning area would be as follows:

- Low-elevation Shrub, Perennial and Invasive Annual Grass, and Mid-elevation Shrub and Juniper would be FRCC 2.
- Mountain Shrub would be FRCC 1 to 3.
- Aspen/Dry Conifer would remain FRCC 3.

It is predicted that the areas not moved to FRCC 1 or 2 would be more susceptible to large wildland fire.

Reducing fuel loads and restoring areas to historical fire regimes would decrease air quality impacts in the long term. Eventually returning vegetation to FRCC 1 would reduce the chance of large fire events; thus, air quality impacts from large volumes of smoke would be avoided.

4.6.7 ALTERNATIVE E

4.6.7.1 Direct and Indirect Impacts

Table 4-43 shows estimated emissions associated with the fire, fuels, and related vegetation management objectives of Alternative E. Low-elevation and Mid-elevation Shrub cover types would receive the greatest amount of RxFire treatments, with treatments also occurring in the Juniper and Mountain Shrub cover types.

TABLE 4-43. PARTICULATE MATTER (TONS) RESULTING FROM WILDLAND FIRE USE (WFU) AND RXFIRE OVER 10 YEARS – ALTERNATIVE E

Field Office	PM_{10}	$PM_{2.5}$
Upper Snake	3,315	2,739
Pocatello	3,326	2,817
Shoshone	2,818	2,292
Burley	3,014	2,523
TOTAL	**12,473**	**10,371**

4.6.7.2 Contribution by Field Office

Contributions of PM_{10} and $PM_{2.5}$ emissions would be relatively even amongst the USFO, SFO, and BFO. The PFO has less acreage in sagebrush steppe, resulting in less area to be treated and, therefore, less particulates emitted.

4.6.7.3 Affected Airsheds

Isolated areas in all airsheds in the planning area would experience instantaneous increases in particulates under Alternative E. Levels would be slightly higher than Alternative D due to treatments in Aspen, Dry Conifer, and Wet/Cold Conifer. However, levels would be less than what would occur under the Alternative C. In general, summer high winds would disperse smoke northward, reducing the potential of localized, adverse air quality impacts. As winds shift and slow in the fall, particulates could settle in low-lying areas such as the Snake River Plain. Impacts to airsheds within the Snake River Plain would be virtually identical to those described for Alternative D. Tables 4-44 and 4-45 summarize PM_{10} and $PM_{2.5}$ emissions, respectively, by alternative.

TABLE 4-44. PM_{10} EMISSIONS BY SOURCE FOR EACH ALTERNATIVE OVER 10 YEARS

Alternative	WFU	RxFire	Wildland fire[1]	Total
Alternative A	0	1,463	153,495	154,958
Alternative B	4,579	15,656	66,095	86,330
Alternative C	3,818	22,354	32,005	58,177
Alternative D	2,213	6,839	34,289	43,341
Alternative E	2,959	9,481	34,289	46,729

[1] Wildland fire acreage was predicted based on the percentage of treatment over a 10-year period in relation to total vegetation acreage. Emission factors per acre of vegetation was averaged from the emission factors for all cover types across the planning area.

TABLE 4-45. $PM_{2.5}$ EMISSIONS BY SOURCE FOR EACH ALTERNATIVE OVER 10 YEARS

Alternative	WFU	RxFire	Wildland fire[1]	Total
Alternative A	0	1,233	130,471	131,704
Alternative B	3,858	13,166	56,180	73,204
Alternative C	3,190	18,607	27,204	49,001
Alternative D	1,873	5,595	29,146	36,614
Alternative E	2,506	7,837	29,146	39,489

[1] Wildland fire acreage was predicted based on the percentage of treatment over a 10-year period in relation to total vegetation acreage. Emission factors per acre of vegetation was averaged from the emission factors for all cover types across the planning area.

4.6.8 MITIGATION AND MONITORING

Management restrictions and air quality restrictions common to all alternatives would be incorporated into management practices (see Appendix Q, Management Restrictions). These guidelines would be implemented to avoid adverse impacts to air quality. All fire activities on BLM-administered land would be done in coordination with the Montana/Idaho Airshed Joint Smoke Management Program. RxFire and WFU would be restricted when regional or local air quality is compromised, or if the project would negatively affect visual quality at Craters of the Moon National Monument and Preserve or any of the Class I areas within the 100-km buffer zone surrounding the planning area.

Ambient air quality monitoring using existing measuring instruments would continue. Particulate emissions in areas known to have exceeded NAAQS in the past, such as Pocatello and Fort Hall Indian Reservation, would be checked prior to commencement of burns. If existing ambient air quality standards would be exceeded due to vegetation treatments, the burning activity would be postponed.

In addition, careful planning of RxFire management activities would greatly reduce the severity of air quality impacts. Planning burn times to coincide with favorable seasonal wind patterns, mixing heights, and time of day would alleviate the potential for adverse air quality impacts. Also, burning in close proximity to any known sensitive receptors/impact zones would be avoided to reduce the potential for direct impacts to these areas. Planning the size of burns in order to reduce smoke volumes would reduce the potential for smoke concentrations to reach sensitive receptors both inside and outside of the planning area, and reduce impacts to visibility from haze.

4.6.9 UNAVOIDABLE ADVERSE IMPACTS

Increasing particulate concentrations in the airsheds within the planning area would unavoidably decrease air quality. Unavoidable impacts would primarily occur as haze accumulations and a general decrease in air quality. However, implementing management practices that would produce smoke at less and more controlled levels, and do so at times when existing air conditions are favorable, would result in fewer air quality impacts than those that would occur under the existing landscape pattern of FRCCs. Whether through wildland fire or prescribed burn events,

air pollution results from fire. However, if areas eventually return to a natural fire regime, future fires would produce less instantaneous and total particulate emissions. The overall future benefit to ecosystem health would offset the potential effects of fire management activities.

4.6.10 Irretrievable and Irreversible Commitment of Resources

Localized irretrievable impacts to air quality would occur on a short-term basis due to implementing RxFire and WFU treatments. However, these impacts would not be significant due to the management restrictions described in Appendix Q, Management Restrictions. Additionally, they would be offset by the long-term benefits to air quality from reduced wildland fire risk. There would be no irreversible impacts to air quality.

4.6.11 Cumulative Effects

The spatial scale for cumulative impacts includes the planning area and immediately adjacent areas. For this analysis, past, present, and reasonably foreseeable future actions include fire management activities only. Other actions primarily consist of the following fire and land management plans.

DOE-ID has prepared a management plan for the SSER and recently (April 2003) DOE-ID completed the Final Idaho National Engineering and Environmental Laboratory Wildland Fire Management Environmental Assessment. Decisions arising from these planning efforts would be consistent with actions proposed in this EIS.

The Sawtooth National Forest Plan revision includes the designation of acres of land that would be treated with fire to reach forest management objectives. Smoke produced from these projects, when coupled with actions proposed in this planning document would result in additional impacts to air quality and particulate material content. Coordination of BLM prescribed fire activities with the Montana/Idaho Airshed Group Smoke Management Program to meet air quality standards would limit the extent and magnitude of any potential cumulative impact of these actions in combination.

Reasonably foreseeable fire management projects on the Targhee National Forest include approximately 2,000 acres per year of fuels reduction, as per the 1997 Forest Plan. These reductions would occur through both fire and mechanical treatments (Betz 2003). The scale of the fire activities compared to that of the action alternatives is relatively small. These projects combined are not likely to contribute much to air quality impacts.

The Caribou National Forest just completed its Forest Plan in February 2003. However, the amount of RxFire proposed is relatively small. Compared with any of the action alternatives, fire management activities planned for the Caribou National Forest would not contribute substantially to cumulative impacts.

IDL, in conjunction with the BLM and other federal agencies, signed the Idaho Statewide Implementation Strategy for the National Fire Plan. The strong focus on fire prevention, fuels reduction, restoration, and collaboration among interested parties would help avoid adverse cumulative impacts to air quality when combined with any of the action alternatives.

For air quality, the main issue for cumulative impacts concerns whether these other fire management actions would occur simultaneously with those of the action alternatives and result in exponential amounts of smoke. The other activities involve much smaller scales than the action alternatives. Also, many of the plans under consideration would incorporate decisions from this EIS; therefore, the effects would not be in addition to what is proposed in this plan. Thus, it is unlikely that significant adverse cumulative impacts to air quality (excedence of National Ambient Air Quality Standards) would occur when considering other past, present, and reasonably foreseeable future actions in conjunction with any of the action alternatives. And, as fire size, frequency, and severity is moved toward a naturally occurring regime, both instantaneous and long-term air quality would improve.

4.7 ANALYSIS OF EFFECTS ON SOILS

4.7.1 ANALYSIS ASSUMPTIONS AND METHODS

Impacts to soils associated with fire, fuels, and related vegetation management over a 10-year period have been assessed for the planning area using footprint-acres of various treatments. Impacts to soils include the potential for wind and water erosion. The erosion potential was assessed using STATSGO-level soils data. Soils were classified as water erodible if they occurred on greater than 10 percent slopes or had a K-factor of greater than or equal to 0.32. Additionally, soils were determined to be wind-erodible if the wind erodibility group value was five or less (BLM 2001a).

Due to the wide variety of soil types that occur over the landscape area, it was not possible to determine potential soil loss (in tons/acre/year) planning area-wide. However, it was possible to determine the footprint-acreage for each cover type by alternative. Additionally, acres of water erodible and wind erodible soil for each cover type were determined and expressed as percentage. The relative acreage of highly susceptible soils impacted by treatments was used to assess potential project impacts. The potential impacts are summarized below in Table 4-46.

Some critical assumptions and considerations were made for the soil impacts analysis. Most importantly, the wind and water erosion data presented herein were taken from the STATSGO database. These data are general and were used for this EIS to identify potential wind and water erodible soils. The actual acreage of disturbance to erodible soils could be less.

The acres reported reflect acres of BLM-administered land only. State and private lands and federal lands other than BLM-administered lands (USFS, INL, and Craters of the Moon National Monument and Preserve) were not included.

It was also assumed that the footprint-acreage would adequately represent the surface area disturbed by various treatments. Additionally, areas susceptible to water erosion may also be susceptible to wind erosion; therefore, the calculated acres of erodible soils may overlap.

TABLE 4-46. SUMMARY OF TREATMENT IMPACTS TO WIND- AND WATER-ERODIBLE SOILS UNDER EACH ALTERNATIVE (IN FOOTPRINT-ACRES)[1]

Vegetation Cover Type	Total BLM Acres	Acres of Wind Erodible Soils (%[2])	Acres of Water Erodible Soils (%[2])	Alternative A			Alternative B			Alternative C			Alternative D			Alternative E		
				Footprint Treatment Total (ac)	Wind	Water	Footprint Treatment Total (ac)	Wind	Water	Footprint Treatment Total (ac)	Wind	Water	Footprint Treatment Total (ac)	Wind	Water	Footprint Treatment Total (ac)	Wind	Water
Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass	3,297,832	2,085,898 (63%)	436,444 (13%)	211,705	133,905	28,018	462,600	292,597	61,222	1,006,050	636,333	133,143	1,235,720	781,600	163,539	1,235,720	781,600	163,539
Mid-elevation Shrub, Juniper	939,748	448,546 (48%)	232,714 (25%)	25,725	12,279	6,370	124,790	59,563	30,902	630,292	300,841	156,082	259,770	123,989	64,328	259,770	123,989	64,328
Mountain Shrub	339,815	167,958 (49%)	83,916 (25%)	2,825	1,396	698	22,230	10,987	5,490	29,875	14,766	7,378	26,780	13,236	6,613	26,780	13,236	6,613
Dry Conifer and Aspen/Conifer	145,058	66,326 (46%)	47,134 (32%)	4,600	2,103	1,495	30,650	14,014	9,959	13,772	6,297	4,475	0	0	0	13,772	6,297	4,475
Salt Desert Shrub	37,792	11,168 (30%)	652 (2%)	975	288	17	0	0	0	0	0	0	0	0	0	0	0	0
Vegetated Rock/Lava	582,057	545,085 (94%)	10,734 (2%)	3,820	3,577	70	5,780	5,413	107	4,000	3,746	74	0	0	0	0	0	0
Wet/Cold Conifer	24,965	11,135 (45%)	4,693 (19%)	220	98	41	0	0	0	1,980	883	372	0	0	0	1,980	883	372
Riparian	30,903	19,728 (64%)	3,139 (10%)	370	236	38	0	0	0	559	357	57	0	0	0	0	0	0
TOTALS	**5,398,170[3]**	**3,337,844 (62%)**	**819,425 (15%)**	**250,240**	**154,731**	**37,986**	**646,050**	**399,471**	**98,068**	**1,686,528**	**1,042,829**	**256,010**	**1,522,270**	**941,263**	**231,076**	**1,538,022**	**951,003**	**233,467**

[1] The erodible soil calculations for each footprint in each alternative assume that erodible soils are uniformly distributed throughout each cover type. Water and wind erodible acreage for each alternative were calculated using the percentage of water or wind erodible soils in each cover type.

[2] Percentage of water or wind erodible acres per cover type.

[3] This number includes approximately 400,000 acres in the Craters of the Moon National Monument that have been transferred to the National Park Service.

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4.7.2 EFFECTS COMMON TO ALL ALTERNATIVES

Soil erosion by wind and water is the primary impact that would occur under all treatments, but the magnitude of impacts between treatments varies greatly (see the following subsections describing treatment effects). Erosion removes topsoil, resulting in lower site productivity. Many low-elevation sites are especially susceptible to wind erosion after wildland fire. Wildland fires consume vegetative cover and result in exposed soils with high surface temperatures. This can negatively affect seed germination and seedling establishment.

RxFire, WFU, and chemical treatments would be followed by seeding (aerial seeding, rangeland drill, transplants, etc). This follow-up treatment would reduce soil erosion by establishing vegetative cover. Under all treatments, biological soil crust disturbance would be inevitable.

Indirectly, wind erosion across denuded sites can negatively affect air quality, as well as reduce visibility, both of which are affected by airborne particulates. Also, soil erosion affects watersheds by contributing to sedimentation, which can negatively affect fish habitat, alter stream channels, and fill downstream reservoirs.

4.7.2.1 Direct and Indirect Impacts of Prescribed Burn (RxFire)

Impacts of RxFire would include loss of vegetative cover and subsequent soil erosion by wind and water. The benefit of RxFire is a controlled ignition, so that erosion-sensitive areas could be avoided. Burned woody debris would provide some protective cover in shrub and timber cover types, but partially burned Invasive Annual Grasses would be highly susceptible to soil erosion. Indirect impacts from RxFire could include sedimentation of streams and reservoirs from wind and water erosion.

4.7.2.2 Direct and Indirect Impacts of Wildland Fire Use (WFU)

Impacts caused by WFU are similar to those described for RxFire, assuming similar locations, times, and management goals. However, the location of the fire cannot be controlled, and erosion-sensitive areas could be burned, resulting in greater post-fire soil erosion than RxFire. As with RxFire, indirect impacts from WFU could include sedimentation of streams and reservoirs from wind and water erosion.

4.7.2.3 Direct and Indirect Impacts of Chemical Treatment

Impacts caused by chemical applications maintain part or all the plant cover, at least until revegetation efforts. Chemical treatments have little effect on soil erosion when compared to the ground disturbing effects of mechanical treatments. Indirect impacts could include movement of chemicals attached to runoff or blown soil particles and sedimentation of streams and reservoirs. The most-commonly used herbicide for chemical treatment is glyphosate, which has the active ingredient glyphosate. Glyphosate is a non-specific herbicide that is strongly adsorbed to the upper layers of soil and has a low propensity for leaching. Glyphosate residues dissipate with a half-life of 45 days to 60 days (Spectum 2005). Although glyphosate residues may be found in soil the year after a treatment, the levels are extremely low.

Additional effects to water quality that could occur from herbicide treatments include increased nutrient loads to surface water and groundwater. Soluble nutrients can enter surface water or groundwater. Nutrients adsorbed to particles may be moved to water bodies by wind and water erosion. Nutrient enrichment of aquatic systems can lead to algal blooms and eutrophication (mineral and organic nutrient loading and subsequent proliferation of plant life), resulting in decreased dissolved oxygen contents. The extent and duration of effects would be dependent on the geographic location, and on the extent of vegetation removal, as well as on revegetation management practices. The removal of large amounts of vegetation along streams could lead to higher water temperatures, to the detriment of fish and other aquatic organisms (BLM 2007).

4.7.2.4 Direct and Indirect Impacts of Mechanical Treatment

Various mechanical manipulations would disturb the soil surface and leave it open without a protective cover of intact, rooted plants. Erosion would likely be less than RxFire or WFU due to plant debris remaining after this treatment. Residual plant debris would cover the soil, protecting it from wind and water erosion. Indirect impacts from mechanical treatments could include sedimentation of streams and reservoirs from wind and water erosion, but would be less than RxFire and WFU due to the residual plant debris.

4.7.2.5 Direct and Indirect Impacts of Seeding Treatment

Seeding and other revegetation treatments would be used after other treatments are implemented (RxFire, WFU, chemical, and mechanical). Seeding by a rangeland drill would disturb the soil surface and lead to minor wind borne erosion. However, the revegetation resulting from seeding would eventually reduce erosion. Aerial seeding would have virtually no impact on soils. Indirect impacts from seeding could include sedimentation of streams and reservoirs from wind and water erosion, but would be less than RxFire and WFU due to the residual plant debris because seeding practices do not disturb surface soils as greatly as RxFire or WFU.

4.7.3 ALTERNATIVE A

Alternative A has the smallest total footprint (250,240 acres) and would have the least impact to soil resources. This alternative would disturb the least amount of wind and water erodible soils (i.e., 154,731 and 37,986 acres, respectively) (see Table 4-46). However, with treatments progressing at their relatively slow rate, large areas of land would accumulate abnormally high fuel loadings and have larger and more frequent fires. However, because treatments under Alternative A are intended to re-establish vegetation, it would be expected that soil erosion would decrease after successful vegetation treatments. Because Alternative A has the smallest total footprint, indirect sedimentation impacts to streams and reservoirs would be less than all other alternatives.

4.7.4 ALTERNATIVE B

Under Alternative B, increased area of vegetation treatments could increase erosion temporarily on sites that are being treated. Initial erosion impacts under Alternative B would be roughly twice as much as Alternative A. Alternative B footprint area would total 646,050 acres, and would disturb 399,471 acres of wind erodible soils and 98,068 acres of water erodible soils (see

Table 4-46). Short-term impacts to soil erosion in Alternative B are far outweighed by increased levels of revegetation across the planning area. Because treatments under Alternative B are intended to re-establish vegetation, it would be expected that soil erosion would decrease after successful vegetation treatments. In the short term, sedimentation would occur at roughly twice the rate as Alternative A. However, successful ESR and restoration would minimize the amount of sedimentation under this alternative.

4.7.5 ALTERNATIVE C

Under Alternative C, increased vegetation treatments would increase erosion temporarily on sites that are being treated through RxFire, mechanical, or chemical means. Footprint-acres would total 1,686,528 acres, and initial wind and water erosion impacts would be approximately 2.5 times greater than Alternative B at 1,042,829 and 256,010 acres, respectively (see Table 4-46). Because treatments under Alternative C are intended to re-establish vegetation, it would be expected that soil erosion would decrease after successful vegetation treatments. Sedimentation would occur at roughly 2.5 times the rate as Alternative B. However, successful ESR and restoration would minimize the amount of sedimentation under this alternative.

4.7.6 ALTERNATIVE D

Under Alternative D, increased vegetation treatments would increase erosion temporarily on sites that are being treated either through RxFire, mechanical, or chemical means. Approximately 1,522,270 footprint-acres would be treated under Alternative D and would impact 941,263 acres of wind erodible soils and 231,076 acres of water erodible soils (see Table 4-46). Alternative D differs from Alternative C in that Dry Conifer, Aspen/Conifer, Salt Desert Shrub, Vegetated Rock/Lava, Wet/Cold Conifer, and Riparian cover types would not receive treatment. Because treatments under Alternative D are intended to re-establish vegetation, it would be expected that soil erosion would decrease after successful vegetation treatments. Sedimentation would occur at roughly 2.5 times the rate as Alternative B, and sedimentation rates under Alternative D would be similar to Alternative C. However, successful ESR and restoration would reduce the amount of sedimentation under this alternative.

4.7.7 ALTERNATIVE E

Under Alternative E, increased vegetation treatments would increase erosion temporarily on sites that are being treated either through RxFire, mechanical, or chemical means. Approximately 1,538,022 footprint-acres would be treated under Alternative E and would impact 951,003 acres of wind erodible soils and 233,467 acres of water erodible soils (see Table 4-46). Alternative E is different from Alternative D in that it also treats Dry Conifer, Aspen/Conifer, and Wet/Cold Conifer cover types. Because treatments under Alternative E are intended to re-establish vegetation, it would be expected that soil erosion would decrease after successful vegetation treatments. Sedimentation would occur at roughly 2.5 times the rate as Alternative B, and would be similar to Alternatives C and D. However, successful ESR and restoration would reduce the amount of sedimentation under this alternative.

4.7.8 MITIGATION AND MONITORING

With the implementation of management restrictions discussed in Appendix Q, Management Restrictions, mitigation would not be necessary. Monitoring and adaptive management would occur as directed by individual field offices and fire plans. This monitoring and adaptive management would be determined through project-level planning and associated NEPA processes.

4.7.9 UNAVOIDABLE ADVERSE IMPACTS

Biological soil crusts would likely be unavoidably impacted under the action alternatives since active measures, including RxFire, WFU, and other vegetation treatments, would be needed to restore cover types to FRCC 1. Revegetating treated sites and restored ecosystem function would ensure the eventual re-establishment of biological soil crusts. However it could take a minimum of 50 years to establish a protective biological soil crust, depending on the presence of crust-forming organisms available to inoculate a treated site. Additionally, wildland fire and associated suppression efforts would damage or destroy biological soil crusts.

4.7.10 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

Irretrievable impacts to biological soil crusts would occur as described above. These impacts would not be irreversible, however, as these biological crusts could re-establish with effective rehabilitation/restoration.

4.7.11 CUMULATIVE EFFECTS

Cumulative impacts to soils are considered relative to the long-term effects of the action alternatives in conjunction with other fire management activities in the planning area. These similar plans include the INL management plan, the Sawtooth, Caribou, and Targhee National Forests management plans, and the Idaho Statewide Implementation Strategy for the National Fire Plan.

Overall, most of the goals of these plans are to reduce the severity and duration of fires in the planning area. Of these plans, the INL management plans, the National Forest management plans, and the Idaho Statewide Implementation Strategy for the National Fire Plan would result in disturbance in addition to the acreages disclosed in Table 4-46. Treatment methods and acres for INL have not yet been determined (these plans were being written at the time this EIS was released), and these lands are entirely encompassed by the planning area boundary. The Sawtooth National Forest has revised its Forest Plan and would result in approximately 60,000 acres to 300,000 acres of the forest being treated over the long term. The Caribou and Targhee National Forests intend to treat 9,000 acres per year over the long-term. The Idaho Statewide Implementation Strategy for the National Fire Plan would focus on WUI lands. Relative to most of the planning area's project alternatives, these additional fire treatment impacts are minimal over the long-term.

As discussed above, reducing the severity and duration of fires would, over the long run, reduce soil erosion over the planning area. Erosion impacts relating to increased RxFire, WFU, ESR and

restoration, or other fire management practices would occur. However, as mentioned above, seeding and subsequent revegetation following treatments would mitigate many of these impacts. Cumulative impacts may vary, however, depending on which project alternative is implemented; thus, cumulative impacts must be examined relative to the action alternatives in terms of their contribution to other plans for reducing the severity and duration of fires.

In general, the cumulative effects on soil resources for each alternative are related to the amount of acreage moving from FRCC 3 or 2 to FRCC 1. Movement of cover types to FRCC 1 would ultimately result in reduction of fuels and fire frequency, leading to decreased soil erosion.

The project alternatives presented herein would have a much greater effect on soil resources than other reasonably foreseeable future actions would because the planning area encompasses a much larger area (5.0 million acres). Over a 30-year period, Alternative A would change the FRCC the least number of acres (250,240 acres) of the five alternatives. Thus, Alternative A would have the least positive contribution to the cumulative impacts of the other plans and management strategies in the foreseeable future. The Alternative B would result in an increased number of acres (646,050 acres) with an improved FRCC relative to Alternative A. However, under Alternatives C, D, or E at least 28 percent of the BLM-administered land area would be treated (1,687,000 acres, 1,522,000 acres, and 1,538,000 acres, respectively) over a 30-year period. Thus, in the long-term, the action alternatives would offset the cumulative non-projected related impacts to soil erosion by improving FRCC and consequently vegetative health.

4.8 ANALYSIS OF EFFECTS ON WATER RESOURCES

4.8.1 ANALYSIS ASSUMPTIONS AND METHODS

Water resources respond to changes in fire, fuels, and vegetation management because factors that influence hydrological functions depend on several factors. These include a fire's impact on vegetation, how a fire modifies the landscape, and the timing of subsequent precipitation events. Intense wildland fires create conditions that can reduce soil-water infiltration, promote surface runoff, and change water quality. The steepness of a hillside influences the risk of any site to overland flow and surface erosion and is also related to the rate at which the site is revegetated after a fire. Soil disturbance directly influences surface water resources.

Because proposed acreages (footprint) to be treated in Riparian cover types are 709 acres or less for any alternative, it was assumed treatments would have negligible impacts on water resources. Treatments occurring in non-riparian cover types would be the primary causes of impacts, if any, to water resources.

It was also assumed that the footprint-acreage would adequately represent the surface area disturbed by various treatments. Additionally, areas susceptible to water erosion may also be susceptible to wind erosion, and the acres calculated may overlap; although wind erosion does not impact water resources to the degree of water erosion.

4.8.2 EFFECTS COMMON TO ALL ALTERNATIVES

Water erosion is the primary impact that would occur under all treatments, but the magnitude of impacts between treatments varies greatly (see below). Some low-elevation sites are especially susceptible to wind erosion, as well as water erosion, after wildland fire. Wildland fires consume vegetative cover and result in exposed soils that are at risk for wind erosion, as well as water erosion, until regrowth occurs.

Soil erosion affects watersheds by contributing to sedimentation. Sedimentation can negatively affect fish habitat, alter stream channels, and fill downstream reservoirs.

4.8.2.1 Direct and Indirect Impacts of Prescribed Burn (RxFire)

Impacts to water resources from RxFire would include sedimentation of streams and reservoirs from water runoff as a result of post-burn erosion. However, the benefit of RxFire is that it is set in a controlled environment, and erosion-sensitive areas could be avoided and fire intensity and size can be controlled depending on GPA designation.

4.8.2.2 Direct and Indirect Impacts of Wildland Fire Use (WFU)

Impacts caused by WFU are similar to those described for RxFire, assuming similar locations, timing, and management objectives. However, the location of the fire cannot be controlled, and erosion-sensitive areas could be burned, resulting in greater post-fire risk of sedimentation than RxFire.

4.8.2.3 Direct and Indirect Impacts of Chemical Treatment

There should be no impacts to water resources from use of chemicals because they are applied according to label instructions. Any chemicals that move from treated areas to surface waters should degrade quickly. The most-commonly used herbicide or chemcal treatment would be glyphosate. Giesy et al. (2000) concluded:

> Field studies indicate that glyphosate typically dissipates rapidly from both simple ecosystems, such as agricultural, and more complex ecosystems, such as forestry, regardless of the diverse edaphic and climatic conditions.

The authors indicated an average half-life for glyphosate of 32 days from field studies at 47 different sites. When glyphosate enters water as runoff or inadvertent overspray or spray drift, it adsorbs strongly to sediment and particulate matter in the water column. It may also form insoluble complexes with metal ions and precipitate. Evidence from microcosm studies suggests that sediment adsorption and/or biodegradation represents the major dissipation process in aquatic systems (Spectrum 2005). Glyphosate levels in sediment rise at first and then fall to very low or undetectable levels. Chemical applications would conform to application criteria described in the Programmatic Environmental Impact Statement (PEIS) and ROD to address vegetation treatments using herbicides on BLM lands in 17 western states (BLM 2007). Additionally, use would conform to instructions from BLM Manual 9011 Chemical Pest Control, as well as label restrictions and current policies. (See Section 2.4.3.3.2).

4.8.2.4 Direct and Indirect Impacts of Mechanical Treatment

Various mechanical manipulations would disturb the soil surface and leave it open without a protective cover of intact, rooted plants. Water erosion would likely be less than RxFire or WFU due to plant debris remaining after this treatment (see Section 4.7.2.4).

As with other treatments, some sedimentation would occur, but to a lesser extent than RxFire and WFU.

4.8.2.5 Direct and Indirect Impacts of Seeding Treatment

Ground-seeding operations would cut furrows in the soil and lead to minor soil loss. Stream sedimentation caused by soil erosion from seeding would be negligible. Additionally, the revegetation resulting from seeding would reduce erosion. Aerial seeding would have no impact on water resources.

4.8.3 ALTERNATIVE A

Considering all cover types, Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass would contain the largest acreage of water-erodible soils proposed for treatment under Alternative A, and thus have the potential to cause impacts to water resources as a result of treatments (see Table 4-46). However, the acreage of water-erodible soils that would be potentially treated under this alternative represent less than 1 percent of the planning area (see Table 4-46). Thus, overall, impacts to water resources would be negligible across the planning area.

4.8.4 ALTERNATIVE B

Low-elevation Shrub, Perennial Grass, Invasive Annual Grass, Mid-elevation Shrub, and Juniper cover types contain areas susceptible to wind and water erosion. The acreage of wind-erodible soils that would be potentially treated under this alternative represents approximately 7 percent of the planning area, while less than 2 percent would would be treated on water-erodible soils (see Table 4-46) under the Alternative B. Overall, the effective implementation of management restrictions would ensure that impacts to water resources described in Section 4.8.2 would be minimal across the planning area.

4.8.5 ALTERNATIVE C

The acreage of wind-erodible soils that would be potentially treated under this alternative represents approximately 19 percent of the planning area, while approximately 5 percent would would be treated on water-erodible soils (see Table 4-46) under Alternative C. With the effective implementation of management restrictions, impacts to water resources, described in Section 4.8.2, would be minimal across the planning area. Low-elevation Shrub, Perennial Grass, Invasive Annual Grass, Mid-elevation Shrub, and Juniper cover types would contain the majority of acreage susceptible to wind and water erosion.

4.8.6 ALTERNATIVE D

The acreage of wind-erodible soils that would be potentially treated under this alternative represents approximately 17 percent of the planning area, while approximately 4 percent would be treated on water-erodible soils (see Table 4-46) under Alternative D. With the effective implementation of management restrictions, impacts to water resources described in Section 4.8.2 would be minimal across the planning area. Low-elevation Shrub, Perennial Grass, Invasive Annual Grass, Mid-elevation Shrub, and Juniper cover types would contain the majority of acreage susceptible to wind and water erosion. No treatments are proposed in Dry Conifer, Aspen/Conifer, Salt Desert Shrub, Vegetated Rock/Lava, Wet/Cold Conifer, or Riparian cover types; therefore, treatment in these vegetation types would not be expected to contribute to impacts to water resources.

4.8.7 ALTERNATIVE E

The acreage of wind-erodible soils that would be potentially treated under this alternative represents approximately 18 percent of the planning area, while approximately 4 percent would would be treated on water-erodible soils (see Table 4-46) under Alternative E. Impacts under this Alternative would be similar to those described for Alternative D, with the exception that some treatments would occur in Dry Conifer, Aspen/Conifer, and Wet/Cold Conifer cover types. However, these cover types contain relatively small amounts of wind and water-erodible soils.

With the effective implementation of management restrictions, impacts to water resources described in Section 4.8.2 would be minimal across the planning area. Low-elevation Shrub, Perennial Grass, Invasive Annual Grass, Mid-elevation Shrub, and Juniper cover types would contain the majority of acreage susceptible to wind and water erosion.

4.8.8 MITIGATION AND MONITORING

With the implementation of management restrictions discussed in Appendix Q, Management Restrictions, mitigation would not be necessary. Monitoring and adaptive management would occur as directed by individual field offices and fire plans. This monitoring and adaptive management would be determined through project-level planning and associated NEPA processes.

4.8.9 UNAVOIDABLE ADVERSE IMPACTS

There would be no unavoidable adverse impacts to the water resources.

4.8.10 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

There would be no irretrievable or irreversible impacts to water resources.

4.8.11 CUMULATIVE EFFECTS

Cumulative impacts to water resources are considered relative to the long-term effects of the action alternatives in relation to other similar plans. These similar plans include the Interior

Columbia Basin Ecosystem Management Project MOU with the BLM, the INL management plan, and various other agency plans. The Sawtooth National Forest Plan intends to schedule and complete at least 40,000 acres of fuels management through prescribed fire and mechanical treatments over the next 10 years. The Caribou and Targhee National Forests intend to treat 9,000 acres per year over the long term. The Idaho Statewide Implementation Strategy for the National Fire Plan would focus on WUI lands. Relative to most of the planning area's project alternatives, these additional fire treatment impacts are negligible over the long term.

Overall, goals of these plans include reducing the occurrence of uncharacteristic wildland fires in the planning area. Over the long run, this would reduce water erosion and sedimentation, across the planning area. Water resource impacts that relate to increased RxFire, WFU, ESR and restoration, or other fire management practices would occur. However, as mentioned above, seeding and revegetation would mitigate many of these impacts. Cumulative impacts in the planning area may vary, however, depending on which alternative is implemented for this project. In general, the cumulative effects on water resources for each alternative are related to the amount of acreage moving from FRCC 3 or 2 to FRCC 1. Movement of cover types to FRCC 1 would ultimately result in reduction of fuels and fire frequency, leading to decreased soil erosion and subsequent impacts to water resources.

Project alternatives would have a much greater effect on water resources than other reasonably foreseeable future actions because the planning area would enact the largest amount of fire management over the largest area (5.0 million acres). Over a 30-year period, Alternative A would change the FRCC of the least number of acres (250,200 footprint-acres) of the five alternatives and have the least positive contribution to cumulative impacts when considered in conjunction with other plans and management strategies in the foreseeable future. The Alternative B would result in an increased number of acres (646,600 footprint-acres) in better FRCC relative to Alternative A. However, under either the Alternatives C, D, and E, at least 28 percent of the BLM-administered land area would be treated (1,687,00 footprint-acres, 1,522,000 footprint-acres, and 1,538,000 footprint-acres, respectively) over a 30-year period. Thus, these action alternatives would have a significant positive cumulative impact by reducing negative effects to water resources, when considered in conjunction with other actions in the planning area.

4.9 ANALYSIS OF EFFECTS ON LIVESTOCK GRAZING MANAGEMENT

4.9.1 ANALYSIS ASSUMPTIONS AND METHODS

Fire, whether RxFire or wild, may have direct positive and/or negative impacts on livestock grazing on BLM-administered lands in the planning area. It is predicted, however, that as the 12 cover types move toward FRCC 1, overall species composition and structure would improve. Additionally, improving the FRCC would generally reduce the risk of large, frequent fires and benefit vegetation. This would also allow areas to recover quicker from wildland fires and require less rehabilitation. All the action alternatives may reduce the number of long-term allotment closures and animal unit months (AUMs) temporarily unavailable, maintain and

improve the health of the rangelands, improve wildlife habitat/watershed conditions, and improve overall forage production.

Several assumptions were made in developing the analysis for impacts to livestock grazing. These assumptions include: (1) it requires 10 acres to produce 800 pounds of forage per month to maintain 1 AUM, (2) treatment areas would be rested from livestock grazing until monitoring results show resource objectives have been met, and (3) AUMs temporarily lost as a result of resting these treatment areas would generally become available as monitoring results show resource objectives have been met. Areas identified for RxFire may also be rested one or two years prior to a treatment. The price to purchase hay was set at $100 per ton. The cost to graze was set at $10.49 per AUM on private land and $1.37 per AUM on BLM-administered land. Both of these figures are average lease rates in Idaho from 1998 through 2002.

Prior to RxFire treatment, areas may need to be rested one year to accumulate sufficient fuel to carry RxFire treatment. During this pre-treatment period, AUMs would be temporarily unavailable for livestock grazing. Pre-treatment AUMs temporarily unavailable are not estimated as part of this EIS because footprint treatment acres are estimates of project level action that do not specify among RxFire, WFU, Chemical, and Mechanical treatments. Pre-treatment AUMs, temporarily unavailable, would be determined and analyzed on a project-by-project basis.

4.9.2 EFFECTS COMMON TO ALL ALTERNATIVES

Direct and indirect impacts for all vegetation treatment methods generally result in a short-term loss of AUMs while these treatment areas are being treated and/or being rested from livestock grazing preceding or following a treatment. Successful vegetation treatments involving the use of RxFire, WFU, mechanical, chemical, and/or seeding are often weather and site-dependent. Pre and post treatment resting may necessitate (1) adjusting seasons of use for livestock grazing, (2) adjusting grazing systems, (3) using pastures scheduled for rest or deferred grazing, (4) constructing temporary fencing around treatment areas, (5) reducing the number of livestock authorized to graze, or (6) totally removing livestock from the allotment. These allotment restrictions would be dealt with on a site-specific basis in the planning process for each vegetation treatment. These allotment restrictions may require permittees to lease additional private land, purchase additional feed, or reduce overall livestock numbers during this interim period. Additional disturbance to livestock could occur during vegetation treatment and fire fighting activities (i.e., increased noise, traffic, construction of fire breaks, etc).

Permittees with allotments that have grazing seasons beginning or extending into the summer and fall periods may also be affected by wildland fire activity and vegetation treatments. Large wildland fires generally occur across the planning area beginning in July and ending mid-September. Treatments for the reduction of fire hazards and rehabilitation of wildland fire burned areas are generally initiated in the fall and completed in the winter. As these treatments are initiated, temporary removal of livestock would be necessary to ensure success of the particular treatment and establishment of desired vegetation.

4.9.2.1 Direct and Indirect Impacts of Prescribed Burn (RxFire)

RxFire would be used in all cover types, except Salt Desert Shrub and Vegetated Rock/Lava, where conditions such as access, adjacent vegetation and terrain, and climatic conditions are sufficient to provide adequate control of the RxFire. Effects of RxFire on rangeland resources are predominantly negative to livestock grazing. Treatment areas may also need to be rested from grazing for one to two years prior to the RxFire to increase fine fuels enough to carry an RxFire.

4.9.2.2 Direct and Indirect Impacts of Wildland Fire Use (WFU)

WFU would be used in all cover types. WFU would primarily be in remote areas where the benefits of fire are greater than the risk and cost of putting it out. Effects of WFU on rangeland resources are also predominantly negative to livestock grazing. WFU would displace livestock during the management of fire. WFU would also displace livestock from the burned allotment following the fire to allow vegetation to regenerate.

The control of WFU burns could possibly be less than those ignited intentionally and could result in loss of range improvements (fences, livestock waters, etc). This could alter livestock use and distribution patterns on portions of the allotment(s) not affected by wildland fire. Natural starts would be suppressed if the fire posed a threat to the long-term stability of the rangeland resource.

4.9.2.3 Direct and Indirect Impacts of Chemical Treatment

Chemicals (herbicides) would be used in all cover types, except Salt Desert Shrub and Wet/Cold Conifer, for fuels reduction activities. These chemicals may be applied both aerially and from the ground depending on the area and cover type being treated. Only herbicides approved for use on BLM-administered lands would be used in these vegetation treatments. Short-term effects of most chemical treatments on rangeland resources are predominantly negative to livestock grazing. Most chemical treatments would be used in conjunction with other vegetation treatments in an effort to reduce the seedbed of Invasive Annual Grasses. All other spot application of chemicals would be limited to treatments of noxious weed infestations and would not impact livestock grazing.

4.9.2.4 Direct and Indirect Impacts of Mechanical Treatment

Mechanical treatments would be used in all cover types, except Salt Desert Shrub. These treatments would vary considerably between cover types and may include using hand-operated tools to thin conifer and juniper, chaining to thin juniper and sagebrush, drill seeding, and harrowing or chaining to cover grass and shrub seed. Short-term direct effects of mechanical treatments of rangeland resources would result in the temporary loss of AUMs available for livestock grazing while the treatment areas are rested from livestock grazing as vegetation in the treatment area becomes re-established.

4.9.2.5 Direct and Indirect Impacts of Seeding Treatment

Seeding would be used in all cover types, except Wet/Cold Conifer. Short-term direct effects would result in the temporary loss of AUMs available for livestock grazing while the treatment areas are rested from livestock grazing as the seeded vegetation becomes established.

4.9.3 ALTERNATIVE A

Alternative A would result in 47,500 AUMs being temporarily unavailable over the next 10-year period. This reduction of AUMs represents approximately 0.7 percent of the AUMs available in the planning area. The loss of revenue to the BLM in the form of grazing fees would be $65,075 over the next 10-year period. If permittees do not have sufficient private land for their livestock while public lands are rested following the vegetation treatment, they may need to lease additional private rangeland for their livestock. If permittees have sufficient private land of their own, additional feed may need to be purchased for those livestock temporarily removed from the public lands. The estimated cost of this alternative to livestock owners in the planning area to lease private land while the allotments are rested is estimated to be $519,650 and hay purchase cost is estimated to be $1,900,000 over the next 10-year period. Treatments associated with this alternative would produce the least amount of AUMs being temporarily unavailable, the least amount of loss of short-term revenue in the form of grazing fees, and result in the least amount of short-term cost to livestock owners in the form of leasing private land and purchasing additional feed over the short term.

4.9.4 ALTERNATIVE B

Alternative B would result in 122,783 AUMs being temporarily unavailable over the next 10-year period. This reduction of AUMs represents approximately 1.8 percent of the AUMs available in the planning area. The loss of revenue to the BLM in the form of grazing fees would be $168,213 over the next 10-year period. If permittees do not have sufficient private land for their livestock while public lands are rested following the vegetation treatment, they may need to lease additional private rangeland for their livestock. If permittees have sufficient private land of their own additional feed may need to be purchased for those livestock temporarily removed from the public lands. The estimated cost of this alternative to livestock owners in the planning area to lease private land while the allotments are rested was estimated to be $1,362,319 and hay purchase cost was estimated to be $4,987,040 over the next 10-year period. This alternative would increase the amount of AUMs being temporarily unavailable, the amount of loss of revenue in the form of grazing fees, and the cost to livestock owners in the form of leasing private land and purchasing additional feed by approximately 262 percent when compared to Alternative A.

4.9.5 ALTERNATIVE C

Alternative C would result in 320,467 AUMs being temporarily unavailable over the next 10-year period. This reduction of AUMs represents approximately 4.8 percent of the AUMs available in the planning area. The loss of revenue to the BLM in the form of grazing fees would be $439,040 over the next 10-year period. If permittees do not have sufficient private land for their livestock while public lands are rested following the vegetation treatment, they may need to lease additional private rangeland for their livestock. If permittees have sufficient private land of their own, additional feed may need to be purchased for those livestock temporarily removed from the public lands. The estimated cost of this alternative to livestock owners in the planning area to lease private land while the allotments are rested was estimated to be $3,491,212 and hay purchase cost was estimated to be $12,764,960 over the next 10-year period. This alternative would increase the amount of AUMs being temporarily unavailable, the amount of loss of

revenue in the form of grazing fees, and the cost to livestock owners in the form of leasing private land and purchasing additional feed by approximately 672 percent when compared to Alternative A.

4.9.6 ALTERNATIVE D

Alternative D would result in 289,268 AUMs being temporarily unavailable over the next 10-year period. This reduction of AUMs represents approximately 4.3 percent of the AUMs available in the planning area. The loss of revenue to the BLM in the form of grazing fees would be $396,297 over the next 10-year period. If permittees do not have sufficient private land for their livestock while public lands are rested following the vegetation treatment, they may need to lease additional private rangeland for their livestock. If permittees have sufficient private land of their own additional feed may need to be purchased for those livestock temporarily removed from the public lands. The estimated cost of this alternative to livestock owners in the planning area to lease private land while the allotments are rested was estimated to be $3,368,995 and hay purchase cost was estimated to be $12,318,080 over the next 10-year period. This alternative would increase the amount of AUMs being temporarily unavailable, the amount of loss of revenue in the form of grazing fees, and the cost to livestock owners in the form of leasing private land and purchasing additional feed by approximately 648 percent when compared to Alternative A.

4.9.7 ALTERNATIVE E

Alternative E would result in 292,242 AUMs being temporarily unavailable over the next 10-year period. This reduction of AUMs represents approximately 4.4 percent of the AUMs available in the planning area. The loss of revenue to the BLM in the form of grazing fees would be $400,371 over the next 10-year period. If permittees do not have sufficient private land for their livestock while public lands are rested for the two years following the vegetation treatment, they may need to lease additional private rangeland for their livestock. If permittees have sufficient private land of their own additional feed may need to be purchased for those livestock temporarily removed from the public lands. The estimated cost of this alternative to livestock owners in the planning area to lease private land while the allotments are rested was estimated to be $3,197,123 and hay purchase cost was estimated to be $11,689,663 over the next 10-year period. This alternative would increase the amount of AUMs being temporarily unavailable, the amount of loss of revenue in the form of grazing fees, and the cost to livestock owners in the form of leasing private land and purchasing additional feed by approximately 615 percent when compared to Alternative A.

4.9.8 MITIGATION AND MONITORING

The management restrictions listed in Appendix Q, Management Restrictions, are incorporated into management practices common to all alternatives. These practices would be implemented to avoid adverse impacts to resources related to livestock grazing. Because of this, no further mitigation would be required to protect these resources.

4.9.9 UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts to livestock grazing due to this planning effort include the potential of short-term suspension, delay, or authorizing livestock grazing at lower than pre-treatment levels until the treatment area is adequately rehabilitated and/or restored. However, these short-term impacts are currently being experienced and would continue under Alternative A. These short-term impacts would be offset by the long-term improvements to overall range health resulting from increased fire, fuels, and vegetation management. This, in turn would reduce the potential for long-term suspension, delay, or reduction of livestock grazing in the treated allotments.

4.9.10 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

Irretrievable impacts of treatments to livestock grazing would include the short-term loss of AUMs as described above. However, this short-term habitat loss would not be irreversible, as these AUMs would be returned to active grazing after rehabilitation/restoration.

4.9.11 CUMULATIVE EFFECTS

Cumulative impacts to livestock grazing include all past, present, and future fire management actions that may impact livestock grazing associated with the planning area. To reduce negative impacts livestock grazing, efforts must be made between other federal and state agencies as well as private landowners to coordinate land use. There are several planning efforts that incorporate fire use strategies currently underway, which may, in conjunction with this planning effort, affect the rangeland resources associated with the planning area. These plans include the Craters of Interior Columbia Basin Ecosystem Management Project, the INL management plan, the Sawtooth and Caribou-Targhee National Forests management plans, and the Idaho Statewide Implementation Strategy for the National Fire Plan. Overall, the primary goal of these plans is to reduce the intensity and area of wildland fires in the planning area. The means proposed to meet this goal is broadly similar to many actions proposed of the various alternatives in this EIS, and include RxFire, WFU, ESR, and restoration activities.

Additionally, the NPS and the BLM have prepared a joint monument management plan for Craters of the Moon National Monument and Preserve, which is located entirely within the administrative boundary of the FMDA planning area. This management plan includes fire management decisions for the Monument and Preserve that, when considered in conjunction with the action alternatives, would result in cumulatively positive long-term impacts on vegetation resources, and therefore forage availability.

As discussed above, impacts to livestock grazing from fire predominantly relates to the intensity and area of the fire. In general, large frequent fires result in increased negative impacts to rangeland resources. Thus, reducing the area and frequency of fires would, over the long run, reduce negative impacts to livestock grazing in the planning area. There could possibly be increased short-term impacts to livestock grazing relating to increased RxFire, WFU, ESR and restoration, or other fire management practices. As described above for each alternative, vegetation treatments have the potential to negatively affect livestock grazing. Thus, there is the potential for increased negative cumulative impacts in the short term from the actions proposed

in this EIS when considered in conjunction with other fire management activities in the planning area. Overall, cumulative impacts may vary, depending on which project alternative is implemented; cumulative impacts must be examined relative to the alternatives in terms of their contribution to the cumulative impacts of other plans for reducing the area and frequency of fires.

In general, the cumulative effects on livestock grazing for each alternative action of the various fire management plans being developed would be related to the amount of acreage moving from FRCC 3 to FRCC 1. Because the general goals of the other fire management plans and regional strategies are to, in essence, reduce the amount of acreage in FRCC 3 and increase the amount in FRCC 1, these plans should have a positive long-term effect on livestock grazing by reducing the potential for large-scale damage to rangeland resources. Consequently, the alternatives proposed in this EIS should also be considered in terms of their overall contribution to reducing the area and frequency of wildland fires. Alternatives that achieve a reduction in the area and frequency of wildland fires would, in combination with the actions undertaken in other regional plans, have a greater positive effect than those that do not reduce, or reduce in lower amounts, the area and frequency of wildland fires.

Of the five alternatives described in this EIS, Alternative A changes the FRCC the least number of acres. Thus, Alternative A would have the least positive cumulative impact on the other plans and management strategies in the foreseeable future. Alternative B would result in an increased number of acres with a changed FRCC relative to Alternative A. Relative to Alternative A, Alternative B would have a greater positive cumulative impact. However, Alternatives C, D, and E all result in substantial shifts of rangeland to FRCC 1. Thus, these alternatives would have an additional positive cumulative contribution on livestock grazing when considered with the other fire management plans in the planning area than either Alternative A or Alternative B.

4.10 ANALYSIS OF EFFECTS ON RECREATIONAL RESOURCES

4.10.1 ANALYSIS ASSUMPTIONS

The analysis assumptions for recreational resources were that: (1) RxFire would be considered for use in dispersed and developed recreational areas to protect them from or minimize the impacts of large wildland fire on these areas; (2) RxFire, chemical, seeding, and/or mechanical treatments would be used to improve FRCCs; and (3) wildland fire or RxFire would expose previously hidden recreational resources that could become subject to unmanaged use.

4.10.2 EFFECTS COMMON TO ALL ALTERNATIVES

The effects of fire management on recreational resources within the planning area are based on the impacts produced by modifying and maintaining vegetation in the various FRCCs. The impacts would include the following:

- The potential exposure after fire of livestock and game trails to off-highway vehicle (OHV) use;
- The potential exposure after fire of previously hidden lava tube and cave entrances to unmanaged exploration;

- Limited access to recreational areas during RxFire, mechanical, seeding, chemical treatments, and/or wildland fire;
- The temporary closing of dispersed and developed recreational areas during land restoration following treatments to maintain or change FRCCs; and
- The potential loss of facilities within developed recreational areas from large wildland fire.

In general, fire management in dispersed recreational areas would use RxFire, chemical, mechanical, and seeding treatments. The same treatments would be used in the vicinity of developed areas associated with high-density recreational opportunities or where recreational facilities have been constructed. RxFire would be used where appropriate. As cover types are moved toward improved FRCCs, the risk of large-scale wildland fire is also reduced. This, in turn, would reduce the potential magnitude of impacts to recreational resources for the impacts described above.

4.10.2.1 Direct and Indirect Impacts

For all of the treatments, indirect, adverse effects could be produced by fences or barriers used to exclude livestock from the treated areas, which could alter the scenic quality of the landscape and reduce the recreational expectations of solitude, remoteness, and an undeveloped landscape. The exposure after fire treatment of the planning area's generally fine, loess-type soil to typical summer convection winds could produce dust storms (particularly in lower elevation areas) that indirectly reduce visibility. This reduction in visibility could degrade scenic quality within the planning area and potentially reduce the recreational opportunities of sightseers.

The effects of fire suppression on recreational resources, for all of the alternatives, would vary, depending upon the methods used for suppression. Applying water and/or fire retardant in the vicinity of recreational areas would not affect recreational opportunities, but brightly colored fire retardant could produce short-term, adverse reductions in scenic quality. Access to burned areas and areas in the vicinity of dozer lines and firebreaks could be temporarily restricted, which would have short-term, adverse effects would be produced by excluding recreationists from these areas until seeding and/or vegetation recovery.

Over time, effects of fire suppression and containment would vary. The construction of firelines, firebreaks, and access roads for crews and equipment could produce beneficial impacts on recreational resources within the planning area by preserving recreational areas from large wildland fire. Fire suppression could also produce adverse effects on recreational opportunities in the loss of scenic quality or the loss of an expected sense of remoteness, loss of a sense of solitude, and the loss of an undisturbed recreational landscape through the creation of these landscape-disturbing features.

4.10.2.1.1 Prescribed Burn (RxFire)

RxFire in recreational areas could have adverse short term effects on recreational opportunities by limiting access to burned areas. Specifically, in dispersed recreational areas, hunting areas could be adversely affected, with higher elevation hunting areas receiving the greatest impacts. Other dispersed recreational activity areas, used for all-terrain vehicle (ATV) riding and/or

mountain biking, could also be adversely affected. These areas would be closed or have limited access until fire management treatment, seeding, and recovery were completed. Beneficial, long-term impacts could be produced by (1) the reduction in the potential for large wildfire in developed and dispersed recreational areas, with subsequent decreases in long-term risks to these areas and facilities (2) and the introduction of a diversity of cover types that could enhance the recreational opportunity through improved scenic quality and a greater diversity of wildlife.

4.10.2.1.2 Wildland Fire Use (WFU)

Impacts to recreational resources as a result of implementing WFU would be similar to those described under RxFire, assuming wildland fires occur at similar locations and times, and similar management objectives are met.

4.10.2.1.3 Chemical Treatment

For all the alternatives, the use of chemical treatments would have short-term adverse effects on recreational resources. Some scenic contrasts might be visible between treated and untreated areas in non-native Invasive Annual Grass cover types in the spring, but for most of the year, the effects of treatment would be visually consistent with normal grass curing. Recreational opportunities would be limited in the vicinity of these areas until they are reopened for public use.

4.10.2.1.4 Mechanical Treatment

Mechanical treatments, using a variety of mowing, chaining, chopping, or hand-operated cutting tools, could affect recreational resources, but the effects would depend upon the type of treatment. Mowing would have short-term adverse effects on recreational opportunities by temporarily altering scenic quality. Chopping and chainsaw treatments could degrade scenic quality if the effects of tree stumps and/or ground disturbances were not mitigated, but the effects would generally be minor, as existing vegetation would tend to screen the effects. Mechanical chaining treatments could produce adverse changes in recreational opportunities if the affected areas are highly visible, particularly in those areas where high scenic quality, a sense of remoteness, and/or an undisturbed landscape are expected by recreationists.

4.10.2.1.5 Seeding Treatment

The effects of seeding treated areas would vary. Aerial broadcast seeding, followed by harrowing or chaining, would tend to produce short-term, adverse soil surface disturbances that could create visual landscape contrasts. These contrasts could reduce the recreational expectation of solitude or an undeveloped, scenic landscape, but the effects would tend to dissipate after vegetation re-growth.

Drill seeding could produce adverse short-term and beneficial long-term effects similar to those for mechanical fire treatments. Adverse visual effects produced by drill-row surface soil disturbances could persist for decades on the landscape, possibly reducing the sense of remoteness and solitude, and the expectations of an undeveloped landscape. Beneficial long-term effects of drill-seeding would be produced by introducing vegetation that either contributes to cover type diversity or mimics the structure of the surrounding native cover type.

4.10.2.2 Fire Regime Condition Class (FRCC)

Long-term beneficial impacts of fire management would be produced by moving the planning area toward FRCC 1. This would maintain a diversity of cover types, which could enhance the recreational experience and expand the range of recreational opportunities within the planning area. Fire management would also reduce, in the long term, the potential for fire to impact existing recreational facilities and sites. Moving the planning area toward FRCC 2 would also produce long-term beneficial impacts similar to those under FRCC 1, but the range of cover type diversity would not be as great under FRCC 2. The moderate threat of large wildland fire would have a potentially adverse effect on recreational resources by reducing recreational opportunities in burned areas. Under FRCC 3, the potential for frequent and/or large wildland fire would remain high, with potential long-term adverse effects from a reduction in recreational opportunities in areas burned by fire.

4.10.3 ALTERNATIVE A

Alternative A would result in a relatively small number of annual vegetation treatments for all cover types (250,200 acres total). This alternative could have direct impacts on recreational resources by decreasing public access to these recreational areas during treatment and recovery periods. The short-term maintenance of FRCC at FRCC 2 and 3 could potentially threaten recreational areas and facilities within the planning area due to moderate to high risk of wildland fire. Beneficial effects would be similar to those described in Section 4.10.2.

Alternative A would maintain 26 percent of the planning area in FRCC 3, 62 percent of the planning area would be moved toward FRCC 2, and 12 percent would be moved toward FRCC 1 over a 30-year period. Maintaining these proportions would produce the least amount of area in the planning area at improved FRCCs. This alternative would tend to maintain the existing high potential for exposure and subsequent exploitation of game and livestock trails by OHV users, exposure and subsequent unmanaged exploration of exposed lava caves and tubes, limited access to recreational areas following wildland fire, and the greatest potential for short-term loss of recreation facilities during and following large wildland fires.

4.10.4 ALTERNATIVE B

Alternative B would result in more annual vegetation treatments in the Aspen/Conifer, Invasive Annual Grass, Dry Conifer, and Low-elevation Shrub, Mid-elevation Shrub, Juniper, and Mountain Shrub cover types (646,200 acres) than Alternative A. This alternative would have direct short-term impacts on recreation by decreasing access to more recreational areas in these cover types undergoing treatments during treatment and recovery periods than Alternative A. Dispersed recreational activities could be adversely affected over the short term through decreased access to treated areas. Beneficial long-term effects would be similar to those described in Section 4.10.2.

Alternative B would maintain 17 percent of the planning area in FRCC 3, 62 percent of the planning area would be moved toward FRCC 2, and 21 percent would be moved toward FRCC 1 over a 30-year period. Maintaining the planning area in these proportions would decrease the areas in FRCC 3 and increase the areas in FRCC 1 when compared to Alternative A. This

alternative would reduce the potential for exploitation of game and livestock trails by OHV users, unmanaged exploration of exposed lava caves and tubes, limited access to recreational areas, and the loss of recreational facilities to large, frequent, and large wildland fires when compared to Alternative A. The long-term, beneficial effects of this alternative would be to move these cover types toward improved FRCCs, thus lowering the potential for destruction of recreational resources by wildland fire.

4.10.5 ALTERNATIVE C

Alternative C would result in more total annual vegetation treatments in all cover types than any of the other alternatives (1,687,000 acres). This alternative would have direct impacts on recreational opportunities by decreasing access to more recreational areas in these cover types during treatment and recovery periods than for any of the other alternatives. Dispersed recreation, such as hunting and ATV riding, could be adversely affected over the short term through decreased access to treated areas. Beneficial effects would be similar to those described in Section 4.10.2.

Alternative C would move the most cover types in the planning area toward FRCC 1 or 2 over a 30-year period. This alternative would reduce the potential for exploitation of game and livestock trails by OHV users, unmanaged exploration of exposed lava caves and tubes, limited access to recreational areas, and the loss of recreational facilities to large wildland fires, when compared to Alternative B. Potential recreational opportunities would be produced through an increased diversity of cover types, greater scenic variety, and wildlife diversity.

4.10.6 ALTERNATIVE D

Alternative D would result in more total treatments of Invasive Annual Grass, Juniper, Low-elevation Shrub, Mid-elevation Shrub, Mountain Shrub, and Perennial Grass cover types (1,522,000 acres) than Alternative B. Dispersed recreation, such as hunting and ATV riding, could be adversely affected through decreased short-term access to treated areas. Beneficial long-term effects would be similar to those described in Section 4.10.2.

Alternative D would have similar impacts on planning area-wide FRCC as Alternative C. Impacts to game trails and livestock trails by OHV users, the exposure of hidden lava cave and tube entrances, and the loss of recreational facilities would be less than Alternative B, but still subject to a moderate potential for wildland fire (at FRCC 2). Mountain Shrub cover types would be moved toward FRCC 1, and would have a low potential for frequent wildland fire (and exposure) of game trails, livestock trails, and lava tubes and caves. Juniper cover types, moved toward FRCC 2, would be more susceptible to wildland fire (and exposure of hidden trails and recreational resources) than Alternative B because of the long-term maintenance of this cover type at a higher FRCC (FRCC 2). The high potential for wildland fires in other cover types could cause additional exploitation of exposed game trails and livestock trails by OHV users, exposure of previously hidden lava caves and tubes to unmanaged exploration, limit access to recreational areas, and cause the loss of recreational facilities in these other cover types. Beneficial, long-term effects would be to move cover types toward improved FRCCs, thus lowering the potential for destruction of recreational resources by wildland fire.

4.10.7 ALTERNATIVE E

Alternative E would be similar to Alternative D in that it would result in more total treatments of Invasive Annual Grass, Juniper, Low-elevation Shrub, Mid-elevation Shrub, Mountain Shrub, and Perennial Grass cover types (1,538,000 acres) than Alternative B. Dispersed recreation, such as hunting and ATV riding, could be adversely affected through decreased short-term access to treated areas. Beneficial long-term effects would be similar to those described in Section 4.10.2.

Alternative E would have similar impacts on planning area-wide FRCC as Alternatives C and D. Impacts to game trails and livestock trails by OHV users, the exposure of hidden lava cave and tube entrances, and the loss of recreational facilities would be less than Alternative B, but still subject to a moderate potential for wildland fire (at FRCC 2). Mountain Shrub cover types would be moved toward FRCC 1, and would have a low potential for frequent wildland fire (and exposure) of game trails, livestock trails, and lava tubes and caves. Juniper cover types, moved toward FRCC 2, would be more susceptible to wildland fire (and exposure of hidden trails and recreational resources) than Alternative B because of the long-term maintenance of this cover type at a higher FRCC (FRCC 2). The high potential for wildland fires in other cover types could cause additional exploitation of exposed game trails and livestock trails by OHV users, exposure of previously hidden lava caves and tubes to unmanaged exploration, limit access to recreational areas, and cause the loss of recreational facilities in these other cover types. Beneficial, long-term effects would be to move cover types toward improved FRCCs, thus lowering the potential for destruction of recreational resources by wildland fire.

4.10.8 MITIGATION AND MONITORING

Refer to Appendix Q, Management Restrictions for management restrictions common to all alternatives. These restrictions would be implemented to avoid adverse impacts to recreation resources.

4.10.9 UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts to recreational resources would include the short-term loss of recreational opportunities after vegetation treatments and wildland fire.

4.10.10 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

There would be and irretrievable loss of recreational opportunities after vegetation management treatments. However, these impacts would not be irreversible as impacted vegetation would eventually be restored.

4.10.11 CUMULATIVE EFFECTS

The cumulative impacts of other fire management efforts on recreational resources within the planning area and on lands adjacent to the planning area would be beneficial. The additional reduction in wildland fire potential from these efforts would further reduce the potential for wildland fire-caused impacts on recreational resources within the planning area, particularly in the vicinity of WUI areas. These efforts would also create additional improvements in habitat

that would enhance recreational opportunities within the planning area by reducing areas infested with noxious weeds, by creating cover type diversity, and improving scenic quality.

4.11 ANALYSIS OF EFFECTS ON WILDERNESS RESOURCES

4.11.1 ANALYSIS ASSUMPTIONS AND METHODS

Wilderness study areas (WSAs) are managed to preserve their wilderness values according to the Interim Management Policy for Lands Under Wilderness Review (BLM Handbook 8550-1). In general, WSAs must be managed in a manner so as not to impair their suitability for preservation as wilderness. With regard to this EIS, there are two objectives for fire management in WSAs: (1) permit lightning caused fires to play, as nearly as possible, their natural ecological role within wilderness, and (2) reduce, to an acceptable level, the risks and consequences of wildland fire within wilderness or escaping from wilderness.

The indicator used for the analysis is whether treatments would result in enhancing or preserving wilderness values. An assumption made for this analysis is that treatments would occur within or in the vicinity of WSAs for effects to be positive for WSAs, and occur on days when climatic conditions favor the application of a given treatment type. It is assumed the Appropriate Management Response would be used to safely manage and or suppress wildland fires under the action alternatives in WSAs because a goal is to restore fire to its natural role. Restrictions applied to Areas of Critical Environmental Concern (ACECs) would be based on management plans, depending on the resources or hazards present within specific areas. Coordination with interested publics is required as part of the NEPA process for all subsequent fire management plans and projects affecting WSAs.

4.11.2 EFFECTS COMMON TO ALL ALTERNATIVES

4.11.2.1 Indirect and Direct Impacts of Prescribed Burn (RxFire)

RxFire could be used in WSAs. Thus, for all alternatives, burning to reduce fuel loads, restore more natural vegetation conditions, and prepare a WSA for additional treatment(s) would result in positive impacts by restoring cover types to better functioning ecosystems.

4.11.2.2 Indirect and Direct Impacts of Wildland Fire Use (WFU)

Effects as a result of implementing WFU would be similar to those described under RxFire, assuming similar burn locations, timing, and management objectives because WFU meets one of the objectives for managing WSAs.

4.11.2.3 Indirect and Direct Impacts of Chemical Treatment

The use of chemicals within WSAs would be allowed; although, the method of application and equipment used would be carefully planned. Chemical use would be carried out on a site-specific level according to manufactures labels and in conjunction with equipment allowed for use in WSAs so as to minimize impacts to WSA values such as more natural-looking landscapes.

4.11.2.4 Indirect and Direct Impacts of Mechanical Treatment

The use of earth-moving equipment within WSAs requires the approval of the field office manager. Approved mechanical treatments in WSAs would likely be done using non-motorized tools such as hand saws, axes, carts, shovels, wheelbarrows, etc. The use of motorized equipment would likely only be authorized in those cases where suppression is necessary. In these cases, methods may include use of power tools, aircraft, motorboats, and motorized fire-fighting equipment. Use of this equipment would be be minimized as much as possible to suppress the wildland fire while retaining wilderness suitability.

4.11.2.5 Indirect and Direct Impacts of Seeding Treatment

Impacts from equipment used for seeding must be carefully planned to be the least intrusive necessary to obtain a successful seeding. The use of native species is required in WSAs. Seed could also be applied aerially, with or without a follow-up soil coverage treatment such as harrowing.

4.11.3 ALTERNATIVE A

Effects of continuation under current direction of full wildland fire suppression would have no discernible change from current conditions. WSAs that have Vegetated Rock/Lava cover types would receive chemical treatments primarily. The remaining WSAs have a predominance of Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass. Thus, in WSAs where chemical, mechanical, and seeding treatments would be approved for use, public perception of wilderness values may also be temporarily displaced because it is generally thought that wilderness requires little or no management.

4.11.4 ALTERNATIVE B

Impacts to WSAs would depend upon which type(s) of treatments would be used for a cover type. Under Alternative B, treatments in Vegetated Rock/Lava (approximately 50 percent of the WSAs) would only include WFU. The remaining cover types that are within WSAs would receive, in general, 2.5 times more treatment than proposed for Alternative A. Wildland fire would probably leave visible areas of charring and alter the perceived wilderness conditions and values for the public, depending on the size and intensity of the fire. In WSAs where chemical, mechanical, and seeding treatments would be approved for use, public perception of wilderness values may also be temporarily displaced because it is generally thought that wilderness requires little or no management.

4.11.5 ALTERNATIVE C

Assuming that WSAs would be targeted for fuels reduction under this alternative, impacts anticipated under this alternative would be similar to those under Alternative B for Vegetated Rock/Lava cover types. The remaining cover types that are within WSAs would receive, in general, 6.7 times more treatment than proposed for Alternative A and also have impacts similar to those discussed in Section 4.11.2.

4.11.6 ALTERNATIVE D

There are no treatment proposed in Vegetated Rock/Lava under this alternative; thus, there would be no impacts to WSAs with this cover type. Fire suppression, which would be technically used because there is no proposed WFU in Vegetated Rock/Lava, is usually logistically difficult in this cover type. Impacts in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass would be approximately 6.7 times greater than those described under Alternative A.

4.11.7 ALTERNATIVE E

Impacts to WSAs would be the same as those described for Alternative C and D.

4.11.8 MITIGATION AND MONITORING

Monitoring would be done in conjunction with the management restrictions common to all alternatives discussed in Appendix Q, Management Restrictions. These restrictions would be implemented to avoid adverse impacts to WSAs.

4.11.9 UNAVOIDABLE ADVERSE IMPACTS

Under Alternative A, FRCC could worsen for some WSAs where no treatments occur. In these areas, wildland fire intensity, size, and duration would result in the deterioration of some of the values for which WSAs are managed. Under the action alternatives, there would be no unavoidable adverse impacts.

There is also the potential that restrictions on tools that are normally available for vegetation and fire treatments may not be at the disposal of BLM managers for use in WSAs. As a consequence, FRCC may move toward 2 or 3 because permittable treatments may not be able to keep up with needed WSA vegetation and fire treatments.

4.11.10 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

Irretrievable impacts to WSAs would include the short-term loss of wilderness values due to mechanical noise and/or smoke during fire management activies. However, this short-term habitat loss would not be irreversible, as it would cease upon cessation of these activities. Additionally, the long-term values associated with WSAs in the planning area would benefit from the proposed increased fire management activities.

4.11.11 CUMULATIVE EFFECTS

Cumulative impacts to WSAs and wilderness would be related to management activities of other agency planning efforts where there are WSAs or wilderness are adjacent to areas targeted by the agencies.

Additionally, the NPS and the BLM have prepared a joint monument management plan for Craters of the Moon National Monument and Preserve, which is located entirely within the administrative boundary of the FMDA planning area. This management plan includes fire

management decisions for the Monument and Preserve that, when considered in conjunction with the action alternatives, would result in cumulatively positive long-term impacts on vegetation resources, and therefore wilderness values.

The Caribou-Targhee National Forest Plan includes treating a total of 90,000 acres over the next 10-years (approximately three times the current and past treatment rates). These future fire management activities would likely have a cumulatively positive impact on the existing cover types in the planning area and in southeastern Idaho, and therefore on WSAs that are located in the vicinity of these forests.

As cumulative effects relate to this EIS, Alternatives A and D treat less acreage in the Vegetated Rock/Lava cover type as opposed Alternatives B and C. Nonetheless, it would be expected that overall cumulative impacts resulting from the implementation of one of the action alternatives would have positive impacts on WSAs.

4.12 ANALYSIS OF EFFECTS ON VISUAL RESOURCES

4.12.1 ANALYSIS ASSUMPTIONS AND METHODS

The following were the analysis assumptions for visual resources: (1) remote areas in the planning area would not be areas of high visibility to the general public, (2) steep-sloped areas along major roadways in the planning area would be areas that are highly visible to the public, (3) vegetation treatment in the vicinity of recreational and/or highly urbanized areas would be highly visible to the public, and (4) standard BLM visual analysis methods of contrast analysis from representative points of view within the planning area would be the most effective way to analyze the effects of fire treatment on the planning area's visual resources.

As described in Section 3.12, Visual Resources, the BLM uses the Visual Resource Management (VRM) system and the four VRM classes to analyze and to determine the visual impacts of proposed activities on the land and to gauge the level of disturbance an area can tolerate before it exceeds the visual objectives of each VRM class. The method that the BLM uses to determine whether proposed projects conform to an area's VRM class objectives is a contrast rating system that evaluates the effects of proposed projects on visual resources.

Contrast rating is done from critical viewpoints, known as Key Observation Points (KOPs), which are usually along commonly traveled routes or other points of view visible to people. A KOP can either be a single point of view that an observer/evaluator uses to rate an area or panorama, or a KOP can be a linear view along a roadway, trail, or river corridor. Factors considered in selecting KOPs are:

- the angle of observation or slope of the proposed planning area,
- the number of viewers of the planning area,
- the length of time that the project is in view, the relative size of the project,
- the season of use, and
- light conditions.

A contrast rating can then be performed to determine whether the level of disturbance associated with the proposed project would exceed the VRM objectives for that area.

The primary views of fire suppression, RxFires, and prescribed vegetation treatments described in the alternatives would be from major travel routes, urban/public land boundary areas, and recreational use areas within the planning area. KOPs were selected to represent the effects of vegetation treatment on these areas. These areas were chosen using the selection criteria described above. Each of the KOPs is described in detail in Section 3.12, Visual Resources.

4.12.2 EFFECTS COMMON TO ALL ALTERNATIVES

The effects that fire management would have on visual resources within the planning area are based on the impacts produced by: (1) maintaining cover types in FRCC 3, 2, and 1; and (2) moving cover types from FRCC 3 toward FRCC 2 or FRCC 1. The methods by which these cover types would be shifted are:

- WFU (naturally occurring, yet planned or controlled, wildland fires);
- RxFire;
- Chemical treatments using herbicides to control cheatgrass or noxious weeds;
- Mechanical treatments, using a variety of mowing, chaining, chopping, or chainsaw techniques, to control undesirable plant species and reduce vegetation fuel levels; and
- Seeding (drill-seeding or broadcast seeding).

These various methods for improving cover types and reducing fuel levels would be expected to have two primary effects on visual resources. First, smoke produced by planned wildland burning and RxFire would increase atmospheric particulate matter (measured as PM_{10}), which could produce regional haze and reduce local visibility. After fire treatment, the exposure of the planning area's generally fine, loess-type soil, to typical summer convection winds could produce dust storms (particularly in the planning area's lower elevation areas) that reduce visibility. This reduction in visibility could degrade scenic quality within the planning area. Second, the mechanical, chemical, burning, and seeding treatments would have direct and indirect effects on the existing visual contrasts of the landscape. Burning and/or chemically and mechanically removing vegetation, along with seeding could produce direct effects that would alter the color, textural form, and linear attributes of the existing landscape. Indirect effects could be produced by fences or barriers used to exclude livestock from the treated areas, which could also alter the color, line, form, and texture of the landscape.

In general, the concentration of fire-produced PM_{10} would depend upon the type of vegetation being burned and the size of the burn area. Per pound, wood burning produces more particulate matter than burning leaves and grass. Wood fires also emit nitrous oxides and volatile organic compounds that are the precursors to ozone and smog. The quantity of smoke produced by RxFires also depends upon the number of acres burned (i.e., large fires would produce more smoke than small fires). The type of fire produced also affects the quantity of particulates (i.e., RxFire typically produces fewer emissions than wildland fires, and surface fires typically produce fewer emissions that crown fires [U.S. Department of Agriculture (USDA) Forest Service 2002g]).

4.12.2.1 Direct and Indirect Impacts

4.12.2.1.1 Prescribed Burn (RxFire)

For all of the alternatives, when RxFires are used to move cover types toward FRCC 2 and FRCC 1, the smoke and burned areas would produce some visual quality degradation. This degradation from particulates and from landscape visual contrasts would have minor effects because of the relatively small size and low intensity of the RxFires. Particulates would dissipate and vegetation in burned areas would eventually reestablish.

4.12.2.1.2 Wildland Fire Use (WFU)

Impacts to visual resources as a result of implementing WFU would be similar to those described under RxFire, assuming the timing and location of wildland fire is similar to where an RxFire would meet the same objectives.

4.12.2.1.3 Chemical Treatment

For all the alternatives, the use of chemical treatments would have minor effects on visual quality. Color contrasts could be visible between treated and untreated areas in non-native Invasive Annual Grass cover types in the spring, but for most of the year the effects of treatment would be visually consistent with normal grass curing.

4.12.2.1.4 Mechanical Treatment

Mechanical treatments, using a variety of mowing, chaining, chopping, or hand-tool techniques, could affect visual quality, but the effects would depend upon the type of treatment. Mowing would tend to have minor effects on visual quality by producing some contrast between treated and untreated areas. Chopping and hand-tool treatments could produce color, texture, and linear contrasts between treated and untreated areas, but the effects would generally be minor when viewed within the middleground or background, where existing vegetation would screen the effects. Chaining treatments in juniper encroachment cover types could produce adverse changes in visual quality if conducted in highly visible areas (e.g., along roadways, within the viewshed of recreation areas, or on steep slopes). Chaining-treated areas would tend to produce strong textural, linear, and form contrasts with surrounding untreated areas when viewed in the foreground and middleground, but these contrasts would tend to diminish when viewed from a distance.

The effects of fire suppression on visual resources, for all of the alternatives, would vary, depending upon the methods used for suppression. Applying fire retardant on the landscape could produce minor adverse visual contrasts because of its bright color, but these effects would dissipate relatively quickly. Public access to burned areas and areas in the vicinity of dozer lines and firebreaks would be restricted by use of physical barriers, which would result in minor, beneficial effects by reducing further impacts.

Fire suppression-related construction of firelines, firebreaks, dozer lines, and access roads for fire crews and equipment could produce both beneficial and adverse impacts on visual resources within the planning area. Positive effects on visual resources would be produced by the

preservation of islands of vegetation during supression activities. Negative effects would be the potentially strong linear, color, textural, and form contrasts produced by creating highly disturbed strips of land denuded of vegetation. If not effectively rehabilitated, these fire-suppression features could remain as visual impacts into the future.

4.12.2.1.5 Seeding Treatment

The effects of seeding treated areas would vary. Aerial broadcast seeding, followed by harrowing or chaining, would tend to produce minor soil surface disturbances that could create texture and color contrasts. These contrasts would tend to dissipate after vegetation re-growth.

Drill reseeding could produce minor adverse and beneficial effects. Adverse, textural and linear visual effects could be produced by drill row surface soil disturbances. Beneficial effects of drill seeding would be produced by introducing vegetation that either contributes to cover type diversity or mimics the structure of the surrounding native cover type. If resource objectives are not met, these soil surface disturbances could remain as minor adverse impacts on visual quality into the future.

4.12.2.2 Fire Regime Condition Class (FRCC)

Under FRCC 1, historical fire patterns have been restored to cover types. Vegetation composition and structure, and vegetation fuel loads have been restored to historical levels and are within historical ranges of variability. Thus, fuel loads are relatively light and the risk of frequent, large-scale wildland fires is low. Smoke production would be low in volume and would have minor impacts on visual quality. Visual contrasts within the landscape, produced by fires, would be minor because the severity of wildland fire would be low and native plant species (adapted to historical fire patterns) would quickly recover.

FRCC 3 describes the condition at which much of the cover types within the planning area are presently classified. Under this FRCC, vegetation composition, structure, and fuel loads have been greatly altered from historical fire patterns and cycles. The potential for the production of instantaneous high volumes of smoke from large-scale wildland fires is high. FRCC 3 also describes cover types that could produce major visual contrasts within the landscape from large-scale scorching of the landscape. Scorching would create highly visible contrasts within the landscape by altering the natural *elements* of the landscape (i.e., line, form, color, and texture).

FRCC 2 describes cover types that have been moderately removed from historical fire patterns and cycles. Vegetation composition, structure, and fuel loads have a moderate potential for producing large wildland fires. Smoke production and landscape scorching would be moderate because fuel loads, vegetation density, and vegetation composition would be at a moderate variance from historical fire conditions. Thus, with lower fuel loads and smaller, less frequent wildland fires, the effects on visual quality from atmospheric particulate matter and landscape scorching would be moderate.

For all of the alternatives, moving areas toward FRCC 2 and FRCC 1 cover types would produce positive visual effects. In general, "areas with the most scenic variety and harmonious composition have the most scenic value" (BLM 1986). By restoring a diversity of cover types at different stages of succession, scenic variety would be enhanced.

4.12.3 ALTERNATIVE A

4.12.3.1 KOP 1: Pocatello Creek Urban Boundary

Under Alternative A, there would be 0 acres for WFU treatment and 36,590 acres within the planning area treated as RxFire. The estimated PM_{10} combined concentrations, produced by RxFire under this alternative would be approximately 1,158 lbs/acre burned for Dry Conifer, Juniper/Pinyon Mixed Conifer, Mid-elevation Shrub, and Mountain Shrub cover types (Trinity 2003). An indirect effect of this fire management regime would be to increase the risk of visual degradation from fires burning across public land boundaries onto private lands within the Pocatello Creek drainage.

The estimated PM_{10} concentration from Low-elevation Shrub would be approximately 14 lbs/acre burned. There would be a potential for the moderate, indirect, negative effect of RxFire burning onto private lands within the Pocatello Creek drainage. The contrast effects of burned and unburned areas would be similar to those described above. Under Alternative A, this KOP is not likely to have seeding treatments or chemical treatments other than noxious weed control.

The impacts of Alternative A would be to maintain the Mid-elevation Shrub cover types under conditions that allow frequent, large-scale wildland fires to burn, with the continued expansion of non-native species. Under FRCC 3, the potential for long-duration smoke production and the potential for frequent, high-intensity, large-scale fires would remain high. This would result in the potential for major visual quality degradation from atmospheric particulates and large-scale landscape scorching as seen from this viewpoint. Scorching would create highly visible landscape contrasts by altering the visual elements of the landscape (i.e., line, color, and texture). Burning would produce distinct linear contrasts at the boundaries between burned and unburned areas. Textural and color contrasts would be visible between burned and unburned areas; unburned areas would maintain their present diversity of textures and colors, while burned areas would present a relatively uniform dark color and fine texture.

FRCC 3 would be maintained for all cover types in the area with the exception of Riparian and Salt Desert Shrub, producing fire conditions that could result in frequent, large-scale wildland fires. There would be the potential for major, degradation of visual quality caused by atmospheric particulates, and burned-landscape contrasts that would affect linear, textural, and color attributes.

4.12.3.2 KOP 2: Appendicitis Hill Wilderness Study Area (WSA)

As described for Pocatello Creek KOP, the estimated treatment-acres for this alternative would include 0 acres for WFU treatment and 36,590 acres for RxFire. Similarly, the Low-elevation Shrub cover types would have the potential for producing moderate visual quality-degrading atmospheric particulates and burnt-landscape contrasts. Textural contrasts produced by fire would be minimal, but color and linear contrasts between burned and unburned areas would be distinct. If untreated, the Mid-elevation Shrub cover types would have the potential for producing less-frequent, but higher intensity fires with a corresponding higher risk of burning large acreages. This, in turn, would have major, negative effects on visual quality from smoke and landscape contrasts within large burned areas. Under Alternative A, this KOP is not likely to

have seeding treatments or chemical treatments other than noxious weed control, so the effects to visual quality from these activities would be minimal.

Effects of Alternative A would be similar to those for the KOP 1 Pocatello Creek Urban Boundary. Effects would be to maintain Mid-elevation Shrub at FRCC 3 and restore the Low-elevation Shrub cover types to FRCC 2. Similarly, the Low-elevation Shrub cover types under FRCC 2 would have the potential for producing moderate visual quality-degrading atmospheric particulates and burnt-landscape contrasts. Textural contrasts produced by fire would be minimal, but color and linear contrasts between burned and unburned areas would be distinct. The Mid-elevation Shrub cover types, maintained at FRCC 3, would have the potential for producing frequent, high-intensity, large-scale wildland fires, with a corresponding production of major, negative effects on visual quality from smoke and landscape contrasts within burned areas. These conditions would degrade visual quality caused by atmospheric particulates, and a burned landscape with linear and color contrasts. Under Alternative A, this KOP is not likely to have seeding treatments or chemical treatments, other than noxious weed control.

4.12.3.3 KOP 3: Ohio Gulch

The estimated treatment-acres for this alternative would include 0 acres for WFU treatment and 36,590 acres for RxFire. The effects of treating the Mid-elevation Shrub cover types in Ohio Gulch would be similar to the effects for the KOP 1 Pocatello Creek Urban Boundary. RxFire would create highly visible contrasts within the landscape by altering the natural visual elements of the landscape, particularly the linear, color, and textural attributes of the landscape. Distinct lines would be visible at the boundaries between unburned and burned areas, color contrasts would be obvious between burned and unburned vegetation, and the diversity of textures within vegetated areas would be clearly contrasted with the relatively homogeneous texture produced by burning. Under Alternative A, this KOP is not likely to have seeding treatments or chemical treatments other than noxious weed control.

The effects of maintaining the current fire management regime of FRCC 3 for the Mid-elevation Shrub cover types in Ohio Gulch would be similar to the effects for the KOP1 Pocatello Creek Urban Boundary. Under FRCC 3, there would be the potential for frequent, long-duration smoke production and the potential for high-intensity, large-scale fires would remain high. This would result in the potential for major negative visual quality degradation effects from atmospheric particulates and landscape scorching. Scorching would create highly visible contrasts within the landscape by altering the natural visual elements of the landscape, particularly the linear, color, and textural attributes of the landscape. Distinct lines would be visible at the boundaries between unburned and burned areas, color contrasts would be obvious between burned and unburned vegetation, and the diversity of textures within vegetated areas would be clearly contrasted with the relatively homogeneous texture produced by burning. Under Alternative A, this KOP is not likely to have seeding treatments or chemical treatments, other than noxious weed control.

4.12.4 ALTERNATIVE B

4.12.4.1 KOP 1: Pocatello Creek Urban Boundary

Under this alternative, WFU treatments would total 112,180 acres and RxFire treatments would total 356,000 acres. The combined PM_{10} concentrations produced by RxFire and WFU within these cover types would be approximately 289 lbs/acre. Mountain Shrub cover types would have the potential for producing moderately visual-quality degrading smoke; however, the effects on color, texture, and line would be similar to those for Alternative A.

There would be some adverse changes in landscape color and texture landscape contrasts if fire was used as a treatment, but these would be minor. Mechanical treatments would produce similar minor changes in landscape contrasts. Under this alternative, no chemical treatments are likely except noxious weed control.

Under Alternative B, FRCC 2 and 3 would be maintained for Low-elevation and Mid-elevation Shrub. Similar to Alternative A, this would maintain fire conditions that have a potential for frequent, large-scale wildland fire, resulting in the potential for major visual quality degradation from atmospheric particulates and large-scale landscape scorching. Landscape scorching would produce linear, textural, and color effects similar to those described previously.

Mountain Shrub, Dry Conifer, and Juniper cover types would be moved toward FRCC 1. This would create fire conditions by which there would be the potential for minor visual degradation from atmospheric particulates and landscape burns. Some color, line, and texture contrasts would be visible in the shrub cover type, but the effects of burning in the Juniper and Dry Conifer cover types would be minor and not obvious to the casual viewer. The effects of chemical treatments in the Mountain Shrub, Dry Conifer, and Juniper cover types would also be minor, and not obvious to the casual viewer. The effects of mechanical treatment would vary, depending upon the methods used. The potential for the indirect negative effects of large wildland fires moving onto private lands would also be reduced.

4.12.4.2 KOP 2: Appendicitis Hill Wilderness Study Area (WSA)

The RxFire and WFU treatment-acres would be the same as described for KOP 1. The estimated PM_{10} concentration would be approximately 28 lbs/acre from RxFire and WFU treatments for these two cover types, producing the potential for scenic-quality reducing haze. The effects of fire on line, color, and texture would be apparent from the distinct contrasts between burned and unburned areas. The boundaries between burned and unburned areas would form highly visible lines on the slopes of the WSA, easily seen from the highway. The color contrast between burned and unburned areas would be distinct, and some minor contrasts in texture would be visible. Under this alternative, chemical treatments are unlikely. Any seeding, if done, would be aerial broadcast, producing minimal impacts on visual quality.

Under Alternative B, RxFire acres would total 356,000 acres and WFU-treated acres would total 112,180 within the planning area. Low-elevation and Mid-elevation Shrub would remain at FRCC 3, with the corresponding risks of frequent, large-scale wildland fire. The impacts would be similar to those given for the impacts under Alternative A.

4.12.4.3 KOP 3: Ohio Gulch

The estimated PM_{10} concentration produced by this vegetation would be approximately 14 lbs/acre from RxFire and WFU, with the same RxFire and WFU acreages as described above. The effects would be similar to those described in Section 4.12.3.3 for Mid-elevation Shrub. Smoke particulates produced by RxFire and WFU fire treatments would create the potential for haze, and areas of burned vegetation would create distinct contrasts in color, line, and texture with unburned vegetation. Under this alternative, chemical treatments are unlikely except for some noxious weed control.

With the same WFU and prescribe treatment-acres as described above, the effects of Alternative B would be that Mid-elevation Shrub cover types would remain at FRCC 3. The impacts would be similar to Alternative A impacts (see Section 4.12.3.3).

4.12.5 ALTERNATIVE C

4.12.5.1 KOP 1: Pocatello Creek Urban Boundary

Under this alternative, the planning area would treat 1,034,603 acres under RxFire and 129,518 acres under WFU. Compared to both Alternative A and Alternative B, more acres would be treated with RxFire and WFU. Chemical treatments would produce minor changes in visual elements between treated and untreated areas. The effects of mechanical treatments would vary, depending upon the types of treatments used. This alternative would create the potential for moderate visual quality degradation from wildland fire, as seen from this KOP, because the potential for smoke production would be greater and the number of treatment-acres is greater when compared to Alternatives A and B. Some adverse landscape contrasts in color, line, and texture could be visible.

Alternative C would reduce the future potential for visual quality degradation from all cover types to a minimal or very limited level (at FRCC 1). The behavior, severity, and patterns of FRCC 1 would create the potential for producing only minor or limited visual quality degradation effects from fire-produced atmospheric particulates. Landscape contrasts from visibly burned areas would not be apparent. The indirect impacts of wildland fire crossing into urban areas would also be minor or limited.

4.12.5.2 KOP 2: Appendicitis Hill Wilderness Study Area (WSA)

The impacts under this alternative would be similar to those impacts described for Low-elevation Shrub cover types under Alternative A. The relatively large number of treatment-acres under this alternative could reduce visual quality. Some adverse landscape contrasts in color, line, and texture could be visible, but impacts from mechanical treatments would be minimal within the WSA.

Overall impacts of this alternative, resulting from moving the Mid-elevation Shrub cover types toward FRCC 1, would be similar to the impacts for the KOP1 Pocatello Creek Urban Boundary described above. By recreating historical fire patterns, characteristics, and levels of severity there would be only minor or very limited visual quality degradation from fire-produced atmospheric particulates and landscape line, color, and texture contrasts between burned and unburned areas.

4.12.5.3 KOP 3: Ohio Gulch

The impacts of this alternative would be similar to those described for KOP2 Appendicitis Hill WSA under Alternative A.

The impacts of moving Mid-elevation Shrub cover types toward FRCC 1 would be similar to those described for KOP2 Appendicitis Hill WSA under Alternative A.

4.12.6 ALTERNATIVE D

4.12.6.1 KOP 1: Pocatello Creek Urban Boundary

Under this alternative, RxFire acres would total 676,515 acres and WFU-treated acres would total 14,800 acres. Alternative D would treat approximately 639,925 more acres by RxFire and 14,800 more acres for WFU compared to Alternative A. Alternative D would treat more acres by RxFire, but less by WFU as compared to Alternative B. The effects on visual resources would be similar to those described for this area under Alternative C above.

Alternative D would maintain the potential for visual quality degradation from smoke and landscape contrasts at a moderate to major level for all cover types, except Mountain Shrub and Vegetated Rock/Lava cover types. This alternative would maintain Dry Conifer cover types at FRCC 3, move Juniper and Mid-elevation Shrub toward FRCC 2, and move Mountain Shrub cover types toward FRCC 1.

Dry Conifer cover types would continue to have the potential to produce major negative effects on visual quality from high concentrations of fire-produced PM_{10} and strong visual contrasts in color, texture, and line within the landscape between burned and unburned areas. Juniper and Mid-elevation Shrub cover types would have the potential for moderate degradation of visual quality by smoke particulates from wildland fire, but the effects on visual quality between burned and unburned areas would not be obvious to the casual viewer. Mountain Shrub cover types, moved toward FRCC 1, would have the potential for minor or limited effects on visual quality.

4.12.6.2 KOP 2: Appendicitis Hill Wilderness Study Area (WSA)

The effects of this alternative would be similar to those described for this area under Alternative C, above (see Section 4.12.5.2).

Maintenance of the Low-elevation Shrub cover type in FRCC 2 would have the potential for major, negative effects on visual quality, similar to the effects described for Alternative A. The effects of moving Mid-elevation Shrub cover types toward FRCC 2 would be similar to those described for the Pocatello Creek Urban Boundary above.

4.12.6.3 KOP 3: Ohio Gulch

The effects of this alternative would be similar to those described for this area under Alternative C, above (see Section 4.12.5.3).

The effects of this alternative, by moving Mid-elevation Shrub cover types toward FRCC 2, would be to reduce the potential for visual quality degradation from smoke-produced particulates and landscape visual contrasts to a moderate level. The effects of burn-produced contrasts in line, color, and texture on the landscape would not be obvious to the casual viewer.

4.12.7 ALTERNATIVE E

4.12.7.1 KOP 1: Pocatello Creek Urban Boundary

Under this alternative, RxFire acres would total 692,348 acres and WFU-treated acres would total 19,281 acres. Alternative E would treat approximately 655,758 more acres by RxFire and 19,281 more acres for WFU compared to Alternative A. Alternative E would treat more acres by RxFire, but less by WFU as compared to Alternative B. The effects on visual resources would be similar to those described for this area under Alternatives C and D above.

Alternative E would maintain the potential for visual quality degradation from smoke and landscape contrasts at a moderate to major level for all cover types, except Mountain Shrub and Vegetated Rock/Lava cover types. This alternative would move the Dry Conifer cover types to FRCC 2, move Juniper and Mid-elevation Shrub toward FRCC 2, and move Mountain Shrub cover types toward FRCC 1.

Dry Conifer cover types would have the potential to produce major negative effects on visual quality from high concentrations of fire-produced PM_{10} and strong visual contrasts in color, texture, and line within the landscape between burned and unburned areas. However, in the long-term, this alternative would have positive impacts on visual quality in the Dry Conifer cover type by moving it toward FRCC 1. This would result in generally smaller fires at a higher frequency, thereby resulting in less short-term pollutants and smaller areas of visual contrast. Juniper and Mid-elevation Shrub cover types would have the potential for moderate degradation of visual quality by smoke particulates from wildland fire, but the effects on visual quality between burned and unburned areas would not be obvious to the casual viewer. Mountain Shrub cover types, moved toward FRCC 1, would have the potential for minor or limited effects on visual quality.

4.12.7.2 KOP 2: Appendicitis Hill Wilderness Study Area (WSA)

The effects of this alternative would be similar to those described for this area under Alternative C, above (see Section 4.12.5.2).

Maintenance of the Low-elevation Shrub cover type in FRCC 2 would have the potential for major, negative effects on visual quality, similar to the effects described for Alternative A. The effects of moving Mid-elevation Shrub cover types toward FRCC 2 would be similar to those described for the Pocatello Creek Urban Boundary above.

4.12.7.3 KOP 3: Ohio Gulch

The effects of this alternative would be similar to those described for this area under Alternative C, above (see Section 4.12.5.3).

The effects of this alternative, by moving Mid-elevation Shrub cover types toward FRCC 2, would be to reduce the potential for visual quality degradation from smoke-produced particulates and landscape visual contrasts to a moderate level. The effects of burn-produced contrasts in line, color, and texture on the landscape would not be obvious to the casual viewer.

4.12.8 MITIGATION AND MONITORING

Refer to Appendix Q, Management Restrictions for management restrictions common to all alternatives intended to prevent significant impacts to visual resources. Additionally, design features that include creating irregular lines would be used to help soften the contrast between treated and non-treated areas.

4.12.9 UNAVOIDABLE ADVERSE IMPACTS

There would be unavoidably adverse impacts to visual resources associated with RxFire, chemical, and mechanical fire treatments. The unavoidable adverse impacts would include (1) atmospheric pollution from smoke particulates (PM_{10}) and indirect impacts from wind-blown soil, (2) heightened visual contrasts between burned and unburned areas, and (3) visual contrasts caused by the loss of vegetation or by disturbed soil from mechanical and chemical treatments and drill seeding.

4.12.10 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

Irretrievable impacts to visual resources would include the short-term impacts from smoke particulates and wind blown soil, visual contrasts between burned and unburned areas, and visual contrasts associated with the loss of vegetation and disturbed soil. However, this short-term loss in visual resources would not be irreversible, as it would be restored through implementing a rehabilitation and restoration program as described in Chapter 2.

4.12.11 CUMULATIVE EFFECTS

Other fire management efforts, both within the planning area and beyond its boundaries, would produce beneficial cumulative impacts on visual resources. Reasonably foreseeable future actions, including planning efforts to control noxious weeds, OHV use, fire treatments, and habitat improvement projects, would contribute to improvements in visual quality.

Specific actions that could potentially have beneficial cumulative effects include (1) USFS RxFires to reduce fuel loads and improve habitat in the Caribou-Targhee and Sawtooth National Forests, (2) INL management plan changes, and (3) the Idaho statewide implementation plan that focuses on fire management and fuel load reductions. These efforts, in addition to the planning area effort to manage wildland fire, are expected to reduce the impacts on visual resources by reducing the potential for wildland fire, recreating historical fire conditions, and creating scenic diversity.

4.13 ANALYSIS OF EFFECTS ON CULTURAL RESOURCES

4.13.1 ANALYSIS ASSUMPTIONS AND METHODS

Approximately 9,100 archaeological sites and historical properties have been documented in the planning area, and many more have not yet been documented through formal inventory and recordation. In general, the effect of fire on cultural resources is directly correlated with the nature of the resource and the severity and intensity of the fire. Consequently, the specific effects of implementing one of the action alternatives on all individual sites are, to some degree, unknown at this time. This analysis is based on estimates of the number, type, and significance of archaeological and historical sites provided by cultural resource inventories for approximately 5 percent of the planning area. Furthermore, all specific federally funded or licensed projects on BLM-administered land are subject to review under Section 106 of the National Historic Preservation Act (NHPA) (36 Code of Federal Regulations [CFR] 800). As part of this review process, cultural resources are identified on the ground prior to any action, and mitigation strategies are developed. Overall, certain generalities exist as to the impacts of wildland fire and fire management on given types of cultural resources, and as such, this information can be used to predict how implementing this EIS is likely to affect resources in the planning area.

The various impacts mentioned above consist of a wide range of possible effects of RxFire, WFU, and other vegetation treatments. For the purpose of this analysis, it is assumed that the worse impacts to cultural resources would occur in cover types that are presently in or moving toward FRCC 2 or 3. This is because higher severity fires, larger fires, and loss of ecosystem components are assumed to create detrimental effects on cultural resources presently in the natural environment.

4.13.2 EFFECTS COMMON TO ALL ALTERNATIVES

4.13.2.1 Direct and Indirect Impacts of Prescribed Burn (RxFire)

Cover types treated with RxFire provide several opportunities for cultural resources management. While fire can have a substantial negative impact on some cultural resources, it can have a positive effect on others. For example, removing ground cover or thick stands of vegetation can expose previously unknown archaeological sites for identification, documentation, and study, providing land managers an opportunity to expand their understanding of the locations and types of cultural resources within their jurisdiction. However, depending on the stability of the soils in which a cultural site is located, loss of vegetative ground cover can also result in increased levels of erosion through wind scouring and runoff. This erosion can deflate sites, causing the movement of artifacts away from their original locations and altering the accuracy of the information that can be obtained from studying artifacts in the primary context. Erosion can also scour features or cause standing structures to be undermined and collapse. Erosion, however, can be controlled by replacing vegetation through seeding. Effects of seeding are discussed in Section 4.10.2.1.5.

Increased unauthorized collection of artifacts from archaeological sites (commonly called looting) is also a negative consequence of fire. Looting by the general public (the land users) may occur if they become aware of sites that are exposed to view by fires that reduce vegetative

cover. Most looting on the small scale is undertaken by people who are unaware that their activities are illegal. Professional looters however know what they are going after and sometimes return to a site if it paid off before. Looting can often be controlled by educating the public about the various laws protecting cultural resource sites and the penalties for violating these laws.

Furthermore, the effects of fire on cultural resources are related to the severity of the fire. High temperature, slow burning fires cause far more damage to cultural materials than do cooler, faster burning fires. While RxFire would be conducted under controlled circumstances, and the BLM would have an opportunity through Section 106 to identify sites in the planning area, there remains some risk to cultural resources. This risk is related to the possibility of RxFire not behaving within its planned prescription. If that occurs, historic structures could be directly affected by RxFire and buried undiscovered sites could be impacted by the construction of fire control lines.

4.13.2.2 Direct and Indirect Impacts of Wildland Fire Use (WFU)

As described above for RxFire, the effect of fire on cultural resources is directly correlated with the nature of the resource and the severity and duration of the fire. The location and timing of wildland fires are generally unpredictable. Finally, activities specifically-geared to controlling and/or suppressing wild fire can affect cultural resources more so than activities to control an RxFire.

It is also important to discuss the effects of fire suppression that may be related to aspects of fire use. Fire management and suppression activities can involve ground disturbances such as creating firebreaks, roads, and staging areas with mechanical and hand operated equipment. These activities can break artifacts or damage features. Perhaps more importantly, they can move artifacts, architecture, and features out of their original spatial location, thus disturbing the information that archaeologists could gain from the spatial organization of archaeological sites.

Furthermore, there are ancillary effects of fire management that have been documented by recent studies. Two primary negative impacts associated with burning of any type, as discussed above, are erosion and looting (Hanes 2001). These impacts are discussed in more detail below.

Archaeological sites consist of a collection of artifacts. Surface artifacts are more susceptible to damage from fire suppression and revegetation activities than subsurface artifacts. The Wildland Fire Suppression Restrictions (2.4.3.3.1), Fire and Non-Fire Vegetation Treatment Restrictions (2.4.3.3.2), and ESR Restrictions (2.4.3.3.3) are followed as standard operating procedures to minimize impacts to surface and subsurface cultural artifacts.

4.13.2.3 Direct and Indirect Impacts of Chemical Treatment

The chemical application of herbicides to control invasive species/noxious weeds during ESR and restoration may affect cultural resources. Herbicides could harm traditional use plants, or threaten the health of the people gathering, handling, or ingesting recently treated plants, fish, or wildlife that are contaminated with herbicides (BLM 2007). Applying chemicals, as discussed in previous sections, has the potential to introduce corrosive effects to artifact classes and change the soil chemistry of cultural resource sites in ways that may reduce their potential to address

certain research questions and provide certain classes of data. Currently, however, there are no studies that provide data on the effects of herbicides on archaeological sites and artifacts.

4.13.2.4 Direct and Indirect Impacts of Mechanical Treatment

Mechanical activities can include, mowing, chaining, chopping, and cutting of surface vegetation, and applying seeds via rangeland drill. In general, the impacts from mechanical treatments on cultural resources are related to the physical disturbance of artifacts and features by the mechanical activities. During any ground disturbing activities, intact segments of linear sites such as historic trails and wagon roads, several of which are known to exist in the planning area, can be significantly altered or completely destroyed. Ground disturbance on non-linear archaeological sites can result in breaking or displacing artifacts from their original context. Subsurface features such as storage pits, burials, hearths, and the foundations of dwellings can be exposed and destroyed depending on the depth to which they are buried and the depth of ground disturbance by the heavy machinery. Even hand-operated tools such as picks and shovels can cause physical damage to cultural resource sites. These activities move artifacts, architecture, and features out of their original spatial locations. Pre-treatment inventories for archaeological resources and consultation with tribal governments can help to identify cultural resource sites in a proposed treatment area. Once such resources have been identified, treatment plans can be tailored to include avoidance measures, such as those outlined in Appendix Q, Management Restrictions for historic trails.

4.13.2.5 Direct and Indirect Impacts of Seeding Treatment

Impacts to cultural resource sites from mechanical seeding (drilling) can include such things as altering or destroying historic trails and roads. Because of these potential impacts, the BLM conducts pre-treatment inventories for archaeological resources to identify cultural resource sites in a proposed treatment area. Consultation with Tribal Governments is also undertaken to identify resources of importance to tribal governments is also undertaken to identify resources of importance to the tribal governments. Once such archaeological or tribal resources have been identified, treatment plans can be tailored to include avoidance measures, such as those outlined in Appendix Q, Management Restrictions, for historic trails.

4.13.3 ALTERNATIVE A

Under this alternative, impacts could occur as described above to different types of cultural resources. An estimated 250,200 footprint-acres could be subject to WFU, mechanical treatment, chemical treatment, RxFire, or seeding. Fires (either RxFire or WFU) would have a variety of effects on archaeological and historical sites and artifacts. Cultural resources on the untreated acres could be destroyed, damaged, or altered under this alternative. ESR and restoration activities could also result in impacts to sites by either directly disturbing artifacts through ground disturbing activities or through the effects of chemicals on artifacts. However, as is discussed below under mitigation, standard BLM practice entails measures such as pre-action inventory and avoidance that would be likely to mitigate many of these impacts.

4.13.4 ALTERNATIVE B

Under Alternative B, it is estimated that approximately 646,000 footprint-acres in most cover types would be treated through RxFire, WFU, and/or other vegetation treatments. Although the location of many cultural resources is not known, it is likely that some resources could be impacted by treatment. Because it is generally the case that the likelihood of a site being present increases with the acreage under consideration, the larger footprint-acreage for Alternative B (relative to Alternative A) would likely result in a greater risk of encountering a site. However, the relationship is not necessarily one to one; site distribution is related to many factors and not directly related to acres. Therefore, it is not possible to accurately estimate how many more sites would be affected. Fires (either RxFire or WFU) would have a variety of effects on archaeological and historical sites and artifacts. Restoration and ESR activities could also result in risks to sites by either directly disturbing artifacts through ground disturbing activities or through the effects of chemicals on artifacts. Resources could be uncovered through mechanical treatment, burned through the use of fire, or possibly damaged through the application of chemicals as discussed above. However, as is discussed below under mitigation, standard BLM practice entails measures such as pre-action inventory and avoidance that would be likely to mitigate many of these impacts.

4.13.5 ALTERNATIVE C

Under this alternative, it is estimated that approximately 1,687,000 footprint-acres would be treated through RxFire, WFU, and/or other vegetation treatments. Although the location of many cultural resources is not known, it is likely that some resources could be impacted by treatment. Because it is generally the case that the likelihood of a site being present increases with the acreage under consideration, the increased footprint-acreage for Alternative C (relative to Alternatives A or B) would be likely to result in an increased number of sites impacted. However, standard BLM practice entails measures such as pre-action inventory and avoidance that would be likely to mitigate many of these impacts.

4.13.6 ALTERNATIVE D

Under this alternative, it is estimated that approximately 1,522,000 footprint-acres in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass would be treated through RxFire, WFU, and/or other vegetation treatments. Similar to Alternative B, cultural resources could be uncovered through mechanical treatment, burned through the use of fire, or damaged through the application of chemicals. Because it is generally the case that the likelihood of a site being present increases with the acreage under consideration, the increased footprint-acreage for this alternative (relative to Alternatives A or B) would be likely to result in an increased number of sites impacted. The acreage is similar to that proposed for Alternative C, and it is probable that the effects of this alternative would be similar to that of Alternative C. BLM standards for pre-treatment inventories and consultation under Section 106 of the NHPA apply and are effective in identifying resources and mitigating potential negative impacts under any given treatment alternative.

4.13.7 ALTERNATIVE E

Under this alternative, it is estimated that approximately 1,538,000 footprint-acres would be treated through RxFire, WFU, and/or other vegetation treatments. Similar to Alternative B, cultural resources could be uncovered through mechanical treatment, burned through the use of fire, or damaged through the application of chemicals. Generally, because the likelihood of a site being present increases with the acreage under consideration, the increased footprint-acreage for this alternative (relative to Alternatives A or B) would likely result in an increased number of sites impacted. The acreage proposed under Alternative E is similar to Alternatives C and D, and it is probable that the effects would be similar to these alternatives. BLM standards for pre-treatment inventories and consultation under Section 106 of the NHPA apply and are effective in identifying resources and mitigating potential negative impacts under any given treatment alternative.

4.13.8 MITIGATION AND MONITORING

The BLM has formulated management restrictions to protect cultural resources during fire management activities. In addition to these guidelines, the BLM as a federal agency is required to comply with with all relevant cultural resource laws including Section 106 of the NHPA to identify archaeological and historical properties eligible for or listed on the National Register of Historic Places (NRHP) and to determine if these properties would be affected by a specific action. Standard BLM policy prior to planned actions, such as RxFires, is to conduct a reconnaissance or judgmental survey within portions of proposed burn areas where existing data reviews suggest that flammable properties or resources that might be vulnerable to damage by planned RxFires. These areas would then be avoided if possible. Standard policy prior to ESR or restoration activities is to have a comprehensive field surface inventory of the area in question conducted by a qualified professional. Following the identification of archaeological and historical sites visible on the surface, the sites are protected from looting and then avoided if possible during ground disturbing or other ESR/restoration activities. Similarly, whether a site is eligible for the NRHP is irrelevant to the tribes. A site could have very little left on the surface and still be a very significant site to the tribes and the BLM must also determine if these properties would be affected by a specific action.

The site identification and avoidance procedure would mitigate many of the potential impacts described above for all of the alternatives. By identifying resources that may be affected by fire and then avoiding them during RxFires and ESR/restoration activities, many of the negative effects from these activities would be mitigated. Additionally, the consultation process with tribal governments would help identify opportunities to use proposed treatments to benefit cover types of importance to these groups.

However, because it is not possible to identify every potential cultural resource, particularly subsurface resources or resources obscured by vegetation during field inventories, it is not possible to completely avoid all cultural resources or guarantee that no impacts would occur. Fire suppression activities under wildland fire situations would also occur in a situation that does not easily allow for the identification of resources prior to conducting ground disturbing or other suppression activities. Currently there is no technology that could efficiently and confidently identify all cultural resources on all acres of the land in question. Notably, however, wildland

fires have been impacting these sites for thousands of years, and would continue to do so. The mitigation measures developed here have been established to provide the best feasible protection from the negative effects of wildland fire, fire suppression, ESR, and restoration activities to cultural resources. Following the identification of archaeological and historical sites on the surface, the sites would be avoided if possible during ground disturbing and other ESR/restoration activities.

4.13.9 UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts to cultural resources from implementing any given alternative are predominantly related to the largely unpredictable effects of fire management actions. Section 106 of the NHPA and BLM guidelines require the identification of cultural resources prior to all undertakings, as well as avoidance of known cultural resource sites. As such, for all components of the five alternatives that involve preventative treatments, pre-treatment inventories and consultation would be implemented to reduce to the greatest extent possible any adverse impacts on significant cultural resources. However, in cases of wildland fire, pre-treatment inventories and consultation are not likely to be possible. As a result, cultural resources located in areas subject to wildland fire may be adversely impacted by either the fire itself or the means of controlling it.

Additional unavoidable adverse impacts are related to the nature of many archaeological sites. Although pre-treatment field inventory can often reveal many archaeological sites, and can often adequately characterize the sites once identified, because many archaeological sites are buried, and many parts of sites are buried, no inventory can identify 100 percent of all archaeological sites or other cultural resources in an area. Thus, for any fire situation or ESR and restoration activity that is ground disturbing, it is possible that previously unidentified resources may be adversely impacted. Furthermore, it is possible that previously buried or otherwise unseen aspects of known resources could be inadvertently damaged during intense fire or ESR and restoration activities.

4.13.10 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

Some irretrievable impacts to cultural resources could occur if all archaeological sites are not located during pre-treatment inventories. These impacts could also be irreversible, particularly if RxFire, WFU, or mechanical treatments are used. These treatments all have the potential to completely destroy undetected cultural sites and associated objects. However, irreversible impacts to cultural resources would be minimized by pre-treatment surveys and full compliance with the Section 106 consultation process.

4.13.11 CUMULATIVE EFFECTS

Cumulative impacts to cultural resources are considered relative to the effects of the alternatives in relation to other similar plans. These similar plans include the Interior Columbia Basin Ecosystem Management Project; the INL management plan; the Sawtooth, Caribou, and Targhee National Forests management plans; and the Idaho Statewide Implementation Strategy for the National Fire Plan. Overall, the primary goals of these plans are to reduce the severity and duration of fires in the planning area. The means proposed to meet these goals are broadly

similar to many proposed under various alternatives in this EIS, and include RxFires, WFU, ESR and restoration activities.

As discussed above, damage to archaeological sites from fire predominantly relates to the severity and duration of the fire. High severity, stand-depleting burns would, in general, result in increased damage to artifacts, features, and architecture of archaeological sites as well as increase the chance of erosion also damaging these sites. Thus, reducing the severity and duration of fires would, over the long run, reduce impacts to cultural resources in the area. There could possibly be increased short-term impacts relating to increased RxFire, WFU, ESR and restoration, or other fire management practices. As described above, RxFire, rangeland drill, and seeding all have the potential to affect artifacts on archaeological and historical sites, features and architecture on sites, as well as the spatial relationships between artifacts and features. Thus, there is the potential for increased contribution of negative cumulative impacts from the actions proposed in this EIS when considered in conjunction with other fire management activities in the area as they may increase the frequency of occurrence in the planning area of the types of activities that can affect cultural resource sites. However, as mentioned above, pre-treatment inventory and avoidance procedures following Section 106 of the NHPA would mitigate many of these cumulative impacts. Indeed, the identification procedures are likely to assist in the management and preservation of cultural resources as they add to the body of knowledge regarding cultural resources. The contribution of this project to cumulative impacts may vary, however, depending on each alternative. Thus, cumulative impacts must be examined relative to the alternatives in terms of their contribution to other plans for reducing the severity and duration of fires.

In general, the cumulative effects on cultural resources for each alternative would be related to the amount of acreage moving from FRCC 3 to FRCC 1. Because the general goals of the other fire management plans and regional strategies are to, in essence, reduce the amount of acreage in FRCC 3 and increase the amount in FRCC 1, these plans should have a positive effect on cultural resources by reducing the amount of damage to cultural resource sites over the long term. Consequently, the alternatives proposed in this EIS should also be considered in terms of their overall contribution to reducing the severity and duration of fires. Alternatives that achieve a reduction in the severity and duration of fires under this EIS would, in combination with the actions undertaken in other regional plans, have a greater positive effect than those that do not reduce, or reduce in lower amounts, the severity and duration of fires.

Although there is not a direct relationship between the number of acres affected by fire of various intensities and the number of sites affected, it is the case that in general, as more acres are subject to fewer fires or fires of lower severity, fewer archaeological and historical sites would be affected. Of the five alternatives, Alternative A changes the FRCC the least number of acres. Under Alternative A, unwanted wildland fire would likely continue to trend toward large, high-severity fires, and potentially increasing numbers of cultural resources would be impacted as more acreage is burned or subjected to control and suppression activities. This could result in increasing impacts to cultural resource sites. Thus, Alternative A would have the least positive contribution to cumulative impacts when considered in conjunction with fire management plans and activities in the foreseeable future.

Under Alternatives B, C, D, and E, the number, size, and severity of unwanted wildland fire is expected to decrease over time as fuel loads decrease. As the number and severity of unwanted wildland fires decreases, it would be expected that the overall frequency of damage to culturally important resources and sacred sites would then decrease. Further, as the number of acres treated through mechanical and/or chemical means or through RxFire increases, larger numbers of cultural resources and sites would be identified through pre-treatment inventories and consultation. As these sites and areas are identified, the proposed fuels treatment can be designed to avoid or limit adverse impacts. Indeed any of these alternatives would result in changing the FRCC of a vastly greater number of acres than all of the other regional foreseeable future actions combined.

There are, however, variations in the amount of acres that would have FRCC among the actions other than Alternative A. Alternative B would result in an increased number of acres with a changed FRCC relative to Alternative A. Relative to Alternative A, Alternative B would have a greater positive cumulative contribution. However, Alternatives C, D, and E all result in proportionately much greater long-term change in FRCC in the planning area and adjacent areas than Alternative B, A, or the previously described reasonably foreseeable future actions. Thus, these alternatives would have a significant positive cumulative impact on cultural resources when considered with other actions in the planning area. This positive contribution to cumulative impacts in the area would be much greater than either Alternative A or B.

4.14 ANALYSIS OF EFFECTS ON NATIVE AMERICAN TRIBAL CONCERNS

4.14.1 ANALYSIS ASSUMPTIONS AND METHODS

Native American people perceive the natural enviornment with its constituent landscapes, ecosystems, and organisms, the earth and waters, the sky and universe, and the entire existence as sacred manifestations of the Creator. Therefore, management actions on public lands should be performed in a sense of reverent awareness for these values. Several sites, natural resources, and areas of cultural concern to tribal groups within the planning area are known to the BLM. Identifying such resources has come through archaeological inventories of approximately 5 percent of the planning area and through related consultation with tribal governments. Given that such a small percentage of the planning area has been subject to intensive cultural resource inventories and that regional tribal governments have undoubtedly not disclosed the location and nature of all resources of cultural interest, it is reasonable to assume that many additional sites, resources, and areas of concern exist but are not yet known to the BLM. Consequently, the specific effects of implementing Alternative B or one of the other action alternatives on all individual sites, resources, and areas is, to some degree, unknown at this time.

Consultation with tribal governments would be performed as government-to-government interactions, as a normal part of the NEPA process; technical review under Section 106 of the NHPA (36 CFR 800); and other federal legislation prior to an undertaking. Overall, certain generalities exist as to the impacts of WFU and fire management on given types of sites and resources important to tribal governments, and as such, this information can be used to predict how implementing this EIS is likely to affect such resources in the planning area.

The various potential impacts to cultural resources and sites of cultural patrimony consist of a wide range of possible effects from wildland fire, RxFire, and other fuels treatments. For the purpose of this analysis, it is assumed that the worse impacts to cultural resources would occur in cover types that are presently in or moving toward FRCC 2 or 3. This is because higher severity fires, larger fires, and loss of ecosystem components are assumed to create detrimental effects on cultural resources presently in the natural environment. Similar effects are assumed for natural resources (i.e., cover types such as juniper woodlands and camas prairies and wildlife species such as deer, grouse, rabbits, etc.) of concern to tribal governments; although, as discussed in more detail below, implementing some treatments may benefit these natural resources.

Because archaeological resources are often identified as culturally important by tribal governments, and because a discussion of predicted impacts on cultural resource sites (prehistoric and historical archaeological and structural sites) is included in Section 4.13 of this document, these impacts are not discussed here. It must be recognized, however, that tribal governments may have concerns about impacts to specific archaeological sites from implementation of the proposed alternative or any other alternative and that these concerns must be identified and addressed through the aforementioned Section 106 process. This section addresses impacts to non-site resources of known importance to the tribal governments within the planning area.

4.14.2 EFFECTS COMMON TO ALL ALTERNATIVES

Native American tribal governments subsisted on the lands within the planning area boundaries for thousands of years. Existing ethnographic information generally suggests that aboriginal populations constantly traversed the Snake River Plain during their seasonal subsistence rounds, moving to the Camas Prairie in the spring to gather camas roots and then further into the mountains for the summer. In the fall, they would return to the Snake River for the winter (Steward 1938). Tribal governments from the planning area procured deer, elk, mountain sheep, and moose from the mountains of the Sawtooth, Teton, and northern Wasatch Ranges and harvested salmon from rivers in south-central and southwestern Idaho (Hultkrantz 1974). The Shoshone-Bannock and Shoshone-Paiute tribal governments still hunt game and gather on BLM-administered lands today and continue to ascribe cultural value to the Snake River corridor and the Camas Prairie. Some traditional cultural sites identified as important by modern Native American tribal governments may consist entirely of plant resources (a traditional gathering place). All of these resources could experience short-term impacts from implementing fire management vegetation treatments. These would include the potential loss of some wildife and fish, damage or loss of cultural sites, and loss of plant resources. However, all of these resources would also experience long-term benefits from these fire management activities as vegetation and associated wildlife habitat improves (See Sections 4.2, 4.4, and 4.5). Detailed descriptions of these impacts are given below.

Note that there are no treatments proposed in pinyon pine stands in any of the five alternatives. Accordingly, there would be no impacts to tribal gathering of pinyon pine nuts.

4.14.2.1 Direct and Indirect Impacts of Burn (RxFire)

RxFire provides several opportunities for managing tribal concerns. Even though fire can have an impact on some cultural/tribal resources, it can have a positive effect on others. For example, removing ground cover or thick stands of vegetation can expose previously unknown traditional properties or sites that were unknown to tribal governments but are considered culturally or religiously important to those groups. Similarly, some traditional cultural sites identified as important by modern tribal groups consist entirely of plant resources (a traditional gathering place) such as juniper woodlands or of traditional hunting areas for deer, elk, pronghorn, grouse, and other wildlife species. These cover types and wildlife populations may indeed benefit from periodic burning or other treatment, developing into healthier stands of the given plant or better habitat for wildlife. This, in turn, promotes better returns for the tribal governments under their treaty hunting rights.

Under Section 106, consultation would take place with the tribal governments prior to RxFire. The consultation would strive to identify specific sites and resources, such as traditional plant resource collection areas and hunting areas, of importance to the tribal governments. If such sites or resources are identified, the RxFire plan would be tailored to avoid adverse impacts to the sites or resources, and the tribal governments' right of access to hunting and gathering would be maintained. For a detailed discussion of the effects of RxFire on wildlife resources, some of which are important to the tribal governments as part of their subsistence practices and under their treaty hunting rights, see Section 4.5 of this document.

For a detailed discussion of the effects of RxFire on archaeological resources, some of which may be identified by the tribal governments as culturally important, please see Section 4.13 of this document. The physical effects of fire on archaeological resources as described in Section 4.13.2. may render a resource unable to fulfill its function in or to be used by a tribal government for perpetuating cultural ideology or identity.

4.14.2.2 Direct and Indirect Impacts of Wildland Fire Use (WFU)

The effects of WFU on resources of concern to tribal groups are similar to those described for RxFire, assuming wildland fire timing and location would be similar to that of an RxFire and would meet the same management objectives. For a discussion of the effect of WFU on archaeological resources, some of which may be deemed sacred or culturally important by the tribal governments, see Section 4.13.2 of this document.

Impacts to cultural resources from RxFire and WFU would be minimized with site-specific NEPA analysis and cultural resource inventories completed as appropriate before any fire treatments would be applied on the ground. Particular natural resources such as certain cover types and the habitat of wildlife species of concern to tribal governments may be readily identifiable in a wildland fire situation and may be able to be protected or benefited through effective control of the fire. Archaeological resources of concern, on the other hand, are not likely to be so readily identifiable, and given that only 5 percent of planning area lands have been inventoried for such resources, their presence in any given area is not likely to be known prior to the outbreak of wildland fire. As such, these unidentified archaeological sites would be subject to those wildland fire impacts described in Section 4.13.2 of this document. Such impacts could

adversely affect the ability of an archaeological site to function properly in its role within the tribal culture. Post-fire rehabilitation of archaeological sites may be able to mitigate some of these adverse impacts.

As part of ongoing consultation with the tribal governments under Section 106, traditional hunting and gathering areas that remain in active use by tribal members and/or areas by the tribal governments as important for traditional or ideological reasons would be identified within the planning area. To the extent that such resources are known to exist within an area subject to treatment by WFU, they would be avoided unless consultation results in an agreement between the BLM and the tribal governments that treatment by WFU would benefit the resources of importance to the tribal governments and is acceptable to the tribal governments. Plans for treatment by WFU would be tailored to ensure the maintenance of tribal access rights and would include measures to protect the nesting and wintering habitat of critical wildlife species.

4.14.2.3 Direct and Indirect Impacts of Chemical Treatment

The chemical application of herbicides to control invasive species/noxious weeds during ESR and restoration can also affect cultural resources. Although no studies have examined the specific effects of these types of activities on cultural resource sites, due to the straightforward nature of the activities, it is possible to confidently postulate potential effects of these actions. Herbicides may contribute to the erosion of some types of artifacts and features that may be identified by tribal governments as culturally important or sacred. In cases other than than emergency suppression of wildland fire, the impacts from chemical treatment to archaeological sites and/or cover types of concern to tribal governments can be minimized through pre-treatment inventories and consultation as mandated by Section 106 of the NHPA. In emergency situations, post-treatment rehabilitation and restoration may help mitigate adverse impacts to artifacts, sites, or natural resources of importance to tribal governments.

Impacts from chemical treatment to cover types and wildlife resources of traditional importance to the tribal governments is expected to be minimal. Chemical treatments target invasive plant species and have little to no effect on the types of native plants having cultural value for the tribal governments. Indeed, the effect of chemical treatment on native cover types will, in most cases, be to enhance the quality of the native cover types through reducing competing invasive plants. Impacts on wildlife are expected to be similarly minimal and primarily short-term in duration as they are related to increased noise and activity directly associated with the chemical treatment. Only BLM-approved chemicals would be used, and they would only be applied when climatic conditions were conducive to minimal airborne drift, thereby reducing even further the potential for adverse impacts to wildlife.

4.14.2.4 Direct and Indirect Impacts of Mechanical Treatment

Mechanical activities can include, mowing, chaining, disking, chopping, and cutting surface vegetation and applying seeds via rangeland drill. In general, the impacts from mechanical treatments on cultural resources are related to the physical disturbance of artifacts and features by the mechanical activities. For a discussion of potential impacts to archaeological resources, some of which may be deemed important by the tribal governments for traditional or ideological reasons, please see Section 4.13.2 of this document.

In general, potential adverse impacts to resources of importance to tribal governments can be significantly reduced through carrying out the Section 106 process as mandated by the NHPA and BLM guidelines. Pre-treatment inventories or other means of identifying archaeological sites in a proposed treatment area prior to ground disturbance combined with consultation with regional tribal governments can aid in the avoidance of culturally important or sacred sites and natural resources. Opportunities to use mechanical treatments to improve important resources such as juniper woodlands or camas prairies (not currently slated for fuels treatments) can also be identified through this process. If archaeological resources or hunting and gathering areas of importance to the tribal governments are identified during pre-treatment consultation and/or inventory, the plans for specific mechanical treatment of the given area would be tailored to avoid physical impacts to such resources. Consultation with the tribal governments may, however, result in an agreement between the BLM and the tribal governments to allow mechanical treatment in traditional hunting and gathering areas with an acceptance of potential short-term impacts to wildlife that that may be displaced by seeding activities or to cover types that may be temporarily thinned but would recover in healthier forms. Mechanical treatment would be tailored to ensure tribal treaty rights for access to public lands are maintained.

4.14.2.5 Direct and Indirect Impacts of Seeding Treatment

Introducing seed through drilling has the greatest potential to directly disturb archaeological sites as described above for mechanical treatments. These impacts can be significantly reduced, however, by undertaking pre-treatment inventories to identify cultural resources within the proposed treatment area and designing seeding programs to avoid important or sacred sites. Aerial seeding has less potential for direct impacts to archaeological sites, as there is no specific ground disturbance (unless the ground surface is disturbed by mechanical means to prepare for aerial seeding).

Particular species may be of importance to the tribal governments and could be affected by a change in cover type. In some cases, seeding may improve the condition of rangelands, increase plant cover, improve the diversity and quality of these cover types, and improve habitat for wildlife important to the tribal governments.

Wildlife may, however, be temporarily displaced by seeding activities while the activity is occurring, and cover types of importance to the tribal governments may experience temporary decreases in productivity as new plants grow to productive sizes.

4.14.3 ALTERNATIVE A

Under this alternative, impacts to archaeological sites of importance to the tribal governments could occur as described in Section 4.13.2 of this document. An estimated 250,200 footprint-acres could be subject to WFU, mechanical treatment, chemical treatment, RxFire, or seeding. Fires (either RxFire or WFU) would have a variety of effects on sites and resources deemed important to tribal groups. ESR and restoration activities could also result in impacts to such resources by either directly disturbing the archaeological sites through ground disturbing activities or through the effects of chemicals on artifacts or through temporary reductions in the productiveness of particular cover types or the temporary displacement of wildlife. In general, critical habitat for wildlife such as sage grouse, would continue to degrade, though existing

levels of treatment for such habitat would continue and would provide some improvement to smaller geographic areas than would be the case under other alternatives. Additionally, some wildlife would be temporarily displaced by activities surrounding existing levels of RxFire, seeding, and mechanical and chemical treatments while the activity was occurring.

Treatments proposed under this alternative and potentially affecting important cultural resources or traditional cultural use areas would be coordinated with tribal staffs as necessary. Consultation with tribal governments would be conducted on a case by case basis as appropriate to fulfill Indian Trust responsibilities related to traditional/cultural uses, as well as the health of the land and water resources.

Please note that there are no treatments proposed in pinyon pine stands in Alternative A. Accordingly, there would be no impacts to tribal gathering of pinyon pine nuts.

4.14.4 ALTERNATIVE B

Under Alternative B, it is estimated that approximately 646,000 footprint-acres in most cover types would be treated through RxFire, WFU, and/or other vegetation treatments. As the location of many cultural resource sites and important tribal resources is not known, it is likely that some resources could be impacted by treatment. Because it is generally the case that the likelihood of an archaeological site or culturally important resource being present increases with the acreage under consideration, the increased footprint-acreage for Alternative B (approximately three times the acreage of Alternative A), would be likely to result in an increased number of sites and resources impacted. However, the relationship is not necessarily one to one; site and resource distribution is related to many factors and not directly related to acres. Fires (either RxFire or WFU) would have a variety of effects on archaeological and traditional sites and resources. ESR and restoration activities could also result in impacts to such sites and resources by either directly disturbing artifacts or cover types through ground-disturbing activities or through the effects of chemicals on artifacts. Resources could be uncovered through mechanical treatment, burned through the use of fire, or possibly damaged through the application of chemicals as discussed above.

It is important to note that implementing this alternative may benefit resources of tribal concern. As noted above, some important tribal resources/sites consist entirely of cover types or of wildlife species targeted for hunting. Under this alternative, the quality of some cover types of cultural concern, such as the juniper woodlands, could be improved through reducing invasive plants and other competing cover types. In particular, removing encroaching juniper in these woodlands would benefit the more mature juniper, which are of higher cultural value to the tribal governments because of their increased size and productivity. Under Alternative B, 30,400 footprint-acres within Juniper cover types would be treated through RxFire, WFU, and chemical and mechanical means.

The improvement of the quality of cover types this alternative generally provides better habitat for wildlife species of traditional importance to the tribal governments; although, some temporary displacement of wildlife may occur during both treatment activities and the regeneration of cover types following treatment. Please see Section 4.5 of this document for

more specific information on the short-term impacts of this alternative on wildlife in the planning area.

Treatments proposed under this alternative and potentially affecting important cultural resources or traditional cultural use areas would be coordinated with tribal staffs as necessary. Consultation with tribal governments would be conducted on a case by case basis as appropriate to fulfill Indian Trust responsibilities related to traditional/cultural uses, as well as the health of the land and water resources.

Please note that there are no treatments proposed in pinyon pine stands in Alternative B. Accordingly, there would be no impacts to tribal gathering of pinyon pine nuts.

4.14.5 ALTERNATIVE C

Under this alternative, it is estimated that 1,687,000 footprint-acres would be treated through RxFire, WFU, and/or other vegetation treatments. As the location of many cultural resource sites and important tribal resources is not known, it is likely that some resources could be impacted by treatment. Because it is generally the case that the likelihood of an archaeological site or culturally important resource being present increases with the acreage under consideration, the increased footprint-acreage for this alternative (approximately seven times the treatment-acreage of Alternative A), would be likely to result in an increased number of sites and resources impacted. However, as discussed under the short-term and indirect impacts of Alternative B, the relationship of numbers of sites to acres treated is not necessarily one to one and is influenced by a number of environmental factors. Therefore, it is not possible to provide an exact estimate of how many more sites or culturally important resources would be affected under this alternative.

As with Alternative B, implementing this alternative may benefit resources of tribal concern. Under this alternative, the quality of some cover types of cultural concern, such as the juniper woodlands, could be improved through reducing invasive plants and other competing cover types. In particular, removing encroaching juniper in juniper woodlands would benefit the more mature juniper, which are of higher cultural value to the tribal governments because of their increased size and productivity. Nearly 60,500 footprint-acres of Juniper cover types would be treated to reduce encroaching juniper through various means under this alternative.

Under this alternative, portions of the total footprint-acres would in part be unavailable to wildlife for varying periods over the short term. However, areas being rehabilitated or restored subsequent to treatments would continue to provide habitat value to certain species, particularly those that use early to mid-seral stages of those cover types. The majority of the treatment area under this alternative would be seeded following the vegetation treatments, which would result in a secondary short-term disturbance to wildlife attempting to re-inhabit these areas. All vegetation treatments would occur in accordance with established management plans and guidelines for wildlife species associated with the habitats being treated, which would reduce adverse impacts to wildlife to less than significant levels.

Treatments proposed under this alternative and potentially affecting important cultural resources or traditional cultural use areas would be coordinated with tribal staffs as necessary. Consultation with tribal governments would be conducted on a case by case basis as appropriate to fulfill

Indian Trust responsibilities related to traditional/cultural uses, as well as the health of the land and water resources.

Please note that there are no treatments proposed in pinyon pine stands in Alternative C. Accordingly, there would be no impacts to Tribal gathering of pinyon pine nuts.

4.14.6 ALTERNATIVE D

Under this alternative, it is estimated that approximately 1,522,000 footprint-acres in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass would be treated through RxFire, WFU, and/or other vegetation treatments. Similar to Alternative B, archaeological and traditional resources could be uncovered through mechanical treatment, burned through the use of fire, or damaged through the application of chemicals. Specific potential impacts to archaeological resources under this alternative are described in greater detail in Section 4.13.6 of this document.

Under this alternative, fewer footprint-acres of known cover types of concern to tribal governments would be treated than under other alternatives. In particular, fewer acres of juniper woodland (29,200 footprint-acres under this alternative) would be treated through various means, thus reducing the overall level of benefit to this resource of importance to tribal governments within the planning area. Impacts would be similar to those described under Alternative B with the exception that they would be concomitantly higher in the sagebrush habitats due to the increased treatments. However, these impacts would be small-scale and short-term and, therefore, would be unlikely to impact wildlife population viability for any species of importance to the tribal governments under their treaty hunting rights. Portions of the treated areas would in part be unavailable to wildlife over the short term, but areas being rehabilitated or restored subsequent to treatments would continue to provide habitat value to certain species, particularly those that use early to mid-seral stages of those cover types.

Treatments proposed under this alternative and potentially affecting important cultural resources or traditional cultural use areas would be coordinated with tribal staffs as necessary. Consultation with tribal governments would be conducted on a case by case basis as appropriate to fulfill Indian Trust responsibilities related to traditional/cultural uses, as well as the health of the land and water resources.

Please note that there are no treatments proposed in pinyon pine stands in Alternative D. Accordingly, there would be no impacts to tribal gathering of pinyon pine nuts.

4.14.7 ALTERNATIVE E

Under this alternative, it is estimated that approximately 1,538,000 footprint-acres would be treated through RxFire, WFU, and/or other vegetation treatments. Similar to Alternative B, archaeological and traditional resources could be uncovered through mechanical treatment, burned through the use of fire, or damaged through the application of chemicals. Specific potential impacts to archaeological resources under this alternative are described in greater detail in Section 4.13.6 of this document.

Under this alternative, fewer footprint-acres of known cover types of concern to tribal governments would be treated than under other alternatives. In particular, fewer acres of juniper woodland (29,200 footprint-acres under this alternative) would be treated through various means, thus reducing the overall level of benefit to this resource of importance to tribal governments within the planning area. Impacts would be similar to those described under Alternative B with the exception that they would be concomitantly higher in the sagebrush habitats due to the increased treatments. However, these impacts would be small-scale and short-term and, therefore, would be unlikely to impact wildlife population viability for any species of importance to the tribal governments under their treaty hunting rights. Portions of the treated areas would in part be unavailable to wildlife over the short term, but areas being rehabilitated or restored subsequent to treatments would continue to provide habitat value to certain species, particularly those that use early to mid-seral stages of those cover types.

Treatments proposed under this alternative and potentially affecting important cultural resources or traditional cultural use areas would be coordinated with tribal staffs as necessary. Consultation with tribal governments would be conducted on a case by case basis as appropriate to fulfill Indian Trust responsibilities related to traditional/cultural uses, as well as the health of the land and water resources.

Please note that there are no treatments proposed in pinyon pine stands in Alternative E. Accordingly, there would be no impacts to tribal gathering of pinyon pine nuts.

4.14.8 MITIGATION AND MONITORING

The BLM has formulated management restrictions to protect cultural resources and resources of concern to tribal governments during fire management activities (Appendix Q, Management Restrictions). In addition to these restrictions, the BLM is required under Section 106 of the NHPA to identify archaeological and historical properties eligible for or listed on the NRHP as well as sites and resources important to tribal groups and to determine if these sites and resources would be affected by a specific action. Standard BLM policy prior to planned actions such as RxFires, is to conduct a field survey within proposed burn areas where existing data reviews suggest that flammable properties or resources might be vulnerable to damage by planned RxFires. These areas would then be avoided if possible. Standard policy prior to ESR and/or restoration activities is to have a comprehensive field surface inventory of the area in question conducted by qualified professionals. Following the identification of archaeological and historical sites visible on the surface, the sites are avoided if possible during ground disturbing or other ESR/restoration activities. More information on mitigation measures related specifically to archaeological resources can be found in Section 4.13.7 of this document.

In all cases, consultation with federally recognized tribal groups claiming patrimony over the area of the undertaking is required by numerous federal laws and BLM policy. Consultation would focus on identifying important cultural resource sites, resource areas, and periods of critical use (i.e., the season of use of a given resource area) for the tribal governments so that treatments, under any alternative, would be tailored to avoid interference with treaty rights. Under any alternative, the access rights of the tribal governments to BLM-administered lands would be maintained. Additionally, the consultation process with tribal governments would help

identify opportunities to use proposed treatments to benefit cover types of importance to these groups.

The above-described consultation process would minimize the majority of potential impacts from site-specific fire management activities on sites and resources important to tribal groups.

4.14.9 UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts to culturally important resources or sacred sites from implementing any given alternative are generally restricted to the largely unpredictable effects of wildland fire. Section 106 of the NHPA and BLM guidelines require identifying cultural resources and consultation with potentially affected tribal governments. As such, for all components of the five alternatives that involve preventative treatments, pre-treatment inventories and consultation would be implemented to reduce to the greatest extent possible any adverse impacts on those resources identified by regional tribal governments as important or sacred. However, in cases of wildland fire pre-treatment inventories and consultation are not likely to be possible. As a result, cultural resources located in areas subject to wildland fire may be adversely impacted by either the fire itself or the suppression to control it.

4.14.10 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

Irretrievable and irreversible impacts to culturally important resources or tribal sacred sites would be similar to those described for unavoidable adverse impacts. These impacts would be both irretrievable and irreversible based on the potential to completely destroy these sites and associated objects with RxFire, WFU, and mechanical treatments. Short-term irretrievable impacts to vegetation types important to affected tribal governments would also occur; however, these impacts would not be irreversible as these vegetation types could be rehabilitated/restored.

4.14.11 CUMULATIVE EFFECTS

Historical land management practices coupled with more recent drought conditions on lands within the planning area have resulted in a trend within existing cover types toward larger, high-severity wildland fires (typical under FRCC 3). As discussed elsewhere in this section and in Section 4.13, such fires have greater adverse impacts on cultural resources than do smaller, low-severity, and shorter duration fires. The exact numbers of such resources that have been impacted is currently unknown, as intensive level inventories for cultural resources have not been conducted for all areas burned as a result of wildland fire. Such inventories typically occur immediately prior to ESR and restoration activities, which may lag behind the fire episode by as much as several years.

Current and future management practices both for lands under the jurisdiction of the planning area BLM and for adjacent lands under the jurisdiction of other local, state, and federal agencies is trending toward reducing the frequency and scope of larger, high-severity wildland fires. Of the existing fire management plans for non-Bureau agencies located within or adjacent to the planning area, two identify specific plans for acreages to be treated through RxFire, WFU, and chemical and mechanical treatments. In particular, the Sawtooth National Forest Plan, currently under revision, calls for fire and fuels treatment impacts on between 3 percent and 15 percent of

the 2.2 million acres within the Forest boundary, depending on which alternative is selected. The Forest Plan also calls for the use of fire only as a treatment (as opposed to a mix of fire and mechanical or chemical treatment) for 16 percent to 90 percent of the Forest's WUI watersheds. A similar but smaller-scale treatment regime is in place for the Caribou and Targhee National Forests through their 1997 Forest Plan. Under this plan, an average of approximately 9,000 acres per year are to be treated for fuels reduction with an increasing focus on treatment-acres within the WUI.

Other fire management plans or general land use planning documents, such as those through the Idaho Department of Lands and the INL, would be subject to revision based upon the selection of an alternative from this EIS. As such, exact treatment-acreages are unknown at this time; however, all of these plans would be tied closely to the selected alternative from this EIS and would individually result in the treatment of fewer footprint-acres than are proposed in Alternatives B, C, or D of this EIS. All of the plans would focus on fuels reduction and the movement of cover types toward FRCC 1.

As more acres are treated, more cultural resources (both archaeological sites and natural resources of importance to the tribal governments) are likely to be impacted, resulting in an incremental impact on the collective cultural record of southern Idaho. It should be noted, though, that although an increase in the frequency of applying chemical, mechanical, and fire treatments has the potential to adversely impact increasing numbers of cultural sites, pre-treatment inventories for cultural resources and consultation with tribal groups under the mandates of Section 106 of the NHPA and BLM management restrictions are serving and would continue to serve as effective means for avoiding and mitigating these adverse effects. Further, archaeological sites are stationary entities; thus, any physical impact to a site on USFS land (or lands under the jurisdiction of non-Bureau agencies) would not result directly in an impact to archaeological sites on BLM-administered lands. Natural resources of importance to the tribal governments are different, however, in that wildlife management practices and efforts to control particular cover types on adjacent lands may impact similar resources on adjacent BLM-administered lands. Impacts to culturally important natural resources on the planning area resulting from fire management activities on adjacent lands is indirect and related to whether or not the adjacent management activities affect the FRCC of cover types and wildlife habitat on planning area. For a more detailed discussion of cumulative impacts on wildlife species, please see Section 4.5 of this document.

For the purposes of this EIS analysis, two basic scenarios are likely to occur in terms of cumulative impacts to cultural resources of importance to regional tribal groups. Under Alternative A, wildland fire would likely continue to trend toward large, high-severity fires, and potentially increasing numbers of archaeological sites and culturally important natural resources related to Native American treaty rights would be impacted as more acreage is burned or subjected to control and suppression activities. This could result in increasing impacts to tribal traditional practices (such as resource gathering and hunting) and ideological/religious practices. Under Alternatives B, C, D, and E, the number, size, and severity of wildland fire is expected to decrease over time as fuel loads are decreased. As the number and severity of wildland fires decreases, it would be expected that the overall frequency of damage to culturally important resources and sacred sites would then decrease. Further, as the number of acres treated through mechanical and/or chemical means or through RxFire increases, larger numbers of cultural sites

and areas of concern for tribal governments would be identified through pre-treatment inventories and consultation. As these sites and areas are identified, the proposed fuels treatment can be designed to avoid or limit adverse impacts.

4.15 ANALYSIS OF EFFECTS ON SOCIOECONOMICS

4.15.1 ANALYSIS ASSUMPTIONS AND METHODS

4.15.1.1 Relationship to Other Sections of the EIS

Social and economic analysis is related to the following sections. The following sections should be consulted for more detailed information regarding impacts to their respective resources:

- WUI (Section 4.3)
- Livestock Grazing Management (Section 4.9)
- Recreational Resources (Section 4.10)
- Visual Resources (Section 4.12)

4.15.1.2 Qualitative versus Quantitative Data

Economic impacts are considered with respect to each major sector of the economy in the planning area. Where quantitative data are available, a detailed analysis is shown. Where quantitative data are not available, a qualitative analysis is performed based on the best available data. Impacts analysis follows the structure of Section 3.15, Socioeconomics, examining effects on the social and economic settings planning area-wide.

4.15.1.3 Fire Management Program Expenditures

The average cost of wildland fire treatment is $105 per acre. The average cost for wildland fire suppression is $140 per acre (BLM 2003). Total cost for fire management efforts in the planning area is calculated by multiplying the number of acres of wildland fire and treatment or suppression by the appropriate cost per acre.

Table 4-47 identifies the suppression and treatment costs over 10 years for each alternative.

TABLE 4-47. FIRE MANAGEMENT COSTS FOR SUPPRESSION AND TREATMENTS OVER 10 YEARS BY ALTERNATIVE

Fire Management Costs	Alternatives				
	A	B	C	D	E
Treatment	$26,271,000	$67,830,000	$177,135,000	$159,810,000	$161,490,000
Suppression	$80,729,000	$46,170,000	$21,865,000	$24,190,000	$23,510,000
TOTALS	**$107,000,000**	**$114,000,000**	**$199,000,000**	**$184,000,000**	**$185,000,000**

Of the total expenditures for the fire management program in 2002, as expressed in Section 3.15, Socioeconomics, the following percentages are spent in each category below:

- 45 percent variable costs
- 30 percent fixed labor costs
- 25 percent other suppression costs (BLM 2004)

Both treatment and suppression have associated variable costs. Treatments are considered variable costs because they are contracted by the BLM. Contractors purchase seed, and apply seed with rangeland drills or aircraft. Seeding requires seedbed preparation, application of herbicides, planting, etc. Common variable costs for suppression include contracting for bulldozers to build fire lines and water trucks. Both treatment and suppression have the following associated variable costs that get funneled into the local economy: food, fuel, lodging, maintenance, vehicles, administrative costs, aviation, and warehousing.

Variable costs are calculated by multiplying the total cost for fire management by 45 percent. It is assumed that only the variable costs would change with each alternative (BLM 2003).

Expenditures on variable costs are assumed to be an infusion of dollars into the regional economy. An economic multiplier is the dollars evident in the local community based on dollars spent in one sector of the community. For example, one dollar spent on fire suppression equates to dollars spent in the local economy. It is assumed that approximately 70 percent of variable costs are spent in the local economy.

4.15.1.4 Impacts of Improvement of FRCC

In general, it is anticipated that improvement in FRCC (moving from FRCC 3 toward 1) would provide long-term socioeconomic benefits through decreases in risks to human safety, private land; fire-fighter safety, fire-fighting costs, and an improvement in overall vegetative conditions (ground cover, diversity, composition, and structure).

The improvement of key ecosystem components could provide benefits for associated uses of renewable resources, such as timber, rangeland, and wildlife habitat. Recreation, hunting, and tourism would likely experience an increase with new dollars being spent in various local communities.

As wildland fire size decreases and restoration opportunities increase, the economic contribution of fire fighting would be offset by increased restoration activities that would occur throughout the year, rather than only when fire suppression activity is high during the summer wildland fire months.

4.15.2 EFFECTS COMMON TO ALL ALTERNATIVES

4.15.2.1 Retail Trade Services

Retail trade services would only be affected secondarily by impacts to other sectors of the economy. Grazing and the government services sector could cause impacts to retail trade

services. External factors that would affect retail trade services include changes to the amount of grazing, an increase or decrease in the government services sector, and changes to tourism.

A second effect on the retail services and trade sector is the number of fire-fighters employed. More fire-fighters deployed to communities means more dollars spent in the retail and trade services sector on meals, gasoline, and other necessities. Conversely, reducing fire-fighters would translate into a decrease in retail economies in communities near fires. This is explained in more detail in the alternative analysis of variable costs.

4.15.2.2 Wildland Fire Suppression Costs

In this analysis, large fire suppression costs were considered. All Action Alternatives are expected to lead to a decrease in suppression costs after 30 years. Assuming treatments in the first 10 years are effective, increased treatment levels will leave resources and uses at less risk of damage from wildland fire, decreasing fire size and intensity across the landscape, particularly in Low-elevation Shrub, Perennial Grass, Invasive Annual Grass types and the Wildland Urban Interface.

4.15.2.3 Proportional Impacts

Based on the information shown in Section 3.15, Socioeconomics, certain counties rely more heavily on various market sectors of the economy. Counties with a high proportion of rangelands on BLM-administered lands could experience proportionally higher impact than the rest of the planning area. These counties include:

- Blaine
- Butte
- Camas
- Caribou
- Cassia
- Clark
- Gooding
- Lincoln
- Oneida

Similarly, the following counties have a high degree of tourism contributing to the economy, and could experience higher impacts as tourism is impacted in each alternative:

- Blaine
- Fremont
- Bonneville

Retail trade centers in the planning area might also experience a proportionally higher degree of impact. Retail trade centers are located in the following counties:

- Bannock
- Bonneville
- Madison
- Twin Falls

4.15.3 ALTERNATIVE A

Impacts to the social setting under Alternative A include continued risk of wildland fire. Homes and structures, discussed with WUI issues in Section 4.3, would be at the same risk as current conditions. High tourism areas could be affected by continued risk of wildland fire.

Direct impacts of Alternative A affecting the economic setting of the planning area include a change in grazing AUMs and fees. A total of 47,500 AUMs would be temporarily lost over a 10-year period, equating to a total of $65,075 in lost fees from grazing. In addition to direct dollar

amounts lost in this sector, it should be noted that receipts collected by the BLM for grazing and timber harvesting are returned to the state and counties. With continued large fires, timber being burned, and allotments closed, AUMs are temporarily unavailable, and thus receipts returned to counties are less.

Direct impacts would also be evident in BLM expenditures for fire management. Alternative A would equate to an approximate total of $107 million in fire suppression and vegetation treatment costs over 10 years.

Indirect impacts would be manifested in the multiplier effect into regional economics. An economic multiplier is the dollars evident in the local community based on dollars spent in one sector of the community. For example, one dollar spent on fire suppression equates to dollars spent in the local economy. Based on the costs of fire management discussed in the assumptions with $140 per acre for suppression and $105 per acre for treatment, a total of approximately $107 million would be spent over the next 10 years for the fire suppression and vegetation treatments in the planning area under Alternative A. Also stated in the assumptions is the distribution of variable versus fixed costs. Variable costs, and therefore areas of the economy that are boosted, include food, fuel, lodging, maintenance, vehicles, administrative costs, aviation, warehousing, and seeding. Variable costs consist of 50 percent of the total cost for treatment and suppression. Assuming approximately 70 percent of variable costs are spent in the local and regional economy, approximately $37 million would be funneled into the local economy (BLM 2003).

Alternative A has the potential to increase fire size and cost by leaving the land and resources at greater risk of damage from wildfire. Over the long-term, large fire events would continue to increase, similar to the trend seen over the past 30 years. Additionally, Alternative A would continue fire, fuels and related direction that restrict the application of wildland fire use in vegetation types that should experience more wildfire/disturbance to improve land health. Alternative A would also promote the expansion of invasive species that would further alter fire regimes in areas where less wildfire is desired.

4.15.4 ALTERNATIVE B

Impacts to the current economic setting of the planning area under Alternative B would include a reduction of 122,783 in grazing AUMs cumulatively over 10 years. Associated fees that would be lost in this action would be $168,213. If permittees do not have sufficient private land for their livestock while public lands are rested for the two years following the vegetation treatment, they may need to lease additional private rangeland for their livestock. If permittees do not have sufficient private land of their own, additional feed may need to be purchased for those livestock temporarily removed from the public lands. Cost implications of this impact are discussed in Section 4.9.

Fire suppression and vegetation treatment operations under this alternative would be an increase in cost for the fire suppression and vegetation treatment program to approximately $114 million over 10 years.

Indirect impacts would be manifested in the multiplier effect into regional economics. Based on the costs of fire/fuels management ($114 million) discussed in the assumptions, 50 percent of which is for variable costs and assuming approximately 70 percent of variable costs are spent in the local and regional economy, approximately $40 million would be funneled into the local economy, an increase of approximately $3 million from Alternative A (BLM 2003).

4.15.5 ALTERNATIVE C

Alternative C would result in a reduction in grazing of approximately 320,467 AUMs. This would result in a reduction of $437,040 in revenue from grazing. If permittees do not have sufficient private land for their livestock while public lands are rested for the two years following the vegetation treatment, they may need to lease additional private rangeland for their livestock. If permittees do not have sufficient private land of their own, additional feed may need to be purchased for those livestock temporarily removed from the public lands. Cost implications of this impact are discussed in the Livestock Grazing Management of this EIS.

Fire suppression and vegetation treatment costs would increase from Alternative A to a total of $199 million in fire suppression and vegetation treatment cost.

Indirect impacts would be manifested in the multiplier effect into regional economics. Based on the costs of fire/fuels management ($199 million) discussed in the assumptions, 50 percent of which is for variable costs, and assuming approximately 70 percent of variable costs are spent in the local and regional economy, approximately $70 million would be funneled into the local economy, an increase of approximately $33 million from Alternative A (BLM 2003).

4.15.6 ALTERNATIVE D

Impacts to the regional economic setting under Alternative D would result in an approximate decrease of 289,268 AUMs, translating to approximately $396,297 in grazing fees lost over 10 years. If permittees do not have sufficient private land for their livestock while public lands are rested for the two years following the vegetation treatment, they may need to lease additional private rangeland for their livestock. If permittees do not have sufficient private land of their own, additional feed may need to be purchased for those livestock temporarily removed from the public lands. Cost implications of this impact are discussed in the Livestock Grazing Management of this EIS. Alternative D would have the greatest impact on grazing income.

Fire suppression and vegetation treatment operation costs would increase from Alternative A to a total of $184 million.

Indirect impacts would be manifested in the multiplier effect into regional economics. Based on the costs of fire/fuels management ($184 million) discussed in the assumptions, 50 percent of which is for variable costs, and assuming approximately 70 percent of variable costs are spent in the local and regional economy, approximately $64 million would be funneled into the local economy, an approximate increase of $27 million from Alternative A (BLM 2003).

4.15.7 ALTERNATIVE E

Impacts to the regional economic setting under Alternative E would result in an approximate decrease of 292,242 AUMs, translating to approximately $400,371 in grazing fees lost over 10 years. If permittees do not have sufficient private land for their livestock while public lands are rested for the two years following the vegetation treatment, they may need to lease additional private rangeland for their livestock. If permittees do not have sufficient private land of their own, additional feed may need to be purchased for those livestock temporarily removed from the public lands. Cost implications of this impact are discussed in the Livestock Grazing Management of this EIS.

Fire suppression and vegetation treatment operation costs would increase from Alternative A to a total of $185 million. Indirect impacts would be manifested in the multiplier effect into regional economics. Based on the costs of fire/fuels management ($185 million) discussed in the assumptions, 50 percent of which is for variable costs, and assuming approximately 70 percent of variable costs are spent in the local and regional economy, approximately $65 million would be funneled into the local economy, an approximate increase of $28 million from Alternative A (BLM 2003).

In the Action Alternatives, as vegetation treatments and associated costs increase, suppression costs decrease.

4.15.8 MITIGATION AND MONITORING

The potential socioeconomic impacts of the proposed project can be partially mitigated by maximizing the use of local contracting for vegetation and fire management activities. This would infuse additional funds into the local economy and offset somewhat the impacts that may be incurred through the temporary loss of grazing resources. Additionally, it should be noted that the majority of unavoidable impacts are short-term, and would likely be offset by the increased long-term health of the planning area ecosystem and the associated long-term increase in the quantity of quality of its renewable resources.

4.15.9 UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts include the temporary decreases in grazing income and retail sales associated with increased treatments, and the decrease in retail and services income resulting from decreased fire fighting expenditures.

4.15.10 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

Irretrievable impacts to socioeconomics include the short-term loss of grazing income and retail sales described above. However, this short-term revenue loss would be offset by long-term improvements in rangeland quality, as well as decreased risk to recreational setting and visual resources. Improvements in these resources would likely result in increased long-term retail sales based on continued increased tourism and recreational visitation to the planning area. Accordingly, the loss of these revenues would not be irreversible.

4.15.11 CUMULATIVE EFFECTS

Cumulative impacts to socioeconomics are considered relative to the long-term effects of the action alternatives in relation to other similar plans. These similar plans include the Interior Columbia Basin Ecosystem Management Project; the INL management plan; the Sawtooth, Caribou, and Targhee National Forests management plans; and the Idaho Statewide Implementation Strategy for the National Fire Plan. Overall, most of the goals of these plans are to reduce the intensity and duration of fires in the planning area.

Additionally, the NPS and the BLM have prepared a joint monument management plan for Craters of the Moon National Monument and Preserve, which is located entirely within the administrative boundary of the FMDA planning area. This management plan includes fire management decisions for the Monument and Preserve that, when considered in conjunction with the action alternatives, would result in cumulatively positive long-term impacts on vegetation resources. This would result in generally positive impact on recreational experience, potentially resulting in long-term benefits to socioeconomics from increased visitation to the area.

In the short term, additional fire management programs proposed in the above plans could cumulatively affect the cost of fire operations, reducing the cost of wildland fire suppression in addition to each of the alternatives. Short-term indirect cumulative impacts could include a further reduction of dollars input to the regional economy based on the services to reduced wildland fire suppression. In contrast, increased levels of proactive treatments using local contractors would benefit the economy.

Because the long-term impact of reducing the intensity and duration of fires would reduce risk to personal property and tourism lands (and hence the tourist economy), further reduction of wildland fire associated with the each of the past, present, and reasonably foreseeable future actions would reduce risks even further.

Cumulative impacts may vary in intensity depending on each alternative. In general, the long-term cumulative effects on socioeconomics for each alternative would be related to the amount of local contracting and increased acreages moving from FRCC 3 to FRCC 1. Of the five alternatives, Alternative A changes the FRCC of the fewest number of acres. Thus, Alternative A would have the least positive cumulative impact in conjunction with the other plans and management strategies in the foreseeable future. Alternative B would result in an increased number of acres with a changed FRCC relative to Alternative A. Alternatives C, D, and E would provide substantially greater improvements to the cumulative FRCC in the area than either Alternative A or B.

4.16 NON-FIRE, FUELS, AND VEGETATION MANAGEMENT RELATED CUMULATIVE EFFECTS

Current conditions of public lands in the planning area are the (cumulative) culmination of myriad past effects that have influenced the character and composition of today's forests and rangelands, as well as their social, economic, and political environments. Important past influences include pre-settlement and settlement histories across southern and eastern Idaho, as

well as the influences of agricultural development and multiple uses such as grazing, timber, mining, and recreation. Annual fluctuations in climate and wildfires have also contributed to the condition of today's public lands.

This section describes the cumulative impacts of past, present, and reasonably-foreseeable actions within the planning area that are outside the scope of fire management. These include trends in wildfire, livestock grazing, population growth, OHV use, recreation and tourism, and timber harvest. The analysis also considers the summary effects of the Proposed Plan Amendment in relation to these other actions. This analysis is at the broad, programmatic level for the 23- county planning area. Following the plan amendment, project level analyses would be performed at the field office level for site specific projects.

4.16.1 WILDFIRE

Prior to modern fire suppression, wildfire was an integral part of the natural ecosystems of the planning area, as demonstrated by historical ecological evidence. To withstand this disturbance, plant species and vegetation cover types developed various responses that enabled them to resist, tolerate, or take advantage of fire.

At present, many of the cover types within the planning area are subjected to wildland fires that are not within the historical range of variability. Large and/or uncharacteristic fires in these cover types can threaten people and property as well as the resiliency, integrity, and long-term sustainability of ecosystem components and processes. Fires are occurring more frequently and are burning more severely in some cover types. For example, the invasion by Invasive Annual Grasses such as cheatgrass and medusahead rye (*Taeniatherum caputmedusae*) into the sagebrush steppe has substantially increased fine fuel continuity in this cover type, making it more susceptible to large, frequent, and uncharacteristic fires. In other vegetation cover types, fires are occurring less frequently than they did historically, which has caused undesirable changes in species composition, structure, and an unnatural accumulation of fuels. For example, juniper species are encroaching into sagebrush steppe, and Dry Conifer cover types are slowly replacing Aspen and some Mountain Shrub cover types.

The 35-year wildfire history for the planning area's public lands depicts wide variability among years (Figure 4-27). The 35-year mean for these data is about 72,000 acres per year, with a range between about 1,000 acres (1993, 2004) and about 445,000 acres in 1996. Over this 35-year period, there have been 6 years with large fire seasons with burned acreages in excess of 200,000 acres. These years occurred in 1971, 1981, 1992, 1996, 1999, and 2000 (i.e, years with burned acreages greater than two standard deviations from the mean). Since 1992, it appears that large fire years have been occuring more frequently. This accelerated rate is apparently due to changes in vegetation cover types coupled with changes in fire regimes, especially in sagebrush steppe habitat that has been invaded and is now dominated by cheatgrass.

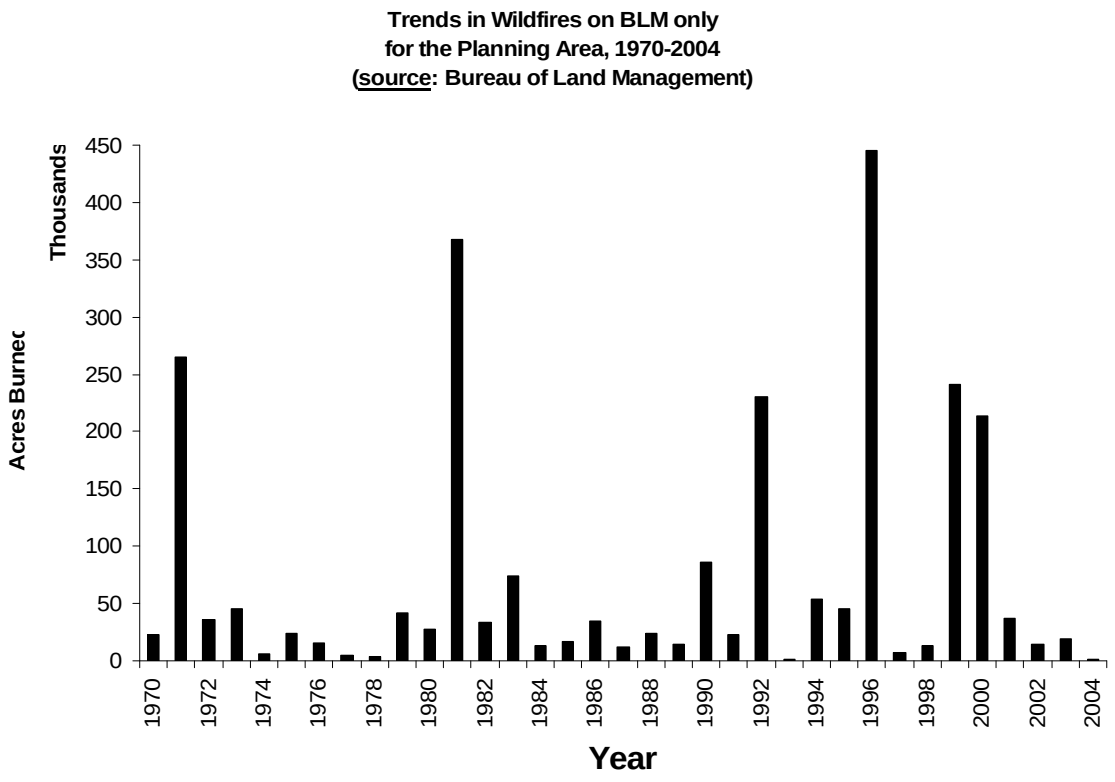

Figure 4-27. Trends in wildfire acres burned on BLM-administered public in the county planning area between 1970 and 2004.

Cheatgrass is a weedy Invasive Annual Grass from Europe that expanded into the sagebrush biome of North America in the late 1800s (Sparks et al. 1990); it reached its current distribution by about 1930 (Mack 1981). During this same period, cheatgrass spread across southern Idaho where it followed attempts at dryland farming, abandoned farms, summer-fallow lands, and dryland alfalfa fields that were heavily grazed after the hay crop was removed (Stewart and Hull 1949). Cheatgrass has continued its expansion since this time.

Cheatgrass is adapted to a wide variety of soil and moisture conditions. Cheatgrass exhibits a broad adaptability that enables it to produce seeds in most years, regardless of climate. Because cheatgrass is an annual plant, it is critical each year that its plants produce seeds to over-winter and produce plants the following year; although, viable seeds can survive in the soil for up to five years (Young et al. 1969). In good years it would produce multiple crops, large plants, and copious amounts of seeds, while in very dry years, it would produce small plants that are able to produce only a few viable seeds. Its value as forage similarly fluctuates with climate year to year. Furthermore, cheatgrass is a winter annual that may germinate in the fall and is capable of over-wintering; this can give it a big advantage over native perennial plants the following spring. By springtime, cheatgrass plants may already have roots and shoots while native species are only beginning to break dormancy and resume growth, giving cheatgrass a competitive advantage over the native species. Once the native sagebrush steppe becomes invaded and then dominated by cheatgrass, normal successional processes no longer function because cheatgrass maintains its

dominance by out-competing native species for resources as well as facilitating repeat wildfires that preclude the normal reestablishment of native species. Once cheatgrass becomes dominant, natural recovery back to the original sagebrush steppe community would not occur, even in the absence of grazing (Anderson and Inouye 2001).

In the planning area today, cheatgrass communities represent novel but stable communities that persist through time and are not only stable but favored by wildfires (Laycock 1991). Fires help to maintain this dysfunctional steady state ecology by reducing native plant seed sources while cheatgrass competes aggressively with native seedlings. This is a novel, uncharacteristic ecological state for the Snake River Plain that would persist unless active restoration is implemented.

Alternative A would do the least, and Alternative B would do little more in restoring sagebrush steppe communities that are now dominated by cheatgrass. Alternatives C, D and E, on the other hand, would provide the most proactive treatments directed at returning cheatgrass areas to sagebrush steppe communities (FRCC 1). This would lessen the risk of losing more habitat and key ecosystem components to large fires, whether of human or natural origin. These latter three alternatives would implement more proactive hazardous fuels reduction and restoration projects and move the vegetation cover types further toward DFC and FRCC 1. Thus, fire starts would result in smaller, easier-to-control fires with less overall impacts to natural and cultural resources.

4.16.2 GRAZING

Annually billed grazing use in the planning area has risen from about 180,000 AUMs in 1990 to about 395,000 AUMs in 2004 (Figure 4-28). Current use, however, is well below the permitted use (~645,000 AUMs) and the projected maximum use (~770,000 AUMs) as described in the 12 existing land use plans (LUPs) for the planning area. Assuming continuation of the current trend, approximately 650,000 AUMs could be billed in 2035, which is close to the permitted use. Based on past impact analyses done for the present LUPs, this level of permitted use would not have a significant adverse impact on vegetation resources in the planning area.

At present, the impacts of livestock grazing in the planning area are a relatively small disturbance factor when considered with the overall negative impacts of the combined wildfire/cheatgrass cycle that is impacting the low and Mid-elevation Shrub vegetation cover types.

The ecological interactions between cheatgrass and wildfires are the principal disturbance factors impacting the overall vegetation health of the planning area and this is one of the principal reasons for this analysis and EIS. Cheatgrass has invaded at least 26 percent of the BLM-administered lands in the planning area. Where cheatgrass is dominant, it serves as wildfire ignition sources and facilitates the rapid spread of fire into adjacent vegetation types. At present, the cheatgrass-wildfire cycle has caused more landscape level impacts than practically any other human-caused disturbance in the planning area. However, the invasion of cheatgrass is, to some extent, an indirect result of these human-caused disturbances. These past disturbances include agricultural development, livestock grazing, drought, and wildfires. In many locations, these influences have combined to change the natural sagebrush steppe community into cheatgrass

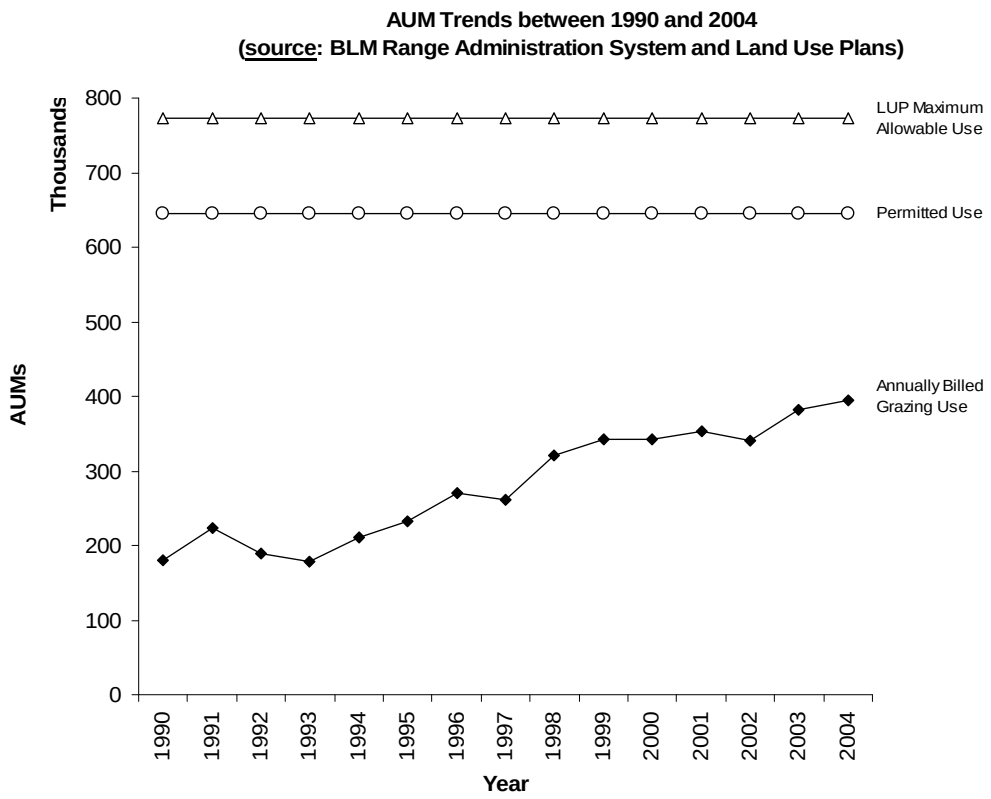

Figure 4-28. Trends in AUMs on BLM-administered public lands for the 23 county planning area between 1990 and 2004.

communities that are uncharacteristic of the sagebrush steppe and are well outside the range of its historic composition, diversity, and fire regimes.

On cheatgrass-dominated sites, it would take active restoration to recover the shrub, grass, forb diversity, and improved habitat qualities of the original sagebrush steppe habitat. Where cheatgrass is a minor component of the plant community, proper livestock grazing can maintain this condition. Once a cheatgrass threshold has been crossed and this non-native annual begins to dominate the plant community, however, adjusting livestock numbers would have little effect on restoring the original plant community. At present and at the landscape level where cheatgrass and wildfires are a problem, their combined effects on land health are judged by BLM as more significant than the current impacts of livestock grazing (Limbach and Pellant 2005).

Although grazing impacts are not as large as impacts of wildfire and cheatgrass, overgrazing would have adverse impacts on vegetation resources and would contribute cumulatively to difficulties in moving vegetation cover types to DFC and FRCC 1, particularly in cheatgrass-dominated areas of the Low-elevation and Mid-elevation Shrub and Perennial Grass cover types. Alternatives C, D, and E, however, would contribute positively to these cumulative impacts by moving these vegetation cover types toward DFC and FRCC 1. On the other hand, if grazing use changes, it may or may not contribute to moving towards DFC and FRCC 1. The monitoring program, which is part of the Proposed Plan Amendment, would be used to assess the cumulative

impacts of fire management, fuels reduction/restoration actions, grazing, and other uses on vegetation condition/rangeland health to ensure that rehabilitation and restoration projects are effective.

4.16.3 POPULATION GROWTH

From 1920 to 2000, the general population in the 23-county planning area rose from about 214,000 individuals to about 496,000 individuals (Figure 4-29). This more than doubling of the human population has widespread effects on resources and resource uses in the planning area. If this trend continues, population in the planning area could increase to around 650,000 individuals by the year 2030.

Since at least 1920, population growth has correlated with increased development of communities, roads, utilities, and agriculture. Much of this development has been at the expense of native sagebrush steppe habitat in the planning area. Agricultural development has especially impacted sagebrush steppe habitats in the Low-elevation and Mid-elevation Shrub vegetation cover types. Over the next 30 years, continued population growth could result in increased loss of habitats or their fragmentation, especially in the WUI. Expanding the WUI would also increase the risks to private land from wildfire. This increased risk would be offset somewhat by fire management activities outlined in the action alternatives, particularly Alternatives C and E, which have specific treatment acreages to address the WUI.

On the other hand, population growth has also contributed positively to the local economy through increased revenues to local municipalities and businesses. This growth correlates with building community infrastructure and increased commerce.

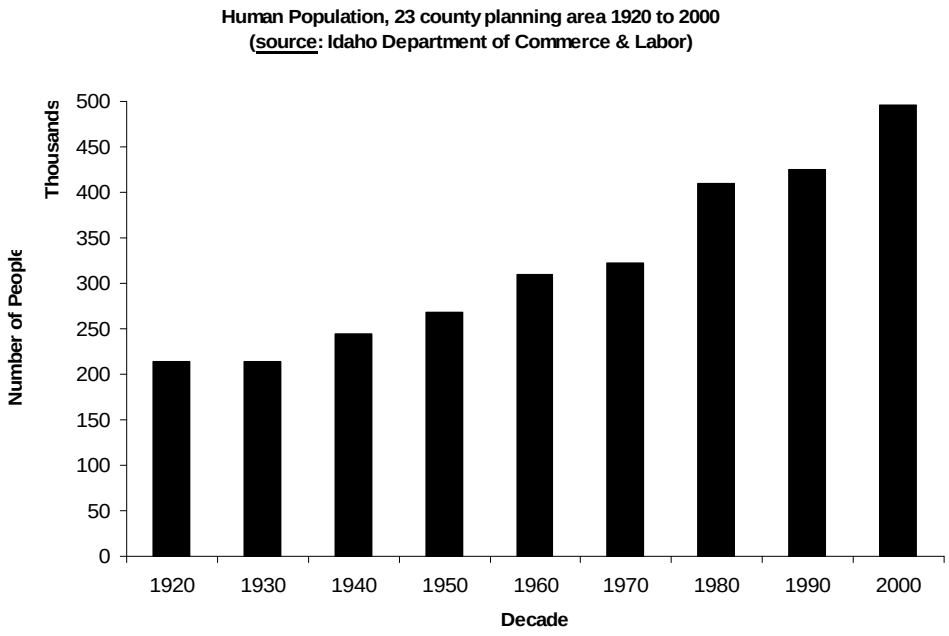

Figure 4-29. Population trends for the 23 county planning area between 1920 and 2000.

4.16.4 RECREATION AND TOURISM

Recreational use in the planning area is expected to increase in the near future as the population and tourism increases.

4.16.4.1 Recreation: Off-Highway Vehicles

OHV use in the planning area has sharply increased over the last 16 years (Figure 4-30); OHVs include ATVs and motorbikes. Since 1988, off-road ATV and motorbike registrations have increased from about 1,200 to 35,000 vehicles in 2003. It can be assumed that OHV use has likewise increased. Increased OHV use contributes to increased disturbance of habitat and wildlife, disturbance to vegetation and soils, the disruption or loss of habitat, and increased potential for erosion and sedimentation. Additionally, OHV noise can impact the enjoyment of non-motorized recreationists. However, it should be noted that the cumulative increase in disturbance is unlikely to be proportional to the increase in OHV registrations because the majority of OHV likely use existing trails.

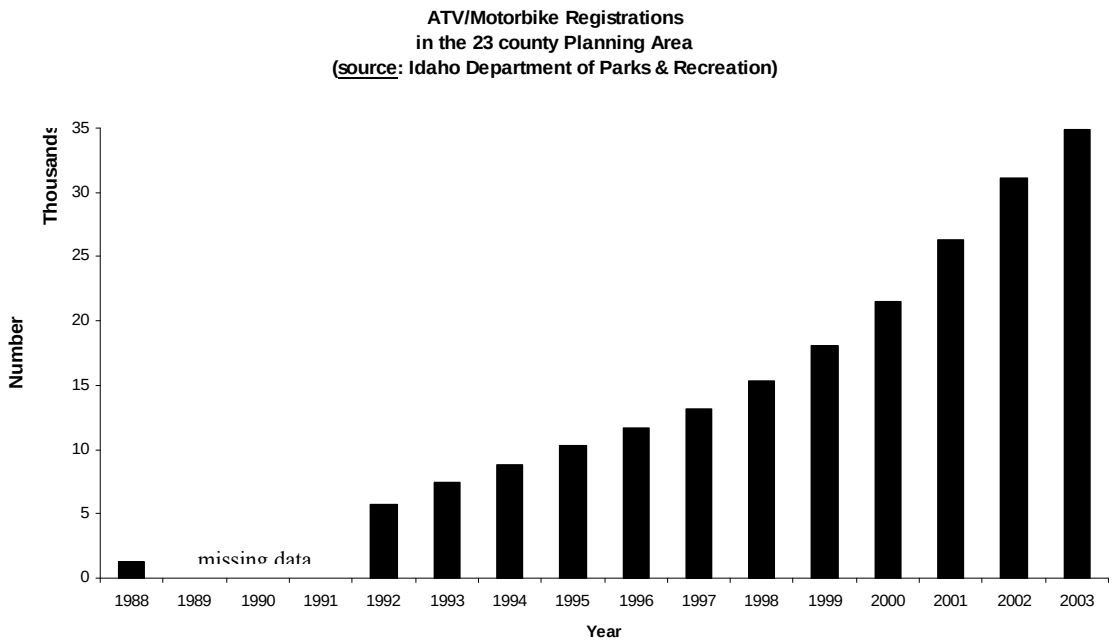

Figure 4-30. Trends in OHV registrations for the 23 county planning area between 1988 and 2003.

4.16.4.2 Tourism

Lodging revenues in the 23-county planning area have risen from about $70 million in 1993 to approximately $111 million in 2004 (Figure 4-31). Although there is some small annual variation, the general trend is a steady increase in lodging revenues. This indicates that tourism and travel through the planning area would likely to continue to rise over the next 30 years. It should be understood, however, that lodging revenues do not necessarily track increases in

recreation on public lands as well as OHV registrations, for example. These data are presented here to demonstrate the correlation with population and expected increases in tourism and revenue. Based on past growth, it is possible that tourism could contribute an estimated $100 million to $195 million annually in lodging revenues to the local economy of the planning area. This growth in lodging revenues would contribute to an estimated $4.7 million in annual revenues that would be generated by Alternative A, $4.0 million by Alternative B, $7.0 million by Alternative C, $6.4 million by Alternative D, and $6.5 million by Alternative E (see Section 4.15 for details on analysis methodology).

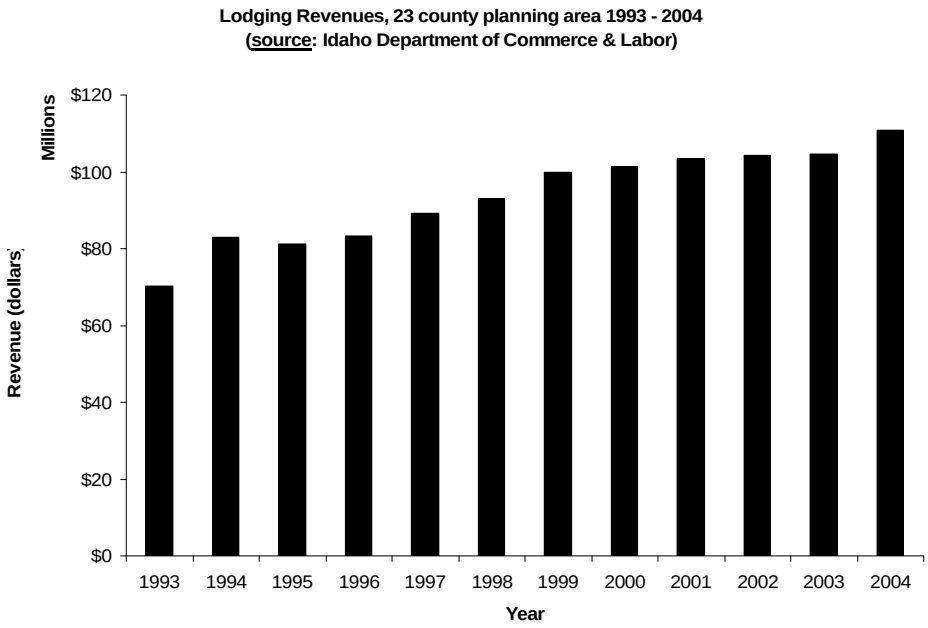

Figure 4-31. Lodging revenues for the 23 county planning area between 1993 and 2004.

Increases in population and tourism also contribute to increases in other activities like camping, hiking, hunting, fishing, sight-seeing, and other recreational uses. These recreational activities all have the potential to impact to some extent vegetation cover types, disturb wildlife, and potentially increase erosion and stream sedimentation.

Increases in population and recreational use would likely contribute to an increased risk of human-caused fire ignitions. Over the next 30 years, wildfires could increase up to 50 percent, assuming that the likelihood of human-caused fire ignitions increases proportionally with population growth. These additional wildfires would increase the risk of habitat loss and increase the need for fire suppression activities. This potential increase in fire risk would be offset to some extent by the fire management actions proposed in the alternatives. Alternative A and B contribute the least annual short-term disturbance to habitat and would be least effective in off-setting the increased risk of human-caused wildfires. Alternatives C, D, and E, on the other hand, would contribute the most short-term disturbance but would go much further in returning the planning area to FRCC 1, which would lessen the risk of large fires, of human or natural origin, that result in the loss of key ecosystem components. These latter three alternatives would

implement more proactive hazardous fuels reduction and restoration projects and move the vegetation cover types further toward DFC and FRCC 1. Thus, fire starts would result in smaller, easier-to-control fires with less overall impacts to natural and cultural resources.

In summary, the potential for recreational disturbance has cumulatively increased approximately 100 percent over the last 70 years and would likely increase an additional 60 percent over the next 30 years. This would contribute cumulatively to the short-term disturbance of vegetation and wildlife habitat resulting from each of the action alternatives. Alternative A would contribute the least short-term vegetation management-related disturbance, followed by Alternative B. Alternatives C, D, and E would result in similar habitat disturbances (approximately 1,500,000 to 1,700,000 footprint acres). Alternatives C, D, and E, however, would also result in increased ecosystem health and smaller, less destructive fires over the next 30 years. Healthier habits would be more resilient to increased recreational impacts.

4.16.5 TIMBER HARVEST

From 1987 to 2003, timber harvest (sawlogs) in the planning area exhibited large annual fluctuations (Figure 4-32). From 1987 to 1990, timber harvest varied from approximately 4 million to approximately 10 million board feet annually. In 1991, timber harvest increased to about 24 million board feet and remained over 12 million board feet until 1995. Since 1996, timber harvest has remained below 7 million board feet. In 2003, timber harvest was about 1 million board feet. Based on the last 7 years, timber harvest in the next 10 years to 30 years would likely hover around the 2 million to 5 million board feet annually. Based on USFS statistics in the general vicinity of the planning area, the acreage harvested per board feet is about 8.4 acres for every 1,000 board feet of timber. This indicates that the potential annual disturbance of woody vegetation cover types for timber harvest in the planning area would continue to range from approximately 16,800 to 42,000 acres annually. The majority of this future harvest, however, would not be made on BLM-administered lands.

Timber harvest in the planning area would affect Dry Conifer, Wet/Cold Conifer, and some Aspen/Conifer vegetation types. This would have direct impacts on the wildlife that occupy these habitats. Subsequent to removing large high-value trees, timber harvest also promotes the spread of shade-intolerant coniferous species. However, in many cases timber harvest can also improve forage habitat by creating open spaces with edge habitat that has greater forb production than unbroken forested habitat. Projected timber harvest could add cumulatively to the short-term disturbance of wooded vegetation types when considered jointly with the action alternatives. Alternative B would contribute most to the cumulative short-term disturbance to wooded vegetation types, with total treatments footprint acreage ranging from 18 percent to 25 percent of the total available habitat over a 10-year period. Alternatives A and D have virtually no treatments in these vegetation types. Alternatives C and E have a total treatment acreage of less than 10 percent of the total available habitat over a 10-year period. Alternatives C and E would come closest to meeting project goals of DFC and FRCC in this vegetation type. Accordingly, they would contribute the second highest to short-term disturbance, but would offset that disturbance and the cumulative timber harvest disturbance with long-term habitat and FRCC improvements.

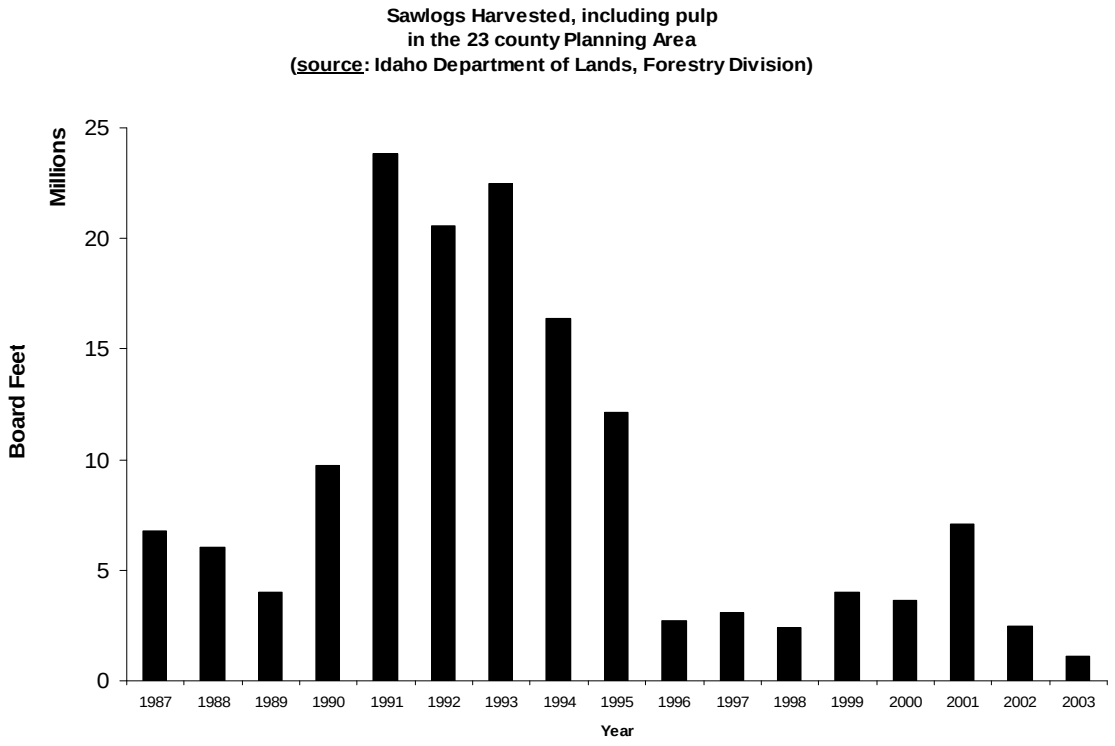

Figure 4-32. Trend of annual sawlog harvests for the 23 county planning area between 1987 and 2003. These values are the combined harvests irrespective of source (i.e., private, state, federal, etc.).

CHAPTER FIVE - COORDINATION, CONSULTATION AND DISTRIBUTION

5.1 INTRODUCTION

This Proposed Plan Amendment/Final EIS has been prepared with input from and coordination with interested tribal governments, agencies, organizations, and individuals. Public involvement is a vital component of NEPA for vesting the public in the decision-making process and allowing for full environmental disclosure. Guidance for implementing public involvement is codified in 40 CFR 1506.6, thereby ensuring that federal agencies make a diligent effort to involve the public in preparing NEPA documents.

Under NEPA and the CEQ regulations, federal agencies are required to consider the environmental impacts of their proposed actions prior to taking action. Actions that are subject to NEPA include those involving federal funding, those requiring federal permits, those involving federal facilities and equipment, and those that affect federal employees. The actions in this document proposed by the BLM are subject to the requirements of NEPA. Public involvement for the draft plan amendment/EIS was conducted in two phases:

1. Public scoping to obtain public input on issues prior to NEPA analysis.
2. Public review and comment on the Draft EIS, which included analyzing environmental impacts and identifying the Proposed Plan Amendment.

In summary, during the scoping period between April and May 2002, 279 unique comments were submitted to the BLM. Comments submitted consisted of specific action items, general directions to take, complaints, monitoring actions, positions on issues, concerns around issues, questions, and other ideas and comments.

5.2 PUBLIC SCOPING ACTIVITIES

The objectives of public scoping prior to NEPA analysis are to:

- invite agencies and the public to participate;
- identify a preliminary list of environmental and socioeconomic issues to address in the NEPA document; and
- identify and eliminate issues determined to be insignificant.

5.2.1 NOTICE OF INTENT (NOI)

The scoping process for the FMDA began with the publication of an NOI in the *Federal Register* on February 21, 2002. This notified the public of the BLM's intent to develop a plan amendment for those BLM-administered lands within the planning area (Figure 1-1). The NOI also solicited public comments.

5.2.2 PROJECT WEBSITE

In May 2002, a website was established to provide background information about the project and copies of public information documents, such as the NOI and a scoping briefing package document, which was mailed to approximately 1,400 recipients. An e-mail link was also provided for individuals to submit comments to the Project Manager regarding the project. The website has been updated and is available at http://www.blm.gov/id/st/en/prog/planning.1.html.

5.2.3 PUBLIC SCOPING MEETINGS

The BLM conducted six public scoping meetings using an open house format. These meetings were held in Idaho Falls on April 22, 2002, in Pocatello on April 23, in Burley on April 24, in Shoshone on Apri1 25, in Fort Hall on Apri1 30, and in Boise on May 13. The BLM provided the following local media with press releases announcing the time, location and purpose of these meetings.

NEWSPAPERS

South Idaho Press – Burley
Times News – Twin Falls
Arco Advertiser – Arco
Buhl Herald – Buhl, Castleford, Filer
Gooding County Leader – Gooding
North Side News – Jerome
Wood River Journal – Hailey
Idaho Mountain Express – Ketchum
Minidoka County News – Rupert
Lincoln County Journal – Shoshone, Richfield, Dietrich
Morning News – Blackfoot
Post Register – Idaho Falls
Idaho State Journal – Pocatello
Power County Press – American Falls
Teton Valley News – Driggs
Sho-Ban News – Fort Hall
Island Park News – Island Park
Idaho Enterprise – Malad
News-Examiner – Montpelier
Jefferson Star – Rigby
Rexburg Standard Journal – Rexburg
Fremont County Herald-Chronicle – St. Anthony
Caribou County Sun – Soda Springs

TELEVISION

KTVB Channel 7 – Boise
KPVI Channel 6 – Pocatello
KSAW Channel 52 – Boise
KIFI Channel 8 – Idaho Falls
KTFT Channel 38 – Twin Falls
KIDK Channel 3 – Idaho Falls
KMVT Channel 11 – Twin Falls

RADIO

KSKI 103.7 FM
KECH 95.3 FM – Ketchum
KART 1400 AM
KMVX 102.9 FM – Jerome
KLIX 1310 AM
KLIX 96.5 FM
KEZJ 95.7 FM – Twin Falls
KBAR 1230 AM
KZDX 99.9 FM
KFTA 970 AM
KKMV 92.5 FM – Rupert
KTFI 1270 AM – Twin Falls
KBYI-FM-100.5 – Rexburg
KID-AM-590 – Idaho Falls
KWIK-AM-1240 – Pocatello

A total of 29 comment letters were received regarding the Proposed Action and associated draft plan amendment/EIS. The contents of these letters may be found in the administrative record. The open houses provided an opportunity for the public to receive information, ask questions, and provide input. The open house format was chosen over the more formal meeting format to encourage broader participation, to allow attendees to digest information at their own pace, and to enable people to ask questions of BLM representatives in an informal, one-on-one setting. In addition to BLM representatives, a total of 58 people attended the open houses.

5.2.4 PUBLIC SCOPING RESULTS

The scoping period closed on May 17, 2002. Comment letters received from different entities and affiliations contained multiple comments on different topics. The public submitted comments in the form of letters, comment forms provided during the public scoping meetings, and via electronic mail.

All submissions were read and evaluated to determine their content. The majority of written submissions (38 percent) were from federal/state agencies, followed by submissions from individuals (34 percent) and interest groups (28 percent). The majority of the comments came from communities located within the planning area.

The majority of comments addressed concerns with or provided suggestions related to fuels management/fire ecology, vegetation, grazing, fish and wildlife, and special status species.

A final scoping report was prepared and preliminary planning criteria finalized based upon the public comments received. The final scoping report and final planning criteria were approved by the planning area manager on September 9, 2002. Information received through scoping comments was evaluated and incorporated into this draft plan amendment/EIS as appropriate.

5.2.5 CONSULTATION

5.2.5.1 Section 7 Consultation

Formal Section 7 consultation with the USFWS regarding this plan amendment/EIS was required. A biological assessment was prepared and submitted to the USFWS. A concurrence letter was received from the USFWS on June 20, 2007 and can be found in Appendix O, Final Biological Assessment and U.S. Fish and Wildlife Service Concurrence Letter.

5.2.5.2 Public, Tribal, and Governmental Consultations

The following organizations, agencies, stakeholders, and individuals were contacted or consulted during the scoping process and preparation of the draft plan amendment/EIS.

<u>Indian Tribal Governments</u>

Shoshone-Bannock Tribal Government

Shoshone-Paiute Tribal Government

Federal Agencies

U.S. Department of Agriculture, U.S. Forest Service

U.S. Department of Energy (INL)

U.S. Environmental Protection Agency

U.S. Department of the Interior, U.S. Fish and Wildlife Service

U.S. Department of the Interior, U.S. National Park Service

Congressional Offices (Idaho Falls, Pocatello, Twin Falls)

Office of Congressmen Mike Simpson

Office of Senator Mike Crapo

Office of Senator Larry Craig

Resource Advisory Council

Upper Snake River Planning Area Resource Advisory Council

State Agencies

Idaho Department of Environmental Quality

Idaho Department of Fish and Game

Idaho Department of Lands

County Commissioners (23 counties)

5.3 PUBLIC REVIEW AND COMMENT ON THE DRAFT PLAN AMENDMENT/EIS

Following the public scoping comment period (February-May 2002), the next official public comment period began with the publication of the draft plan amendment/EIS in **November 2004.** The availability of the draft plan amendment/EIS was announced by the BLM by publishing notices of availability in local newspapers, the project website, and the *Federal Register*, which initiated a 90-day public comment period. Availability notices were published in the same newspapers as identified for announcing the first pubic scoping open house meetings. The draft plan amendment/EIS was also available for review and/or downloading from the project website. This document was widely distributed to elected officials, governmental regulatory agencies, and the public as identified below. Additional copies were available by request.

Recipients were provided with either a copy of the draft plan amendment/EIS or an Executive Summary (in bound paper format or via CD ROM) or were notified of its availability for downloading from the website. All announcements, letters, and notices noted the closing date for the 90-day public comment period as **February 3, 2005**.

During the 90-day public comment period, public meetings were held in Idaho Falls, Pocatello, Twin Falls, and Boise, Idaho. At the conclusion of the 90-day public comment period, a Response to Comments report responding to all comments was written (See Appendix P). Based on this report, the draft plan amendment/EIS was revised and this Proposed Plan Amendment/Final EIS has been published. The availability of this proposed document has been

announced in the *Federal Register*, and a 30-day public protest period will follow. Anyone considering protesting the proposed plan may meet with the BLM to discuss his or her protest concerns.

At the conclusion of the public protest period, the BLM Idaho State Director will evaluate and resolve any protests. After protests are resolved, the State Director will publish the approved plan amendment and Record of Decision with its availability being announced in the *Federal Register*.

The following list contains the names of the agencies, organizations, and individuals who were provided copies of the Final EIS.

Draft EIS/Plan Amendment Mailing List

7 UD RANCHES INC
A & R EXCAVATION CORPORATION C/O ANN WOOD
ACE FIRE, C/O STAN LLOYD
ADAMS, KELLY BYRON
ADKINS, BETTY
AIKELE, don
ALLIANCE FOR THE WILD ROCKIES
ALLRED, DWINELL
ANDERSON, ROWAN A.
ARCHER, J D
ARCO ADVERTISER
ARGORA RANCH INC, C/O LYNN H HOGGAN
B BAR B INC, C/O KATIE BRECKENRIDGE
BABCOCK, REUBEN H OR MARJORIE
BAIR, CALVIN
BALL, BLAINE
BANNOCK COUNTY COMMISSIONERS
BARKER, ROSHOLT & SIMPSON LLP, ATTN TRAVIS THOMPSON ATTORNEY
BASHAW, BRETT & PATRICIA
BEAR LAKE COUNTY COMMISSIONERS
BEAR LAKE GRAZING CO, C/O ROWLEEN KEETCH
BEAR LAKE LAND & LIVESTOCK CO, C/O R WALLENTINE
BEDKE, KARL
BENNETT, RITA
BERNARD, TIMOTHY
BEZOLD, DAN N, C/O RULON MORTENSEN
BIG WOOD RIVER RANCH, C/O ROBERT MCCABE
BINGHAM COUNTY COMMISSIONERS
BINGHAM BROTHERS SHEEP CO, C/O GLADE BINGHAM
BLACK BUTTE LLC GERALD TEWS
BLAINE COUNTY COMMISSIONERS
BLOTTER & ASSOCIATES
BLUE RIBBON COALITION, ATTN BRIAN HAWTHORNE
BONNEVILLE COUNTY COMMISSIONERS
BOOZ ALLEN HAMILTON INC, ATTN JIM MAY
BORG, JOHN
BORNEMAN, DOROTHY
BOWMAN, LYNN E
BRACKETT, MARC
BRADLEY, BRUCE & DAWN ANN
BRASWELL, DENNIS
BRIGGS, LOYD
BROWNS LAND & CATTLE, C/O RANDOLPH H BROWN
BURLEY DIST GRAZING BD, ATTN EVEA JACKSON
BURTENSHAW, DON & BEVERLY
BUTTE COUNTY COMMISSIONERS
CALDWELL, ZANE
CAMAS COUNTY COMMISSIONERS
CARIBOU COUNTY COMMISSIONERS
CARIBOU COUNTY SUN
CARLSON LEONARD H ET AL
CASSIA COUNTY COMMISSIONERS
CENTENNIAL ENTERPRISES INC
CHAMPAGNE CREEK RANCH, C/O MONTE MCCONNELL
CLARK COUNTY COMMISSIONERS
CLAYVILLE, KARL
CLOUGH, COLIN & R GAIL
COLE, JOHN
COMMITTEE FOR IDAHOS HIGH DESERT, C/O KATIE FITE
CONANT VALLEY RANCH, C/O GUS OSTERCAMP
CONLIN WM BART INC , C/O WM BART CONLIN
COOK, HAROLD
COOMBS RANCH, C/O STEVE COOMBS
COURTNAY, JOHN K
COUSIN, LEONARD
CRANDALL FARMS INC, C/O CRAIG CRANDALL
CRANE, DENNIS
CROCKETT, DAVID W
CUB RIVER STOCKMENS ASSN, C/O LYLE W PORTER
D & D ENTERPRISES INC, C/O JIM DEMORDAUNT
DALLING GLEN W OR DAVID
DALLING, GLENN
DALLING, JERRY
DAVIS, NORMAN & BRIAN K
DAY MONTIE S BURNETT ELIZABETH
DEER SPRING RANCH, C/O JON JONSSON
DIAMOND R RANCH, C/O GARLAND R RASMUSSEN
DIETRICH GRAZING ASSN INC, C/O JIM WHITTAKER

DIETRICH, PERRY
DINGES, RICHARD A
DIXON, RAND O & MAE, C/O RAND O DIXON
DREDGE, ALICIA
DUNES CATTLE CO #1, C/O BLAINE RAMEY
DURBANO LAND AND CATTLE CO
DURFEE, BRUCE
EAGLE ROCK BACKCOUNTRY HORSEMEN, C/O RON PETERSON
EAST FORK CATTLE GRAZING ASSN, C/O MERRILL H PERMANN
EDEN, THOMAS L, C/O LYNN BURTENSHAW
EDWARDS, JENNY
EGBERT, BRAD R
ELEVATION 5000 CONSTRUCTION LLC
ELIASON, DON C
ELKINGTON BROTHERS
ELLIS, SHAWN D & CHARLOTTE
ELMORE COUNTY COMMISSIONERS
ENVIRONMENTAL PROTECTION AGENCY, ATTN EVA C CHUN
ESTEP FARMS, C/O ESTEP & SON
ETCHEVERRY SHEEP CO, C/O HENRY ETCHEVERRY
EVANS, DANIEL
EVANS, WILLIAM T
FARRAGUT STATE PARK, ATTN BRYAN ROWDER
FAULKNER LAND & LVST, C/O JOHN FAULKNER
FAULKNER, TOM
FEDERAL AVIATION ADMINISTRATION, NORTHWEST MOUNTAIN REGION
FEDERAL HIGHWAY ADMINISTRATION
FERGUSON FARMS, C/O KYM FERGUSON
FIR GROVE LTD PSHP, C/O SHA RRON PRESLEY
FITCH, LARRY & NANCY
FLICK, TOBY
FORSGREN JACK & SONS
FORSGREN, DANNY
FRANKLIN COUNTY COMMISSIONERS
FRANSEN, DOUGLAS M
FREDRICKSON J F CO, C/O J MICHAEL JACOBS
FREMONT COUNTY COMMISSIONERS
FREMONT COUNTY WEED CONTROL
GARNER RANCH, C/O KAY R GARNER
GARRISON, TOM
GEARY, V THOMAS
GNEITING, JAY K
GOODING COUNTY COMMISSIONERS
GRANT, JAMES
GREATER YELLOWSTONE COALITION, ATTN MARV HOYT
GREATER YELLOWSTONE COALITION, C/O JENIFER GAMETT
GROOM, STAN
GUERRY INC
GUILLEN, TONY R
GUNDERSON CONSTRUCTION, ATTN ORLIN GUNDERSON
GUNTER, ERNIE
HAGENBARTH LIVESTOCK, C/O JIM HAGENBARTH
HAGIUS, FRED
HALL, TERRY R
HAMILTON, ALLAN J
HANSON, EDWIN E
HARALSON FARMS, C/O BILL HARALSON
HARKER, KOELYN
HARRIS, ROBERT C
HARROP RANCH INC, C/O E S HARROP
HARROP, LARRY N
HARTWELL JOE & MILLIE FAM LTD PSHP, C/O MILLIE HARTWELL
HATCH, RALPH
HATCH, ROY F
HENRY CREEK RANCH, C/O K W BURTENSHAW
HIGLEY, TED V
HILLMAN, BLAINE D
HOLDEN WILLIAM S & IDA T TRUST, C/O WILLIAM T HOLDEN
HOLM, JIM
HUBBARD LAND AND LIVESTOCK, C/O BRUCE D HUBBARD
HUGGINS, CHARLES D
HULME, JOAN
HUSKINSON, ROBERT
HUSTON, DON
IDAHO ARNG NATURAL RESOURCES, ATTN MARJORIE MCHENRY
IDAHO CITIZENS GRAZING ASSN, C/O BRUCE DREDGE
IDAHO CONSERVATION LEAGUE, ATTN TIM FOSTER
IDAHO CONSERVATION LEAGUE, C/O JOHN ROBISON
IDAHO DEPT OF AGRICULTURE, ATTN KEVIN WRIGHT
IDAHO DEPT OF AGRICULTURE, ATTN PAT TAKASUGI DIR

IDAHO DEPT OF ENVIRONMENTAL QUAL TFRO, ATTN DR SONNY BUHIDAR
IDAHO DEPT OF ENVIRONMENTAL QUAL, ATTN C STEPHEN ALLRED
IDAHO DEPT OF ENVIRONMENTAL QUAL, ATTN DAVID HULL
IDAHO DEPT OF ENVIRONMENTAL QUAL, ATTN DIANE RILEY
IDAHO DEPT OF ENVIRONMENTAL QUAL, ATTN JIM JOHNSTON
IDAHO DEPT OF FISH & GAME, ATTN DON KEMNER
IDAHO DEPT OF FISH & GAME, ATTN JIM MENDE
IDAHO DEPT OF FISH & GAME, ATTN MARTHA WACKENHUT
IDAHO DEPT OF FISH & GAME, ATTN MIKE MCDONALD
IDAHO DEPT OF FISH & GAME, ATTN PAUL MAKELA
IDAHO DEPT OF FISH & GAME, ATTN RANDAL B SMITH
IDAHO DEPT OF FISH & GAME, C/O DAVE PARRISH
IDAHO DEPT OF FISH & GAME, C/O GREGG SERVHEEN
IDAHO DEPT OF LANDS, ATTN BRYCE TAYLOR
IDAHO DEPT OF LANDS, ATTN GEORGE BACON
IDAHO DEPT OF LANDS, ATTN ROBERT M BRAMMER
IDAHO DEPT OF LANDS, ATTN TIMOTHY C DUFFNER
IDAHO DEPT OF PARKS & RECREATION, ATTN BOB MEINEN
IDAHO DEPT OF PARKS & RECREATION, ATTN RICK JUST COORDINATOR
IDAHO DEPT OF TRANSPORTATION, ATTN DAN ROBERTSON
IDAHO DEPT OF TRANSPORTATION, ATTN DISTRICT 6 ENGINEER
IDAHO DEPT OF WATER RES EAST DIST OFF
IDAHO FARM BUREAU FEDERATION, ATTN RICK KELLER
IDAHO GOVERNOR OFFICE OF, ATTN NATURAL RES POLICY ADV TO THE GOV
IDAHO OUTFITTERS & GUIDES, ATTN GRANT SIMONDS
IDAHO RIVERS UNITED, ATTN KEVIN LEWIS
IDAHO STATE HISTORIC PRESERVATION OFF ID HIST SOC, ATTN DEPUTY
IDAHO STATE JOURNAL
IDAHO STATE LIBRARY
IDAHO UNIV OF, ATTN KENNETH SANDERS
IDAHO WILDLIFE FEDERATION, ATTN CHERIE BARTON
IDAHO WOOL GROWERS ASSN, ATTN STAN BOYD
INTERMOUNTAIN POWER SOURCE
IRWIN, G F
J R SIMPLOT, ATTN KIM GOWER
JEFFERSON COUNTY COMMISSIONERS
JENSEN, MARRINER R
JERNBERG, BEN & PEGGY
JEROME COUNTY COMMISSIONERS
JOHNSON, J WARD
JONES, WM D
JOUGLARD SHEEP CO
JUDGE, GARY
JUDY, RON
KENT, SIDNEY W
KING, MICHAEL A
KOCH, JOE A
KUNKEL, BRUCE
LAGOMARSINO, RICHARD
LAK LAND, C/O RICK ARMSTRONG
LANTING, JAMES W A, JOHN & ROBERT, C/O ROBERT LANTING
LARSEN, REED
LAVA LAKE LAND & LIVESTOCK LLC, ATTN TESS O SULLIVAN
LAVA LAKE LAND & LIVESTOCK LLC, C/O BRIAN & KATHLEEN BEAN
LAWSON, H GREGORY
LDS CHURCH AMMON-SELLARS CTL RNCH, C/O DEE CANNON
LEE LIVESTOCK, C/O LARRY LEE
LINCOLN COUNTY COMMISSIONERS
LITTLE CREEK RANCH, C/O DONALD E PICKETT
LOMBARD E ESTATE, C/O GENE LOMBARD
LOUGHMILLER INC, C/O WILLIAM LOUGHMILLER
LOVELAND LIVESTCK CO, C/O KARL C LOVELAND
LOZIER, PATRICK & VICKI
LUKER, MIKE
LUNDHOLM, C W & S W, C/O CARL W LUNDHOLM
MABEY J EMERSON & ADAM FAMILY TRUST, C/O PETER J MABEY
MADISON COUNTY COMMISSIONERS
MAIN CANYON STOCKMENS ASSN, C/O ED JENSEN
MANN, GREGORY & CYNTHIA
MARRIOTT, JAMES
MATHERS, DOUG
MATHIAS, JIM
MATSUURA, GLENN
MATTSON, ELDON H
MAXMILLION FARMS, C/O RANDY L SHRADER
MAYS LAND & LIVESTOCK INC, C/O JAMES MAYS
MAYS, RUSSELL
MAYS, WILMA I

MCCULLOUGH, THOMAS
MCNABB FARMS, C/O MIKE MCNABB
MEADOW HAVEN INC, C/O LYNN S BASTIAN
MEINERS, BILL
MEYERS KEITH & SONS, C/O KEITH MEYERS
MICKELSEN FARMS, C/O MARK MICKELSEN
MILLER FARM LTD, C/O LARRY MILLER
MILLER, VERL R & TIM E
MILLER, VERNON
MINIDOKA COUNTY COMMISSIONERS
MOLYNEUX, JOHN C E & WILLIAM, C/O JOHN MOLYNEUX
MOORE RANCHES, C/O TIMOTHY L MOORE
MT NELSON FARMS LTD PSHP, C/O ROBERT MOLYNEAUX
MUNNS, MERLIN
MURRAY, JOEL R
MYLER OG & SONS, C/O K W MYLER
N AM GROUSE PARTNERSHIP, C/O KENT L CHRISTOPHER
NALDER, DALLAN & CINDY
NEAL GEORGE G AND SONS
NEDROW, GEORGE
NESBITT, CRYSTAL
NMS LEASING COVE RANCH INC
NOH SHEEP COMPANY, C/O NOH LAIRD
OFC OF PROGRAM REVIEW & EDUCATION, ADVISORY COUNCIL ON HISTORIC PRESERVATION
OFFICE OF DEPUTY A/S OF THE USAF, ENVIRONMENT SAFETY & OCCUPATIONAL HEALTH
OFFICE OF THE GOVERNOR
ONEIDA COUNTY COMMISSIONERS
ONEIDA FARMS INC
PACIFIC LEGAL FOUNDATION, ATTN EMMA T SUAREZ ESQ
PACIFICORP, ATTN RIGHTS-OF-WAY SERVICES
PANTING, FARRELL B
PAULSEN, STEVEN R
PAYNE, GEORGE G
PECK, RONALD F, C/O GARTH COOK
PETTINGILL, LYNN
PHILLIPS, KAREN
PHILLIPS, RAY & ROSS
PICABO LIVESTOCK CO
PIERCE, L TIM
PLATTS, WILLIAM
PLEASANT VALLEY GRAZING ASSN
PLEASANTVIEW LVSTK & GRAZING ASSN, C/O DEON JONES
POGGES EXCAVATION, C/O EARL POGGE
POINT RANCH INC, C/O SHERRI SATTERWHITE
POOR, KEVIN
PORTAGE ENVIRONMENTAL, C/O JOHN BELLER
PORTAGE ENVIRONMENTAL, C/O MIKE SPRY
POST REGISTER THE
POTTER, TRAVIS N
POWER COUNTY COMMISSIONERS
PRAIRIE FALCON AUDUBON, ATTN KENT FOTHERGILL
PRESCOTT, ROY
PROBST, JOHN H
PROJECT MUTUAL TELEPHONE, ATTN MICHAEL TYLKA
PRUNTZ, JIM
PUCKERBRUSH RANCH, C/O CRAIG S HAWKER
QUALE, MEL
RAFFERTY, TOM D
RANDELL, ROBERT & JULIE
RASMUSSEN, LYNN
REAM JR RANCH INC, C/O JOAN BUNDERSON
REPRESENTATIVE MICHAEL K SIMPSON
RICH LIVESTOCK CO
RICKETTS, VIRGINIA
RIGBY DON C FAM PSHP
RITTER, CHARLES EOU
RIVERBEND RANCH
ROBERTSON, GWEN S
ROBINSON, HOWARD DUTCH
ROCKWOOD, ELDON J
ROCKY MOUNTAIN LAND & CATTLE, LLC, C/O RICH WOOTAN
RUPERT, JIMMIE
RUPRECHT, KARL
RUSHTON, DON
S M STOLLER CORPORATION, ATTN ROGER BLEW
S & H FARMS, C/O DAVE HINCKLEY
SAGER, SHIRLEY
SALISBURY CORP, C/O DIAMOND D RANCH
SAVAGE NEAL W ESTATE
SCHATZ BROTHERS INC

SCHMIDT, JOHN
SCITRDA, ATTN DEBORAH DANE
SEELEY BROTHERS, C/O ALVIN H SEELEY
SENATOR LARRY E CRAIG
SENATOR MICHAEL D CRAPO,
SHAIL, GEORGE
SHAW, RULON C
SHENTON, TOD
SHIPPEN, ANIS B, C/O KENT L BROWN
SHIRLEY, LEO G
SHOSHONE-BANNOCK TRIBES LAND USE COMM, ATTN DIRECTOR
SHOSHONE-BANNOCK TRIBES LAND USE COMM, ATTN JANELL DECKER
SHOSHONE-BANNOCK TRIBES LAND USE COMM, ATTN MONICA DEL VALLE
SHOSHONE-BANNOCK TRIBES, ATTN ALDENE PEVO,
SHOSHONE-BANNOCK TRIBES, ATTN BLAINE J EDMO
SHOSHONE-BANNOCK TRIBES, ATTN MARLENE SKUNKCAP
SHOSHONE-BANNOCK TRIBES, ATTN WESLEY EDMO
SHOSHONE-BANNOCK TRIBES, ATTN ,CHAIRMAN
SHOSHONE-BANNOCK TRIBES, ATTN CHAD COLTER
SHOSHONE-BANNOCK TRIBES, ATTN CLAUDEO BRONCHO,
SHOSHONE-BANNOCK TRIBES, ATTN LEEJUAN TYLER
SHOSHONE-BANNOCK TRIBES, ATTN YVETTE TUELL ,
SHOSHONE-BANNOCK TRIBES, FORT HALL BUSINESS COUNCIL
SHOSHONE-PAIUTE TRIBES, ATTN EMMETT HALL
SHOSHONE-PAIUTE TRIBES, ATTN ROBIN L HARMS
SHOSHONI NATION NW BAND OF THE, ATTN BRUCE PARRY
SIERRA CLUB, ATTN JOHN SCHMIDT
SILVER CREEK CONSTRUCTION CO INC, ATTN JIM BERNARD PRES
SIX S RANCH INC, C/O GEORGE MOOSMAN
SKINNER, DAVID
SMITH LAND CONSTRUCTION, C/O STEVE SMITH
SMITH DELMO FAMILY LTD PSHP, C/O LOREN SMITH
SMITH, ALAN H
SMITH, DAVID H
SMITH, T R, C/O KEVIN SMITH
SMITH, WENDELL H
SOLLIS, BOB
SOMSEN BROTHERS, C/O FRANK SOMSEN
SORENSEN, MITCHELL D
SOUTH COVE VENTURES INC, C/O ROD GONSALES
SPIES, C G
SPORTSMAN FOR FISH AND WILDLIFE IDAHO, ATTN BERT HUTH
STAIGER RICHARD D & WILLIAMSON LARRY H, C/O RD STAIGER
STATE HISTORICAL PRESERVATION OFFICE (SHPO), ATTN KEN REID
STECKLEIN, LAVERELLE
STEELE, RALPH
STEWART, DENNIS
STEWART, GENE A
STOSICH, JOANNE
STRUTHERS, ROBERT JS
STUCKI, JOHN R & SHIRLEY
SURFACE & MINERALS RESOURCE MGMT, ATTN SCOTT NICHOLS
SWEAT, MILFORD
SWIM, SHERMAN H
TELFER INC, C/O LEE ELDRIDGE
TETON COUNTY COMMISSIONERS
THE ECOLOGY CENTER
THE MORNING NEWS
THE REXBURG STANDARD JOURNAL
THOMAS, JAMES D & DONNA M
THOMPSON, WILLIAM D
THORN SPRINGS RANCH INC, C/O BERNADINE TABOR
THORNTON, LARRY
THREE IN ONE RANCH, C/O AMBROSE AND TREMBLAY
TIMES NEWS, C/O NATE JOHNSON
TIPPETS, WILSON & GLADE
TRANSTRUM, GLEN J
TREC INC, ATTN TIMOTHY D REYNOLDS
TUGAW, JOSEPH
TURNER, H JAY
TWIN FALLS COUNTY COMMISSIONERS
US ARMY CORPS OF ENG N PACIFIC DIV
US BIA FORT HALL INDIAN AGENCY, ATTN ERIC J LAPOINTE
US CG, ENVIRON IMPACT BRANCH, MARINE ENVIRONMENTAL & PROTECTION DIV
US DEPT OF ENERGY,
US DOD AIR FORCE
US DOI BLM BURLEY FO
US DOI BLM CHALLIS FO
US DOI BLM IDAHO STATE OFC, ATTN KAREN PORTER

US DOI BLM IDAHO STATE OFC, ATTN PLANNING & ENVIRONMENTAL COR
US DOI BLM MONTANA SO, ATTN THERESA HANLEY
US DOI BLM SALMON FO
US DOI BLM SHOSHONE FO
US DOI BLM TWIN FALLS DO
US DOI BLM UPPER SNAKE FO
US DOI BUREAU OF RECLAMATION, ATTN ECOSYSTEMS ANALYSIS PN6550
US DOI FWS, ATTN ASST DIR ENDANGERED SPECIES
US DOI FWS, ATTN BARBARA HESLIN
US DOI FWS, C/O DEBBIE MIGNOGNO SPVR
US DOI FWS, C/O LARRY DICKERSON
US DOI FWS, C/O TROY SMITH
US DOI FWS, EASTERN IDAHO FIELD OFFICE
US DOI GS, ATTN DISTRICT CHIEF
US DOI GS, ATTN ENV AFFAIRS PROG
US DOI GS, ATTN WALTON LOW
US DOI MINERALS MANAGEMENT SERVICE, CHIEF ENVIRONMENT OPS
US DOI NAT RES LIBRARY,
US DOI NPS CRATERS OF THE MOON NATL MON & PRES
US DOI NPS ENV QUAL DIV
US DOI NPS, ATTN MIKE WISSENBACH
US DOI OFC OF ENV POLICY & COMPLIANCE
US DOI OFC OF EXT & INTERGOV AFFAIRS
US EPA REGION 10, ATTN PETER CONTREAS
US EPA REGION 10, ATTN SUE SKINNER
US EPA OFC OF FED ACTIVITIES (2252-A)
USDA APHIS-PPQ, C/O L DERSCH
USDA FS CARIBOU/TARGHEE MONTPELIER RNGR DIST, ATTN DENNIS DUEHREN DIST RANGER
USDA FS CARIBOU/TARGHEE SODA SPRINGS, ATTN SCOTT GERWE
USDA FS CARIBOU/TARGHEE, ATTN LARRY TIMCHAK
USDA FS HUMBOLDT/TOIYABE, ATTN DWAYNE WINSLOW
USDA FS SALMON-CHALLIS RNGR DIST, ATTN GEORGE MATEJKO
USDA FS SAWTOOTH RNGR DIST, ATTN WILLIAM T LEVERE
USDA NATIONAL AGRICULTURAL LIBRARY
USDA NRCS, ATTN NATIONAL ENVIRONMENTAL COORDINATOR
USDA PPD/EAD
VA RANCH, C/O LEO AMY & SONS
VADNAIS, LARRY
WAGON WHEEL ENTERPRISES INC, ATTN ROBERT D BERGENDORG
WARD, DOUGLAS H
WEBSTER, BLAINE M & DENNIS, C/O DENNIS WEBSTER
WEBSTER, JACK H & ALICE MARIE, C/O JACK H WEBSTER
WEEKES, THELL B
WEST RATTLESNAKE, ATTN RUBEN BISHOFF
WESTERN WATERSHEDS PROJECT, ATTN KATIE FITE
WESTERN WATERSHEDS PROJECT, C/O JON MARVEL
WESTERN WATERSHEDS PROJECT, C/O MIRIAM L AUSTIN RES SPEC
WHITE SANDS CO
WHITING BROTHERS, C/O TIM WHITING
WHITNAH RANCHES INC, C/O ROGER L WHITNAH
WHITWORTH, MORGAN
WILCOX BROTHERS LLC, C/O RON WILCOX
WILDE, JAY
WILDERNESS SOCIETY THE, ATTN EXECUTIVE DIRECTOR
WILDLIFE MANAGEMENT INSTITUTE, ATTN ROBERT P DAVISON
WILKIE, STEVEN C & KATHY
WISTISON, RULON F & SHARON
WOOD RIVER LAND TRUST, ATTN SCOTT BOETTGER
WOOD RIVER RANCH, C/O WILLIAM D YAGER
WOODBURY, LYLE D
WOODIE LAND AND LIVESTOCK, C/O GEORGE WOODIE
WORKMAN, DON C
WRIGHT, JUDY A
YOUNG BROTHERS, C/O JOHN H YOUNG
YOUNG, HARVEY WALKER
ZITLAU, CARL
ZOLLINGER, DENNIS
ZOLLINGER, ORSON J

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CHAPTER SIX - LIST OF PREPARERS

In initiating this planning effort, the District Management Team decided to contract the development of the Proposed Plan Amendment and EIS. In light of this decision, SWCA was selected as the contractor to work with the BLM District Core Team of resource specialists throughout the preparation of this document. Table 6-1 identifies those SWCA specialists involved in this planning effort.

TABLE 6-1. SWCA LIST OF PREPARERS

Name	Education	Responsibility	Years Experience
Matt Petersen	M.S. Aquatic Ecology	Project Manager, NEPA Oversight, Public Safety, NEPA QA/QC	15
Sheri Ellis	M.S. American Studies	Cultural	13
Thomas Sharp	M.S. Biology	Wildlife, Special Status Species (Fauna), Wildland-Urban Interface	10
David Harris	M.S. Environmental Science	Visual, Recreation	6
Robin Cohn	M.S. Recreation and Tourism/Planning	Socioeconomics, Environmental Justice, Public Involvement	6
Linda Jones	M.S. Environmental Engineering	Fire Management, INL	8
James McMillan	M.S. Soils Science	Soils, Watershed/Water Quality/Riparian	7
Michele Weidner	M.S. Forest Ecology	Livestock Grazing, Vegetation, Special Status Species (Flora)	10
Craig Ellsworth	M.S. Zoology	Fisheries, Wildlife, Special Status Species (Fauna)	6
Molly Molenaar	M.A. Anthropology	Native American Concerns/Treaty Rights	9
Cathryn Collis	M.P.A. Public Administration	Public Involvement	20
Tyson Schreiner	B.S. Natural Resources and Environmental Studies	GIS Coordinator	5
Kristin Knippenberg	M.F.A. Creative Writing	Technical Editing	5
Elisha Wardle	B.S. Environmental Studies	Technical Editing; Project Coordinator	5
Janet Guinn	B. S. Psychology, Anthropology	Technical Editing; Project Coordinator	5
Casey Grimsdell	B.S. Communication	Project Coordinator	4

In addition, SWCA used sub-consultants for portions of work involved in this planning effort, as identified in Table 6-2.

TABLE 6-2. SWCA SUB-CONSULTANT LIST OF PREPARERS

Name	Responsibility
Trinity Consultants	Air Quality
Wildland Fire Associates	Fire Management

The BLM District Core Team is composed of resource specialists from each of the four field offices (i.e., Upper Snake, Pocatello, Burley and Shoshone), as well as from the Idaho Falls and Twin Falls Districts and Idaho State Offices, as identified in Table 6-3.

TABLE 6-3. BLM LIST OF PREPARERS

Name	Education	Responsibility	Years Experience
Terry Lee Smith	B.S. Agriculture, M.S. Forestry and Range Management	Project Manager, Internal Review, Grazing, Environmental Justice, Socioeconomics, Public Involvement	20
Barbara Chaney	B.S. Outdoor Education/Biology M.S. Biology	Wildlife, Special Status Species (Flora/Fauna)	25
Bill Swann	B.S. Ecology	Fire Management	28
Denise Tolness	A.A. Liberal Arts B.S. Environmental Studies B.S. Geography/Geology	GIS	9
Eric Limbach	B.S. Biology M.S. Botany, Range Management Ph.D. Range Science	INL, Geology and Soils, Vegetation, Water, Project Manager	25
Gregg Dawson	B.S. Conservation	Fire Management	29
Jeff Gardetto	B.S. Range Management B.S. Wildlife Management	Fisheries, Wildlife, Special Status Species (Fauna)	26
Joe Russell	B.S. Fisheries/Wildlife Biology	Fire Management	15
Julie Hilty	B.S. Botany M.S. Plant Ecology/Soil Science	Recreation, Visual, Cultural and Paleontology, Native American Concerns/Treaty Rights, Vegetation, Special Status Species (Flora), Noxious Weeds	9

TABLE 6-3. BLM LIST OF PREPARERS

Name	Education	Responsibility	Years Experience
Krista Gollnick-Waid	B.S. Biology/Economics M.S. Forestry M.S. Fire Ecology	Air Quality, Fire Management, Public Safety, Wildland-Urban Interface	19
Mitch Werner	B.B.A. Marketing/Film & Video Production	Internal Formatting/Technical Editing	17
Paul Oakes	B.A. Biological Science with graduate studies in Soil Science	Planning/NEPA, Environmental Justice, Socioeconomics	32
Rance Marquez	B.S. Range Science	Fire Management	16
Sandy Arena	B.S. Zoology M.S. Wildlife Toxicology	Wildlife, Special Status Species (Flora/Fauna)	5
Sarah Heide	B.S. Range Management M.S. Rangeland Ecology	Fire Management, Air Quality, Wildland-Urban Interface	10

The District also invited the USFWS and IDFG to participate in the planning process. Individuals from these respective agencies are identified in Table 6-4.

TABLE 6-4. PARTICIPATING AGENCIES LIST OF PREPARERS

Name (Agency)	Education	Responsibility	Years Experience
Dwayne Winslow (USFWS)	B.S. Wildlife and Rangeland Management M.S. Rangeland Ecology and Watershed Management	Wildlife, Special Status Species (Flora/Fauna)	6
Mike McDonald (IDFG)	B.S. Biology M.S. Biology	Wildlife	15
Don Kemner (IDFG)	B.S. Fisheries/Wildlife Biology M.S. Wildlife Sciences	Wildlife, Special Status Species (Fauna)	14

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CHAPTER SEVEN - ACRONYMS AND GLOSSARY

ACRONYMS AND ABBREVIATIONS

μg/m³ ..... micrograms per cubic meter
ACEC ..... Areas of Critical Environmental Concern
AQRV ..... Air Quality Related Value
AUM ..... Animal Unit Month
BLM ..... Bureau of Land Management
BMP ..... Best Management Practice
CAA ..... Clean Air Act
CEQ ..... Council on Environmental Quality
CFR ..... Code of Federal Regulations
cfs ..... Cubic feet per second
csm ..... Cubic feet per second per square mile
CWA ..... Clean Water Act
DFC ..... Desired Future Condition
District ..... Upper Snake River District
DOE ..... U.S. Department of Energy
DOE-ID ..... Department of Energy, Idaho Operations Office
Draft EIS ..... Draft Environmental Impact Statement
EA ..... Environmental Assessment
EIS ..... Environmental Impact Statement
EPA ..... U.S. Environmental Protection Agency
ES&R ..... Emergency Stabilization & Rehabilitation
ESA ..... Endangered Species Act
FEIS ..... Final Environmental Impact Statement
FLPMA ..... Federal Land Policy and Management Act
FMDA ..... Fire, Fuels and Related Vegetation Management Direction Plan Amendment
FMP ..... Fire Management Plan
FO ..... Field Office
FONSI ..... Finding of No Significant Impact
FRCC ..... Fire Regime Condition Class
FY ..... Fiscal Year
GMP ..... General Management Plan

IDEQ ..... Idaho Department of Environmental Quality
IDFG ..... Idaho Department of Fish and Game
IDL ..... Idaho Department of Lands
INL ..... Idaho National Laboratory
INERP ..... Idaho National Environmental Research Park
KOP ..... Key Observation Point
lb/ac ..... Pounds Per Acre
LSRD ..... Lower Snake River District (BLM)
LUP ..... Land Use Plan
LWG ..... Local working groups
MFP ..... Management Framework Plan
Mgal ..... Million gallons
mi^2 ..... Square Miles
MIS ..... Management Indicator Species
MOU ..... Memorandum of Understanding
msl ..... Mean Sea Level
NAAQS ..... National Ambient Air Quality Standard
NEAP ..... National Events Action Plan
NEPA ..... National Environmental Policy Act
NFRP ..... Normal Fire Rehabilitation Plans
NFS ..... National Forest System
NHPA ..... National Historic Preservation Act
NOI ..... Notice of Intent
NPDES ..... National Pollutant Discharge Elimination System
NPS ..... U.S. Department of the Interior, National Park Service
NRCS ..... Natural Resource Conservation Service
NRHP ..... National Register of Historic Places
OF&A ..... Office of Fire and Aviation
OHV ..... Off-highway Vehicles
PFC ..... Proper Functioning Condition
PM_{10} ..... Particulate matter less than 10 microns in diameter
$PM_{2.5}$ ..... Particulate matter less than 2.5 microns in diameter
ppm ..... Parts per million
PSD ..... Prevention of Significant Deterioration
RMP ..... Resource Management Plan

ROD ..... Record of Decision
ROW ..... Right-of-way
RxFire ..... Prescribed Burn/Prescribed Fire
SHPO ..... State Historic Preservation Officer
SRMA ..... Special Resource Management Area
SRP ..... Snake River Plain
SSER ..... Sagebrush Steppe Ecosystem Reserve
SSS ..... Special Status Species
STATSGO ..... State Soil Geographic Data Base
t/a ..... tons/acre
T&E ..... Federally Listed Threatened and Endangered
TMDL ..... Total Maximum Daily Load
UCSCD ..... Upper Columbia Salmon Clearwater District
USACE ..... U.S. Army Corps of Engineers
USDI ..... U.S. Department of Interior
USFS ..... U.S. Department of Agriculture Forest Service
USFWS ..... U.S. Department of the Interior, Fish and Wildlife Service
USGS ..... U.S. Geological Survey
VMS ..... Visual Management System
VOC ..... Volatile Organic Carbon
VQO ..... Visual Quality Objective
VRM ..... Visual Resource Management
WEG ..... Wind Erodibility Group
WFU ..... Wildland Fire Use
WSA ..... Wilderness Study Area
WUI ..... Wildland Urban Interface

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GLOSSARY

303(d)-listed Streams: Streams in which water quality is impaired; also known as "water quality-limited streams."

Airshed: A geographic area with similar topography and meteorology within which the airflow is contained the majority of the time.

Analysis Area: The geographic area that was analyzed to predict the possible effect that may be associated with proposed alternatives. This area varies in scale depending on the discipline being discussed, or the relationship being described.

Animal Unit Month (AUM): Determined to be equal to the amount of forage used to support one cow and calf for one month (approximately 800 pounds of forage).

Anthropogenic: Derived from human activities.

Biodiversity: The variety of life and its processes. It includes the array of living organisms, the genetic differences among them, the communities and ecosystems in which they occur, and the ecological and evolutionary processes that keep them functioning, yet ever changing and adapting.

Biological Assessment (BA): An evaluation conducted for federal projects requiring an environmental impact in accordance with the legal requirements under Section 7(e) of the Endangered Species Act as amended (16 U.S.C. 1536(c)). The purpose of the assessment is to determine whether the proposed action is likely to affect any endangered, threatened, or proposed species or critical habitat.

Biological Evaluation (BE): A documented Forest Service review of Forest Service programs or activities in sufficient detail to determine how an action or proposed action may affect any threatened, endangered, proposed, or sensitive species.

Carbon Monoxide (CO): One of the six "criteria" pollutants for which the U.S. EPA established National Ambient Air Quality Standards (NAAQS).

Chemical (vegetation treatment): This is the application of herbicides to control invasive species/noxious weeds and/or unwanted vegetation to meet resource objectives.

Clearing: A forest opening with little or no canopy closure that is either permanent or temporary. Permanent clearings occur as ski trails and contain grasses and forbs along with some shrub component. Temporary clearings are forest regeneration and contain seedlings and saplings trees that are less than 10 years old.

Cohesive Strategy: An aggressive, collaborative approach for reducing wildland fire risk to communities and to restore and maintain ecosystem health within fire-prone areas, which is based on the concept of restoring ecosystems to their historic fire regime.

Community: A group of interacting plants and animals inhabiting a given area.

Corridor: A route that potentially allows movement of individuals or species from one region to another.

Cultural Resource Inventory Classes: An inventory system used to identify and assess cultural resource values on BLM public lands. *Class I:* an overview document discussing the known resources of a particular region and defining research goals and questions from known data; primarily a chronicle of past land uses. *Class II:* professionally conducted, statistically based random samples designed to help characterize the probably density, diversity, and distribution of cultural resources in a large area. *Class III:* inventories conducted at 30-meter intervals or less to provide for intensive coverage over an entire project area, rather than a randomly selected sample area.

Desired Future Condition (DFC): A management objective that indicates the production of a distribution of vegetation age classes across a landscape that reduces hazardous fuels, promotes a healthier and more diverse vegetation structure and composition, and returns the currently altered fire regimes to fire regimes that more closely parallel historic fire regimes.

Distance Zones: Landscape areas denoted by specified distances from the observer.

District: Upper Snake River District of the Bureau of Land Management.

Ecosystem: A dynamic complex of biotic (plant, animal, fungal, and microorganism) communities and their associated abiotic (non-living) environment interacting as a functioning unit.

Ecotone: The transition zone between two structurally different communities (see Edge).

Edge: The zone where two or more different communities meet and integrate, e.g., field and woodland or seedling/sapling forest and mature forest.

Emergency Stabilization and Rehabilitation (ES&R): Emergency stabilization actions are implemented within one year of a fire. Their purpose is to stabilize and prevent unacceptable degradation of natural and cultural resources; to minimize threats to life or property resulting from the effects of fire; or to repair, replace, or construct physical improvements necessary to prevent degradation of land or resources. Rehabilitation actions are implemented within three years of a fire. Their purpose is to repair or improve affected lands unlikely to recover to a management-approved condition on their own, or to repair or replace minor facilities damaged by fire.

Endangered Species Act (ESA): A federal statute enacted in 1973, which provided for the protection of native wildlife threatened with extinction.

Endangered Species: Any species of animal or plant, which is in danger of extinction throughout all or a significant portion its range. An endangered species must be designated in the Federal Register by the Secretary of the Interior. Disturbance of the

habitat of endangered species is prohibited by the Endangered Species Act, 1973, as amended.

Environmental Gradient: The change in ecological or environmental features across space, such as changes in elevation, moisture, temperature, or soil type.

Fire Management Plan (FMP): Prepared at the Field Office or District level, this is a strategic document that defines a program to manage wildland fires based on an area's land use plan.

Fire Regime Condition Class (FRCC): A classification of a vegetation communities' variance or departure from historic fire conditions. Fire Condition Classes can be: (1) Fire Condition Class 1, representing low departure from historic fire regime; (2) Fire Condition Class 2, representing moderate departure from historic fire regime; or (3) Fire Condition Class 3, representing high departure from historic fire regime.

Footprint-acres: Refers to a single area or acreage within which some intervention, manipulation or treatment is/are performed.

Fragmentation: The process by which habitats or communities are increasingly subdivided into smaller units, resulting in their increased isolation as well as losses of total habitat area.

Gap Analysis: A scientific means for assessing to what extent native animal and plant species are being protected. It can be done at a state, local, regional, or national level.

Habitat: A place where an animal or plant lives and grows for all or a portion of its life.

Hazardous Fuels: Dry brush, trees, or other vegetation that have accumulated to a level that they increase the risk of unusually large, catastrophic fires as a result of decades of fire suppression activities, sustained drought, and/or increasing insect, disease, and invasive plant infestations.

Impact Zones: Areas considered to be smoke sensitive by IDEQ and are given additional air quality protection as needed.

Isolated Habitat (Sage Grouse): Areas where breeding habitat remains but are relatively small and isolated by farmlands, forests, and/or grasslands.

Key Habitat (Sage Grouse): Generally large scale, intact sagebrush steppe areas that provide sage grouse habitat.

Kipukas: Sparsely vegetated "islands" of lava.

Lead (Pb): One of the six "criteria" pollutants for which the U.S. EPA established National Ambient Air Quality Standards (NAAQS).

Linkage Habitats (Sage Grouse): Potential sage grouse habitat zones located between key sage grouse habitats allowing for movement between sage grouse stronghold habitats.

Management Indicator Species (MIS): A representative group of species that are dependent on a specific habitat type. The health of an indicator species is used to gauge the function of the habitat on which it depends and, in turn, the health of other dependent species.

Mechanical (vegetation treatment): This includes the application of mechanical treatments such as mowing, chaining, chopping, and cutting to meet resource objectives.

NFS Lands: National Forest System lands.

Nitrogen Dioxide (NO_2): One of the six "criteria" pollutants for which the U.S. EPA established National Ambient Air Quality Standards (NAAQS).

Orogeny: Geologic term for mountain building.

Ozone (O_3): One of the six "criteria" pollutants for which the U.S. EPA established National Ambient Air Quality Standards (NAAQS).

Particulate matter (PM): One of the six "criteria" pollutants for which the U.S. EPA established National Ambient Air Quality Standards (NAAQS). Particulate matter is defined as two categories, fine particulates, with an aerodynamic diameter of 10 micrometers (PM_{10}) or less, and fine particulates with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$).

Population Viability: the probability that a population will persist for a specified period across its range despite normal fluctuations in population size and distribution, and environmental conditions. Factors affecting viability include habitat change, demographics, environmental happenstance, and genetic randomness.

Prescribed Burn: This is a pre-planned management-ignited fire designed to meet specific resource objectives such as reducing fuel loading or promoting vegetation regeneration.

Proposed Action: Alternative B.

Rehabilitation: Actions that occur following wildfire, and are designed to mitigation negative impacts associated with unplanned ignitions.

Restoration 1 (Sage Grouse): Sagebrush-limited areas with acceptable understory conditions in terms of grass species composition and includes native and seeded perennial grass rangelands.

Restoration 2 (Sage Grouse): Areas where existing sagebrush cover may or may not be adequate to meet the needs of sage grouse, but understory herbaceous conditions are poor.

Restoration 3 (Sage Grouse): Sagebrush areas that have juniper encroachment dominating the landscape.

Restoration: Actions that occur independently of wildfire, and are pre-planned with the intent of meeting resource management objectives.

Riparian Zone: The zone along streams and rivers, which receives additional moisture and supports hydrophytic vegetation.

Seeding (vegetation treatment): This includes the application of grass, forb, or shrub seed, either applied aerially or with rangeland drill.

Sensitive Species: Those plant and animal species identified by a BLM wildlife specialist for which population viability is a concern, as evidenced by: a) significant current or predicted downward trends in population numbers or density; b) significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

Sensitivity Level: A particular degree or measure of viewer interest in the scenic qualities of the landscape.

Seral: A stage of vegetation succession.

Snag: Any standing dead tree or portion of a tree with a minimum diameter at breast height of 6 inches and minimum height of 10 feet. Snags can be hard, possessing essentially sound exterior wood, or snags can be soft being in an advanced state of decay. Snags are used by forest bats as roosts and maternity/nursery sites. Other mammals will use snags for denning and foraging. In addition, they are often used by birds for nesting, roosting, perching, displaying, and/or foraging.

Soil K Factor: A variable that determines how susceptible a specific soil is to erosion by water.

Species Richness: Number of species in a given location.

Stationary Source: Refers to a stationary source of emissions. PSD permits are required for major new stationary sources of emissions that emit 100 tons or more per year of CO, SO_2, NO_2, O_3, or particulate matter.

Stronghold Habitat (Sage Grouse): Habitat where sufficient breeding habitat remains to support sage grouse nesting populations with generally stable or increasing trends since the drought in the 1990s.

Study Area: The geographic area that was analyzed to predict the possible effect that may be associated with proposed alternatives. This area varied in scale depending on the discipline being discussed, or the relationship being described.

Sulfur Dioxide (SO_2): One of the six "criteria" pollutants for which the U.S. EPA established National Ambient Air Quality Standards (NAAQS).

Threatened Species: Any species of plant or animal which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range

and which has been designated in the Federal Register by the Secretary of Interior as a threatened species.

Treatment-acres: Refers to the multiple interventions, manipulations or treatments on the same (footprint) acre(s) to achieve management objectives.

Variety Class: A level of visual variety or diversity of landscape character used to determine scenic quality value.

Viewshed: The panorama from a given viewpoint that encompasses the visual landscape, including everything visible within a 360-degree radius.

Visual Absorption Capability (VAC): The ability of a landscape to absorb human alterations without loss of landscape character and without reduction in scenic quality. The major inventory factors used to determine VAC are slope, vegetative cover, and soils and geology.

Visual Management System (VMS): Provides a method for setting measurable objectives for the management of the visual resource. It provides standards for inventorying the visual resource and documenting changes in the landscape.

Visual Quality Objective (VQO): A desired level of excellence in visual appeal based on physical and sociological characteristics of an area. Refers to the degree of acceptable alteration to the characteristic landscape.

Volatile Organic Carbons (VOCs): While VOCs are not a criteria pollutant (NAAQS), they are a precursor to ozone.

Wildland Fire Use (WFU): This is a pre-planned naturally ignited fire designed to meet specific resource objectives similar to those described for prescribed burns.

Wildland Urban Interface (WUI): The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

CHAPTER EIGHT - REFERENCES

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BLM

Proposed Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and Final Environmental Impact Statement

A Regional Assessment for Southeast and South Central Idaho

Volume 2: Maps and Appendices

February 2008

Prepared by:

Idaho Falls and Twin Falls Districts
Bureau of Land Management
Department of Interior

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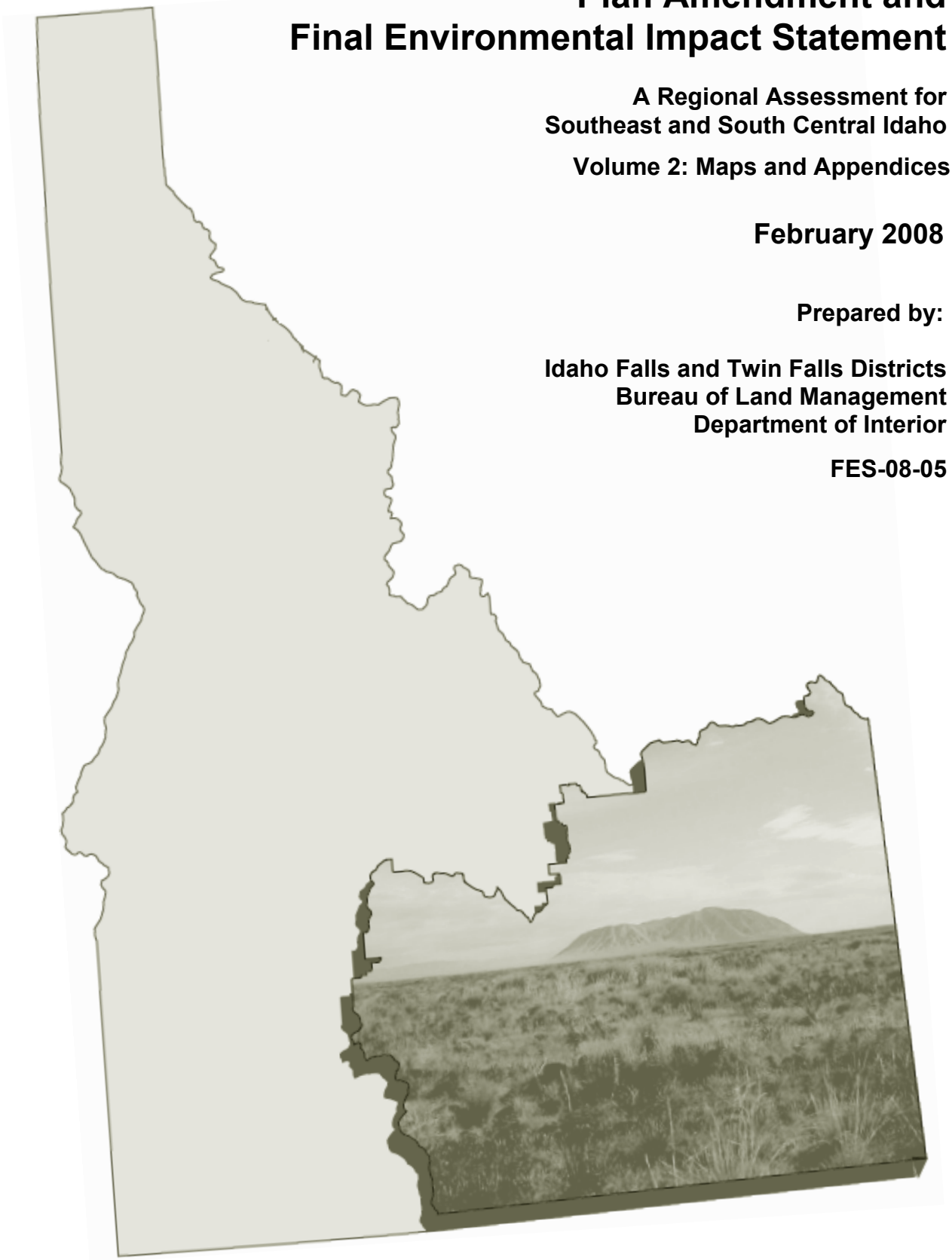

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TABLE 1. UPPER SNAKE FIELD OFFICE

	Vegetation Type	Footprint Acres	Wildland Fire Use	Mechanical	Chemical	RxFire	Seeding
Alternative A No Action	1-Annual	0	0	0	0	0	0
	2-Aspen	200	0	0	0	200	0
	3-Dry	1,000	0	0	0	1,000	0
	4-Juniper	0	0	0	0	0	0
	5-Low	2,500	0	0	1,800	2,200	1,800
	6-Mid	16,500	0	0	6,700	16,450	6,700
	7-Mtn	200	0	0	200	200	0
	8-Other	100	0	0	0	100	0
	9-Perennial	1,750	0	0	1,700	250	1,700
	10-Riparian	320	0	0	0	320	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	220	0	0	0	220	0
		22,790	0	0	10,400	20,940	10,200
Alternative B	1-Annual	0	0	0	0	0	0
	2-Aspen	6,100	2,600	5,200	480	7,600	175
	3-Dry	4,950	5,400	3,650	850	7,100	0
	4-Juniper	2,200	900	150	0	1,300	0
	5-Low	101,500	0	3,650	89,410	6,550	157,405
	6-Mid	56,990	10,470	6,850	15,300	27,450	1,155
	7-Mtn	5,080	5,030	1,750	325	3,950	0
	8-Other	5,780	5,780	0	585	0	0
	9-Perennial	52,600	0	2,550	13,650	1,900	34,740
	10-Riparian	0	0	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	0	0	0	0	0	0
		235,200	30,180	23,800	120,600	55,850	193,475
Alternative C	1-Annual	36	0	0	0	36	36
	2-Aspen	500	375	750	100	575	0
	3-Dry	800	525	1,800	350	1,425	0
	4-Juniper	3,300	450	2,900	750	2,100	600
	5-Low	55,200	0	0	55,200	55,200	55,200
	6-Mid	161,700	30,300	1,000	0	126,900	5,000
	7-Mtn	1,530	360	220	0	1,170	0
	8-Other	0	0	0	0	0	0
	9-Perennial	172,000	0	200	173,810	0	172,940
	10-Riparian	429	429	429	0	429	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	1,075	245	1,075	120	830	0
		396,570	32,684	8,374	230,330	188,665	233,776

TABLE 1. UPPER SNAKE FIELD OFFICE

	Vegetation Type	Footprint Acres	Wildland Fire Use	Mechanical	Chemical	RxFire	Seeding
Alternative D	1-Annual	0	0	0	0	0	0
	2-Aspen	0	0	0	0	0	0
	3-Dry	0	0	0	0	0	0
	4-Juniper	900	0	900	0	900	900
	5-Low	216,790	0	174,300	215,400	87,290	216,790
	6-Mid	78,220	0	83,220	85,220	72,270	41,220
	7-Mtn	9,730	0	9,730	9,730	5,330	7,330
	8-Other	0	0	0	0	0	0
	9-Perennial	257,000	0	94,000	257,000	24,600	257,000
	10-Riparian	0	0	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	0	0	0	0	0	0
		562,640	0	362,150	567,350	190,390	523,240
Alternative E Proposed Plan Amendment	1-Annual	0	0	0	0	0	0
	2-Aspen	500	375	750	100	575	0
	3-Dry	800	525	1,800	350	1,425	0
	4-Juniper	900	0	900	0	900	900
	5-Low	216,790	0	174,300	215,400	87,290	216,790
	6-Mid	78,220	0	83,220	85,220	72,270	41,220
	7-Mtn	9,730	0	9,730	9,730	5,330	7,330
	8-Other	0	0	0	0	0	0
	9-Perennial	257,000	0	94,000	257,000	24,600	257,000
	10-Riparian	0	0	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	1,075	245	1,075	120	830	0
		565,015	1,145	365,775	567,920	193,220	523,240

TABLE 2. POCATELLO FIELD OFFICE

	Vegetation Type	Footprint Acres	Wildland Fire Use	Mechanical	Chemical	RxFire	Seeding
Alternative A No Action	1-Annual	0	0	0	0	0	0
	2-Aspen	1,600	0	1,600	0	1,600	0
	3-Dry	1,800	0	1,800	0	1,800	0
	4-Juniper	0	0	0	0	0	0
	5-Low	0	0	0	0	0	0
	6-Mid	0	0	0	0	0	0
	7-Mtn	0	0	0	0	0	0
	8-Other	0	0	0	0	0	0
	9-Perennial	0	0	0	0	0	0
	10-Riparian	0	0	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	0	0	0	0	0	0
		3,400	0	3,400	0	3,400	0

TABLE 2. POCATELLO FIELD OFFICE

	Vegetation Type	Footprint Acres	Wildland Fire Use	Mechanical	Chemical	RxFire	Seeding
Alternative B	1-Annual	0	0	0	0	0	0
	2-Aspen	7,000	0	7,500	0	16,000	0
	3-Dry	6,200	0	6,975	0	9,575	0
	4-Juniper	3,500	0	8,975	0	12,275	0
	5-Low	0	0	0	0	0	0
	6-Mid	5,700	0	0	0	0	0
	7-Mtn	16,600	0	0	0	0	0
	8-Other	0	0	0	0	0	0
	9-Perennial	1,300	0	0	10,900	0	0
	10-Riparian	0	0	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	0	0	50	0	0	0
		40,300	0	23,500	10,900	37,850	0
Alternative C	1-Annual	33	0	0	33	33	33
	2-Aspen	4,391	1,025	4,050	200	3,975	0
	3-Dry	5,366	975	5,000	0	4,775	0
	4-Juniper	18,000	2,200	17,300	3,550	12,550	4,600
	5-Low	2,700	0	0	2,700	2,700	2,700
	6-Mid	102,000	21,150	0	0	80,850	0
	7-Mtn	15,000	2,420	2,360	0	14,530	0
	8-Other	200	200	0	0	0	0
	9-Perennial	53,300	0	0	48,300	0	53,300
	10-Riparian	130	130	130	0	130	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	66	10	116	10	60	0
		201,186	28,110	28,956	54,793	119,603	60,633
Alternative D	1-Annual	0	0	0	0	0	0
	2-Aspen	0	0	0	0	0	0
	3-Dry	0	0	0	0	0	0
	4-Juniper	10,650	1,650	10,650	1,650	650	10,650
	5-Low	18,950	0	18,950	18,950	300	18,950
	6-Mid	21,900	0	21,900	21,900	2,600	21,900
	7-Mtn	16,500	2,800	16,500	16,500	2,750	16,500
	8-Other	0	0	0	0	0	0
	9-Perennial	50,200	0	50,200	50,200	7,500	50,200
	10-Riparian	0	0	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	0	0	0	0	0	0
		118,200	4,450	118,200	109,200	13,800	118,200

TABLE 2. POCATELLO FIELD OFFICE

	Vegetation Type	Footprint Acres	Wildland Fire Use	Mechanical	Chemical	RxFire	Seeding
Alternative E Proposed Plan Amendment	1-Annual	0	0	0	0	0	0
	2-Aspen	4,391	1,025	4,050	200	3,975	0
	3-Dry	5,366	975	5,000	0	4,775	0
	4-Juniper	10,650	1,650	10,650	1,650	650	10,650
	5-Low	18,950	0	18,950	18,950	300	18,950
	6-Mid	21,900	0	21,900	21,900	2,600	21,900
	7-Mtn	16,500	2,800	16,500	16,500	2,750	16,500
	8-Other	0	0	0	0	0	0
	9-Perennial	50,200	0	50,200	50,200	7,500	50,200
	10-Riparian	0	0	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	66	10	116	10	60	0
		128,023	6,460	127,366	109,410	22,610	118,200

TABLE 3. BURLEY FIELD OFFICE

	Vegetation Type	Footprint Acres	Wildland Fire Use	Mechanical	Chemical	RxFire	Seeding
Alternative A No Action	1-Annual	15,925	0	0	15,850	9,750	31,775
	2-Aspen	0	0	0	0	0	0
	3-Dry	0	0	0	0	0	0
	4-Juniper	800	0	550	0	0	800
	5-Low	25,175	0	0	23,775	800	25,175
	6-Mid	7,575	0	50	2,825	425	7,525
	7-Mtn	2,625	0	100	75	500	2,550
	8-Other	3,350	0	0	3,350	0	3,350
	9-Perennial	57,625	0	1,175	55,750	775	57,625
	10-Riparian	50	0	0	0	0	50
	11-Salt	975	0	0	975	0	975
	12-Wet/Cold	0	0	0	0	0	0
		114,100	0	1,875	102,600	12,250	129,825
Alternative B	1-Annual	24,850	0	0	20,200	5,850	34,200
	2-Aspen	500	0	0	0	0	0
	3-Dry	0	0	0	0	0	0
	4-Juniper	24,650	2,000	6,800	1,800	6,750	8,350
	5-Low	15,750	0	2,600	3,250	2,700	4,650
	6-Mid	14,200	0	0	0	1,500	0
	7-Mtn	0	0	300	300	0	200
	8-Other	0	0	0	0	0	0
	9-Perennial	9,600	0	750	3,000	2,000	1,000
	10-Riparian	0	0	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	0	0	0	0	0	0
		89,550	2,000	10,450	28,550	18,800	48,400

TABLE 3. BURLEY FIELD OFFICE

	Vegetation Type	Footprint Acres	Wildland Fire Use	Mechanical	Chemical	RxFire	Seeding
Alternative C	1-Annual	49,069	0	0	49,069	49,069	49,069
	2-Aspen	147	50	150	0	150	0
	3-Dry	46	0	0	0	0	0
	4-Juniper	39,229	3,700	40,350	3,350	31,800	7,164
	5-Low	26,300	0	0	26,300	26,300	26,300
	6-Mid	106,063	17,063	0	0	89,000	500
	7-Mtn	12,000	1,710	1,150	0	10,790	0
	8-Other	1,500	1,500	0	0	0	0
	9-Perennial	109,600	0	0	110,600	0	109,600
	10-Riparian	0	0	0	0	20	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	46	0	0	0	0	0
		344,000	24,023	41,650	189,319	207,129	192,633
Alternative D	1-Annual	48,850	0	48,850	48,850	48,700	52,400
	2-Aspen	0	0	0	0	0	0
	3-Dry	0	0	0	0	0	0
	4-Juniper	17,600	10,350	16,000	2,300	8,150	17,600
	5-Low	29,300	0	29,300	29,300	5,775	29,300
	6-Mid	72,500	0	72,500	72,500	31,400	72,500
	7-Mtn	0	0	0	0	0	0
	8-Other	0	0	0	0	0	0
	9-Perennial	107,300	0	107,300	107,300	21,200	107,300
	10-Riparian	0	0	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	0	0	0	0	0	0
		275,550	10,350	273,950	260,250	115,225	279,100
Alternative E Proposed Plan Amendment	1-Annual	48,850	0	48,850	48,850	48,700	52,400
	2-Aspen	147	50	150	0	150	0
	3-Dry	46	0	0	0	0	0
	4-Juniper	17,600	10,350	16,000	2,300	8,150	17,600
	5-Low	29,300	0	29,300	29,300	5,775	29,300
	6-Mid	72,500	0	72,500	72,500	31,400	72,500
	7-Mtn	0	0	0	0	0	0
	8-Other	0	0	0	0	0	0
	9-Perennial	107,300	0	107,300	107,300	21,200	107,300
	10-Riparian	0	0	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	46	0	0	0	0	0
		275,789	10,400	274,100	260,250	115,375	279,100

TABLE 4. SHOSHONE FIELD OFFICE

	Vegetation Type	Footprint Acres	Wildland Fire Use	Mechanical	Chemical	RxFire	Seeding
Alternative A No Action	1-Annual	6,700	0	950	6,700	0	13,475
	2-Aspen	0	0	0	0	0	0
	3-Dry	0	0	0	0	0	0
	4-Juniper	0	0	0	0	0	0
	5-Low	5,525	0	275	5,525	0	5,525
	6-Mid	850	0	350	850	0	850
	7-Mtn	0	0	0	0	0	0
	8-Other	370	0	20	370	0	370
	9-Perennial	96,505	0	3,825	96,505	0	96,505
	10-Riparian	0	0	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	0	0	0	0	0	0
		109,950	0	5,420	109,950	0	116,725
Alternative B	1-Annual	102,500	49,000	0	102,500	92,500	205,000
	2-Aspen	750	0	400	250	500	550
	3-Dry	5,150	3,000	3,900	250	3,400	2,250
	4-Juniper	0	0	0	0	0	0
	5-Low	84,000	12,500	0	84,000	73,200	95,700
	6-Mid	17,550	7,000	1,850	8,500	13,650	5,450
	7-Mtn	550	0	350	0	550	350
	8-Other	0	0	0	0	0	0
	9-Perennial	70,500	8,500	0	70,500	59,700	69,700
	10-Riparian	0	0	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	0	0	0	0	0	0
		281,000	80,000	6,500	266,000	243,500	379,000
Alternative C	1-Annual	281,362	0	28,076	281,362	281,362	365,590
	2-Aspen	479	300	850	200	550	0
	3-Dry	2,043	826	2,850	200	2,850	0
	4-Juniper	0	0	0	0	0	0
	5-Low	62,831	0	4,000	62,831	62,831	74,831
	6-Mid	200,000	40,800	0	0	149,200	0
	7-Mtn	1,345	295	205	0	1,770	0
	8-Other	2,300	2,310	0	0	0	0
	9-Perennial	193,619	0	20,000	173,619	20,000	233,619
	10-Riparian	0	20	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	793	150	793	80	643	0
		744,772	44,701	56,774	518,292	519,206	674,040

TABLE 4. SHOSHONE FIELD OFFICE

	Vegetation Type	Footprint Acres	Wildland Fire Use	Mechanical	Chemical	RxFire	Seeding
Alternative D	1-Annual	281,600	0	281,600	281,600	260,300	281,600
	2-Aspen	0	0	0	0	0	0
	3-Dry	0	0	0	0	0	0
	4-Juniper	0	0	0	0	0	0
	5-Low	112,230	0	112,230	112,230	33,000	112,230
	6-Mid	58,000	0	58,000	58,000	44,800	58,000
	7-Mtn	550	0	550	550	0	550
	8-Other	0	0	0	0	0	0
	9-Perennial	113,500	0	113,500	113,500	19,000	113,500
	10-Riparian	0	0	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	0	0	0	0	0	0
		565,880	0	565,880	565,880	357,100	565,880
Alternative E Proposed Plan Amendment	1-Annual	281,600	0	281,600	281,600	260,300	281,600
	2-Aspen	479	300	850	200	550	0
	3-Dry	2,043	826	2,850	200	2,850	0
	4-Juniper	0	0	0	0	0	0
	5-Low	112,230	0	112,230	112,230	33,000	112,230
	6-Mid	58,000	0	58,000	58,000	44,800	58,000
	7-Mtn	550	0	550	550	0	550
	8-Other	0	0	0	0	0	0
	9-Perennial	113,500	0	113,500	113,500	19,000	113,500
	10-Riparian	0	0	0	0	0	0
	11-Salt	0	0	0	0	0	0
	12-Wet/Cold	793	150	793	80	643	0
		569,195	1,276	570,373	566,360	361,143	565,880

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APPENDIX B - COMPARISON OF AMENDED LAND USE PLANS WITHIN THE BUREAU OF LAND MANAGEMENT, IDAHO FALLS AND TWIN FALLS DISTRICTS, BY ALTERNATIVE

The following tables compare and contrast potential land use planning direction and action changes for each land use plan (LUP) in the planning area. The potential changes would occur based on which alternative is picked in the Record of Decision (ROD) for the Fire, Fuels, and Related Vegetation Management Direction Plan Amendment Final Environmental Impact Statement (EIS). This information is organized in columnar format to allow easy comparison among alternatives. The No Action Alternative represents current management direction, and Alternative E represents the Bureau of Land Management's (BLM's) Proposed Plan Amendment. The alternative descriptions that follow have been reformatted and abbreviated to facilitate comparison of the alternatives as they would affect each LUP. See Chapter 2 of the EIS for the complete descriptions of alternatives.

TABLE 1. BENNETT HILLS – TIMMERMAN HILLS MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Management Direction Common To All Alternatives	**Management Restrictions:** Wildland fire suppression restrictions and restoration/fuels reduction treatment restrictions would be implemented under all alternatives and would be specified in each of the 12 LUP amendments. These restrictions would be applied to suppression activities and vegetation treatment actions with the intent of protecting sensitive resources. This section lists the resource disciplines for which restrictions were developed. Appendix Q describes in detail the management actions to be applied. **Wildland Fire Suppression Restrictions:** Suppression restrictions were developed for the following resource disciplines: • Fire Management • Cultural Resources and Historic Trails • Noxious Weeds • Recreation • Riparian Areas • Special Designations (wilderness study areas [WSAs], Areas of Critical Environmental Concern ACECs) • Vegetation **Fire and Non-Fire Vegetation Treatment Restrictions:** The following fire and non-fire vegetation treatment restrictions will be applied to site-specific restoration and hazardous fuels reduction treatment actions for the following resource disciplines: • Vegetation • Air Quality • Cultural Resources and Historic Trails • Hazardous Materials and Abandoned Mine Sites • Livestock Grazing • Placeholder Species • Riparian Areas • Special Management Areas • Visual Resources • Wildlife				

TABLE 1. BENNETT HILLS – TIMMERMAN HILLS MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Management Direction Common To All Action Alternatives		**Desired Future Condition (DFC):** DFC is considered a management objective. For the purposes of this analysis, it indicates the proportional distribution of vegetation age classes/successional stages across the landscape. Each vegetation age class represents different vegetation species composition. Attaining a DFC within a vegetation type will promote a healthier and more diverse vegetation structure and composition, and return the currently altered fire regime to a fire regime that more closely parallels the historical fire regime. See Chapter 2 for DFC by vegetation type. **Prioritization Criteria:** The following would be the top two priorities under all action alternatives: 1. Fire-fighter and public safety are the first priorities in response to fire suppression. At no time will the activities described in this EIS compromise fire-fighter and public safety. 2. Protection of property and Wildland Urban Interface (WUI). WUI areas were identified in the National Fire Plan as areas requiring protection and are common to all alternatives. Communities-at-risk were identified and WUI areas are designated through County/City Mitigation plans initiated by local fire chiefs and through statewide interagency planning efforts. WUI areas exist around communities-at-risk (as defined in Federal Register Notice, Volume 66, August 17, 2001). The National Fire Plan mandates that priority be given to protecting these communities from wildland fire and to preventing fires started on private lands from spreading to public lands. In all alternatives developed including the No Action, WUI areas would take precedence if suppression resources are limited and life and property are threatened. Vegetation treatments in and around the WUI will be designed to mitigate fire hazard. Site-specific National Environmental Protection Act (NEPA) documentation would be required for all federally funded projects, regardless of ownership. Vegetation treatment priorities would vary by field office as vegetation types vary across the planning area. In general, vegetation treatment priorities include the following: • Diversify Perennial Grass to speed reestablishment of sagebrush cover • Enhance structural and species diversity in degraded Low-elevation sagebrush steppe • Reduce shrub and Juniper density in Mid-elevation Shrub • Reduce invasive or noxious weeds in all vegetation types				

TABLE 1. BENNETT HILLS – TIMMERMAN HILLS MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
		• Rejuvenate Aspen stands, reduce insect infestation and disease, and create a diversity of forest successional stages across the landscape • In Mountain Shrub, rejuvenate old, decadent shrubs and increase cover and density of desirable herbaceous species • Restore historical successional processes in vegetated rock/lava **Management Restrictions:** Appendix Q lists additional restrictions that are common to all action alternatives.			
Fire Management Goals And Objectives	1) Emphasize protection from and rehabilitation after wildland fire within the WUI.	1) Make progress toward DFC in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass vegetation types where wildland fire should occur less frequently and at a smaller scale on the landscape than it currently does.	1) Make progress toward DFC in Low-elevation Shrub, Perennial Grass, and Invasive Annual Grass vegetation types so that wildland fire occurs less frequently and at a smaller scale on the landscape than it currently does. Reduce by half the number of wildland fires in these vegetation types to create a wildland fire regime within the historical range of variability.	1) Make progress toward DFC in the Low-elevation Shrub, Perennial Grass, Invasive Annual Grass, Mid-elevation Shrub, Mountain Shrub, and Juniper plant vegetation types.	1) Make progress toward DFC in the Low-elevation Shrub, Perennial Grass, Invasive Annual Grass, Mid-elevation Shrub, Mountain Shrub, and Juniper vegetation types.

TABLE 1. BENNETT HILLS – TIMMERMAN HILLS MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
	2) Reduce fine fuels and undesirable non-native plants to create perennial cover types so that wildland fire occurs less frequently and at a smaller scale on the landscape than it currently does.	2) Make progress toward DFC in the Mid-elevation Shrub, Juniper, Dry Conifer, Aspen/Conifer, and Mountain Shrub vegetation types where wildland fire should occur more frequently on the landscape than it currently does.	2) Make progress toward DFC in the Mid-elevation Shrub, Juniper, Dry Conifer, Aspen/Conifer, and Mountain Shrub vegetation types by increasing the use of wildland fire and RxFire to create a fire regime within the historical range of variability.	2) Maintain, protect, and expand sage grouse Source Habitats.	2) Maintain, protect, and expand sage grouse Source Habitats.
	3) Conduct fire and non-fire vegetation treatments in Mid-elevation Shrub, Juniper, Dry Conifer, Aspen/Conifer, and Mountain Shrub.	3) Maintain or make progress toward DFC in the Wet/Cold Conifer, Salt Desert Shrub cover types, and in vegetation types where fire frequencies are within the historical range of variability.	3) In Wet/Cold Conifer, Riparian, Salt Desert Shrub, and Other/Vegetated Lava vegetation types and/or areas in Fire Regime Condition Class (FRCC) 1, maintain vegetation conditions using mechanical, chemical, prescribed fire, or wildland fire use (WFU) treatments, such that wildland fire regimes are within the historical range of variability (i.e., maintain the current fire regimes in these	3) Treat sage grouse Key and Restoration Habitats to expand Source Habitats. Improve and maintain sage grouse Restoration (R1-3) and Key Habitats.	3) Treat sage grouse Key and Restoration Habitats to expand Source Habitats. Improve and maintain sage grouse Restoration (R1-3) and Key Habitats.

TABLE 1. BENNETT HILLS – TIMMERMAN HILLS MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
			vegetation types).		
					4) Make progress toward DFC in historically frequent fire regimes (Dry Conifer, Aspen/Conifer, Mid-elevation Shrub encroached by Juniper, Mountain Shrub) by increasing WFU and RxFire to create a fire regime within the historical range of variability. 5) In the Wet/Cold Conifer vegetation type and/or areas in FRCC 1, maintain vegetation conditions using mechanical, chemical, RxFire, or WFU treatments, such that wildland fire regimes are within the historical range of variability (i.e., maintain the current fire regime in these vegetation types).

TABLE 1. BENNETT HILLS – TIMMERMAN HILLS MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Prioritization Criteria	When multiple wildland fire ignitions occur, suppression priorities are: • Protection of human life is the single, overriding priority. • Protection of human communities and community infrastructure, other property and improvements will follow in importance. • Protection of cultural and natural resources will be based on the values to be protected, human health and safety, and costs of protection. Once people are assigned, these human resources become highest value to be protected. Other priorities from	When multiple wildland fire ignitions occur, the criteria for establishing suppression priorities will follow the two prioritization criteria described under Common to All Action Alternatives, followed by the following prioritization: • Minimize risks to sagebrush steppe. • Minimize risks to Dry Conifer. • Criteria for establishing vegetation treatments are: • Sagebrush steppe protection/maintenance. Prioritize treatment to areas that are adjacent to existing sagebrush cover types. • Sagebrush	When multiple wildland fire ignitions occur, the criteria for establishing suppression priorities will follow the two prioritization criteria under Common to All Action Alternatives, followed by the following prioritization: • Minimize risks to Low-elevation Shrub vegetation type where frequent, uncharacteristic fires occur. • Minimize risks to other vegetation types, where changes in fuel accumulation and fire occurrence have occurred (i.e., FRCC 2 and FRCC 3 areas). Criteria for establishing vegetation treatments are: • Landscape-scale	When multiple wildland fire ignitions occur, the criteria for establishing suppression priorities will follow the two prioritization criteria described under Common to All Action Alternatives, followed by the following prioritization: • Minimize risks to sage grouse Source Habitats. • Minimize risks to sage grouse Key Habitats. • Minimize risks to sage grouse Restoration Habitats. Criteria for establishing vegetation treatments are: • Within sage grouse Source Habitat, treat areas of low resilience. • Within Key and	When multiple wildland fire ignitions occur, the criteria for establishing suppression priorities will follow the two prioritization criteria described under Common to All Action Alternatives, followed by the following prioritization: • Minimize risks to sage grouse Source, Key and Restoration Habitats. • Minimize risks to habitats occupied by threatened, endangered, and candidate species. • Minimize risks to resources where changes in fuel accumulation and fire occurrence have occurred (i.e., FRCC 2 and FRCC 3 areas). Criteria for establishing

TABLE 1. BENNETT HILLS – TIMMERMAN HILLS MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
	BLM wildland fire policy and the existing LUPs, will be reflected in all Wildland Fire Situation Analyses (WFSAs). Priorities for establishing fire and non-fire vegetation treatments are: • Use RxFire and non-fire fuels treatments to improve/enhance FRCC 2 and FRCC 3 acres where public/firefighter safety or WUI are at risk. • Use RxFire and non-fire fuels treatments to maintain FRCC 1 acres where hazardous fuels pose a risk to public or firefighter safety. • Use prescribed fire and non-fire fuels treatments to	steppe restoration. • Aspen/Conifer, Mountain Shrub, Dry Conifer restoration. • Protection of areas of key ecosystem components that are at high risk of loss.	projects designed to reduce the combined risk to human life/property and resources (e.g., where WUIs and ecosystems at risk coincide). • Projects designed through interagency planning performed at the landscape level in conjunction with active community participation and development of stakeholder partnerships in the planning and monitoring processes.	Restoration Habitat: • Treat areas adjacent to Source Habitat. • Enhance Key Habitat. • Treat areas that pose a fire risk to Source and Key Habitats. • Treat areas adjacent to Key Habitat.	vegetation treatments are: • Landscape-scale projects designed to reduce the combined risk to human life/property and resources (e.g., where WUIs and ecosystems at risk coincide). • Sagebrush Steppe (Low-elevation Shrub, Mid-elevation Shrub and Mountain Shrub). In designing vegetation treatments potentially affecting greater sage-grouse, consider the incorporation of selected conservation measures as identified in Appendix R. • In the WUI, where practical and

TABLE 1. BENNETT HILLS – TIMMERMAN HILLS MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
	improve or enhance FRCC 2 or FRCC 3 acres where sage-grouse habitat is at risk. • Use RxFire and on-fire fuels treatments to improve or enhance FRCC 2 or FRCC 3 acres where wildlife areas of concern are at risk. • Use RxFire and non-fire fuels treatments to improve or enhance FRCC 2 or FRCC 3 acres where other resources are at risk.				appropriate, projects will be designed through interagency planning performed at the landscape level, in conjunction with active community participation and development of stakeholder partnerships in the planning and monitoring processes.
Acres Suitable for WFU [1/]	0 acres	427,500 acres	135,500 acres	800 acres	135,000 acres
Acres Not Suitable for WFU	552,000 acres	124,500 acres	416,600 acres	551,300 acres	417,000 acres

TABLE 1. BENNETT HILLS – TIMMERMAN HILLS MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Anticipated type and level of fire activity and fuel treatment		Approximately 2.5 times the No Action Alternative level of treatment	Approximately 7 times the No Action Alternative level of treatment	Approximately 6 times the No Action Alternative level of treatment	Approximately 6.2 times the No Action Alternative level of treatment
Estimated footprint acres treated per decade [2]	25,600 acres				

[1] All acre figures are rounded to the nearest 100 acres and are subject to rounding error.

[2] These footprint acres are estimated by multiplying the percent of the planning area occupied by the individual LUPs times the total footprint acres proposed for treatment in the No Action Alternative.

TABLE 2. BIG DESERT MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Restrictions on fire management practices if needed to protect resources	See Fire Management Restrictions Common to All Alternatives and Common to All Action Alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Fire management goals, objectives and prioritization criteria	See the goals, objectives, and prioritization criteria for all five alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Acres Suitable for WFU	0 acres	111,900 acres	128,900 acres	1,000 acres	128,900 acres
Acres Not Suitable for WFU	652,500 acres	540,600 acres	523,600 acres	651,500 acres	523,600 acres
Anticipated type and level of fire activity and fuel treatment		Approximately 2.5 times the No Action Alternative level of treatment	Approximately 7 times the No Action Alternative level of treatment	Approximately 6 times the No Action Alternative level of treatment	Approximately 6.2 times the No Action Alternative level of treatment
Estimated footprint acres treated per decade	41,100 acres				

Note: Lands managed by the BLM within Craters of the Moon National Monument and Preserve are not included in the WFU acres presented above.

TABLE 3. BIG LOST MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Restrictions on fire management practices if needed to protect resources	See Fire Management Restrictions Common to All Alternatives and Common to All Action Alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Fire management goals, objectives, and prioritization criteria	See the goals, objectives, and prioritization criteria for all five alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Acres Suitable for WFU	0 acres	155,100 acres	65,800 acres	5,200 acres	65,800 acres
Acres Not Suitable for WFU	155,200 acres	100 acres	89,400 acres	150,000 acres	89,400 acres
Anticipated type and level of fire activity and fuel treatment		Approximately 2.5 times the No Action Alternative level of treatment	Approximately 7 times the No Action Alternative level of treatment	Approximately 6 times the No Action Alternative level of treatment	Approximately 6.2 times the No Action Alternative level of treatment
Estimated footprint acres treated per decade	7,200 acres				

TABLE 4. CASSIA RESOURCE MANAGEMENT PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Restrictions on fire management practices if needed to protect resources	See Fire Management Restrictions Common to All Alternatives and Common to All Action Alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Fire management goals, objectives, and prioritization criteria	See the goals, objectives, and prioritization criteria for all five alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Acres Suitable for WFU	0 acres	297,300 acres	260,100 acres	146,500 acres	260,100 acres
Acres Not Suitable for WFU	471,100 acres	173,800 acres	211,000 acres	324,600 acres	211,000 acres
Anticipated type and level of fire activity and fuel treatment		Approximately 2.5 times the No Action Alternative level of treatment	Approximately 7 times the No Action Alternative level of treatment	Approximately 6 times the No Action Alternative level of treatment	Approximately 6.2 times the No Action Alternative level of treatment
Estimated footprint acres treated per decade	21,800 acres				

TABLE 5. LITTLE LOST BIRCH CREEK MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Restrictions on fire management practices if needed to protect resources	See Fire Management Restrictions Common to All Alternatives and Common to All Action Alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Fire management goals, objectives, and prioritization criteria	See the goals, objectives, and prioritization criteria for all five alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Acres Suitable for WFU	0 acres	332,500 acres	38,400 acres	3,800 acres	38,400 acres
Acres Not Suitable for WFU	332,900 acres	400 acres	294,500 acres	329,100 acres	294,500 acres
Anticipated type and level of fire activity and fuel treatment		Approximately 2.5 times the No Action Alternative level of treatment	Approximately 7 times the No Action Alternative level of treatment	Approximately 6 times the No Action Alternative level of treatment	Approximately 6.2 times the No Action Alternative level of treatment
Estimated footprint acres treated per decade	15,400 acres				

TABLE 6. MAGIC MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Restrictions on fire management practices if needed to protect resources	See Fire Management Restrictions Common to All Alternatives and Common to All Action Alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Fire management goals, objectives, and prioritization criteria	See the goals, objectives, and prioritization criteria for all five alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Acres Suitable for WFU	0 acres	24,600 acres	13,800 acres	0 acres	13,800 acres
Acres Not Suitable for WFU	24,600 acres	0 acres	10,800 acres	24,600 acres	10,800 acres
Anticipated type and level of fire activity and fuel treatment		Approximately 2.5 times the No Action Alternative level of treatment	Approximately 7 times the No Action Alternative level of treatment	Approximately 6 times the No Action Alternative level of treatment	Approximately 6.2 times the No Action Alternative level of treatment
Estimated footprint acres treated per decade	1,100 acres				

TABLE 7. MALAD MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Restrictions on fire management practices if needed to protect resources	See Fire Management Restrictions Common to All Alternatives and Common to All Action Alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Fire management goals, objectives, and prioritization criteria	See the goals, objectives, and prioritization criteria for all five alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Acres Suitable for WFU	0 acres	194,400 acres	249,700 acres	127,600 acres	249,700 acres
Acres Not Suitable for WFU	359,500 acres	165,100 acres	109,800 acres	231,900 acres	109,800 acres
Anticipated type and level of fire activity and fuel treatment		Approximately 2.5 times the No Action Alternative level of treatment	Approximately 7 times the No Action Alternative level of treatment	Approximately 6 times the No Action Alternative level of treatment	Approximately 6.2 times the No Action Alternative level of treatment
Estimated footprint acres treated per decade	16,700 acres				

TABLE 8. MEDICINE LODGE RESOURCE MANAGEMENT PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Restrictions on fire management practices if needed to protect resources	See Fire Management Restrictions Common to All Alternatives and Common to All Action Alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Fire management goals, objectives, and prioritization criteria	See the goals, objectives, and prioritization criteria for all five alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Acres Suitable for WFU	0 acres	458,800 acres	269,100 acres	7,700 acres	269,100 acres
Acres Not Suitable for WFU	650,900 acres	192,100 acres	381,800 acres	643,200 acres	381,800 acres
Anticipated type and level of fire activity and fuel treatment		Approximately 2.5 times the No Action Alternative level of treatment	Approximately 7 times the No Action Alternative level of treatment	Approximately 6 times the No Action Alternative level of treatment	Approximately 6.2 times the No Action Alternative level of treatment
Estimated footprint acres treated per decade	30,100 acres				

TABLE 9. MONUMENT RESOURCE MANAGEMENT PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Restrictions on fire management practices if needed to protect resources	See Fire Management Restrictions Common to All Alternatives and Common to All Action Alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Fire management goals, objectives, and prioritization criteria	See the goals, objectives, and prioritization criteria for all five alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Acres Suitable for WFU	0 acres	569,800 acres	27,500 acres	0 acres	27,500 acres
Acres Not Suitable for WFU	781,600 acres	211,800 acres	754,100 acres	781,600 acres	754,100 acres
Anticipated type and level of fire activity and fuel treatment		Approximately 2.5 times the No Action Alternative level of treatment	Approximately 7 times the No Action Alternative level of treatment	Approximately 6 times the No Action Alternative level of treatment	Approximately 6.2 times the No Action Alternative level of treatment
Estimated footprint acres treated per decade	56,700 acres				

Note: Lands managed by the BLM within Craters of the Moon National Monument and Preserve are not included in the WFU acres presented above.

TABLE 10. POCATELLO RESOURCE MANAGEMENT PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Restrictions on fire management practices if needed to protect resources	See Fire Management Restrictions Common to All Alternatives and Common to All Action Alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Fire management goals, objectives, and prioritization criteria	See the goals, objectives, and prioritization criteria for all five alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Acres Suitable for WFU	0 acres	76,900 acres	222,700 acres	86,100 acres	222,700 acres
Acres Not Suitable for WFU	260,400 acres	183,500 acres	37,700 acres	174,300 acres	37,700 acres
Anticipated type and level of fire activity and fuel treatment		Approximately 2.5 times the No Action Alternative level of treatment	Approximately 7 times the No Action Alternative level of treatment	Approximately 6 times the No Action Alternative level of treatment	Approximately 6.2 times the No Action Alternative level of treatment
Estimated footprint acres treated per decade	12,100 acres				

TABLE 11. SUN VALLEY MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Restrictions on fire management practices if needed to protect resources	See Fire Management Restrictions Common to All Alternatives and Common to All Action Alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Fire management goals, objectives, and prioritization criteria	See the goals, objectives, and prioritization criteria for all five alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Acres Suitable for WFU	0 acres	183,500 acres	216,600 acres	10,400 acres	216,600 acres
Acres Not Suitable for WFU	248,700 acres	65,200 acres	32,100 acres	238,300 acres	32,100 acres
Anticipated type and level of fire activity and fuel treatment		Approximately 2.5 times the No Action Alternative level of treatment	Approximately 7 times the No Action Alternative level of treatment	Approximately 6 times the No Action Alternative level of treatment	Approximately 6.2 times the No Action Alternative level of treatment
Estimated footprint acres treated per decade	11,500 acres				

TABLE 12. TWIN FALLS MANAGEMENT FRAMEWORK PLAN

Management Direction	Alternative A - No Action	Alternative B	Alternative C	Alternative D	Alternative E (Proposed Plan Amendment)
Restrictions on fire management practices if needed to protect resources	See Fire Management Restrictions Common to All Alternatives and Common to All Action Alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Fire management goals, objectives, and prioritization criteria	See the goals, objectives, and prioritization criteria for all five alternatives as presented in the preceding Bennett Hills – Timmerman Hills Amendment table.				
Acres Suitable for WFU	0 acres	82,500 acres	121,400 acres	40,800 acres	121,400 acres
Acres Not Suitable for WFU	234,100 acres	151,600 acres	112,700 acres	193,300 acres	112,700 acres
Anticipated type and level of fire activity and fuel treatment		Approximately 2.5 times the No Action Alternative level of treatment	Approximately 7 times the No Action Alternative level of treatment	Approximately 6 times the No Action Alternative level of treatment	Approximately 6.2 times the No Action Alternative level of treatment
Estimated footprint acres treated per decade	10,800 acres				

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APPENDIX C - ASSUMPTIONS FOR FIRE REGIME CONDITION CLASS CALCULATIONS

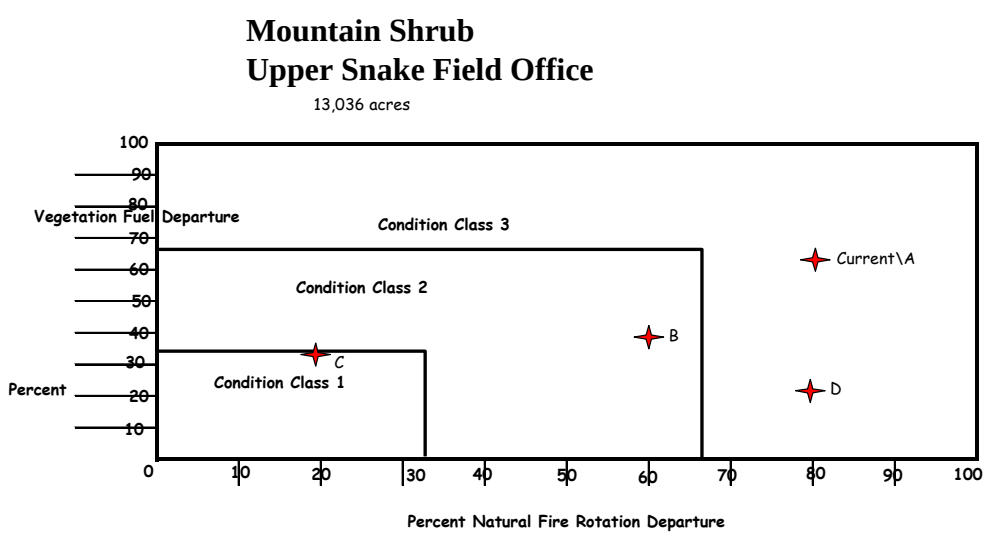
METHODOLOGY FOR CALCULATING FIRE REGIME CONDITION CLASS AND CONDUCTING ALTERNATIVE COMPARISON

Date: June 19, 2007

Prepared by: S. Heide and K. Waid and M. Aoi
Reviewed by: Doug Havlina

C.1 INTRODUCTION

Displayed long-term effects of each alternative are based on the estimated differences or *departure* from desired vegetation/fuels conditions (i.e., proportions of age-classes/successional stages and/or uncharacteristic vegetation across the landscape) **and** departure from the natural fire rotation (NFR) or Fire Regime Condition Class (FRCC). NFR is defined as the historic average number of years required in nature to burn over and reproduce an area equal to the total area under consideration (Heinselman 1973). Long-term effects were represented as an FRCC rating and were calculated for each vegetation cover type by field office over a 30-year period. The departures discussed above represent the overall FRCC rating for a given vegetation cover type and were graphed for each alternative and compared. FRCC was a primary evaluation measure used in the vegetation and wildlife effects analysis. Below is an example of the resulting FRCC graph produced for the mountain shrub vegetation cover type in the Upper Snake Field Office area. The vegetation/fuels departure is displayed on the y-axis and the NFR departure is displayed on the x-axis, and shows where each alternative falls within the FRCC graph.



This analysis was based on the concepts presented in the national interagency project scale FRCC Methods Guide with modifications. Modifications included using the NFR concept for the fire regime analysis (x-axis on the graph above). Fire Return Intervals (FRIs) reported in the scientific literature were converted to a natural/historic fire rotation for each vegetation cover type. Modifications were possible and were considered an improvement over the FRCC Guide protocol because, for current fire rotation, 32 years of large wildland fire perimeter data were available for the planning area and used to calculate current fire rotation departure from historic fire rotation. Modifications were made because quantitative field data on fire frequency and severity were not available across all vegetation cover types across the planning area as suggested in the FRCC guidebook.

The second modification included developing an equation that uses NFR and the longevity of successional stages to determine historic/reference vegetation conditions. The FRCC guidebook suggests using Potential Natural Vegetation Group (PNVG) or Biophysical Setting (BpS) for historical/reference conditions. At the time of this analysis, only national, broad-scale PNVGs were available for FRCC calculations. These PNVGs were reviewed for use in FMDA but were not used because they did not accurately reflect the local biophysical conditions.

Additionally, successional pathway diagrams were developed to determine future vegetation conditions and were used to compare to historic/reference vegetation conditions. The interagency methodology does not provide a method for *futuring* or comparing alternatives and predicted FRCC results given differing treatment levels. The successional pathway diagrams incorporated fire history data and past restoration/rehabilitation actions and were used to estimate the vegetation/fuels departure (y-axis on the graph above) from a Reference Condition/Desired Future Condition (DFC) for each alternative. Successional pathway diagrams allowed the team to analyze the effects of differing broad levels of treatment and priorities (Alternatives A through E on vegetation structure and composition over the long run (30 years into the future).

The following data were used in the vegetation and FRCC analysis:

- Average annual burned acres calculated from actual 1972-2002 wildfire occurrence (in a digital geographic information systems [GIS] format).
- Literature and studies that reference historic FRIs for cover types.
- Average annual treatment acres calculated from actual 1995–2000 treatment acres.
- Estimated annual treatment acres by alternative calculated from resource specialist estimates for 2003–2013.
- Estimated acres of areas with cheatgrass (*Bromus tectorum*) present as provided by resource specialists.
- Estimated acres of areas with introduced grasses present based on past rehabilitation efforts.
- Estimated acres of areas with juniper encroachment provided by resource specialists.

C.2 CALCULATING CURRENT FRCC

C.2.1 VEGETATION/FUELS DEPARTURE CALCULATIONS (Y-AXIS)

This section describes how Reference Conditions/DFC and current vegetation/fuel conditions were estimated and used in the FMDA analysis. Additionally, it describes how successional pathway diagrams were used to compare the effects of the alternatives using 10 years of treatment levels proposed over 30 years.

Reference Conditions/Desired Future Condition (Vegetation/Fuels)

Reference conditions were used in the vegetation/fuel departure calculation (Y-axis). Reference conditions developed for FMDA are synonymous with DFC. DFC is a management objective that is expected to produce a distribution of vegetation age classes across the landscape, which will alter fuels/vegetation structure, promote a healthier and more diverse vegetation composition, and return the currently altered fire regimes to fire regimes that more closely parallel historical fire regimes. DFC includes uncharacteristic vegetation that was incorporated as recommended by the IDT because, in all likelihood, uncharacteristic vegetation will remain a part of the future vegetation mosaic in the planning area. DFC varies by vegetation type and is a common objective among Alternatives B, C, D, and E. Management goals and DFC for the planning area's vegetation cover types is presented in Chapter 4, Section 4.2.

DFC was determined using the NFR, a correction for uncharacteristic vegetation, and the longevity of successional stages as described below:

- NFR. The FRI reported in the scientific literature was converted to an NFR for each vegetation cover type. The mid-point of the range of years derived from the scientific literature and/or from expert opinion was used in the NFR calculation. For the example of low-elevation shrub, estimates of FRI range from 60 years to 110 years between wildland fires. The mid-point of 85 years/wildland fire was used in the calculation of NFR for this vegetation cover type. NFR was calculated using the FRI mid-point value for each vegetation type on average. To determine an average annual percentage burned per year, the total area (100 percent) was divided by the mid-point FRI (85 years) which produced the resulting NFR of 1.18 percent burned per year. This calculation assumes that each acre has an equal chance of burning.
- Correction for Uncharacteristic vegetation in DFC: DFC includes uncharacteristic vegetation, which was incorporated as recommended by the IDT because, in all likelihood, uncharacteristic vegetation will remain a part of the future vegetation mosaic in the planning area. Percentages of uncharacteristic vegetation within each vegetation cover type were estimated. In the example of low-elevation shrub-early successional stage DFC, up to 15 percent of total vegetation cover is expected to remain dominated by cheatgrass/weeds and 5 percent would remain dominated by crested wheatgrass. When added together (20 percent) and subtracted from the whole, this indicates that 80 percent (0.8) of low-elevation shrub-early successional stage would consist of characteristic or native species.
- Successional Stages: The longevity of each age class (successional stage) for each vegetation cover type was estimated. In the example of low-elevation shrub-early

successional stage DFC calculation, it was estimated that early successional acres would move to mid-successional acres after 15 years, so 15 years was used in the DFC calculation. A DFC was calculated for each vegetation type, for each successional stage.

An example of the formula used to calculate DFC for low-elevation shrub-early successional stage is provided below:

DFC = (NFR) x (CV) x (SS)

Where:

NFR = ***Natural Fire Rotation***-Calculated for the entire vegetation cover type.

CV = ***Characteristic Vegetation***- The percentage of characteristic vegetation within the vegetation cover type

SS = ***Successional Stage***- The longevity of a successional stage for a given vegetation cover type in years.

For Example, Low-Elevation Shrub, Early Successional Stage DFC

NFR = 1.18% or 0.0118

CV = 80% or 0.8 (i.e., 20 percent of this vegetation cover type is currently in an uncharacteristic state and was not part of the historical mix of age-classes/successional stages)

SS = 15 years

DFC = (0.0118) x (0.8) x (15) = (0.14) or 14 percent

The DFC chosen for each vegetation cover type reflects the overall mixture of succession stages expected over time across a field office given a rate (or range of rates) of disturbance similar to that of historical times (pre-European settlement). The underlying assumption being that, through time, plants and animals have evolved and adapted to a similar rate of disturbance and should therefore be more resilient and less likely to be at risk of loss of key ecosystem components in the face of large and/or severe disturbance.

Calculating Current Successional Stage Acreage Percentages

Current age class/successional stage acreage percentages were derived using the 32-year fire history and past treatment data for each vegetation cover type by field office. These were compared to the DFC acreage percentages identified for that vegetation cover type. The dissimilarity rating between the current successional stage percentages and the DFC percentages represents the current FRCC vegetation/fuels departure, the Y-axis value for current.

C.2.2 Fire Rotation Departure Calculations (X-axis)

NFR is defined as the average number of years required in nature to burn over an area equal to the total area under consideration (Heinselman 1973), as discussed previously. NFR represents the historic (pre-European man) fire rotation for each vegetation cover type and also defines desired fire rotation to which current fire rotations are compared. An equation was used to arrive at fire rotation as follows:

$$\frac{\textbf{(Total Time Period)}}{\textbf{(Area Burned and Treated in Time Period} \div \textbf{total veg a}} = \textbf{Fire Rotation}$$

where:

Total Time Period (FMDA) =

Natural fire rotation = Fire Return Interval (FRI) Mid-Point
or
Current fire rotation = 1972-2002 years fire history (32 years)

Area Burned and Treated in Time Period (FMDA) =

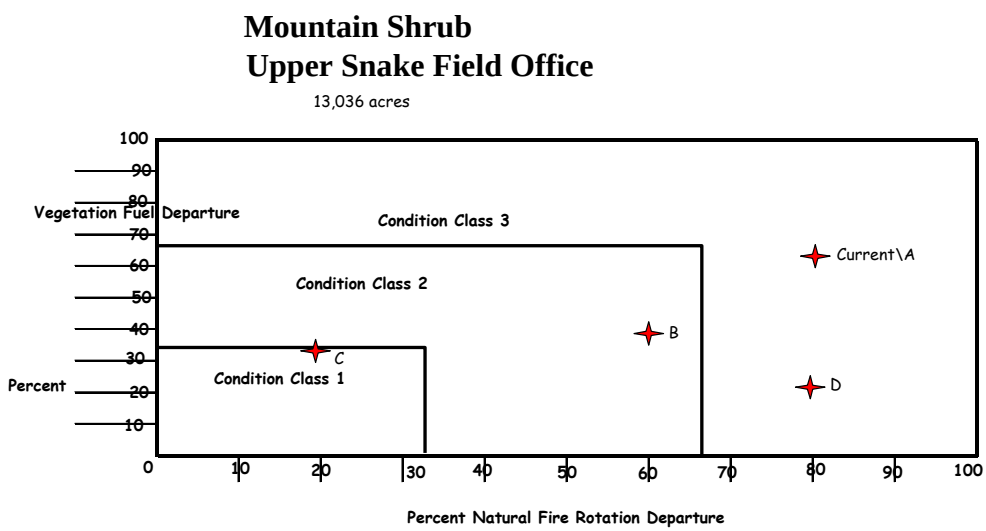
Natural = see Y-AXIS explanation above for NFR
or
Current = Wildfire acres burned + treatment acres 1972-2002

More specifically, a literature search was conducted and an NFR was calculated for each cover type as referenced in pertinent literature for the cover types (See Chapter 3, Section 3.2 for estimated historic fire rotation by vegetation cover type).

To calculate current fire rotation, departure was determined by first estimating the current fire rotation using the total acres within a vegetation cover type and the acres burned in that vegetation cover type during the period of 1972-2002. Second, the desired fire rotation was determined with the assumption that the desired rotation should be approximately equal to the historic rotation.

C.3 PREDICTING FUTURE FRCC TO COMPARE ALTERNATIVES

Displayed long-term effects of each alternative are based on the estimated differences or *departure* from desired vegetation/fuels conditions (i.e., proportions of age-class and/or uncharacteristic vegetation across the landscape) **and** departure from the NFR or FRCC. Long-term effects were represented as an FRCC rating and were calculated for each vegetation cover type by field office over a 30-year period. The departures discussed above were graphed for each alternative and compared. FRCC was a primary evaluation measure used in the vegetation and wildlife effects analysis. Below is an example of the resulting FRCC graph produced for the mountain shrub vegetation cover type in the Upper Snake Field Office area. The vegetation/fuels departure is displayed on the y-axis and the NFR departure is displayed on the x-axis, and shows where each alternative falls within the FRCC graph.



C.3.1 PREDICTING FUTURE VEGETATION/FUEL DEPARTURE

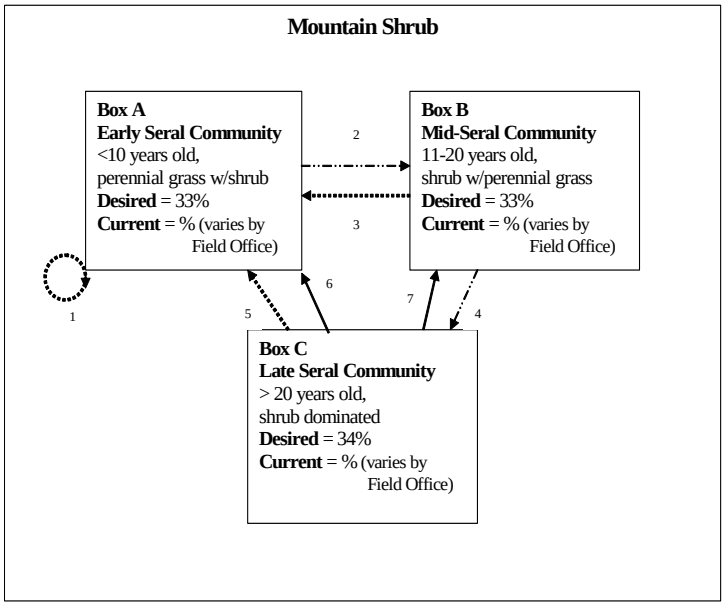
Successional pathway diagrams were developed to determine future vegetation conditions and used to compare to historic/reference vegetation conditions. The successional pathway diagrams incorporated fire history data and past restoration/rehabilitation actions and were used to estimate the vegetation/fuels departure (y-axis on the graph above) from a Reference Condition/DFC for each alternative. Successional pathway diagrams allowed the team to analyze the effects of differing broad levels of treatment and priorities (Alternatives A through E on vegetation structure and composition over the long run (30 years into the future).

To analyze the effects of each alternative, acres of treatment proposed, successional timeframes specific to each vegetation cover type, and expected levels of wildland fire (in this order) were processed through the successional pathway diagrams using specific assumptions developed for each vegetation cover type. For our purposes, mechanical treatments were treated as a disturbance similar to wildland fire (in its effect on succession). The suite of restoration and rehabilitation treatments used in low-elevation shrub (Rxfire, chemical, and seeding) were assumed to make this vegetation cover type more resilient to wildland fire – eventually reducing the number of acres burned over the long-term. The end result of the successional pathway diagram runs (proportion of acreage within each successional community [or box] after 30 years time) were compared to DFC percentages. The dissimilarity rating between an alternative's successional community acreage percentages and the DFC acreage percentages represents the FRCC vegetation/fuels departure for that alternative across vegetation cover types (see the national interagency project scale FRCC Methods Guide for additional details on calculating dissimilarity ratings).

Predicted successional stage percentages were estimated within each box (successional community) for each alternative, for each vegetation type, and were derived using the treatment levels proposed in each alternative, as well as assumptions regarding wildland fire occurrence using 32-years of fire history data (for each vegetation cover type by field office). These were compared to the DFC acreage percentages identified for that vegetation cover type. The dissimilarity rating between the current successional community percentages and the DFC

percentages represents the current FRCC vegetation/fuels departure (i.e., current Y-axis departure).

Reference and current condition percentages were used to analyze predicted changes in vegetation/fuel conditions (Y-AXIS) using successional pathway diagrams. For each field office, numerous successional pathway diagrams were developed - one per vegetation cover type or, in some cases, groups of vegetation cover types that succeed toward a potential natural vegetation community (e.g., aspen/conifer mix and dry conifer). These diagrams were used to model changes in vegetation structure that would occur given an alternative treatment level over the next 10 years, predicted amount of wildland fire, and successional rates inherent to a vegetation cover type. Below is an example of the successional pathway diagram developed for the mountain shrub vegetation cover type.



The successional pathway diagram analysis was completed separately for each field office area. All successional pathway diagrams and assumptions used in the analysis are available in the FMDA administrative record.

Assumptions

Assumptions used in conjunction with the mountain shrub successional pathway diagram include:

solid arrow ⟶ = restoration treatments (for some vegetation cover types this would include rehabilitation treatments as well)
broken arrow –·–·–▸ = succession
dashed arrow ····▸ = wildland fire

Restoration

Arrows #6, #7 – 100 percent of total restoration acres occur in Box C; 70 percent of these acres move from Box C to Box A, the other 30 percent moves from Box C to Box B.

Succession

Arrows #2, #4 – In 30 years, 80 percent of acres in Box A moves to Box B due to succession. In 30, years 50 percent of acres in Box B moves to Box C due to succession.

Wildland Fire

Arrows #1, #3, #5 – Wildland fire acres occur in the same proportions as the mountain shrub successional community distribution for a field office (i.e., if 70 percent of the mountain shrub vegetation cover type is in a late seral stage [Box C], then 70 percent of the total wildland fire acres were assumed to occur in Box C).

C.3.2 Predicting Future Fire Rotation Departure

NFR represents the historic (pre-European man) fire rotation for each vegetation cover type and also defines desired fire rotation to which predicted future fire rotations are compared. An equation was used to arrive at fire rotation as follows:

$$\frac{\textbf{(Total Time Period)}}{\textbf{(Area Burned and Treated in Time Period} \div \textbf{total veg a}} = \textbf{Fire Rotation}$$

where:

Total Time Period (FMDA) =

Natural fire rotation = Fire Return Interval (FRI) Mid-Point
or
Current fire rotation = 1972-2002 years fire history (32 years)
or
Predicted future fire rotation = 2002-2030 (30 years into the future)

Area Burned and Treated in Time Period (FMDA) =

Natural = see Y-AXIS explanation above for NFR
or
Current = Wildfire acres burned + treatment acres 1972-2002
or
Predicted Future = Predicted wildfire acres + wildfire reduction ratio** + alternative treatment levels 2002-2030

** **Wildland Fire Reduction (WFR) Ratios** were developed for vegetation cover types where more acres have burned than the historic fire rotation would have allowed over the last 32 years (i.e., low-elevation shrub and annual and perennial grass). Because it was assumed that treatments would reduce the potential for wildfire, wildfire acres were reduced to account for treatment effectiveness in the future.

To calculate predicted future fire rotation, each alternative's fire rotation by vegetation cover type was determined by running levels of treatment and estimated wildland fire acres (assumed to be at a level similar to the previous 30 years for all vegetation cover types except low-elevation shrub and annual and perennial grass where the WFR ratio was applied – see below) through the fire rotation equation. The current and alternative fire rotations by vegetation cover type were compared to the historical/desired fire rotations. The dissimilarity rating between an alternative's fire rotation and the desired fire rotation for given vegetation cover type represents the FRCC NFR departure (see the national interagency project scale FRCC Methods Guide for additional details on calculating dissimilarity ratings).

C.4 MONITORING FOR FRCC IN THE FUTURE

Refining FRCC methods to the project scale (mid-scale FRCC):

- Use the FRCC methodology described above (see bullets below for additional guidance as well as the national interagency project scale FRCC Methods Guide - http://www.frcc.gov as of May 3, 2004).
- Complete FRCC calculations prior to setting objectives and implementing treatments within units of a planning area. FRCC calculations should be recalculated on a five-year rotation in preparation for planning area-wide data calls. Fire Use Specialists for each field office could complete project-scale FRCC calculations with the assistance of fire GIS personnel.
- Convert fire atlas and past fuels/range/forestry/wildlife treatment boundaries within the planning area to a digital spatial format (GIS coverage)
- GPS all wildland fire, fuels treatment, or other restoration treatment perimeters (include in the mapping of large islands of unburned/untreated vegetation if possible) over the life of the project (LOP). Amend digital fire/treatment atlas at the end of each calendar year.

Y-AXIS (Vegetation/Fuels Departure)

- For the planning area, determine *current* proportions of age-classes/successional stages by vegetation cover type (i.e., potential natural community) (successional classes = early, middle, late, uncharacteristic) – It is suggested that digital wildfire/treatment GIS coverage in conjunction with FMDA assumptions (concerning the number of years it generally takes a vegetation cover type to move from an early to middle age-class/successional stage and from a middle to late age-class/successional stage - i.e., the break points between stages) be used AND any digital spatial data on uncharacteristic vegetation, including noxious or exotic weed infestation areas, juniper encroachment areas, etc. Refine age-class/successional stage and uncharacteristic vegetation proportion estimates using field inventories if possible.
- For similarity calculations between current and DFC, use DFC age-class percentages by vegetation cover type identified in FMDA as a starting point – adjust if necessary to take into consideration the planning area concerns/information provided by staff specialists, interested publics, etc.

X-AXIS (NFR Departure)

- For the planning area, determine current fire rotation by vegetation cover type using the digital wildfire/treatment GIS coverage.
- For similarity calculations between current and DFC, use the NFR mid-points (by vegetation cover type) as identified in FMDA for the *desired* fire rotation.

Roll up FRCC data from all planning areas within planning area:

- Make planning area-wide data calls on a five-year rotation.
- Summarize data into number of FRCC 1, 2, and 3 acres by vegetation cover type within the planning area as a whole.
- Complete the planning area-wide FRCC data roll-up by the District Fire Ecologist or the District Fire Use Specialist with the assistance of fire GIS personnel.

APPENDIX D - ACRES SUITABLE AND NOT SUITABLE FOR WILDLAND FIRE USE BY ALTERNATIVE AND FIELD OFFICE

The following table compares acres suitable and not suitable for wildland fire use (WFU) for each field office by alternative. Criteria used to designate areas suitable for WFU were different for each alternative. There are no areas designated suitable for WFU in Alternative A – No Action. This is because the 12 existing land use plans (LUPs) lack specific guidance for WFU. A few of the existing LUPs, however, allow *limited suppression*, which may be interpreted as similar to WFU. Areas designated as suitable for WFU in Alternative B were designated where a controlled wildland fire (WFU) would benefit resources and help achieve management goals. Areas designated as suitable for WFU in Alternative C were limited to the vegetation cover types that have degraded over the last century because of too little fire, shifts in species dominance, and accumulation of fuels. These cover types include Aspen/Conifer, Dry Conifer, Mid-elevation Shrub, Juniper, Mountain Shrub, and Wet/Cold Conifer. Areas designated as suitable for WFU in Alternative D were limited to sagebrush steppe areas that have presently degraded to domination by the Juniper cover type or the Mountain Shrub cover type in more mesic sites that generally do not require rehabilitation following fires. WFU may be allowed in sage grouse habitats for the benefit of the habitat only after site-specific project level consultation/collaboration with Idaho Department of Fish and Game (IDFG). Acres suitable for WFU in Alternative E are the same as the acres suitable for WFU in Alternative C. Lands managed by the Bureau of Land Management (BLM) within Craters of the Moon National Monument and Preserve are not included in the following figures.

TABLE 1. ACRES SUITABLE AND NOT SUITABLE BY ALTERNATIVE FOR WILDLAND FIRE USE (WFU) BY FIELD OFFICE

Field Office	Alternative A (No Action)		Alternative B		Alternative C		Alternative D		Alternative E (Proposed Plan Amendment)	
	Not Suitable	Suitable	Not Suitable	Suitable	Not Suitable	Suitable	Not Suitable	Suitable	Not Suitable	Suitable
Upper Snake	1,791,000	0	733,300	1,057,800	1,289,300	501,700	1,773,300	17,800	1,289,300	501,700
Pocatello	617,400	0	346,100	271,300	147,000	470,300	404,600	212,800	147,000	470,300
Burley	859,700	0	438,500	421,100	465,000	394,700	671,400	188,300	465,000	394,700
Shoshone	1,455500	0	290,800	1,164,700	1,073,000	382,600	1,444,200	11,200	1,073,000	382,600
Total	4,723,600	0	1,808,700	2,914,900	2,974,300	1,749,300	4,293,500	430,100	2,974,300	1,749,300

APPENDIX E - RIPARIAN SPECIES: ECOLOGICAL FUNCTIONS, RESPONSES TO FIRE, AND MANAGEMENT CONSIDERATIONS

TABLE 1. RIPARIAN SPECIES

Species	Ecological Function	Fire and Management
Riparian Tree Species		
Black Cottonwood (*Populus angustifolia*)	Forms small stands along small, moderately steep-gradient streams rather than extensive gallery forests. Important wildlife habitat; provides shade, bank protection, and erosion buffering.	Sprouts from roots and root crown, and/or healthy/fire-damaged branches after fire. Heavy use and recreation can reduce juvenile recruitment, which apparently requires flooding to expose suitable colonizing substrate.
Quaking Aspen (*P. tremuloides*)	Important wildlife habitat. Of limited distribution in the planning area forming in areas of subsurface moisture. Some stands along perennial stream channels provide important bank stability and shading functions.	Sprouts readily from roots and underground stems. Crown fires in coniferous forests often drop to the surface in aspen, or may extinguish after burning into aspen. Highly competitive on burned sites even if barely detectable before fire; it often dominates after fire. Heavy browsing of young suckers combined with trampling and soil compaction can reduce the ability to vegetatively reproduce.
Black Cottonwood (*P. trichocarpus*)	Main gallery forest species along main rivers. Provides important habitat for wildlife, attractive recreation sites, and erosion buffering from adjacent upland activities. This species is characteristic of floodplains.	Sprouts from stumps, boles, root crowns, or lateral roots following fire. However, it is frequently damaged by fire. Young trees and seedlings are usually killed by fire regardless of severity. Severe fire kills or top-kills older trees. Heavy use and recreation can reduce juvenile recruitment. Flooding and deposition are important to maintaining stands.
Rocky Mountain Juniper (*Juniperus scopulorum*)	The Rocky Mountain juniper/red-osier dogwood habitat type forms either a narrow band along streams of V-shaped canyons, or relatively broad stands on older alluvial terraces of floodplains of major streams or rivers.	Fire potential is relatively low in this habitat type. However, young juniper trees are easily killed by fire. As juniper trees age, they are able to withstand moderate fires, but a hot fire or a crown fire can kill or severely damage a tree. Old, large trees often show evidence of surviving a number of fires.

TABLE 1. RIPARIAN SPECIES

Species	Ecological Function	Fire and Management
Riparian Shrub Species		
Thinleaf Alder (*Alnus incana*)	Generally found on narrow, relatively steep riparian areas in the planning area. Provides bank stability, shade, and wildlife habitat. Streams lined with this species develop deep narrow channels with excellent fisheries habitat. Species usually grows in thickets and reduces understory production.	Sprouts readily from its root crown following fire or cutting; numerous wind-dispersed seeds are important in revegetating areas. Rarely browsed but trampling can impact juveniles. Channel down cutting and lowering of the water table will kill this species.
Water Birch (*Betula occidentalis*)	Found along narrow, relatively steep riparian areas in the planning area. Dense stands provide excellent thermal and hiding cover for wildlife, and enhance fisheries through bank stabilization and shading.	Aboveground plant parts are easily killed by fire, however, plants resprout from basal buds; easily established in revegetation efforts. Can be damaged by recreation and trampling.
Red Osier Dogwood (*Cornus sericea/Cornus stolonifera*)	Found along narrow, relatively steep riparian areas in the planning area. Thick, extensive root system stabilizes banks; dense flexible twigs slow floodwater during extreme events. The Rocky Mountain juniper/red-osier dogwood habitat type forms narrow bands along streams of V-shaped canyons or relatively broad stands on older alluvial terraces of floodplains of major streams and rivers (see Rocky Mountain juniper, above).	Semi-fire tolerant. Sprouts from roots, stolons, and stem bases after fire; can be killed by severe fires. Valuable winter forage for wildlife but rarely utilized by livestock; dense growth makes trampling unlikely. Species may be used for revegetation on degraded streams. Species is most common on those streams recognized for anadromous fish habitat.
Shrubby Cinquefoil (*Potentilla fruiticosa, Dasiphora floribunda*)	This species is most commonly found in moist alkaline meadows, and appears to be an indicator of relatively high water tables. Of limited value for bank stabilization since rarely found on banks, but important for structural diversity in meadows.	Susceptible to damage by fire; however, if root crowns are undamaged, individuals resprout. Shrubby cinquefoil also re-establishes from off-site seed sources. Browsed by most wildlife species and livestock.
Chokecherry (*Prunus virginiana*)	Generally found on moderately steep, narrow riparian areas, sometimes as an understory of aspen or other trees.	Well adapted to fire. Although susceptible to top-kill by fire, it resprouts prolifically from root crowns and rhizomes. Can be poisonous to livestock during drought or after freezing.

TABLE 1. RIPARIAN SPECIES

Species	Ecological Function	Fire and Management
Wood's Rose (*Rosa woodii*)	Wildlife habitat and nutritious food (rose hips) for small mammals and birds. Stabilizes seepage areas, but of limited occurrence on stream banks.	Moderately fire tolerant, usually favored by low-severity fire. Persists after low- to moderate-severity fire due to sprouting from root crowns and rhizomes. After fire, this species may germinate from on-site or off-site seed sources. Potentially an increaser under heavy use. Readily suckers and easy to establish by transplanting. Potential for use as a barrier to manage riparian areas.
Willows (*Salix bebbiana, S. boothii, S. geyeriana, S. drummondiana*)	These willow species form critical habitat for bank stabilization. Rocky banks or bottoms generally do not armor streams supporting these species; thus, the shrubs become more critical for reducing side- and head-cutting. They also provide thermal and hiding cover for wildlife and non-game habitat. *S. boothii* colonizes and stabilizes beaver dam areas, an important function in raising water tables, widening riparian areas, and creating additional bank storage.	All species tend to sprout from basal stems and root crown following top-killing fires; abundant wind-dispersed seed important in colonizing newly burned areas. Fire is relatively infrequent in riparian, wet meadow, and streamside habitats; these areas usually act as firebreaks. Streams supporting these species have the most potential for development of wide riparian areas and wet meadows, but susceptible to down cutting.
Sandbar Willow (*Salix exigua*)	Common colonizer of recently deposited gravels and sediments. This species is an excellent stabilizer in riparian areas, providing bank stabilization and sediment trapping. It appears to act as a facilitator species for establishment of other riparian vegetation. Loss of this species often results in rapid erosion of the stream channel.	Sprouts from roots after fire. Numerous wind-dispersed seeds are important in revegetating burned areas. High moisture content characteristic of streamside soils and fuels reduce fire ignition and spread. Wildlife and livestock may overuse this species. Plants are easily established through transplants and cuttings, and will vigorously spread via lateral roots.
Yellow Willow (*Salix lutea*)	Typically occurs as a pioneer or early seral species along banks of rivers or streams. It is often found with cottonwoods and other willows. In Idaho, yellow willow is generally confined to Wyoming big sagebrush and grass vegetation zones, seldom extending into the forest, and avoiding cooler mountain big sagebrush zones.	Sprouts from roots or stem base following fire. Along streamsides, high moisture contents of soils and fuels reduce the chance of fire. Numerous wind-dispersed seeds are important in revegetating areas following fire.

TABLE 1. RIPARIAN SPECIES

Species	Ecological Function	Fire and Management
Wolf's Willow, Grayleaf Willow (*Salix wolfii / S. glauca*)	Grayleaf willow communities occupy well-drained, open alpine and upper subalpine habitats with tufted hairgrass.	A fire-adapted species that sprouts from root crowns following top-kill by fire. Even old, decadent willows sprout prolifically after fire. Sprouting ability of willows is more vigorous and prolific than birches or alders. Abundant, wind-dispersed seeds are important for colonizing burned areas. Seeds are dispersed in the fall, over-winter under the snow, and germinate in spring.
Riparian Graminoid Species – restricted to only the most common and desirable species		
Water Sedge (*Carex aquatilis*)	This species requires a constant high water table. It provides excellent stabilization of seepage areas, wet meadows, and stream banks on low gradient streams the dense sod forms overhanging mats providing valuable fish cover.	Recovers quickly from low-intensity fires from underground rhizomes; aqueous habitat further protects roots and rhizomes, however, better-drained areas are more susceptible to fires, especially during dry summers. Colonizes burned areas by seeds and rhizomes.
Nebraska Sedge (*Carex nebrascensis*)	One of the most common of the coarse sedges, requiring less moisture than *C. rostrata* or *C. aquatilis*; thick rhizomes provide excellent bank stabilization and bank overhangs. Highly palatable to wildlife and livestock.	May be damaged by severe fires, depending upon soil moisture conditions during and following fire.
Beaked Sedge (*Carex rostrata*)	Another common coarse sedge that occurs on moister sites than *C. nebrascensis*, often in seeps and riparian areas. Thick, dense rhizomes provide bank and soil stabilization. Overhanging mats create excellent fisheries habitat but are also susceptible to trampling and mass-wasting. Species forms thick organic layers and may contribute to water-holding capacity in banks.	Beaked sedge has deeply buried rhizomes that usually survive all but the most severe fires.
Tufted Hairgrass (*Deschampsia caespitosa*)	Common in moist meadows and as a colonizer of gravel bars; may also replace *Carex* spp. as the water table drops, and be replaced by the exotic sod-former, *Poa pratensis* (Kentucky bluegrass).	Generally survives all but most severe fires. Usually sprouts from root crowns after fire. Tufts formed by the leaves protect basal buds from fire. After fire the species regenerates from on-site seed.

TABLE 1. RIPARIAN SPECIES

Species	Ecological Function	Fire and Management
Baltic Rush (*Juncus balticus*)	This species can tolerate a lowered water table and heavy trampling. Its long, tangled roots provide good bank stabilization. The species does not form overhanging banks. It is generally an increaser and sometimes replaces *Carex*. It has relatively low productivity and does not develop organic deposits.	Sprouts from extensive rhizomes after fire. Helps to stabilize banks but it does not contribute to other riparian vegetation functions (overhanging banks, shading). Can be found on deeply incised channels (up to 12 feet above the water table); thus, roots can apparently (grow to) remain in contact with the water table. Such plants, however, have little vigor and provide little bank stabilization.
Kentucky Bluegrass (*Poa pratensis*)	Common understory dominant of low- to middle-elevation riparian communities, typically gently sloping stream terraces with a widely spaced overstory of cottonwood, water birch, conifers, or willows (*Salix geyeriana, S. lutea*, *S. exigua*). Dominates low- and middle-elevation riparian meadows on broad floodplains and elevated stream terraces.	Rhizomes survive and initiate growth after aboveground shoots are burned. Although the plant survives because of soil-insulated rhizomes, postfire plant vigor and density are greatly affected by phenological stage at time of burning. Seedling establishment is unimportant in immediate postfire recovery. However, burning may enhance seed germination during a second postfire growing season.

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APPENDIX F - SPECIAL STATUS PLANTS IN THE IDAHO FALLS AND TWIN FALLS DISTRICTS

TABLE 1. SPECIAL STATUS PLANTS IN THE IDAHO FALLS AND TWIN FALLS DISTRICTS

Common Name	Scientific Name	BLM Status	Global Rank /Threat Rating or State Status	BLM Field Office of Known Occurrence	Vegetation Types of Occurrence
Type 1					
Ute's-ladies tresses	*Spiranthes diluvialis*	Threatened	G2	Upper Snake	Riparian
Type 2					
Goose Creek milkvetch	*Astragalus anserinus*	Sensitive	G2, 8	Burley	Low-elevation Shrub Steppe Mid-elevation Shrub Steppe Juniper, Pinyon-Juniper Mix
Lemhi milkvetch	*Astragalus aquilonius*	Sensitive	G3, 5	Upper Snake	Low-elevation Shrub Steppe
Starveling milkvetch	*Astragalus jejunus* var. *jejunus*	Sensitive	G3/T3, 9	Pocatello	Mid-elevation Shrub Steppe
Tufted cryptantha	*Cryptantha caespitosa*	Sensitive	G3, 2	Pocatello	Mid-elevation Shrub Steppe Mountain Shrub
Welsh's buckwheat	*Eriogonum capistratum* var. *welshii*	Sensitive	G4/T2, 9	Upper Snake	Mid-elevation Shrub Steppe Mountain Shrub
Saint Anthony evening primrose	*Oenothera psammophila*	Sensitive	G3, 8	Upper Snake	Other (sand dunes)
Obscure phacelia	*Phacelia inconspicua*	Sensitive	G1, 5	Upper Snake	Mid-elevation Shrub Steppe Aspen, Aspen /Conifer Mix Mountain Shrub
Least phacelia	*Phacelia minutissima*	Sensitive	G3, 5	Shoshone	Riparian Mid-elevation Shrub Steppe Aspen, Aspen/Conifer Mix
Alkali primrose	*Primula alcalina*	Sensitive	G2, 8	Upper Snake	Riparian

TABLE 1. SPECIAL STATUS PLANTS IN THE IDAHO FALLS AND TWIN FALLS DISTRICTS

Common Name	Scientific Name	BLM Status	Global Rank /Threat Rating or State Status	BLM Field Office of Known Occurrence	Vegetation Types of Occurrence
Rolland's bulrush	*Scirpus rollandii (Scirpus pumilus* ssp. *rollandii)*	Sensitive	G3, 8	Upper Snake	Riparian
Malheur princesplume	*Stanleya confertifolia*	Sensitive	G2, 2	Shoshone	Low-elevation Shrub Steppe
Type 3					
Two-headed onion	*Allium anceps*	Sensitive	S2	Burley, Upper Snake	Low-elevation Shrub Steppe Mid-elevation Shrub Steppe
Lost River milkvetch	*Astragalus amnis-amissi*	Sensitive	G3, 11	Upper Snake	Other (limstone cliffs)
Mourning milkvetch	*Astragalus atratus* var. *inseptus*	Sensitive	G4/T3, 12	Shoshone	Low-elevation Shrub Steppe Mid-elevation Shrub Steppe
Meadow milkvetch	*Astragalus diversifolius*	Sensitive	G2, 11	Upper Snake	Riparian
Tufted milkvetch	*Astragalus gilviflorus*	Sensitive	S1	Upper Snake	Mid-elevation Shrub Steppe Mountain Shrub
Picabo milkvetch	*Astragalus oniciformis*	Sensitive	G3, 11	Upper Snake, Shoshone	Low-elevation Shrub Steppe Mid-elevation Shrub Steppe
Four-wing milkvetch	*Astragalus tetrapterus*	Sensitive	S1	Burley	Low-elevation Shrub Steppe Mid-elevation Shrub Steppe
Western sedge	*Carex occidentalis*	Sensitive	S1	Upper Snake	Mountain Shrub Aspen, Aspen/Conifer Mix Dry Conifer
Uinta Basin cryptantha	*Cryptantha breviflora*	Sensitive	S2	Pocatello	Mid-elevation Shrub Steppe Juniper, Pinyon-Juniper Mix
Sepal-tooth dodder	*Cuscuta denticulata*	Sensitive	S1	Upper Snake	Mid-elevation Shrub Steppe

TABLE 1. SPECIAL STATUS PLANTS IN THE IDAHO FALLS AND TWIN FALLS DISTRICTS

Common Name	Scientific Name	BLM Status	Global Rank /Threat Rating or State Status	BLM Field Office of Known Occurrence	Vegetation Types of Occurrence
Chatterbox orchid	*Epipactis gigantea*	Sensitive	S2	Burley, Upper Snake, Shoshone	Riparian
Great Basin desert buckwheat	*Eriogonum desertorum*	Sensitive	S1	Pocatello	Mid-elevation Shrub Steppe Juniper, Pinyon-Juniper Mix
Bugleg goldenweed	*Haplopappus insecticruris (Pyrrocoma insecticruris)*	Sensitive	G3, 11	Shoshone	Mid-elevation Shrub Steppe
Spreading gilia	*Ipomopsis polycladon*	Sensitive	S2	Upper Snake	Salt Desert Shrub Low-elevation Shrub Steppe Mid-elevation Shrub Steppe
Davis peppergrass	*Lepidium davisii*	Sensitive	G3, 11	Burley	Low-elevation Shrub Steppe
Marsh felwort	*Lomatogonium rotatum*	Sensitive	S1	Upper Snake	Riparian
Idaho penstemon	*Penstemon idahoensis*	Sensitive	G2, 11	Burley	Mid-elevation Shrub Steppe Juniper, Pinyon-Juniper Mix
Small-flowered ricegrass	*Piptatherum micranthum*	Sensitive	S2	Upper Snake	Other (limestone cliffs)
Tall dropseed	*Sporobolus asper*	Sensitive	S1	Shoshone	Low-elevation Shrub Steppe
Green needlegrass	*Stipa viridula (Nassella viridula)*	Sensitive	S2	Upper Snake, Pocatello	Mid-elevation Shrub Steppe
Tufted Townsend daisy	*Townsendia scapigera*	Sensitive	S2	Burley	Low-elevation Shrub Steppe Mid-elevation Shrub Steppe Mountain Shrub

TABLE 1. SPECIAL STATUS PLANTS IN THE IDAHO FALLS AND TWIN FALLS DISTRICTS

Common Name	Scientific Name	BLM Status	Global Rank /Threat Rating or State Status	BLM Field Office of Known Occurrence	Vegetation Types of Occurrence
Type 4					
Rush aster	*Aster junciformis (Symphyotrichum boreale)*	Sensitive	S	Upper Snake	Riparian
Two-grooved milkvetch	*Astragalus bisulcatus* var. *bisulcatus*	Sensitive	S	Upper Snake	Low-elevation Shrub Steppe Riparian
Drummond's milkvetch	*Astragalus drummondii*	Sensitive	S	Upper Snake	Mid-elevation Shrub Steppe Mountain Shrub
Newberry's milkvetch	*Astragalus newberryi* var. *castoreus*	Sensitive	S	Burley	Low-elevation Shrub Steppe Mid-elevation Shrub Steppe
Winged-seed evening primrose	*Camissonia pterosperma*	Sensitive	S	Upper Snake	Mid-elevation Shrub Steppe
Foothill sedge	*Carex tumulicola*	Sensitive	S	Pocatello	Mid-elevation Shrub Steppe
Earth lichen	*Catapyrenium congestum*	Sensitive	S	Shoshone	Low-elevation Shrub Steppe
Cushion cactus	*Coryphantha vivipara (Escobaria vivipara)*	Sensitive	S	Upper Snake	Mid-elevation Shrub Steppe Mountain Shrub
Bacigalupi's downingia	*Downingia bacigalupii*	Sensitive	S	Shoshone	Riparian
White eatonella	*Eatonella nivea*	Sensitive	S	Shoshone	Salt Desert Shrub Low-elevation Shrub Steppe
White-margined wax plant	*Glyptopleura marginata*	Sensitive	S	Burley	Salt Desert Shrub Low-elevation Shrub Steppe
Cooper's rubber-plant	*Hymenoxys cooperi* var. *canescens*	Sensitive	S	Pocatello	Mid-elevation Shrub Steppe
Red glasswort	*Salicornia rubra*	Sensitive	S	Pocatello	Riparian
Hoary willow	*Salix candida*	Sensitive	S	Upper Snake, Pocatello	Riparian

TABLE 1. SPECIAL STATUS PLANTS IN THE IDAHO FALLS AND TWIN FALLS DISTRICTS

Common Name	Scientific Name	BLM Status	Global Rank /Threat Rating or State Status	BLM Field Office of Known Occurrence	Vegetation Types of Occurrence
Type 5					
Cusick's horse-mint	*Agastache cusickii*	Watch	R	Burley	Mid-elevation Shrub Steppe Mountain Shrub Juniper, Pinyon-Juniper Mix
Coral lichen	*Aspicilia fruticulosa*	Watch	R	Pocatello	Low-elevation Shrub Steppe
Park milkvetch	*Astragalus leptaleus*	Watch	M	Upper Snake	Riparian
Snake River milkvetch	*Astragalus purshii* var. *ophiogenes*	Watch	M	Shoshone	Low-elevation Shrub Steppe
Fringed redmaids	*Calandria ciliata*	Watch	R	Shoshone	Mid-elevation Shrub Steppe
Buxbaum's sedge	*Carex buxbaumii*	Watch	M	Shoshone	Riparian
Birchleaf mountain-mahogany	*Cercocarpus montanus*	Watch	R	Pocatello	Mountain Shrub
Silky cryptantha	*Cryptantha sericea*	Watch	M	Pocatello	Low-elevation Shrub Steppe Mid-elevation Shrub Steppe
Ibapah springparsley	*Cymopterus ibapensis*	Watch	R	Upper Snake, Pocatello	Low-elevation Shrub Steppe
Swamp willow-herb	*Epilobium palustre*	Watch	M	Upper Snake	Riparian
Hall's rush	*Juncus hallii*	Watch	R	Upper Snake, Pocatello	Riparian
Congested blazing-star	*Mentzelia congesta*	Watch	R	Shoshone	Low-elevation Shrub Steppe Mid-elevation Shrub Steppe Juniper, Pinyon-Juniper Mix
Wild timothy	*Muhlenbergia racemosa*	Watch	R	Upper Snake, Pocatello	Riparian

TABLE 1. SPECIAL STATUS PLANTS IN THE IDAHO FALLS AND TWIN FALLS DISTRICTS

Common Name	Scientific Name	BLM Status	Global Rank /Threat Rating or State Status	BLM Field Office of Known Occurrence	Vegetation Types of Occurrence
Simpson's hedgehog cactus	*Pediocactus simpsonii*	Watch	M	Burley, Pocatello	Salt Desert Shrub Low-elevation Shrub Steppe Mid-elevation Shrub Steppe Mountain Shrub Juniper, Pinyon-Juniper Mix
Cusick's primrose	*Primula cusickiana*	Watch	R	Shoshone	Mid-elevation Shrub Steppe Mountain Shrub
Lost River silene	*Silene scaposa* var. *lobata*	Watch	M	Upper Snake	Mid-elevation Shrub Steppe

F.1 SPECIAL STATUS PLANTS

Rare species are afforded protection under the Endangered Species Act (ESA) of 1973, as amended, and under Bureau of Land Management (BLM) regulations. The mandates of the ESA only apply to rare species that have been officially listed as threatened or endangered, are proposed for listing, or are candidates for listing (BLM Manual 6840). BLM is required to consult with the U.S. Fish and Wildlife Service (USFWS) on potential impacts to listed plant species. The USFWS also suggests BLM consult with them informally when assessing projects that may impact candidate species.

BLM sensitive species are designated by the State Director under 16 U.S.C. 1536 (a)(2). Sensitive species shall be managed so they will not need to be listed as proposed, threatened, or endangered, with the same level of protection as candidate species (BLM Manual 6840). A protocol for identification of Idaho BLM special status plants was developed in 2002. This protocol was modeled after a similar protocol developed by Region 1 of the U.S. Forest Service and mostly relies on an international system for ranking species imperilment originally set up by the Nature Conservancy for the Natural Heritage Program's and Conservation Data Centers in North and South America. States and provinces continue to use this global and state/provincial ranking system to assess extinction threats at the global and more local scales. In addition to these rankings, Idaho BLM used other sources of information and criteria to help better define trends and threats for rare plant species. This includes the Idaho Native Plant Society's ranking system and the USFWS "Listing Priority Ranking Table." Status of all rare plant taxa is reviewed and updated annually at the Idaho Rare Plant Conference. The status rankings listed in this appendix are the results of the 2003 Idaho Rare Plant Conference and the 2003 Idaho Special Status Plant list. Ranking categories and protocols for special status plants are as follows:

TYPE 1. THREATENED, ENDANGERED, AND PROPOSED SPECIES

These species are listed by the USFWS as threatened or endangered, or they are proposed for listing under the ESA.

TYPE 2. RANGEWIDE/GLOBALLY IMPERILMENT SPECIES

These are taxa designated as USFWS candidate species or are ranked by the Idaho Conservation Data Center (IDCDC) as critically imperiled to globally rare (G1–G3 or T1–T3) with a threat priority of 1–9 (see below for acronyms, definitions, and threat priority table).

TYPE 3. REGIONAL/STATE IMPERILMENT SPECIES

These are taxa that are in danger of becoming extirpated from Idaho in the foreseeable future if factors contributing to their decline or habitat degradation or loss continues. These are taxa that are ranked by the IDCDC with global ratings of G1–G3 or T1–T3 with a threat priority of 10–12 or that have an Idaho Native Plant Society ranking of Priority 1–2.

TYPE 4. SPECIES OF CONCERN

These are taxa that are generally rare in Idaho and may be local endemics with currently low threat levels or peripheral, rare species. These taxa are designated by the Idaho Native Plant Society as Sensitive. They have small populations or localized distribution within Idaho and do not meet the criteria for classification as Priority 1 or 2, but their populations and habitats might be jeopardized without active management or removal of threats.

TYPE 5. WATCH LIST

Watch list taxa are not considered BLM sensitive species. These are taxa that may be added to the sensitive species list depending on new information concerning threats and species biology or statewide trends. The Idaho Native Plant Society lists these taxa as "Monitor" and "Review". The Watch list includes three general categories of taxa:

A. Local endemic, peripheral, disjunct or generally rare taxa with stable, downward or suspected downward population trends where the threats and/or species biology is not well understood.

B. Wide-ranging taxa with decreasing trend nationally or regionally but not in Idaho (or status in Idaho is unknown).

C. Taxa that may or may not warrant federal protection, however data are insufficient to determine their conservation status at this time.

F.2 RANKING SYSTEM

The following ranking system was used during the Idaho Rare Plant Conference (2002) to determine the conservation rank of Idaho's global priority and state rare plant species.

GLOBALLY RARE SPECIES (TAXA RARE THROUGHOUT THEIR RANGE):

G = Global rank indicator; denotes rank based on range-wide status.

T = Trinomial rank indicator; denotes range-wide status of variety or subspecies.

1 = Critically imperiled because of extreme rarity or because of some factor of its biology making it especially vulnerable to extinction (typically 5 or fewer occurrences).

2 = Imperiled because of rarity or because of other factors demonstrably making it very vulnerable to extinction (typically 6 to 20 occurrences).

3 = Rare or uncommon, but not imperiled (typically 21 to 100 occurrences).

4 = Not rare and apparently secure, but cause for long-term concern (usually more than 100 occurrences).

5 = Demonstrably widespread, abundant, and secure.

STATE RARE SPECIES (TAXA RARE WITHIN IDAHO POLITICAL BOUNDARIES; MORE COMMON ELSEWHERE):

State Priority 1 (S1) = Taxa in danger of becoming extinct or extirpated from Idaho in the foreseeable future if identifiable factors contributing to their decline continue to operate. These are taxa whose populations are present only at critically low levels or whose habitats have been degraded or depleted to a significant degree.

State Priority 2 (S2) = Taxa likely to be classified as Priority 1 within the foreseeable future in Idaho, if factors contributing to population decline or habitat degradation or loss continue.

Sensitive (S) = Taxa with small populations or localized distributions within Idaho that presently do not meet the criteria for classifications as Priority 1 or 2 but whose populations and habitats might be jeopardized without active management or removal of threats.

Monitor (M) = Taxa common within a limited range as well as those taxa that are uncommon but have no identifiable threats.

Review (R) = Taxa that may be of conservation concern in Idaho, but lack sufficient data to base a recommendation regarding their appropriate classification.

TABLE 2. THREAT PRIORITY

Priority	Taxonomy	Threat	
		Magnitude	Immediacy
1	Monotypic genus	High	Imminent
2	Species		
3	Subspecies/Variety		
4	Monotypic genus		Non-imminent
5	Species		
6	Subspecies/Variety		
7	Monotypic genus	Low	Imminent
8	Species		
9	Subspecies/Variety		
10	Monotypic genus		Non-imminent
11	Species		
12	Subspecies/Variety		

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APPENDIX G - NOXIOUS WEEDS PRESENT IN THE IDAHO FALLS AND TWIN FALLS DISTRICTS AND THEIR ASSOCIATED VEGETATION TYPES

TABLE 1. NOXIOUS WEEDS PRESENT IN THE IDAHO FALLS AND TWIN FALLS DISTRICTS

Common Name	Scientific Name	Vegetation Type
Black henbane	*Hyoscyamus niger*	Low-elevation Shrub, Mid-elevation Shrub, Dry Conifer, Juniper, Invasive Annual Grass, Perennial Grass
Canada thistle	*Cirsium arvense*	Invasive Annual Grass, Perennial Grass, Low-elevation Shrub Steppe, Mid-elevation Shrub Steppe, Riparian, Other (agricultural)
Dalmatian toadflax	*Linaria genistifolia ssp. dalmatica*	Low-elevation Shrub, Mid-elevation Shrub, Juniper, Invasive Annual Grass, Perennial Grass
Diffuse knapweed	*Centaurea diffusa*	Invasive Annual Grass, Perennial Grass, Low-elevation Shrub Steppe, Mid-elevation Shrub Steppe, Other (agricultural)
Dyer's woad	*Isatis tinctoria*	Low-elevation Shrub, Mid-elevation Shrub, Juniper, Invasive Annual Grass, Perennial Grass, Riparian
Field bindweed	*Convolvulus arvensis*	Invasive Annual Grass, Perennial Grass, Low-elevation Shrub Steppe, Mid-elevation Shrub Steppe, Riparian, Other (agricultural)
Hoary cress (whitetop)	*Cardaria draba*	Invasive Annual Grass, Perennial Grass, Low-elevation Shrub Steppe, Mid-elevation Shrub Steppe, Riparian, Other (agricultural)
Jointed goatgrass	*Aegilops cylindrica*	Low-elevation Shrub, Mid-elevation Shrub, Invasive Annual Grass, Perennial Grass, Other (agricultural)
Leafy spurge	*Euphorbia esula*	Low-elevation Shrub, Mid-elevation Shrub Steppe, Mountain Shrub, Dry Conifer, Aspen-Conifer, Juniper, Invasive Annual Grass, Perennial Grass, Riparian, Other (agricultural)
Musk thistle	*Carduus nutans*	Low-elevation Shrub, Mid-elevation Shrub, Mountain Shrub, Dry Conifer, Aspen Conifer, Invasive Annual Grass, Perennial Grass, Riparian, Other (agricultural)
Perennial pepperweed	*Lepidium latifolium*	Riparian
Perennial sowthistle	*Sonchus arvensis*	Riparian

TABLE 1. NOXIOUS WEEDS PRESENT IN THE IDAHO FALLS AND TWIN FALLS DISTRICTS

Common Name	Scientific Name	Vegetation Type
Poison hemlock	*Conium maculatum*	Riparian
Puncturevine	*Tribulus terrestris*	Salt Desert Shrub, Invasive Annual Grass, Perennial Grass, Low Elevation Shrub Steppe, Mid-elevation Shrub Steppe, Other (agricultural)
Purple loosestrife	*Lythrum salicaria*	Riparian
Rush skeletonweed	*Chondrilla juncea*	Invasive Annual Grass, Perennial Grass, Low-elevation Shrub Steppe, Mid-elevation Shrub Steppe
Russian knapweed	*Acroptilon repens*	Invasive Annual Grass, Perennial Grass, Low-elevation Shrub Steppe, Mid-elevation Shrub Steppe, Other (agricultural)
Scotch thistle	*Onopordum acanthium*	Invasive Annual Grass, Perennial Grass, Low-elevation Shrub Steppe, Mid-elevation Shrub Steppe, Other (agricultural)
Spotted knapweed	*Centaurea maculosa*	Low-elevation Shrub, Mid-elevation Shrub Steppe, Mountain Shrub, Dry Conifer, Aspen-Conifer, Invasive Annual Grass, Perennial Grass
Yellow toadflax	*Linaria vulgaris*	Mid-elevation Shrub, Dry Conifer, Invasive Annual Grass, Perennial Grass

Two federal laws explicitly direct that infestations of weeds on federal land will be controlled: (a) the Federal Noxious Weed Act of 1974 (7 U.S.C. 2801-2813), as amended by Section 15, Management of Undesirable Plants on Federal Lands, 1990; and (b) the Carson-Foley Act of 1968 (PL 90-583). Idaho's noxious weed law (Chapter 34, Idaho Code) places responsibility for noxious weed control on federal lands with the federal government.

The Final Environmental Impact Statement Vegetation Treatment on BLM Lands in Thirteen Western States (BLM 1991) analyzes treatment of undesirable plants for all BLM lands in the 13 Western states. This document specifies the following vegetation management priorities: (1) take preventative actions to minimize the need for control; (2) use effective non-chemical methods when and where feasible; and (3) use herbicides after considering the effectiveness of all potential methods or in combination with other methods of control. The EIS also identifies several actions that are to be implemented as standard design features for weed control projects. Noxious weed control was analyzed by the BLM in the Northwest Area Noxious Weed Control Program Final EIS (USDI-BLM 1985, supplemented 1987). This EIS described and analyzed the environmental impacts of implementing a five-state program for the control of noxious weeds. A worst-case analysis of impacts on human health from herbicide use was included.

The following documents are tiered to the above EISs and provide NEPA compliance at the field office level:

- Shoshone District Noxious Weed Control EA (ID050-EA-92031) - March 1992
- Noxious Weed Control in Wilderness Study Areas EA (ID050-EA-91040) - March 1992
- Pocatello Resource Area Office Noxious Weed Control EA (ID-030-97-035) - March 1997
- Noxious Weed Control Annual Work Plan (ID074-2002-0038AD)

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APPENDIX H - ESR AND NON-FIRE RESTORATION APPROACHES AND CONSIDERATIONS IN LOW-ELEVATION SHRUB, INVASIVE ANNUAL AND PERENNIAL GRASS

This section provides an overview of rehabilitation and restoration approaches, which are both presently directed in part by the Final Environmental Impact Statement – Vegetation Treatment on BLM Lands in Thirteen Western States (BLM 1991). Rehabilitation refers to post-wildfire activities subject to stipulations put forth in the interagency Emergency Stabilization and Rehabilitation (ESR) Handbook (http://fire.r9.fws.gov/ifcc/Esr/handbook/). Rehabilitation efforts are subject to funding limitations in any given fire year. Rehabilitation after wildland fire is part of all proposed alternatives, including the No Action Alternative.

"Restoration" in the planning area as part of the proposed action and alternatives is a broad term for proactive treatments, primarily intended to restore perennial structure to invasive annual grass-infested rangeland, usually using some native species. Restoration is a component of all alternatives. Restoration activities are presently under the direction of several documents, including the Final Environmental Impact Statement – Vegetation Treatment on BLM Lands in Thirteen Western States and the Great Basin Restoration Initiative's strategy. The BLM Districts cannot always use local native species and a full species component for a given ecological site. This is because: 1) usually the sites have been more or less modified from the ecological site potential and due to weed invasion, soil loss, etc., are susceptible to rapid re-invasion, and 2) locally-collected native species are not available for use on these sites. The native species used are cultivars developed from populations from the Intermountain region or the Pacific Northwest on the east side of the Cascades (usually eastern Washington).

Seedings done prior to the early 1990s were primarily crested wheatgrass in a mix with other exotics, because that is all that was available for use in rehabilitation. In the last 10 years, the majority of rehabilitation seedings have been done with about a 50/50 mix of exotics (primarily Siberian wheatgrass and tall wheatgrass) and whatever "natives" (as in native to the Pacific Northwest or Intermountain West, since on-site natives are not generally available) are available, primarily 'Sherman' big bluegrass (*Poa ampla*, used to replace Nevada bluegrass - now just another form of *Poa secunda*), and 'Secar' Snake River wheatgrass and Anatone bluebunch wheatgrass, both of which are options for low-elevation sites. In higher precipitation zones, both 'Goldar' and 'Whitmar' bluebunch wheatgrass have been used. Great Basin wildrye, bottlebrush squirreltail, and streambank wheatgrass are also used. In the last two years the ratio has been approximately 60 to 70 percent native species and the remainder exotics.

In many cases, the techniques used in both rehabilitation and restoration may be the same. The two major goals in most fire rehabilitation projects are to stabilize the soil surface against erosion, and establish a plant community that would be structurally similar to the potential native community and resistant to dominance by invasive species. The seed mix would depend on site potential and the degree of degradation. Restoration of annual grasslands is an evolving science at present and would likely remain so for the foreseeable future, as various approaches are evaluated and adaptively managed on the ground. For now, the general approach often involves a prescribed burn in spring to early fall to remove standing cheatgrass biomass and seed, preferably during the brief period when the plants have cured, but seeds have not dropped. This may be followed by a rest period through the summer and a follow-up treatment with a pre-emergent herbicide or additional prescribed burn during the fall. The area is then seeded with an

appropriate seed mix as described above. Note: this approach is an example and not all-inclusive; many factors are considered when doing restoration for a given vegetation type.

Success criteria are dependent on the objectives and initial condition for the rehabilitated/restored site. In accordance with the ESR manual, a burned area is rested for a minimum of two growing seasons following a fire. After two growing seasons, the site is evaluated by an interdisciplinary team to assess recovery/establishment. The BLM has generally elected to use the criterion that perennial herbaceous cover should be 80 percent of potential (or bare mineral soil within 20 percent of potential) for a given ecological site. Two difficulties often arise: 1) the ecological site potentials have been altered, as stated above, and 2) due to the high extent of degraded landscapes, particularly on the western side of the planning area, suitable comparative reference sites may not be available. It has been noted that cheatgrass is more likely to invade Wyoming big sagebrush/Thurber's needlegrass if areas are overgrazed post-fire. A site may be closed to off-road vehicle use following the fire, if it tends to be a popular site for such activities.

APPENDIX I - COMMUNITIES AT RISK FROM WILDFIRE IN IDAHO FALLS AND TWIN FALLS DISTRICTS

Aberdeen
Acequia
Albion
Almo
American Falls
Ammon
Arbon
Arco
Arimo
Ashton
Atomic City
Bancroft
Banida
Basalt
Bellevue
Bennington
Bern
Blackfoot
Bliss
Bloomington
Bone
Buhl
Burley
Butte City
Carey
Castleford
Chester
Chubbuck
Clifton
Conda
Conner
Corral
Darlington
Dayton
Declo
Dietrich
Dingle
Downey
Driggs
Drummond
Dubois
Eden
Elba
Fairfield
Fairview
Felt
Filer
Firth
Fish Haven
Fort Hall
Franklin
Gannett
Garfield
Geneva
Georgetown
Gooding
Grace
Grant
Hagerman
Hailey
Hamer
Hansen
Hazelton
Heise
Henry
Heyburn
Hill City
Holbrook
Hollister
Houston
Howe
Humphrey
Idaho Falls
Inkom
Iona
Irwin
Island Park
Jerome
Ketchum
Kilgore
Kimberly
King Hill
Lava Hot Springs
Lewisville
Lincoln
Lorenzo
Lost River
Lund
Macks Inn
Malad
Malta
Marysville
McCammon
Menan
Minidoka
Mink Creek
Monteview
Montpelier
Moore
Moreland
Mud Lake
Murtaugh
Newdale
Nonnan
Norland
Oakley
Ovid
Oxford
Palisades
Paris
Parker
Paul
Pauline
Picabo
Pingree
Pocatello
Portneuf
Preston
Rexburg
Richfield
Rigby
Ririe
Riverside
Roberts
Robin
Rock Creek
Rockford
Rockland
Rogerson
Rupert
Samaria
Shelley
Shoshone
Soda Springs
Spencer
Springfield
St. Anthony
St. Charles
Sterling
Stone
Sugar City
Sun Valley
Swanlake
Swan Valley
Terreton
Teton
Tetonia
Thatcher
Thorton
Twin Falls
Ucon
Victor
Virginia
Warm River
Wayan
Wendell
Weston
Whitney

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APPENDIX J - LIST OF WILDLAND URBAN INTERFACE COMMUNITIES

An interdisciplinary team of resource and fire specialists identified the following communities/areas at highest risk from wildfires originating on public lands within the planning area as of the year 2003.

Upper Snake Field Office:
Atomic City
Heise-Lorenzo
Lewisville Knolls
Dubois-Spencer
Shotgun Alley
Sand Creek
Kilgore
Antelope Valley
St. Anthony
Teton Front
Henrys Lake
Pine Creek

Pocatello Idaho Falls Field Office:
Samaria
Pocatello Front
Inkom
Pauline
Hawkins
Lava Hot Springs
Soda Springs

Burley Idaho Falls Field Office:
Elba
Connor Creek
Rogerson
Buhl
Hollister
Malta
Oakley
Albion

Shoshone Idaho Falls Field Office:
Gooding
Jerome
Big Little Ranches
Dietrich
Richfield
Bliss
Shoshone
Sun Valley
Ketchum
Hailey
Fairfield
Willow Creek

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APPENDIX K - SPECIAL STATUS WILDLIFE SPECIES IN THE IDAHO FALLS AND TWIN FALLS DISTRICTS

TABLE 1. SPECIAL STATUS AQUATIC WILDLIFE SPECIES

Species	Class	Type	Field Office*
Bull Trout *(Salvelinus confluentus)*	F – Threatened	Fish	US
Redband Trout (*Oncorhynchus mykiss gibbsi*)	S – Sensitive	Fish	BU, SH
Westslope Cutthroat (*Oncorhyncus clarki lewisi*)	S – Sensitive	Fish	US
Bonneville Cutthroat (*Oncorhynchus clarki utah*)	S – Sensitive	Fish	PO
Yellowstone Cutthroat (*Oncorhynchus clarki bouveri*)	S – Sensitive	Fish	US, PO, BU
Bear Lake Cutthroat (*Oncorhynchus clarki* spp.)	S – Sensitive	Fish	PO
Bear Lake Whitefish (*Prosopium abyssicola*)	S – Sensitive	Fish	PO
Bonneville Whitefish (*Prosopium spilonotus*)	S – Sensitive	Fish	PO
Bonneville Cisco (*Prosopium gemmiferum*)	S – Sensitive	Fish	PO
Bear Lake Sculpin (*Cottus extensus*)	S – Sensitive	Fish	PO
Wood River Sculpin (*Cottus leiopomus*)	S – Sensitive	Fish	SH
Shoshone Sculpin (*Cottus greenei*)	S – Sensitive	Fish	SH
Leatherside Chub (*Cila copei*)	S – Sensitive	Fish	PO, BU, SH
Idaho Springsnail (*Pyrgulopsis idahoensis*)	F – Endangered	Invertebrate	SH
Banbury Springs Limpet (*Lanx* sp.)	F – Endangered	Invertebrate	SH
Snake River Physa Snail (*Physa natricina*)	F – Endangered	Invertebrate	BU, SH
Bliss Rapids Snail (*Taylorconcha serpenticola*)	F – Threatened	Invertebrate	BU, SH

TABLE 1. SPECIAL STATUS AQUATIC WILDLIFE SPECIES

Species	Class	Type	Field Office*
Utah Valvata Snail (*Valvata utahensis*)	F – Endangered	Invertebrate	US, PO, BU, SH
Shortface Lanx (*Fisherola nuttalli*)	S – Sensitive	Invertebrate	BU, SH
California Floater (*Anodonta californiensis*)	S – Sensitive	Invertebrate	BU, SH
Columbia Pebblesnail (*Flumincola fuscus*)	S – Sensitive	Invertebrate	SH
Common Gartersnake *(Thamnophis sirtalis)*	S – Sensitive	Reptile	Throughout the Upper Snake River Valley
Northern Leopard Frog *(Rana pipiens)*	S – Sensitive	Amphibian	Throughout the Upper Snake River Valley
Columbian Spotted Frog *(Rana luteiventris)*	F – Candidate	Amphibian	Historic occurrences in Raft River and Curlew Valley
Western Toad *(Bufo boreas)*	S – Sensitive	Amphibian	Throughout the Upper Snake River Valley above 8,000 feet

*Field Office Abbreviations:
BU = Burley, PO = Pocatello, SH = Shoshone, US = Upper Snake

TABLE 2. SPECIAL STATUS WILDLIFE SPECIES OF THE IDAHO FALLS AND TWIN FALLS DISTRICTS

Species	Class	Type	Field Office*
Gray Wolf *(Canis lupus)*	F – Endangered	Mammal	US, SH, PO, BU
Grizzly Bear *(Ursos arctos)*	F – Threatened	Mammal	US
Canada Lynx *(Lynx canadensis)*	F – Threatened	Mammal	US, SH
Bald Eagle[1] *(Haliaetus leucocephalus)*	F – Threatened	Bird	US, PO, BU, SH
Yellow-Billed Cuckoo *(Coccyzus americanus)*	F – Candidate	Bird	US
Wolverine *(Gulo gulo)*	S – Sensitive	Mammal	US, SH
Pygmy Rabbit *(Brachylagus idahoensis)*	S – Sensitive	Mammal	US, PO, BU, SH
Townsend Big-Eared Bat *(Corynorhinus townsendii)*	S – Sensitive	Mammal	US, PO, BU, SH
Spotted Bat *(Euderma maculatum)*	S – Sensitive	Mammal	SH

TABLE 2. SPECIAL STATUS WILDLIFE SPECIES OF THE IDAHO FALLS AND TWIN FALLS DISTRICTS

Species	Class	Type	Field Office*
California Bighorn Sheep *(Ovis canadensis)*	S – Sensitive	Mammal	BU
Piute Ground Squirrel (*Spermophilus mollis artemisae*)	S – Sensitive	Mammal	US, BU, SH
Columbian Sharp-Tailed Grouse *(Tympanuchus phasaianellus)*	S – Sensitive	Bird	US, PO, BU, SH
Greater Sage Grouse *(Centrocercus urophasianus)*	S – Sensitive	Bird	US, PO, BU, SH
Ferruginous Hawk *(Buteo regalis)*	S – Sensitive	Bird	US, PO, BU, SH
Northern Goshawk *(Accipter gentiles)*	S – Sensitive	Bird	US, PO, BU, SH
Prairie Falcon (*Falco mexicanus*)	S – Sensitive	Bird	US, PO, BU, SH
American White Pelican (*Pelecanus erythrorhyncos*)	S – Sensitive	Bird	PO, BU, SH
Loggerhead Shrike *(Lanius ludovicianus)*	S – Sensitive	Bird	US, PO, BU, SH
Long-Billed Curlew *(Numenius americanus)*	S – Sensitive	Bird	US, PO, BU, SH
Boreal Owl *(Aegolius funereus)*	S – Sensitive	Bird	US, SH
Flammulated Owl *(Otus flammeolus)*	S – Sensitive	Bird	US, SH
Western Burrowing Owl *(Athene cunicularia)*	S – Sensitive	Bird	US, PO, BU, SH
Northern Pygmy-Owl *(Glauidium gnoma)*	S – Sensitive	Bird	US
Trumpeter Swan *(Cygnus buccinator)*	S – Sensitive	Bird	US, PO, BU, SH
White-Faced Ibis *(Plegadis chihi)*	S – Sensitive	Bird	US, PO, BU, SH
Peregrine Falcon *(Falco peregrinus)*	S – Sensitive	Bird	US, PO, BU, SH
Black Tern *(Chlidonias niger)*	S – Sensitive	Bird	US, SH
Willow Flycatcher *(Empidonax traillii)*	S – Sensitive	Bird	US, PO, BU, SH
Sage Thrasher *(Oreoscoptes montanus)*	S – Sensitive	Bird	US, PO, BU, SH

TABLE 2. SPECIAL STATUS WILDLIFE SPECIES OF THE IDAHO FALLS AND TWIN FALLS DISTRICTS

Species	Class	Type	Field Office*
Brewer's Sparrow *(Spizella breweri)*	S – Sensitive	Bird	US, BU, SH
Sage Sparrow *(Amphispiza belli)*	S – Sensitive	Bird	US, BU, SH
Calliope Hummingbird (*Stellula calliope*)	S – Sensitive	Bird	US, PO, BU, SH
Williamson's Sapsucker (*Sphyrapicus throideus*)	S – Sensitive	Bird	US, PO, SH
Lewis' Woodpecker (*Melanerpes lewis*)	S – Sensitive	Bird	US, PO, BU, SH
Western Toad *(Bufo boreas)*	S – Sensitive	Amphibian	US, PO, BU, SH
Boreal Toad (*Bufo boreas boreas*)	S – Sensitive	Amphibian	PO
Woodhouse Toad (*Bufo woodhousii*)	S – Sensitive	Amphibian	SH
Northern Leopard Frog *(Rana pipiens)*	S – Sensitive	Amphibian	US, PO, BU, SH
Common Garter Snake *(Thamnophis sirtalis)*	S – Sensitive	Reptile	US, PO, BU, SH
Idaho Pointheaded Grasshopper *(Acrophitus punchellus)*	S – Sensitive	Invertebrate	US, SH
Blind Cave Leiodid Beetle (*Glacicavicola bathyscoides*)	S – Sensitive	Invertebrate	US, BU, SH
Idaho Dunes Tiger Beetle *(Cicindela arenicola)*	S – Sensitive	Invertebrate	US, BU, SH

*Field Office Abbreviations:

BU = Burley, PO = Pocatello, SH = Shoshone, US = Upper Snake

[1]The Bald eagle was delisted as a Threatened species on June 28, 2007.

TABLE 3. SENSITIVE FAUNA ASSOCIATED WITH FORESTED, RANGELAND, AND RIPARIAN COMMUNITIES OF THE IDAHO FALLS AND TWIN FALLS DISTRICTS

Species	Forest	Rangeland	Riparian
Gray Wolf *(Canis lupus)*	X	X	X
Grizzly Bear *(Ursos arctos)*	X		X
Canada Lynx *(Lynx canadensis)*	X		X
Bald Eagle *(Haliaetus leucocephalus)*			X
Yellow-Billed Cuckoo *(Coccyzus americanus)*			X
Wolverine *(Gulo gulo)*	X		
Pygmy Rabbit *(Brachylagus idahoensis)*		X	X
Townsend Big-Eared Bat *(Corynorhinus townsendii)*		X	
Spotted Bat *(Euderma maculatum)*	X	X	
California Bighorn Sheep *(Ovis canadensis)*		X	
Piute Ground Squirrel (*Spermophilus mollis artemisae*)		X	
Columbian Sharp-Tailed Grouse *(Tympanuchus phasaianellus)*		X	
Greater Sage Grouse *(Centrocercus urophasianus)*		X	
Ferruginous Hawk *(Buteo regalis)*		X	
Northern Goshawk *(Accipter gentiles)*	X		
Prairie Falcon (*Falco mexicanus*)		X	
American White Pelican (*Pelecanus erythrorhyncos*)			X
Loggerhead Shrike *(Lanius ludovicianus)*		X	
Long-Billed Curlew *(Numenius americanus)*		X	X
Boreal Owl *(Aegolius funereus)*	X		
Flammulated Owl *(Otus flammeolus)*	X		
Western Burrowing Owl *(Athene cunicularia)*		X	
Northern Pygmy-Owl *(Glauidium gnoma)*	X		
Trumpeter Swan *(Cygnus buccinator)*			X
White-Faced Ibis *(Plegadis chihi)*			X
Peregrine Falcon *(Falco peregrinus)*			X
Black Tern *(Chlidonias niger)*			X
Willow Flycatcher *(Empidonax traillii)*			X
Sage Thrasher *(Oreoscoptes montanus)*		X	

TABLE 3. SENSITIVE FAUNA ASSOCIATED WITH FORESTED, RANGELAND, AND RIPARIAN COMMUNITIES OF THE IDAHO FALLS AND TWIN FALLS DISTRICTS

Species	Forest	Rangeland	Riparian
Brewer's Sparrow *(Spizella breweri)*		X	
Sage Sparrow *(Amphispiza belli)*		X	
Calliope Hummingbird *(Stellula calliope*)		X	
Williamson's Sapsucker (*Sphyrapicus throideus*)	X		
Lewis' Woodpecker (*Melanerpes lewis*)	X		
Western Toad *(Bufo boreas)*			X
Boreal Toad (*Bufo boreas boreas*)	X		X
Woodhouse Toad (*Bufo woodhousii*)			X
Northern Leopard Frog *(Rana pipiens)*			X
Common Garter Snake *(Thamnophis sirtalis)*			X
Idaho Pointheaded Grasshopper *(Acrophitus punchellus)*		X	
Blind Cave Leiodid Beetle (*Glacicavicola bathyscoides*)		X	
Idaho Dunes Tiger Beetle *(Cicindela arenicola)*		X	

BLM SENSITIVE SPECIES

The following BLM sensitive species have the potential to occur or have potential habitat within the planning area.

Idaho Conservation Effort, Habitat Conservation Assessment and Conservation Strategies have been prepared and are currently being implemented for the following BLM sensitive species: Townsend's big-eared bat, Canada lynx, wolverine, spotted bat, white-headed woodpecker, trumpeter swan, northern goshawk, Columbian sharp-tailed grouse, greater sage grouse, mountain quail, Idaho dunes tiger beetle, Bonneville cutthroat trout, bull trout, Yellowstone cutthroat trout, red band trout, and leatherside chub. These species occupy a variety of the upland, riparian, and aquatic habitats previously described. Conservation plans are also in place for other bird species in sagebrush habitat including the Sage Grouse, Ferruginous Hawk, Sage Sparrow, Brewer's Sparrow, Prairie falcon, Williamson's Sapsucker, Willow flycatcher, Olive-sided Flycatcher, Flammulated Owl, Hammond's Flycatcher, Lewis' Woodpecker, Calliope Hummingbird, and Loggerhead Shrike.

Bald Eagles are associated with aquatic ecosystems, including lakes, rivers, coastlines, marshes, and reservoirs. They feed primarily on fish, but the diet also includes waterfowl, carrion, and small mammals. More nomadic than migratory, eagles move to open water in fall and winter, often concentrating with other eagles near wintering waterfowl or fish kills. Typically breeding occurs in forested areas adjacent to large bodies of water.

The Banbury Springs limpet inhabits pristine cold-water springs and spring outflow channels having a substantial current. Highly oxygenated water is required because this species lacks specialized respiratory organs; respiration occurs across the skin and mantle tissues. Substrates at occupied sites are cobbles and boulders of smooth basalt, and individuals are generally found on the undersides of coarse substrates.

The Black-throated sparrow, a true desert bird, frequents the arid, hot desert valleys of the West, occurring in areas with sparse xeric shrubs. It is not closely associated with particular plant communities. In Idaho, it uses open shrublands of tall sagebrush, and areas where shrub height exceeds 50 cm (20 in). The species is also positively correlated with the presence of dead woody vegetation.

The Bliss Rapids snail inhabits springs and spring-influenced river reaches. Occupied sites are in flowing water having coarse, stable substrates and excellent water quality. This aquatic snail is endemic to the Snake River and associated springs.

The Boreal toad is listed by the State of Idaho as a sensitive species due to declining populations within the state. This species inhabits areas near springs, streams, meadows, and woodlands above approximately 7,000 feet elevation in Idaho. Boreal toads breed in wetland areas during May and June. Once the breeding season has ended, the adults tend to move away from wetland areas and toward moist coniferous forest.

California bighorn sheep graze and browse on a wide variety of plant species. Green, succulent grasses and forbs are preferred; browse is important all year, especially for populations in arid habitats. They use rocky, steep terrain for escape and bedding and remain near rugged terrain while feeding in open habitat.

The California floater is a reddish-brown mussel that lives in the shallow areas of clean, clear lakes, ponds, and large rivers. California floaters used to be distributed throughout the western and Midwestern United States. Today, however, their numbers have been depleted to the point that they have been extirpated throughout much of their former range, including Utah, the entire Sacramento River system, and most of Arizona. In the upper Snake River, they can still be found in Elmore, Gooding, Jerome, and Twin Falls Counties. Threats that continue to heavily impact populations of California floaters include pollution, sedimentation due to excess logging and grazing, predation by introduced fish species, and dam-building. The California floater is listed as a species of special concern by the USFWS.

The Cliff chipmunk occurs in scattered localities from northern Mexico to Idaho. In Idaho, populations occur in the southeastern part of the state. The species has been uncommonly encountered at the majority of reported sites. Populations occur at lower and middle elevations in relatively xeric shrub- and conifer- dominated habitat. Large boulders, exposed bedrock, or cliff faces are characteristic of occupied sites.

The Columbia spotted frog is highly aquatic, seldom being found far from water. In southwestern Idaho, wetland habitat occupied by frog populations is generally associated with springs or small lowland and foothill streams. The largest populations occur in structurally complex wetlands with diverse pool and meadow components. Suitable sites contain shallow breeding pools and

deeper–water overwintering sites. Wet meadows, riparian wetlands, and stream courses are important as dispersal corridors among perennially occupied sites. Considered as independent units, small populations are susceptible to breeding failure and other catastrophic events. Small populations can persist when dispersers from neighboring populations counteract the effects of inbreeding or recolonize extirpated sites.

The Common garter snakes occur throughout the Idaho in many habitats, including grassland and wooded areas. They prefer moist habitats, however, near riparian areas, lakes or damp meadows. They feed on toads, frogs, fish, salamanders, small mammals, earthworms, slugs, leeches, and insects.

The Ferruginous hawk, a BLM sensitive species, is the largest of the North American buteos. It is a year-round resident over the region that extends from Nevada through western and southern Idaho, northern Arizona, and New Mexico to eastern Colorado and South Dakota. In the western and southeastern portions of Idaho, the ferruginous hawk nests at the edge of juniper habitats and open, desert and grassland habitats.

The fisher is a medium-size mammalian carnivore. Because fishers are generalized predators, their major prey are small- to medium sized mammals, birds, and carrion.

The Fringed myotis is found primarily in desert shrub, sagebrush steppe, and woodlands. It typically roosts in caves, mines, crevices, buildings, and other similar refuges. Fringed myotis in riparian areas tend to be active over intermittent streams with wide channels (5 to 10 meters) rather than streams with channels less than 2 meters wide.

Gray wolves are the largest member of the Canid family and require large areas of contiguous forest in which to range that support stable populations of their preferred prey. Wolf habitat is enhanced by timber cutting, wildlife habitat management and other practices that create more diverse and productive forests. Generally, a pack of gray wolves will roam an area of at least 100 square miles.

The grizzly bear is an opportunistic omnivore that readily adapts to a wide range of habitats. In Idaho, grizzly bears currently occupy the Greater Yellowstone Ecosystem, Selkirk Ecosystem, and Cabinet/Yaak Ecosystem. Within the GYE, a variety of foods are available to the grizzly bear; however, seasonal variation, weather, and human disturbance can influence the bear diet. To a large degree, abundance of high-quality foods dictates body size, reproductive rates, and population density. Bears are most successful feeding on animals that are abundant and vulnerable to their predatory skills. For some interior populations, trout may provide a high-quality seasonal food.

The Little pocket mouse is primarily associated with arid, sparsely vegetated habitat characterized by desert scrub vegetation. Populations are usually associated with sandy or finely-textured soils, and rocky and gravelly soils are used infrequently. Individuals hibernate during winter months in burrows. Adults may estivate for part of the summer, and the combined estivation and hibernation period may last up to 9 months. This species eats primarily seeds and caches seed stores to survive long periods of inactivity.

Northern goshawks generally occur in undisturbed forested areas. Areas of potentially suitable Nesting Habitat for northern goshawk typically consist of coniferous forest and mixed-aspen forest types dominated by spruce, fir, pine, and aspen. Mature aspen stands are also used for nesting where these other forest types are not available. Goshawks typically prey on small mammals. They build their nests in the crotches of trees. A decline in populations of this species is associated with the lost of forested habitat.

The Idaho dunes tiger beetle is a predatory insect that is endemic to the dunes of Idaho's Snake River Plain. The main cause of listing is habitat loss due to the invasion of cheatgrass and other weeds to the dunes where the beetles lay their eggs.

The Idaho Pointheaded Grasshopper is an Idaho endemic known to occur only in east-central Idaho in the Birch Creek and Big Lost River drainages and occurs in xeric shrub-dominated habitat

Inland redband resident trout are found in a range of stream habitats from desert areas in southwestern Idaho to forested mountain streams in central and northern Idaho. In all cases they prefer cool streams with temperatures <21 C (<70 F), however they can survive daily cyclic temperatures up to 27 C (80 F) for a short period of time. Diets are primarily drifting invertebrates, both terrestrial and aquatic. Larger fish will occasionally consume other fish.

The Idaho springsnail is only found in the permanently flowing waters of the main Snake River. This species feeds on plant debris and micro-organisms as it glides along the river bottom. The Utah valvata snail also makes its home in the deep pools bordering the Snake River rapids, as well as the flowing waters of less swift Snake River tributaries. Gliding along the beds of submerged vegetation on the river bottom, the valvata snail feeds on plant debris and microscopic prey, such as diatoms.

The Kit fox lives in annual grasslands or grassy open stages of vegetation dominated by scattered brush, shrubs, and scrub. Kit foxes primarily are carnivorous mainly feeding on black-tailed jackrabbits and desert cottontails, rodents (especially kangaroo rats and ground squirrels), insects, reptiles, and some birds, bird eggs, and vegetation. Cover is provided by dens they dig in open, level areas with loose-textured, sandy and loamy soils.

Northern leopard frogs can be found throughout the northern portions of North America extending down through the planning area into the Bonneville Basin and Four Corners area. Northern leopard frogs are found in a variety of habitats including grasslands, brushlands, woodlands, and forest habitats between sea level and about 11,000 feet elevation. They are generally associated with areas where there is a permanent water source and aquatic vegetation. These areas include springs, slowly moving streams, marshes, bogs, ponds, canals, and reservoirs.

The Piute ground squirrel is mainly herbivorous and eats green leaves, plant stems, flowers, roots, bulbs, seeds, unripe grain, insects, and carrion, and frequently is cannibalistic. It forages on the ground surface and digs for food Uses the cover of shrubs to avoid predators and heat.

The Pygmy rabbit is the smallest of all North American rabbits. It occurs in dense stands of tall sagebrush and is the only rabbit in North America known to dig its own burrow. It is rarely seen

more than a few feet from its burrow or dense cover. Topography and soil are very important in choosing a site to dig their burrows. This species has been in decline in the planning area due to reduced and fragmented sagebrush steppe habitat.

The Redband trout are found in a range of stream habitats from desert areas in southwestern Idaho to forested mountain streams in central and northern Idaho. In all cases they prefer cool streams with temperatures <21 C (<70 F), however they can survive daily cyclic temperatures up to 27 C (80 F) for a short period of time Resident stream redband trout may attain a maximum size ranging from 15–46 cm (6–18 in) depending on location. Spawning occurs in the spring between February and June, depending on temperature and location. Diets are primarily drifting invertebrates, both terrestrial and aquatic. Larger fish will occasionally consume other fish.

The Sage sparrow is a migrant that summers in Idaho and winters in Arizona, New Mexico, and northern Mexico. It is found in sagebrush flats and desert scrub areas. It usually nests in sagebrush and typically feeds on insects and seeds. This species has been in recent decline. This decline is due to reduced, fragmented, and lost sagebrush steppe habitat.

The Shoshone sculpin inhabits clear and nearly constant temperature (14 C [59 F]) springs and associated outlet streams. Substrates are primarily rock, sand, silt and aquatic vegetation. Individuals use spring pool and stream habitats. Individuals live about 3 years and reach a size of 7–10 cm (3–4 in). Fish mature after their first year. In Sand Springs, gravid females were found in most months of the year; while in Bickel Springs, they only occurred in the early spring. Primary food items include benthic aquatic insects and small crustaceans.

The Snake River physa snail is at home within the fast-flowing, cool waters of the Snake River's main branch. Burying itself withing the gravel or anchoring itself to the underside of a rock, the physa feeds on microscopic prey, such as algae and diatoms.

The Spotted bat is distributed throughout the West. Very little specific life history information is available for this species. It is found in very small numbers throughout its range and in association with other bat species. It occurs in habitats ranging from bleak desert to montane coniferous forest. Spotted bats are elusive. Spotted bats have been detected at water sources and in meadow openings, often with large cliffs nearby. Spotted bats roost in caves, and in cracks and crevices in cliffs and canyons.

Townsend's big-eared bat is a cave-roosting species that has moved into man-made caves such as mines and buildings. Unlike many other bats, they are unable to crawl into crevices, and usually roost in enclosed areas where they are vulnerable to disturbance. The Townsend's big-eared bat is quite sensitive to human disturbance, and this appears to be the primary cause of population decline for this species. This bat is colonial during the maternity season, when compact clusters of up to 200 individuals might be found. Maternity roosts form in the spring and remain intact during the summer. Site fidelity is high for roosts, and if undisturbed the bats will use the same roost for many generations.

Trumpeter swans breed in the vegetation surrounding ponds and lakes. Their diet is largely comprised of leaves, seeds, and the roots of aquatic vegetation but they also eat insects and crustaceans. Populations are in decline due to loss of habitat.

The Uinta chipmunk optimal habitat is open, subalpine conifer forest of whitebark, foxtail, limber, and bristlecone pines. They prefer exposed slopes and ridges near timberline. They feed mainly on seeds and fruits, including pines, juniper, grasses, and forbs, as well as on fungi.

Virginia's warbler breeds in deciduous woodlands on steep mountain slopes. It is also found along mountain streams in sagebrush, or in cottonwood and willow habitat at 1800–2800 m (5905–8662 ft). The species is typically associated with pinyon-juniper and oak woodlands, as well as in mountain mahogany, especially where it occurs in dense thickets throughout mountainous regions of southeastern Idaho. A dense, tall shrub layer is critical for foraging and nesting.

Western toads inhabit areas above 8,000 feet to over 11,800 feet elevation. Populations exist in the southeast corner of the district. Populations are in decline due to loss of habitat.

The Western yellow-billed cuckoo range and habitat occupation include the South Fork of the Snake River, where the associated cottonwood and Riparian cover type provides Nesting and Brood Rearing Habitat. Western yellow-billed cuckoos are obligate riparian nesters and are restricted to more mesic habitats along rivers, streams, and other wetlands.

The Wolverine is a true wilderness species, which is usually found near the timberline. It is a solitary carnivorous mammal. The population decrease of this species is most likely due to a loss of habitat.

White-headed woodpeckers nest in coniferous mountain forests generally in ponderosa and sugar pine. They eat primarily seeds from pine cones but they also eat insects and larvae. Populations are in decline due to loss of habitat.

The Westslope cutthroat trout normally require well–oxygenated water; clean, well–sorted gravels with minimal fine sediments for successful spawning; temperatures <21 C (<70 F), and a complexity of instream habitat structure such as large woody debris and overhanging banks for cover. Westslope cutthroat trout spend 1–4 years as juveniles in streams before moving into lakes. If other species are present in the lakes, Westslope cutthroat will use nearshore, littoral areas otherwise they will disperse throughout the lake. Adult fluvial fish overwinter in deeper pools.

The Wood River sculpin occurs mainly in small– to medium–sized streams with cool, clear waters and a swift current. Individuals are most commonly found in riffles and runs with a gravel or cobble substrate. Little is known about reproductive patterns or habitat requirement for spawning. These traits are assumed to be similar to those of shorthead sculpin (Merkley and Griffith 1993). The shorthead sculpin spawns during the early spring and lays eggs on the undersides of cobbles or boulders.

Wyoming ground squirrels prefer green foliage, such as grasses, but also eat forbs and shrubs. When green vegetation becomes scarce, the squirrels eat dry grasses and seeds. They also eat insects, including grasshoppers, crickets and caterpillars, and scavenge eggs from ground-nesting birds. Wyoming ground squirrels construct and live in underground burrows.

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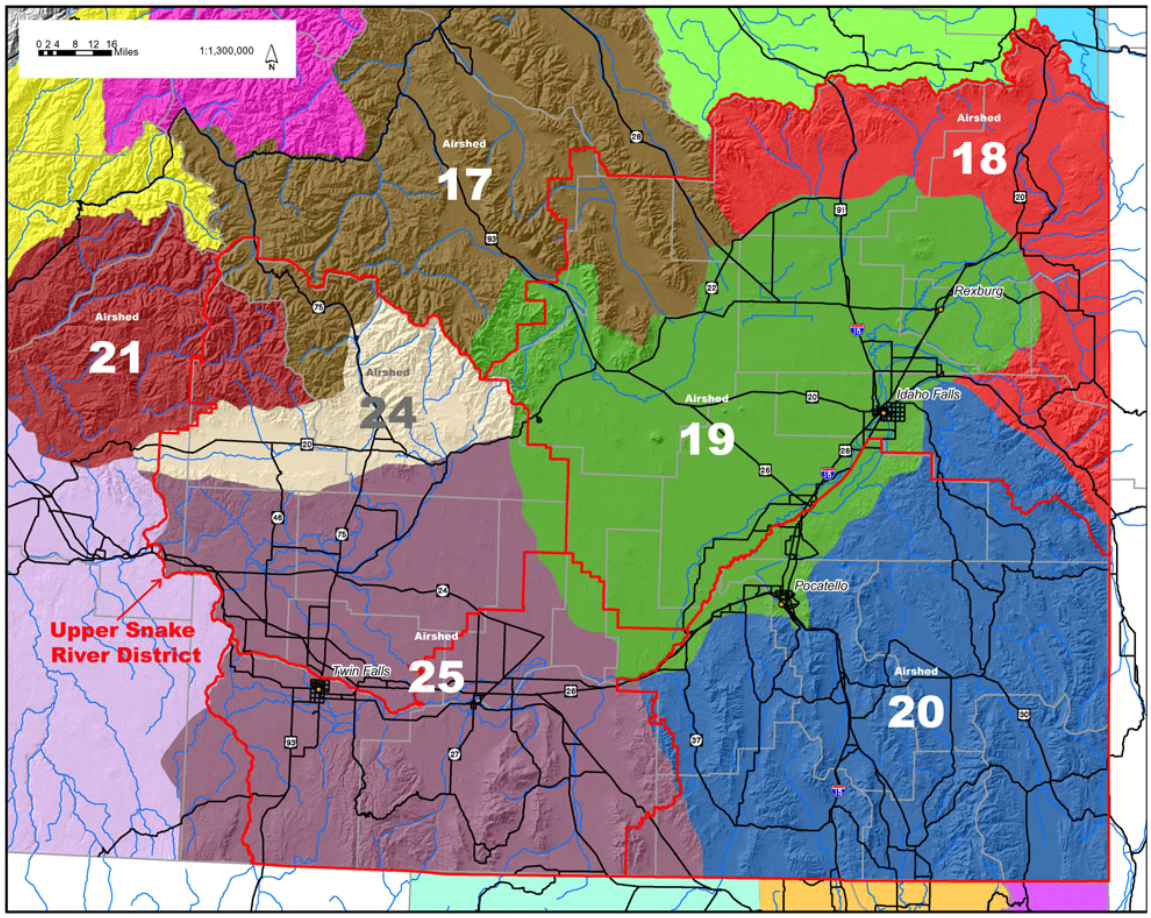
APPENDIX L - AIRSHED CHARACTERIZATION REPORT

L.1 INTRODUCTION

The state of Idaho has been divided into sixteen airsheds. The planning area is located within all or portions of seven airsheds including airsheds 17, 18, 19, 20, 21, 24, and 25. The majority of the Idaho Falls and Twin Falls Districts fall within airsheds 18, 19, 20, 24, and 25 with only minor portions falling within airsheds 17 and 21 (see Map L-1).



Map L-1. Planning Area Boundaries and Airshed Boundaries.

Impact zones are areas considered to be smoke sensitive by Idaho Department of Environmental Quality (IDEQ) and are given additional air quality protection as needed. There are ten impact zones identified in the state of Idaho, four of which fall within the planning area boundary. They include Idaho Falls, Sun Valley, Pocatello, and Twin Falls. Two other impact zones fall within a 100-kilometer radius of the Districts' boundary and include Boise and Salmon.

Within the planning area boundaries there are two PM_{10} non-attainment areas including Portneuf Valley (Pocatello area) and Fort Hall Indian Reservation (a Tribal/Environmental Protection Agency [EPA] non-attainment area). Two other PM_{10} non-attainment areas fall within a 100-kilometer radius of the planning area boundary and include Boise and Ogden, Utah.

L.2 AIRSHED 18

A. AIRSHED DESCRIPTION

Airshed 18 covers over 2,254,389 acres and is primarily federal land, with federal ownership occupying approximately 63% of the airshed. The ownership summary within the airshed is summarized in Table 1.

TABLE 1. AIRSHED 18 OWNERSHIP SUMMARY[1]

Size	BLM	NPS	Private	State	USFS	Water	Unknown
Total Acres	257,372	36,093	663,480	126,324	1,136,830	34,291	0.058
% of Airshed	11	2	29	6	50	2	< 1

[1] This table does not include the counties that make up 1% or less of the airshed.

Six USRD counties are in Airshed 18: Clark, Fremont, Madison, Bonneville, Jefferson, and Teton Counties. Table 2 summarizes the percentage of airshed area occupied by each county.

TABLE 2. AIRSHED 18 COUNTY SUMMARY

Size	Clark	Fremont	Madison	Bonneville	Jefferson	Teton
Total Acres	792,695	843,808	23,921	298,032	3	266,310
% of Airshed	35	37	1	13	< 1	12

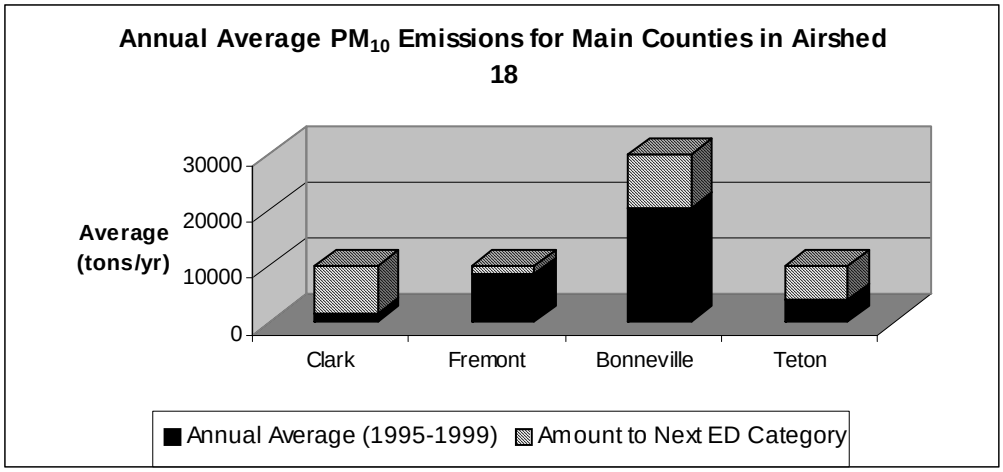
1 This table does not include the counties that make up 1% or less of the airshed.

Particulate Emissions Summary

Annual (1995-1999) average emissions for PM_{10} in these counties range between 1,442 tons/year (Clark County) to 20,355 tons/year (Bonneville County). Of the 22 counties evaluated in the Districts, Clark and Bonneville rank 22nd and 3rd, respectively (1st being the highest annual average PM_{10} emissions). For $PM_{2.5}$, the 5-year average emissions range between 303 tons/year (Clark County) and 3,914 tons/year (Bonneville County). Of the 22 counties evaluated in the Districts, Clark and Bonneville rank 22nd and 4th for $PM_{2.5}$, respectively.

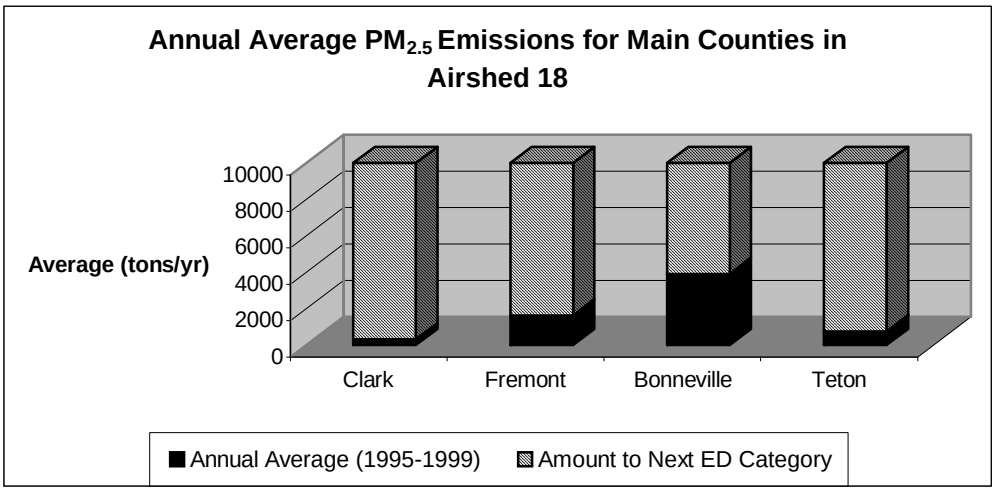
All the counties in Airshed 18 show an improving (decreasing annual emissions) trend in emissions over a 5-year period (1995-1999) for both PM_{10} and $PM_{2.5}$. Figures 1 and 2 graphically present the PM_{10} and $PM_{2.5}$ emissions from each major county within the airshed. The "amount to next ED category" on the graphs indicates the remaining amount of emissions possible before the next emissions distribution (ED) category at 10,000 tons/year is reached. The 10,000

tons/year increment was chosen because all counties in Idaho with a PM_{10} nonattainment area have at a minimum 10,000 tons/year of PM_{10} emissions. It is not an official EPA or IDEQ threshold.



Note: This figure contains only the major counties within the airshed. The counties that consist of 1% or less of the airshed are not included.

Figure 1. Annual Average PM_{10} Emissions for Main Counties in Airshed 18.



Note: This figure contains only the major counties within the airshed. The counties that consist of 1% or less of the airshed are not included.

Figure 2. Annual Average $PM_{2.5}$ Emissions for Main Counties in Airshed 18.

In general, fugitive dust is the largest contributor of PM_{10} and $PM_{2.5}$ followed by the "Agriculture and Forestry" category. Tables 3 and 4 summarize the top three contributors of PM_{10} and $PM_{2.5}$ for each major county within Airshed 18. The counties that make up 1% or less of the airshed are not included since the majority of particulate emissions consist of the emissions from the main counties.

TABLE 3. MAJOR CONTRIBUTORS (%) OF PM_{10} IN COUNTIES (1999) [1]

Source	Clark	Fremont	Bonneville	Teton
Fugitive Dust (% PM_{10} contribution)	57	74	78	73
Agriculture & Forestry (% PM_{10} contribution)	38	23	18	23
Other Major Contributor	2 (Combustion-Other)	2 (Residential Wood)	2 (Waste Open Burning)	1 (Residential Wood)

[1] This table does not include the counties that make up 1% or less of the airshed.

TABLE 4. MAJOR CONTRIBUTORS (%) OF PM_{25} IN COUNTIES (1999) [1]

Source	Clark	Fremont	Bonneville	Teton
Fugitive Dust (% $PM_{2.5}$ contribution)	46	60	64	59
Agriculture & Forestry (% $PM_{2.5}$ contribution)	33	23	17	23
Other Major Contributor	8 (Combustion-Other)	8 (Residential Wood)	8 (Waste Open Burning)	7 (Residential Wood)

[1] This table does not include the counties that make up 1% or less of the airshed.

Monitoring Network

Airshed 18 currently does not have a PM_{10} ambient air quality monitor. There are no federal designated PM_{10} non-attainment areas within this airshed.

B. SENSITIVE AREAS WITHIN AIRSHED

In addition to sensitive areas listed in Table 5, this airshed is within 100 kilometers of Grand Teton and Yellowstone National Parks, Craters of the Moon National Monument, and the Bridger Wilderness, all of which are federally mandated Class I visibility areas. There are no impact zones located within Airshed 18 (see Figure 3-9).

C. FIRE HISTORY

Since the 1990s, this airshed has not been affected by large wildfire events (>5,000 acres). There were a number of wildfires in the 1970s and 1980s. The history of wildfire and area burned for BLM lands is presented in Table 6.

TABLE 5. SUMMARY OF SENSITIVE AREAS WITHIN AIRSHED 18

Counties (% of County within Airshed)	Communities at Risk	Sensitive Populations (Medical facilities, etc.)	Transportation
Bonneville (25%)	Irwin and Swan Valley	N/A	Fanning Field
Clark (71%)	Dubois, Kilgore, and Spencer	N/A	I-15, US 22, Dubois Municipal Airport
Freemont (71%)	Ashton, Drummond, Henrys Lake, Island Park, Macks Inn, Marysville, and Warm River	N/A	I-15, US 20
Teton (95%)	Driggs, Felt, Tetonia, and Victor	Teton Valley Hospital and Surgicenter (13 beds)	I-15, US 20, US 26, Driggs Municipal Airport

TABLE 6. WILDFIRE AND AREA BURNED HISTORY OF BLM LAND

Decade	Acres Burned[1]	Square Miles Burned	# of Years that Burned 10,000+ Acres	# of Years that Burned 5,000+ Acres	# of Years with No Fires > 300 Acres
2000-2001	107	0.2	0	0	2
1990-2000	75	0.1	0	0	10
1980-1989	16,649	26.0	1	1	7
1970-1979	12,589	19.7	0	1	4
32-year Airshed Total	29,420	46.0	1	2	23

[1] The acreage figures shown in this table represent total number of wildfire acres. Some areas may have burned more than once.

D. DISPERSION POTENTIAL

To accurately evaluate the dispersion potential of the particulate emissions generated within the airshed, a refined model such as CALPUF or CALMET is recommended. However, a more basic dispersion potential evaluation can be done by reviewing pertinent meteorological data. Wind speeds for the planning area tend to be highest in the summer and lowest in the fall. The corresponding wind direction in April and July (higher wind speeds) tends to be from the southwest to the northeast. During times of lower wind speeds (October), the wind predominantly blows from the northeast to the southwest.

When the wind in Airshed 18 blows from the southwest, typically in the spring and summer, it is possible that smoke may be carried towards Yellowstone National Park Class I visibility area. In the fall, when the wind tends to blow from the northeast, smoke could be carried into Airshed 19 and toward the major population centers of Idaho Falls and Rexburg, as well as towards the Craters of the Moon National Monument Class I visibility area.

An indicator for potential stagnate air is when mixing heights are at or below 1,640 feet (500 meters).[1] Early morning hours typically have lower mixing heights. For some of the lower elevation communities, trapping residual smoke could be of concern until afternoon heating increases mixing heights and/or an inversion breaks.

Afternoon mixing heights are generally best during the summer due to greater heating during the day, while the lowest mixing heights are expected during the fall. Burning near a community requires careful consideration of the amount of residual smoke that may be produced and trapped until dispersion can lift the smoke out of the area.

L.3 AIRSHED 19

A. AIRSHED DESCRIPTION

Airshed 19 covers over 4,889,268 acres. Federal ownership occupies approximately 54% of this airshed and 40% is privately owned (Table 7).

Twelve USRD counties fall within this airshed: Blaine, Power, Bannock, Bingham, Bonneville, Madison, Jefferson, Clark, Fremont, Teton, Minidoka, and Butte Counties (Table 8).

Particulate Emissions Summary

Annual (1995-1999) average emissions for PM_{10} in these counties range between 1,442 tons/year (Clark County) and 25,610 tons/year (Bingham County). Of the 22 counties evaluated in the USRD, Clark and Bingham rank 22nd and 1st, respectively (1st being the highest annual average PM_{10} emissions). For $PM_{2.5}$, the annual average emissions range between 303 tons/year (Clark County) and 4,568 (Bingham County). Of the 22 counties evaluated in the USRD, Clark and Bingham rank 22nd and 2nd, respectively.

All the counties in Airshed 19 show an improving (decreasing annual emissions) trend in emissions over a 5-year period (1995-1999) for both PM_{10} and $PM_{2.5}$. Figures 3 and 4 graphically present the PM_{10} and $PM_{2.5}$ emissions from each major county within the airshed. The "amount to next ED category" on the graphs indicates the remaining amount of emissions possible before the next ED category at 10,000 tons/year is reached. The 10,000 tons/year increment was chosen because all counties in Idaho with a PM_{10} nonattainment area have at a minimum 10,000 tons/year of PM_{10} emissions. It is not an official EPA or IDEQ threshold.

In general, fugitive dust is the largest contributor of PM_{10} and $PM_{2.5}$ followed by the "Agriculture and Forestry" category. Tables 9 and 10 summarize the top three contributors of PM_{10} and $PM_{2.5}$ for each major county within Airshed 19. The counties that make up 1% or less of the airshed are not included since the majority of particulate emissions consist of the emissions from the main counties.

[1] Southern Forestry Smoke Management Guidebook, GTR SE-10, 1976.

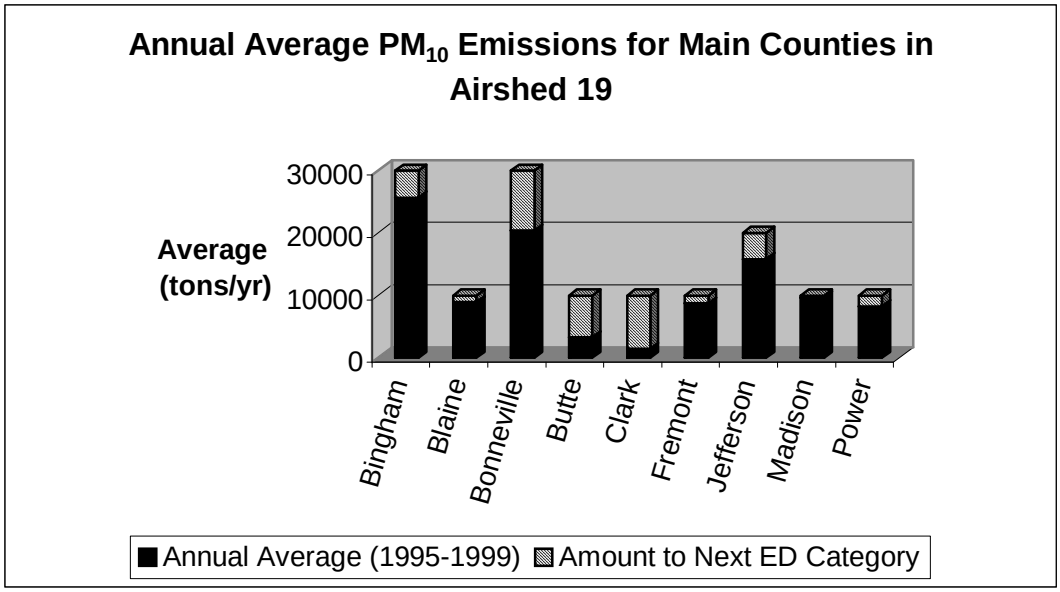
TABLE 7. AIRSHED 19 OWNERSHIP SUMMARY

Size	BLM	NPS	Private	State	USFS	USFWS	Water	BIA	DOI	MIL
Total Acres	1,738,773	53,188	1,944,659	214,297	81,097	11,589	71,063	205,052	568,466	1,083
% of Airshed	36	1	40	4	2	< 1	1	4	12	< 1

TABLE 8. AIRSHED 19 COUNTY SUMMARY

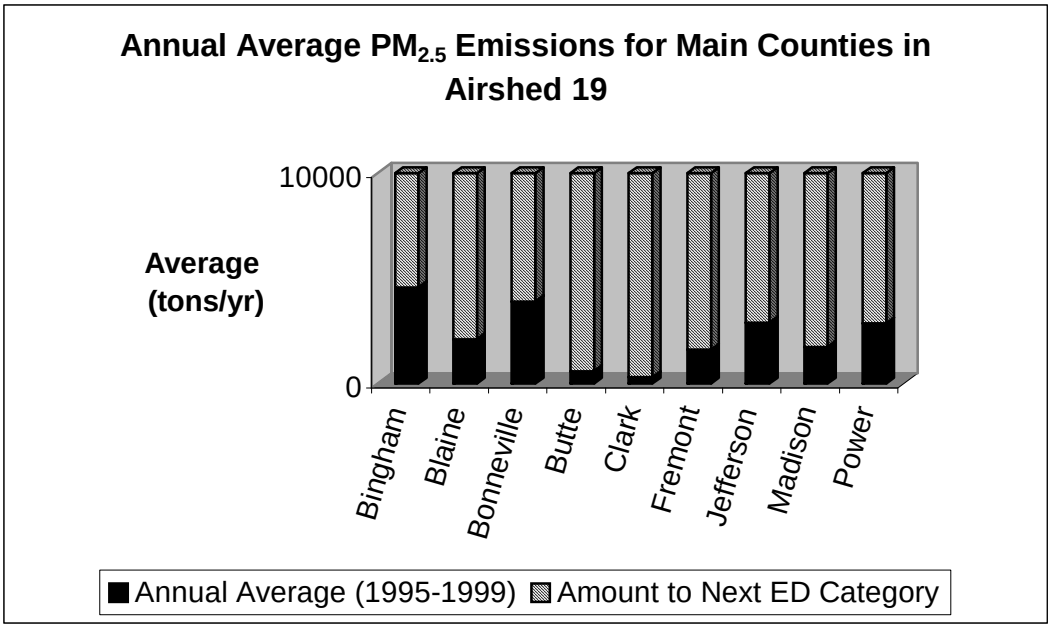
Size	Blaine	Power	Bingham	Bonneville	Madison	Jefferson	Fremont	Clark	Butte	Others[1]
Total Acres	397,082	374,277	993,248	325,515	280,762	710,356	341,599	204,283	980,732	207,275
% of Airshed	8	8	20	7	6	15	7	4	20	4

1 Bannock, Teton, and Minidoka Counties



Note: This figure contains only the major counties within the airshed. The counties that consist of 1% or less of the airshed are not included.

Figure 3. Annual Average PM_{10} Emissions for Main Counties in Airshed 19.



Note: This figure contains only the major counties within the airshed. The counties that consist of 1% or less of the airshed are not included.

Figure 4. Annual Average $PM_{2.5}$ Emissions for Main Counties in Airshed 19.

TABLE 9. MAJOR CONTRIBUTORS (%) OF PM_{10} IN COUNTIES (1999) [1]

Source	Blaine	Power	Bingham	Bonneville	Madison	Fremont	Clark	Butte
Fugitive Dust (% PM_{10} contribution)	81	32	73	78	81	74	57	76
Agriculture & Forestry (% PM_{10} contribution)	11	41	24	18	16	23	38	21
Other Major Contributors	5 (Combustion - Other)	21 (Mineral Product Processing)	1 (Commercial/ Institutional Coal Combust.)	2 (Waste Open Burning)	1 (Residential Wood)	2 (Residential Wood)	2 (Combustion - Other)	1 (Residential Wood)

[1] This table does not include the counties that make up less than 1% of the airshed.

TABLE 10. MAJOR CONTRIBUTORS (%) OF $PM_{2.5}$ IN COUNTIES (1999) [1]

Source	Blaine	Power	Bingham	Bonneville	Madison	Fremont	Clark	Butte
Fugitive Dust (% $PM_{2.5}$ contribution)	57	14	62	64	69	60	46	65
Agriculture & Forestry (% $PM_{2.5}$ contribution)	9	22	25	17	16	23	33	21
Other Major Contributors	20 (Combustion-Other)	50 (Mineral Product Processing)	4 (Residential Wood)	8 (Waste Open Burning)	6 (Residential Wood)	8 (Residential Wood)	8 (Combustion-Other)	5 (Residential Wood)

1 This table does not include the counties that make up less than 1% of the airshed.

Monitoring Network [2]

Airshed 19 has 15 PM_{10} ambient air quality monitors (Table 11). The PM_{10} monitors are located in Chubbuck (1), Pocatello (4), Idaho Falls (2), Rexburg (1), 2 miles east of Fort Hall (1), 4 miles northeast of Chubbuck (1), 8 miles west of Pocatello (1), and 4 miles west of Chubbuck (4). Generally, the 24-hour PM_{10} average levels are below the 24-hour NAAQS (150 micrograms per cubic meter [$\mu g/m^3$}) limit in this airshed. In 1999, however, the 24-hour PM_{10} NAAQS limit was exceeded three times in Pocatello. Monitor 160050015-01, located in Pocatello, recorded a 1st highest 24-hour value of 183 $\mu g/m^3$ in 1999. The Portneuf Valley and Fort Hall Reservation are federally designated non-attainment areas for PM_{10} in this airshed.

TABLE 11. MONITOR LOCATIONS IN AIRSHED 19

Monitor ID	County	City
160050004 - 1	Bannock	Pocatello
160050005 - 1	Bannock	Pocatello
160050006 - 1	Bannock	Chubbuck
160050015 - 1	Bannock	Pocatello
160050015 - 2	Bannock	Pocatello
160050020 - 1	Bannock	4 miles NE of Chubbuck
160110002 - 1	Bingham	2 miles E of Fort Hall
160190006 - 1	Bonneville	Idaho Falls
160190010 - 1	Bonneville	Idaho Falls
160650001 - 1	Madison	Rexburg
160770008 - 1	Power	8 miles W of Pocatello
160770009 - 1	Power	4 miles W of Chubbuck
160770010 - 1	Power	4 miles W of Chubbuck
160770011 - 1	Power	4 miles W of Chubbuck
160770011 - 2	Power	4 miles W of Chubbuck

B. SENSITIVE AREAS WITHIN AIRSHED

In addition to sensitive areas listed in Table 12 this airshed is within 100 kilometers of the Sawtooth and Bridger Wilderness, Grand Teton and Yellowstone National Parks, and Craters of the Moon National Monument Class I visibility areas. Idaho Falls and Pocatello are impact zones within Airshed 19. Portneuf Valley and Fort Hall Reservation are non-attainment areas for PM_{10} (see Figure 3-9).

[2] Idaho Air Quality Monitors for PM_{10} obtained from http://www.epa.gov/air/data/index.html. In cases where the exact locations of monitors are unavailable, monitors may not be located in the airshed.

TABLE 12. SUMMARY OF SENSITIVE AREAS WITHIN AIRSHED 19

Counties (% of County within Airshed)	Communities at Risk	Sensitive Populations (Medical facilities, etc.)	Transportation
Bannock (15%)	Chubbuck and Pocatello	Northwestern Band of Shoshone Health Center, Pocatello Regional Medical Center, Portneuf Medical Center (260 beds total)	I-15, I-86, US 30, US 91, Pocatello Regional Airport
Bingham (74%)	Aberdeen, Atomic City, Basalt, Blackfoot, Firth, Fort Hall, Moreland, Pingree, Riverside, Rockford, Shelley, Springfield, and Sterling	Bingham Memorial Hospital and State Hospital South (174 beds total) (2 hospitals, 317 beds in Shelley)	I-15, US 39, I-86, US 26, US 20, US 91, Aberdeen Municipal Airport, McCarley Field
Bonneville (27%)	Idaho Falls, Iona, Lincoln, and Ucon	Eastern Idaho Regional Medical Center (341 beds total)	I-15, US 20, US 26, US 91, Fanning Field
Butte (68%)	Arco, Butte City, Howe, and Moore	Lost Rivers District Hospital (17 beds)	I-15, I-86, US 20, US 26, US 93, Arco - Butte County Airport
Freemont (29%)	Chester, Newdale, Parker, St. Anthony, and Teton	N/A	US 20, Stanford Field Airport
Jefferson (100%)	Garfield, Hamer, Heise, Lewisville, Lorenzo, Monteview, Mud Lake, Rigby, Ririe, Roberts, and Terreton	N/A	I-15, US 20, US 26, Rigby-Jefferson County Airport
Madison (92%)	Rexburg, Sugar City, and Thornton	Madison Memorial Hospital (50 beds)	US 20, Rexburg-Madison County Airport
Power (41%)	American Falls	Harms Memorial Hospital (10 beds)	I-15, I-84, I-86, American Falls Airport, Pocatello Regional Airport

C. FIRE HISTORY

Airshed 19 has been affected by large wildfires in the past three decades. In 17 of the previous 32 years, more than 5,000 acres were burned by wildfires, and 10 of those years had more than 10,000 acres burned by wildfires. The history of wildfire and area burned for BLM land are presented in Table 13.

TABLE 13. WILDFIRE AND AREA BURNED HISTORY OF BLM LAND

Decade	Acres Burned[1]	Square Miles Burned	# of Years that burned 10,000+ Acres	# of Years that burned 5,000+ Acres	# of Years with No Fires > 300 Acres
2000-2001	143,804	224.7	1	1	0
1990-2000	515,762	805.9	6	7	1
1980-1989	93,599	146.2	1	4	0
1970-1979	142,262	222.3	2	5	1
32-year Airshed Total	895,427	1,399.1	10	17	2

1 The acreage figures shown in this table represent total number of wildfire acres. Some areas may have burned more than once.

D. DISPERSION POTENTIAL

To accurately evaluate the dispersion potential of the particulate emissions generated within the airshed, a refined model such as CALPUF or CALMET is recommended. However, a more basic dispersion potential evaluation can be done by reviewing pertinent meteorological data. Wind speeds for the planning area tend to be highest in the summer and lowest in the fall. The corresponding wind direction in April and July (higher wind speeds) tends to be from the southwest to the northeast. During times of lower wind speeds (October), the wind predominantly blows from the northeast to the southwest.

Airshed 19 encompasses a portion of the low elevation Snake River Plain. The airshed is bounded by the low elevation, relatively flat Airshed 25 in the southwest, the mountainous Airshed 17 in the northwest, and the hilly Airshed 20 in the southeast. When the wind in Airshed 19 blows from the southwest, typically in the spring and summer, it is possible that smoke may be carried into Airshed 18 and towards Yellowstone and Grand Teton National Parks Class I visibility areas. In the fall, when the wind tends to blow from the northeast, smoke could be carried towards the Idaho Falls and Pocatello impact zones as well as towards Craters of the Moon National Monument class I visibility area.

An indicator for potential stagnate air is when mixing heights are at or below 1,640 feet (500 meters).[3] Early morning hours typically have lower mixing heights. For some of the lower elevation communities, trapping residual smoke could be of concern until afternoon heating increased mixing heights and/or an inversion breaks.

Afternoon mixing heights are generally best during the summer due to greater heating during the day, while the lowest mixing heights are expected during the fall. Burning near a community requires careful consideration of the amount of residual smoke that may be produced and trapped until dispersion can lift the smoke out of the area.

[3] Southern Forestry Smoke Management Guidebook, GTR SE-10, 1976.

L.4 AIRSHED 20

A. AIRSHED DESCRIPTION

Airshed 20 covers over 4,956,484 acres. Federal ownership occupies approximately 43% of this airshed and 49% is privately owned (Table 14).

Nine counties fall within this airshed: Bear Lake, Franklin, Oneida, Bannock, Power, Caribou, Bingham, Bonneville, and Cassia Counties (Table 15).

Particulate Emissions Summary

Annual (1995-1999) average emissions for PM_{10} in these counties range between 4,523 tons/year (Oneida County) to 25,610 tons/year (Bingham County). Of the 22 counties evaluated in the USRD, Oneida and Bingham rank 18th and 1st, respectively (1st being the highest annual average PM_{10} emissions). For $PM_{2.5}$, the annual average emissions range between 873 tons/year (Oneida County) to 4,568 tons/year (Bingham County). Of the 22 counties evaluated in the USRD, Oneida and Bingham rank 18th and 2nd, respectively.

All the counties in Airshed 20 show an improving (decreasing annual emissions) trend in emissions over a 5-year period (1995-1999) for both PM_{10} and $PM_{2.5}$. Figures 5 and 6 graphically present the PM_{10} and $PM_{2.5}$ emissions from each major county within the airshed. The "amount to next ED category" on the graphs indicates the remaining amount of emissions possible before the next ED category at 10,000 tons/year is reached. The 10,000 tons/year increment was chosen because all counties in Idaho with a PM_{10} nonattainment area have at a minimum 10,000 tons/year of PM_{10} emissions. It is not an official EPA or IDEQ threshold.

In general, fugitive dust is the largest contributor of PM_{10} and $PM_{2.5}$ followed by the "Agriculture and Forestry" category. Tables 16 and 17 summarize the top three contributors of PM_{10} and $PM_{2.5}$ for each major county within Airshed 20. The county that makes up less than 1% of the airshed is not included since the majority of particulate emissions consist of the emissions from the main counties.

Monitoring Network [4]

Airshed 20 has three PM_{10} ambient air quality monitors (Table 18). The PM_{10} monitors are located in Inkom (1) and Soda Springs (2). Generally, the 24-hour PM_{10} average levels are below the 24-hour NAAQS (150 $\mu g/m^3$) limit in this airshed. In 2002, the 1st highest 24-hour PM_{10} value recorded in Soda Springs was 45 $\mu g/m^3$. The Portneuf Valley federally designated non-attainment areas for PM_{10} in located within this airshed (see Figure 3-9).

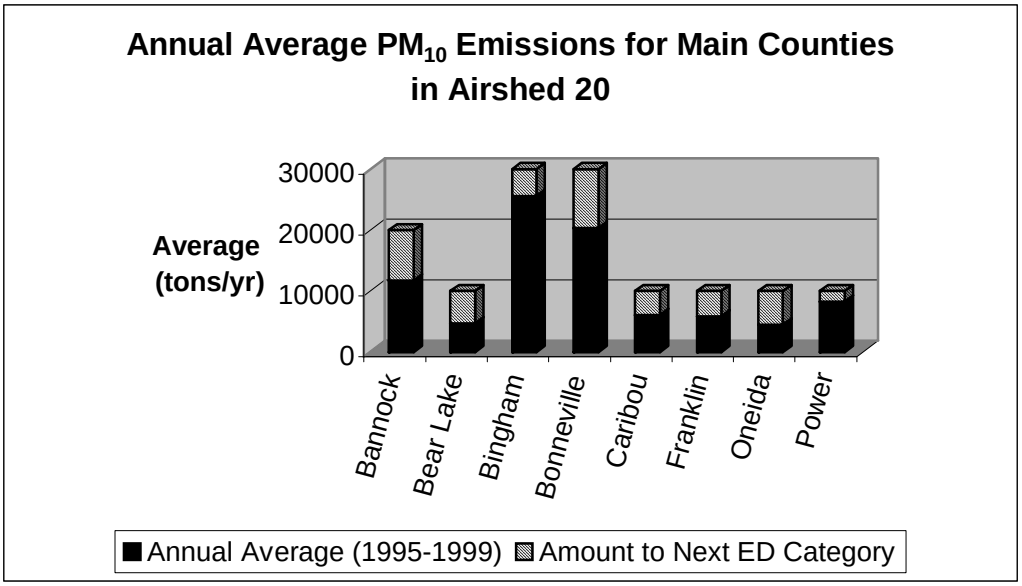
[4] Idaho Air Quality Monitors for PM_{10} obtained from http://www.epa.gov/air/data/index.html. In cases where the exact locations of monitors are unavailable, monitors may not be located in the airshed.

TABLE 14. AIRSHED 10 OWNERSHIP SUMMARY

Size	BLM	Private	State	USFS	USFWS	Water	BIA	MIL
Total Acres	518,586	2,433,360	332,916	1,265,303	28,979	60,409	313,895	3,036
% of Airshed	10	49	7	26	1	1	6	< 1

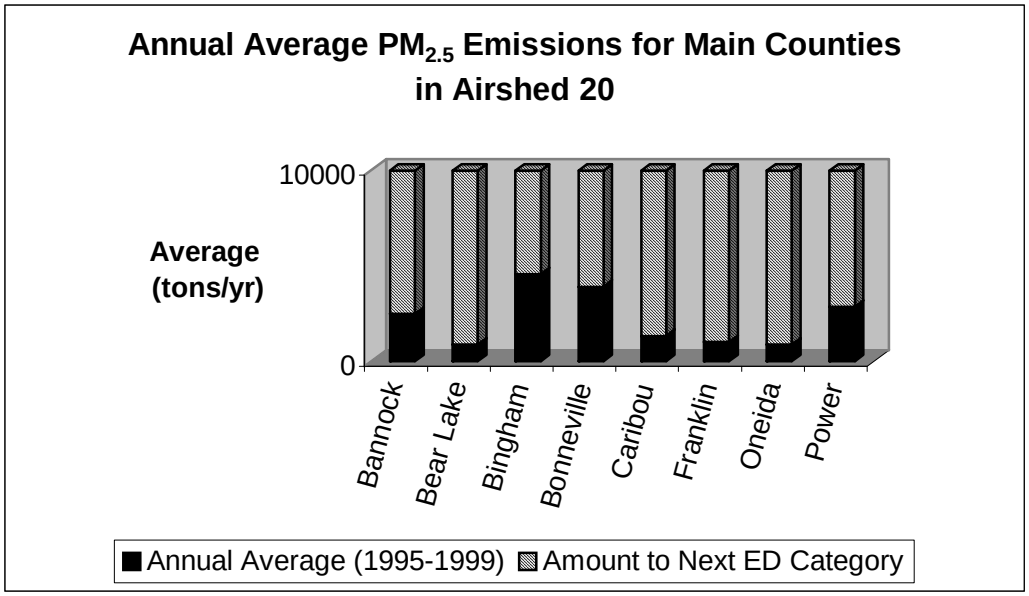
TABLE 15. AIRSHED 20 COUNTY SUMMARY

Size	Bear Lake	Franklin	Oneida	Bannock	Power	Caribou	Bingham	Bonneville	Cassia
Total Acres	667,929	417,415	652,597	621,634	522,654	1,139,100	346,386	569,546	14,282
% of Airshed	13	8	13	13	11	23	7	11	< 1



Note: This figure contains only the major counties within the airshed. The county that consists of <1% of the airshed is not included.

Figure 5. Annual Average PM_{10} Emissions for Main Counties in Airshed 20.



Note: This figure contains only the major counties within the airshed. The county that consists of <1% of the airshed is not included.

Figure 6. Annual Average $PM_{2.5}$ Emissions for Main Counties in Airshed 20.

TABLE 16. MAJOR CONTRIBUTORS (%) OF PM_{10} IN COUNTIES (1999) [1]

Source	Bear Lake	Franklin	Oneida	Bannock	Power	Caribou	Bingham	Bonneville
Fugitive Dust (% PM_{10} contribution)	65	77	63	81	32	52	73	78
Agriculture & Forestry (% PM_{10} contribution)	31	21	33	11	41	36	24	18
Other Major Contributor	1 (Residential Wood)	1 (Waste Open Burning)	2 (Combustion-Other)	3 (Mineral Product Processing)	21 (Mineral Product Processing)	1 (Combustion-Other)	1 (Commercial/ Institutional Coal Combust.)	2 (Waste Open Burning)

1 This table does not include the county that makes up less than 1 % of the airshed.

TABLE 17. MAJOR CONTRIBUTORS (%) OF $PM_{2.5}$ IN COUNTIES (1999) [1]

Source	Bear Lake	Franklin	Oneida	Bannock	Power*	Caribou	Bingham	Bonneville
Fugitive Dust (% $PM_{2.5}$ contribution)	51	67	51	61	14	36	62	64
Agriculture & Forestry (% $PM_{2.5}$ contribution)	29	23	32	10	22	30	25	17
Other Major Contributor	7 (Combustion-Other)	3 (Waste Open Burning)	9 (Combustion-Other)	9 (Mineral Product Processing)	50 (Mineral Product Processing)	19 (Inorganic Chemical Mfg)	4 (Residential Wood)	8 (Waste Open Burning)

1 This table does not include the county that makes up less than 1% of the airshed.

TABLE 18. MONITOR LOCATIONS IN AIRSHED 20

Monitor ID	County	City
160050016 - 1	Bannock	Inkom
160290003 - 1	Caribou	Soda Springs
160290030 - 1	Caribou	Soda Springs

B. SENSITIVE AREAS WITHIN AIRSHED

In addition to sensitive areas listed in Table 19, this airshed is within 100 kilometers of Craters of the Moon National Monument, Grand Teton and Yellowstone National Parks, and Bridger Wilderness Class I visibility areas. The Pocatello area is an impact zone within Airshed 20. The Portneuf Valley PM_{10} non-attainment area is partially within Airshed 20 as well (see Figure 3-9).

TABLE 19. SUMMARY OF SENSITIVE AREAS WITHIN AIRSHED 20

Counties (% of County within Airshed)	Communities at Risk	Sensitive Populations (Medical facilities, etc.)	Transportation
Bannock (85%)	Arimo, Downey, Inkom, Lava Hot, McCammon, Samaria, Swanlake, and Virginia	N/A	I-15, I-91, US 40, Hyde Memorial Airport
Bear Lake (100%)	Bear Lake, Bennington, Bern, Bloomington, Dingle, Fish Haven, Geneva, Georgetown, Montpelier, Ovid, Paris, and St. Charles	Bear Lake Regional Hospital (15 beds)	US 30, US 89, I-15, Bear Lake County Airport
Bonneville (48%)	Bone	N/A	
Caribou (100%)	Bancroft, Conda, Grace, Soda Springs, and Wayan	Caribou Memorial Hospital and Living Center (27 beds)	I-15, US 30, US 34, Allen H Tigert Airport, Bancroft Municipal Airport
Franklin (100%)	Banida, Clifton, Dayton, Franklin, Mink Creek, Oxford, Preston, Thatcher, and Weston	Franklin County Medical Center (21 beds)	I-15, I-84, I-80, US 91, Preston Airport
Oneida (85%)	Holbrook, Malad City, and Stone	Oneida County Hospital (11 beds)	I-15, Malad Airport
Power (57%)	Arbon, Pauline, and Rockland		

C. FIRE HISTORY

Airshed 20 has experienced several large wildfires in the past decades. In 7 of the previous 32 years, more than 5,000 acres were burned by wildfires, and 4 of those years had more than 10,000 acres burned by wildfires. The history of wildfire and area burned for BLM land is presented in Table 20.

TABLE 20. WILDFIRE AND AREA BURNED HISTORY OF BLM LAND

Decade	Acres Burned[1]	Square Miles Burned	# of Years that Burned 10,000+ Acres	# of Years that Burned 5,000+ Acres	# of Years with No Fires > 300 Acres
2000-2001	19,716	30.8	1	1	0
1990-2000	40,289	63.0	1	4	2
1980-1989	28,500	44.5	2	2	3
1970-1979	1,236	1.9	0	0	9
32-year Airshed Total	89,741	140.2	4	7	14

[1] The acreage figures shown in this table represent total number of wildfire acres. Some areas may have burned more than once.

D. DISPERSION POTENTIAL

To accurately evaluate the dispersion potential of the particulate emissions generated within the airshed, a refined model such as CALPUF or CALMET is recommended. However, a more basic dispersion potential evaluation can be done by reviewing pertinent meteorological data. Wind speeds for the planning area tend to be highest in the summer and lowest in the fall. The corresponding wind direction in April and July (higher wind speeds) tends to be from the southwest. During times of lower wind speeds (October), the wind predominantly blows from the northeast.

Airshed 20 encompasses a region with various elevations, marked by stream valleys oriented north-south that channel into the Snake River. When evaluating the impacts of prescribed fires, the stream valleys may play a role in redirecting wind patterns within the airshed. The down-valley wind may carry smoke toward major population centers in Airshed 19, such as Pocatello and Idaho Falls, when the wind blows from the south.

An indicator for potential stagnate air is when mixing heights are at or below 1,640 feet (500 meters).[5] Early morning hours typically have lower mixing heights. For some of the lower elevation communities, trapping residual smoke could be of concern until afternoon heating increased mixing heights and/or an inversion broke.

Afternoon mixing heights are generally best during the summer due to greater heating during the day, while the lowest mixing heights are expected during the fall. Burning near a community

[5] Southern Forestry Smoke Management Guidebook, GTR SE-10, 1976.

requires careful consideration of the amount of residual smoke that may be produced and trapped until dispersion can lift the smoke out of the area.

L.5 AIRSHED 24

A. AIRSHED DESCRIPTION

Airshed 24 covers over 1,062,872 acres. Federal ownership occupies approximately 52% of this airshed and 47% is privately owned (Table 21).

TABLE 21. AIRSHED 24 OWNERSHIP SUMMARY

Size	BLM	Private	State	USFS	Water
Total Acres	344,347	496,919	65,987	148,489	7,132
% of Airshed	32	47	6	14	1

Five USRD counties fall within Airshed 24: Blaine, Butte, Gooding, Lincoln, and Camas Counties (Table 22).

TABLE 22. AIRSHED 24 COUNTY SUMMARY

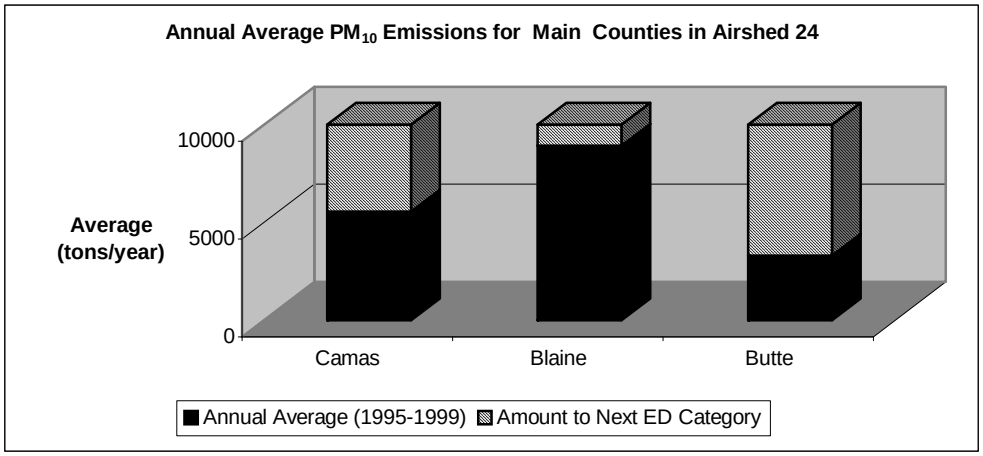
Size	Blaine	Camas	Gooding	Lincoln	Butte
Total Acres	671,613	340,395	699	1,925	3,162
% of Airshed	63	32	< 1	< 1	< 1

Particulate Emissions Summary

Annual (1995-1999) average emissions for PM_{10} in these counties range between 3,291 tons/year (Butte County) to 8,928 tons/year (Blaine County). Of the 22 counties evaluated in the USRD, Butte and Blaine rank 21st and 11th, respectively (1st being the highest annual average PM_{10} emissions). For $PM_{2.5}$, annual average emissions range between 600 tons/year (Butte County) and 4,041 tons/year (Camas County). Of all the counties evaluated in the USRD, Butte and Camas Counties rank 21st and 3rd, respectively. Annual average PM_{10} emissions for Gooding and Lincoln Counties were not considered in the ranking since Gooding and Lincoln Counties occupy less than 1 % of Airshed 24.

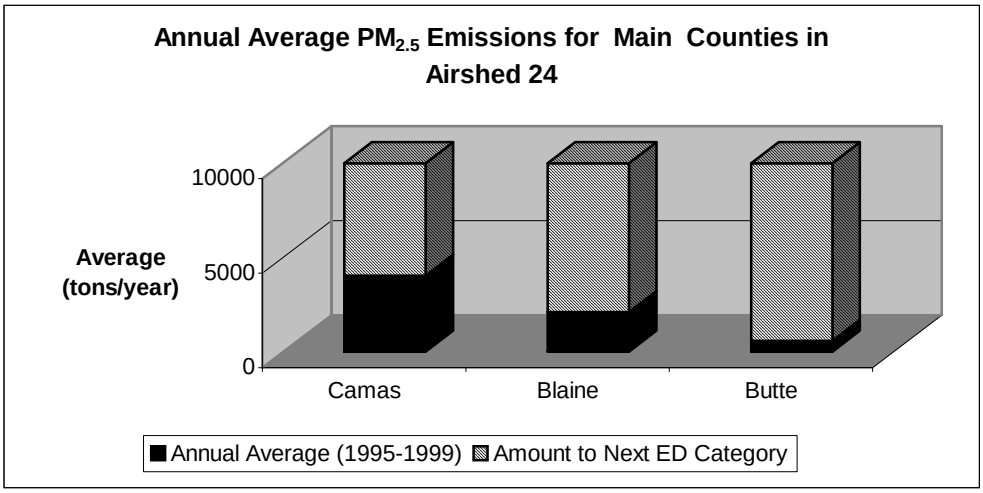
All the counties in Airshed 24 except Camas County show an improving (decreasing annual emissions) trend in emissions over a 5-year period (1995-1999) for both PM_{10} and $PM_{2.5}$. There is a spike in emissions due to an increase in emissions from the "Combustion- Other" category in 1996. In 1997 emissions for both PM_{10} and $PM_{2.5}$ in Camas County dropped to 13.5% and 8%, respectively, in comparison to the 1996 levels, then showed a gentle increase between 1997 and 1999. Figures 7 and 8 graphically present the PM_{10} and $PM_{2.5}$ emissions from each major county within the airshed. The "amount to next ED category" on the graphs indicates the remaining amount of emissions possible before the next ED category at 10,000 tons/year is reached. The

10,000 tons/year increment was chosen because all counties in Idaho with a PM_{10} nonattainment area have at a minimum 10,000 tons/year of PM_{10} emissions. It is not an official EPA or IDEQ threshold.



Note: This figure contains only the major counties within the airshed. The counties that consist of <1% of the airshed are not included.

Figure 7. Annual Average PM_{10} Emissions for Main Counties in Airshed 24.



Note: This figure contains only the major counties within the airshed. The counties that consist of <1% of the airshed are not included.

Figure 8. Annual Average $PM_{2.5}$ Emissions for Main Counties in Airshed 24.

In general, fugitive dust is the largest contributor of PM_{10} and $PM_{2.5}$ followed by the "Agriculture and Forestry" category. Tables 23 and 24 summarize the top three contributors of PM_{10} and $PM_{2.5}$ for each major county within Airshed 24. The counties that make up less than 1% of the airshed are not included since the majority of particulate emissions consist of the emissions from the main counties.

TABLE 23. MAJOR CONTRIBUTORS (%) OF PM_{10} IN COUNTIES (1999) [1]			
Source	**Blaine**	**Butte**	**Camas**
Fugitive Dust (% PM_{10} contribution)	81	76	22
Agriculture & Forestry (% PM_{10} contribution)	11	21	7
Other Major Contributor	5 (Combustion- Other)	1 (Residential Wood)	70 (Combustion- Other)
1 This table does not include counties that make up less than 1% of the airshed.			

TABLE 24. MAJOR CONTRIBUTORS (%) OF $PM_{2.5}$ IN COUNTIES (1999)[1]			
Source	**Blaine**	**Butte**	**Camas**
Fugitive Dust (% $PM_{2.5}$ contribution)	57	65	6
Agriculture & Forestry (% $PM_{2.5}$ contribution)	9	21	2
Other Major Contributor	20 (Combustion- Other)	5 (Residential Wood)	91 (Combustion- Other)
1This table does not include counties that make up less than 1% of the airshed.			

Monitoring Network [6]

Airshed 24 has one PM_{10} ambient air quality monitor. The PM_{10} monitor is located in Ketchum. Generally, the 24-hour PM_{10} average levels are below the 24-hour NAAQS (150 µg/m^3) limit in this airshed. Between 1997 and 2002 the 24-hour PM_{10} NAAQS limit was not exceeded in this airshed. There are no federal designated PM_{10} non-attainment areas within this airshed. Sun Valley is the only impact zone within this airshed.

TABLE 25. MONITOR LOCATIONS IN AIRSHED 24		
Monitor ID	**County**	**City**
160130003 - 1	Blaine	Ketchum

B. SENSITIVE AREAS WITHIN AIRSHED

In addition to sensitive areas listed in Table 26, this airshed is within 100 kilometers of the Sawtooth Wilderness and Craters of the Moon National Monument Class I visibility areas. Sun Valley is the only impact zone within Airshed 24 (see Figure 3-9).

[6] Idaho Air Quality Monitors for PM_{10} obtained from http://www.epa.gov/air/data/index.html. In cases where the exact locations of monitors are unavailable, monitors may not be located in the airshed.

TABLE 26. SUMMARY OF SENSITIVE AREAS WITHIN AIRSHED 24

Counties (% of County within Airshed)	Communities at Risk	Sensitive Populations (Medical facilities, etc.)	Transportation
Blaine (39%)	Bellevue, Gannett, Hailey, Ketchum, Picabo, and Sun Valley	Wood River Medical Center (15 beds), Bellevue (1 hospital, 20 beds), Sun Valley (1 hospital, 27 beds)	I-84, US 20, Friedman Memorial Airport
Camas (50%)	Corral, Fairfield, and Hill City	N/A	I-84, US 20, US 93, Camas County Airport

C. FIRE HISTORY

Airshed 24 has experienced several large wildfires in the past decades. In 4 of the previous 32 years, more than 5,000 acres were burned by wildfires, and 2 of those years had more than 10,000 acres burned by wildfires. The history of wildfire and area burned for BLM land is presented in Table 27.

TABLE 27. WILDFIRE AND AREA BURNED HISTORY OF BLM LAND

Decade	Acres Burned[1]	Square Miles Burned	# of Years that Burned 10,000+ Acres	# of Years that Burned 5,000+ Acres	# of Years with No Fires > 300 Acres
2000-2001	7,825	12.2	0	1	1
1990-2000	55,960	87.4	2	3	4
1980-1989	12,068	18.9	0	0	4
1970-1979	3,098	4.8	0	0	6
32-year Airshed Total	78,951	123.4	2	4	15

1 The acreage figures shown in this table represent total number of wildfire acres. Some areas may have burned more than once.

D. DISPERSION POTENTIAL

To accurately evaluate the dispersion potential of the particulate emissions generated within the airshed, a refined model such as CALPUF or CALMET is recommended. However, a more basic dispersion potential evaluation can be done by reviewing pertinent meteorological data. Wind speeds for the planning area tend to be highest in the summer and lowest in the fall. The corresponding wind direction in April and July (higher wind speeds) tends to be from the southwest to the northeast. During times of lower wind speeds (October), the wind predominantly blows from the northeast to the southwest.

When the wind in Airshed 24 blows from the southwest, typically in the spring and summer, it is possible that smoke may be carried into Airshed 19 and towards the Sun Valley impact zone and

Craters of the Moon National Monument Class I visibility area. Airshed 24 is bounded by hills in the south and mountains in the north. Since these terrain features limit dispersion in the horizontal direction, a mixing height above the terrain features is critical for smoke dispersion in this airshed.

An indicator for potential stagnate air is when mixing heights are at or below 1,640 feet (500 meters).[7] Early morning hours typically have lower mixing heights. For some of the lower elevation communities, trapping residual smoke could be of concern until afternoon heating increased mixing heights and/or an inversion breaks.

Afternoon mixing heights are generally best during the summer due to greater heating during the day, while the lowest mixing heights are expected during the fall. Burning near a community requires careful consideration of the amount of residual smoke that may be produced and trapped until dispersion can lift the smoke out of the area.

L.6 AIRSHED 25

A. AIRSHED DESCRIPTION

Airshed 25 covers over 4,975,314 acres. Federal ownership occupies approximately 52% of this airshed and 47% is privately owned (Table 28).

Ten USRD counties fall within Airshed 25: Twin Falls, Cassia, Oneida, Power, Blaine, Minidoka, Jerome, Gooding, Camas, and Lincoln Counties (Table 29).

Particulate Emissions Summary

Annual (1995-1999) average emissions for PM_{10} in these counties range between 3,667 tons/year (Lincoln County) and 25,564 tons/year (Twin Falls County). Of the 22 counties evaluated in the USRD, Lincoln and Twin Falls rank 20th and 2nd, respectively (1st being the highest annual average PM_{10} emissions). For $PM_{2.5}$, annual average emissions range between 662 tons/year (Lincoln County) to 5,298 tons/year (Twin Falls County). Of all the counties evaluated in the USRD, Lincoln and Twin Falls rank 20th and 1st, respectively.

All the counties in Airshed 25 except Camas County show an improving (decreasing annual emissions) trend in emissions over a 5-year period (1995-1999) for both PM_{10} and $PM_{2.5}$. There is a spike in emissions due to an increase in emissions from the "Combustion- Other" category in 1996. In 1997 emissions for both PM_{10} and $PM_{2.5}$ in Camas County dropped 13.5% and 8%, respectively, then showed a gentle increase between 1997 and 1999.

[7] Southern Forestry Smoke Management Guidebook, GTR SE-10, 1976.

TABLE 28. AIRSHED 25 OWNERSHIP SUMMARY

Size	BLM	Private	State	USFS	Mil	NPS	USFWS	Water
Total Acres	2,217,060	2,079,608	138,748	504,655	511	13	12,515	22,204
% of Airshed	45	42	3	10	< 1	< 1	< 1	< 1

TABLE 29. AIRSHED 25 COUNTY SUMMARY

Size	Twin Falls	Cassia	Oneida	Power	Blaine	Minidoka	Jerome	Gooding	Camas	Lincoln
Total Acres	819,432	1,592,603	111,757	22,761	299,077	404,894	390,678	468,249	25,940	755,849
% of Airshed	16	32	2	< 1	6	8	8	9	1	15

Figures 9 and 10 graphically present the PM_{10} and $PM_{2.5}$ emissions from each major county within the airshed. Camas, Power, and Oneida Counties make up less than 2% of Airshed 25 and, therefore, are not included in the figures. The "amount to next ED category" on the graphs indicates the remaining amount of emissions possible before the next ED category at 10,000 tons/year is reached. The 10,000 tons/year increment was chosen because all counties in Idaho with a PM_{10} nonattainment area have at a minimum 10,000 tons/year of PM_{10} emissions. It is not an official EPA or IDEQ threshold.

In general, fugitive dust is the largest contributor of PM_{10} and $PM_{2.5}$ followed by the "Agriculture and Forestry" category. Tables 30 and 31 summarize the top three contributors of PM_{10} and $PM_{2.5}$ for each major county within Airshed 25. The counties that make up 2% or less of the airshed are not included since the majority of particulate emissions will consist of the emissions from the main counties.

Monitoring Network [8]

Airshed 25 has two PM_{10} ambient air quality monitors. The PM_{10} monitors are located in Rupert and Twin Falls (Table 32). Generally, the 24-hour PM_{10} average levels are below the 24-hour NAAQS (150 $\mu g/m^3$) limit in this airshed. In 2002, the 1st highest 24-hour PM_{10} value recorded in Rupert and Twin Falls were 51 $\mu g/m^3$ and 52 $\mu g/m^3$, respectively. There are no federal designated PM_{10} non-attainment areas within this airshed. Twin Falls is the only impact zone within this airshed.

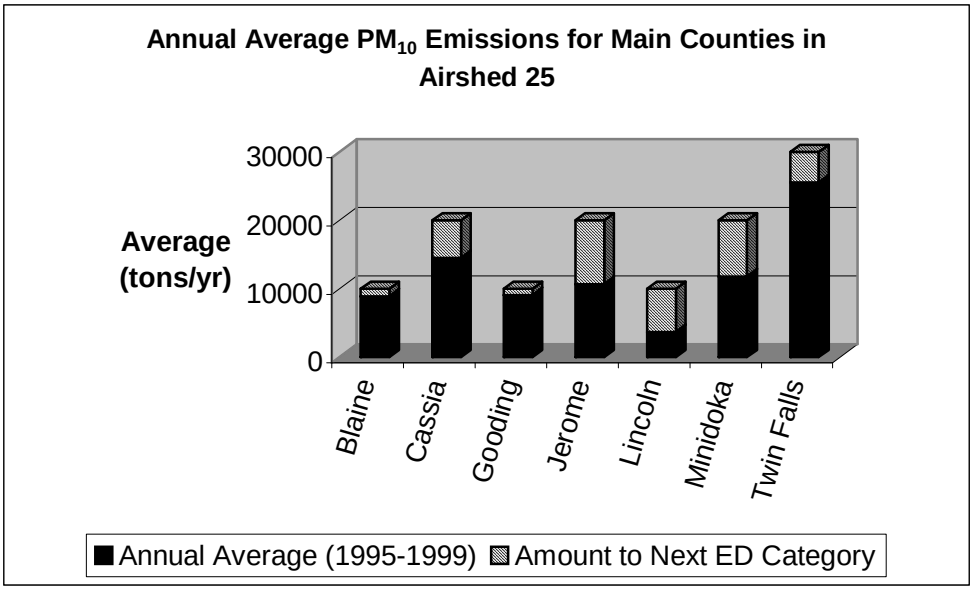
B. Sensitive Areas within Airshed

In addition to sensitive areas listed in Table 33, this airshed is within 100 kilometers of the Sawtooth Wilderness and Craters of the Moon National Monument Class I visibility areas. Twin Falls is the only impact zone within Airshed 25 (see Figure 3-9).

C. Fire History

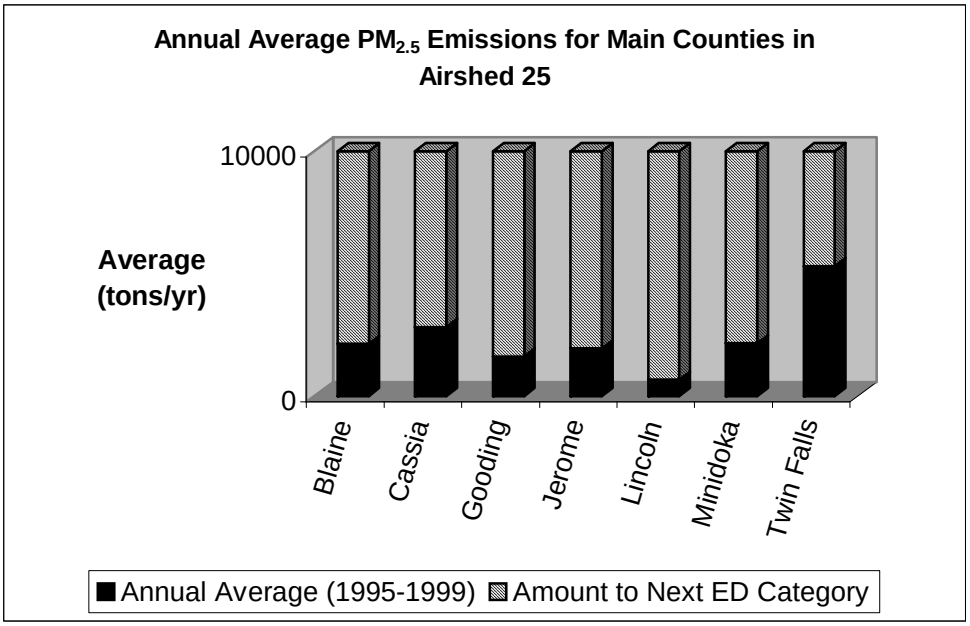
This airshed has been affected by many large wildfires in the past three decades. In 26 of the previous 32 years, more than 5,000 acres were burned by wildfires, and 21 of those years had more than 10,000 acres burned by wildfires. The history of wildfire and area burned for BLM land is presented in Table 34.

[8] Idaho Air Quality Monitors for PM_{10} obtained from http://www.epa.gov/air/data/index.html. In cases where the exact locations of monitors are unavailable, monitors may not be located in the airshed.



Note: This figure contains only the major counties within the airshed. The counties that consist of 2% or less of the airshed are not included.

Figure 9. Annual Average PM_{10} Emissions for Main Counties in Airshed 25.



Note: This figure contains only the major counties within the airshed. The counties that consist of 2% or less of the airshed are not included.

Figure 10. Annual Average $PM_{2.5}$ Emissions for Main Counties in Airshed 25.

TABLE 30. MAJOR CONTRIBUTORS (%) OF PM_{10} IN COUNTIES (1999) [1]

Source	Twin Falls	Cassia	Blaine	Minidoka	Jerome	Gooding	Lincoln
Fugitive Dust (% PM_{10} contribution)	78	61	81	75	67	80	76
Agriculture & Forestry (% PM_{10} contribution)	16	35	11	17	30	18	21
Other Major Contributor	2 (Combustion-Other)	3 (Inorganic Chemical Product Mfg.)	5 (Combustion-Other)	6 (Industrial Fuel-Coal)	1 (Residential Wood)	1 (Combustion-Other)	1 (Residential Wood)

1 This table does not include counties that make up 2% or less of the airshed.

TABLE 31. MAJOR CONTRIBUTORS (%) OF $PM_{2.5}$ IN COUNTIES (1999) [1]

Source	Twin Falls	Cassia	Blaine	Minidoka	Jerome	Gooding	Lincoln
Fugitive Dust (% $PM_{2.5}$ contribution)	61	48	57	75	58	69	65
Agriculture & Forestry (% $PM_{2.5}$ contribution)	15	34	9	17	32	18	22
Other Major Contributor	10 (Combustion-Other)	10 (Combustion-Other)	20 (Combustion-Other)	2 (Residential Wood)	3 (Residential Wood)	3 (Residential Wood)	4 (Residential Wood)

1 This table does not include counties that make up 2% or less of the airshed.

TABLE 32. MONITOR LOCATIONS IN AIRSHED 25

Monitor ID	County	City
160670001 - 1	Minidoka	Rupert
160830005 - 1	Twin Falls	Twin Falls

TABLE 33. SUMMARY OF SENSITIVE AREAS WITHIN AIRSHED 25

Counties (% of County within Airshed)	Communities at Risk	Sensitive Populations (Medical facilities, etc.)	Transportation
Blaine (18%)	Carey	N/A	Carey Airfield
Cassia (99%)	Albion, Almo, Burley, Conner, Declo, Elba, Malta, and Oakley	Cassia Regional Medical Center (40 beds)	I-84, I-86, US 30, Burley Municipal Airport, Oakley Municipal Airport
Gooding (100%)	Bliss, Gooding, Hagerman, and Wendell	Gooding County Memorial Hospital (26 beds), Hagerman (3 hospitals, 222 beds)	I-84, US 26, US 30, US 93, US 20, Gooding Municipal Airport
Jerome (100%)	Eden, Hazelton, and Jerome	St. Benedict's Family Medical Center (25 beds)	I-84, US 25, US 26, US 30, US 93 Hazelton Municipal, Jerome County Airport
Lincoln (99%)	Dietrich, Richfield, and Shoshone	N/A	US 24, US 26, US 95, US 93
Minidoka (83%)	Acequia, Heyburn, Hidden Valley, Minidoka, Norland, Paul, and Rupert	Rupert (1 hospital , 25 beds)	I-84, I-86, US 30
Twin Falls (99%)	Buhl, Caslteford, Filer, Hansen, Hollister, Kimberly, Murtaugh, Rock Creek, Rogerson, and Twin Falls	Magic Valley Regional Medical Center, Twin Falls Clinic and Hospital, Twin Falls (1 hospital) (233 beds total in sensitive areas)	I-84, US 30, US 74, US 93, Buhl Municipal, Joslin Field

TABLE 34. WILDLIFE AND AREA BURNED HISTORY OF BLM LAND

Decade	Acres Burned[1]	Square Miles Burned	# of Years that Burned 10,000+ Acres	# of Years that Burned 5,000+ Acres	# of Years with No Fires > 300 Acres
2000-2001	79,505	124.2	2	2	0
1990-2000	531,293	830.1	6	7	1
1980-1989	465,220	726.9	7	9	0
1970-1979	302,870	473.2	6	8	0
32-year Airshed Total	1,378,888	2,154.5	21	26	1

[1] The acreage figures shown in this table represent total number of wildfire acres. Some areas may have burned more than once.

D. DISPERSION POTENTIAL

To accurately evaluate the dispersion potential of the particulate emissions generated within the airshed, a refined model such as CALPUF or CALMET is recommended. However, a more basic dispersion potential evaluation can be done by reviewing pertinent meteorological data. Wind speeds for the planning area tend to be highest in the summer and lowest in the fall. The corresponding wind direction in April and July (higher wind speeds) tends to be from the southwest. During times of lower wind speeds (October), the wind predominantly blows from the northeast.

Airshed 25 consists of a portion of the lower elevation, relatively flat Snake River Plain. The airshed is bounded by the hilly Airshed 24 to the north and the hilly Airshed 20 to the east. When the wind in Airshed 25 blows from the south and west, typically in the spring and summer, it is possible that smoke may be carried into Airshed 19 towards Craters of the Moon National Monument Class I visibility area and/or the Pocatello impact zone. In the fall, when the wind tends to blow from the northeast, smoke could be carried towards population centers within the airshed including the Twin Falls impact zone.

An indicator for potential stagnate air is when mixing heights are at or below 1,640 feet (500 meters).[9] Early morning hours typically have lower mixing heights. For some of the lower elevation communities, trapping residual smoke could be of concern until afternoon heating increased mixing heights and/or an inversion breaks.

Afternoon mixing heights are generally best during the summer due to greater heating during the day, while the lowest mixing heights are expected during the fall. Burning near a community requires careful consideration of the amount of residual smoke that may be produced and trapped until dispersion can lift the smoke out of the area.

[9] Southern Forestry Smoke Management Guidebook, GTR SE-10, 1976.

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APPENDIX M - VRM CLASSIFICATION AND OBJECTIVES

Class I – The objective of Class I is to preserve the existing character of the landscape. VRM Class I is assigned to those areas where a management decision has been made to preserve a natural landscape. This includes specially designated areas such as national wilderness areas, wilderness study areas, the wild section of national wild and scenic rivers, and other congressionally and administratively designated areas where decisions have been made to preserve a natural landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activities. The level of change to the characteristic landscape should be very low and should not attract attention.

Within the planning area, 471,617 acres in VRM Class I were identified. This classification is for the highest scenic quality, with the purpose of preserving the existing characteristic landscape. VRM Class I allows for natural ecological changes only. Landscape modification activities should be restricted in these areas. Wilderness Study Areas (WSAs) are managed as VRM Class I areas until Congress releases them from consideration or designates them as Wilderness Areas.

Class II – The objective of this class is to retain the existing character of the landscape. The level of change to the landscape should be low and not evident. Management activities may be seen, but should not attract the attention of the casual observer. Any changes to the landscape must repeat the basic visual elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. Most of the planning area Class II areas have high visual exposure and sensitivity, and many of the Class II areas serve as key viewsheds for communities and major travel corridors. Landscape modifications in these areas would be prominent and noticeable from many places.

Visual qualities in Visual Resource Class I and Class II areas are particularly important with respect to fire management activities. Smoke and visible on-the-ground activities are two direct impacts to visual resources from fire and vegetation management.

Class III – VRM Class III areas are managed to partially retain the existing character of the landscape. The level of change to the landscape should be moderate, and management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic visual elements of line, form, color, and texture found in the predominant natural features of the landscape.

Class IV – The objective of Class IV is to provide for management activities that require major modifications to the existing character of the landscape. The level of change to the landscape can be high. The management activities may dominate the view and may be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic visual elements of form, line, color, and texture.

Class III and Class IV provide for more flexibility in techniques used for wildfire suppression or use for resource benefit, prescribed vegetation treatments, or emergency rehabilitation procedures. However, relaxed visual resource standards may be subordinate to overall restoration goals of improving or restoring plant communities for other purposes, such as wildlife habitat.

Class V – This classification is applied to areas where the natural character of the landscape has been disturbed to a point where rehabilitation is needed to bring it up to one of the four other classifications.

APPENDIX N - PLANT SPECIES IN THE PLANNING AREA USED BY NATIVE AMERICANS

TABLE 1. PLANT SPECIES IN THE PLANNING AREA USED BY NATIVE AMERICANS	
Plant Family / Species / Common Name	**Uses (Parts)**
Aceraceae – Maple Family	
Acer glabrum Torr. Rocky Mountain maple	Medicine (seed, bark), food (young shoot, cambium)
Acer negundo L. Box elder	Food (sap), medicine (smoke), fuel (wood)
Alismataceae – Water Plantain Family	
Alisma gramineum Gmel. Water plantain	Food (root)
Amaranthaceae – Amaranth Family	
Amaranthus spp. Redroot, Amaranths, Pigweeds	Food (leaf, seed)
Anacardiaceae – Sumac Family	
Rhus trilobata Nutt. Squawbush, Skunkbush	Food (berry), medicine (leaf, root?, flower, bark), manufacture (bark)
Apiaceae – Parsley Family	
Cymopterus spp. Biscuit-root, Cymopterus	Food (root, stem, leaf)
Lomatium spp. Desert-parsley, Lomatium	Medicine (root, leaf?), food (root)
Osmorhiza spp. Sweet-cicely	Food (seed, root), medicine (root, leaf, seed)
Apocynaceae – Dogbane Family	
Apocynum cannabinum L., Indian hemp, Dogbane	Cordage (stem), medicine (root, milky juice, leaf for smoking)
Asclepiadaceae – Milkweed Family	
Asclepias speciosa Torr. Showy milkweed	Food (young seed pod), manufacture (outer stem)
Asteraceae – Sunflower Family	
Achillea millefolium L. Common yarrow	Medicine (leaf, flower)
Agoseris glauca (Pursh) Raf. False dandelion	Food (leaf), medicine (milky juice)
Ambrosia acanthicarpa Hook. Ragweed	Medicine (leaf)
Antennaria spp. Pussytoes	Medicine (stem, leaf)
[1]*Arctium minus* (Hill) Bernh. Common burdock	Medicine (leaf, flower), food (young leaf, stem, root)
Arnica cordifolia Hook. Heart-leaved arnica	Medicine (leaf, root, flower)
Artemisia spp. Sagebrush, Sage	Medicine (leaf), cordage (bark), clothing (bark, leaf), shelter (plant), fuel (trunk), dye (leaf), food (seed)
Aster spp. Aster	Medicine (root), food? (seed)
Balsamorhiza spp. Balsamroot	Food (seed, stem, root), medicine (leaf, root)
Bidens cernua L. Nodding beggar-ticks	Medicine (leaf, flower)
Chaenactis douglasii (Hook.) H & A Hoary false-yarrow	Medicine (leaf, root)
Chrysothamnus spp. Rabbitbrush	Medicine (plant, root), gum (bark of lower stem, root)
Cirsium spp. Thistle	Food (stem, root)
Crepis spp. Hawksbeard	Food (leaf)
Erigeron spp. Fleabane, Daisy	Medicine (root, leaf, flower), arrow tip poison (root)
[1]*Grindelia squarrosa* (Pursh) Dunal Gumweed	Medicine (flower, leaf)

TABLE 1. PLANT SPECIES IN THE PLANNING AREA USED BY NATIVE AMERICANS	
Plant Family / Species / Common Name	**Uses (Parts)**
Gutierrezia sarothrae (Pursh) Britt. and Rusby Matchbrush	Medicine (flowering stem)
Haplopappus spp. Goldenweed, Strawflower	Food (seed)
Helenium autumnale L. Sneezeweed	Medicine (flower)
[1]*Helianthus* spp. Sunflower	Medicine (root), food (seed)
Iva spp. Povertyweed, Tall marsh elder	Food (seed)
[1+N]*Lactuca* spp. Prickly lettuce, Blue lettuce	Food (leaf), medicine (root, juice, leaf)
Lygodesmia spp. Skeleton weed	Food (leaf, seed), gum (milky juice)
Microseris spp. False agoseris	Food (seed)
Senecio spp. Groundsel, Butterweed	Medicine (root), gum (root)
Solidago missouriensis Nutt. Goldenrod	Medicine (root, plant flower)
Sonchus asper (L.) Hill Sow thistle	Food (leaf, shoot)
[1]*Tanacetum vulgare* L. Common tansy	Medicine (flower)
[1]*Taraxacum* spp. Dandelion	Food (flower, leaf, stem, root), medicine (root)
[1]*Tragopogon dubius* Scop. Yellow salsify	Medicine (root), food (leaf, root), gum (milky juice)
Xanthium strumarium L. Common cocklebur	Food (seed), medicine (entire plant in flower)
Betulaceae – Birch Family	
Betula occidentalis Hook. Western water birch	Medicine (leaf, bark), food (sap), whips
Boraginaceae – Borage Family	
Amsinckia spp. Fiddleneck	Food (leaf)
Lappula spp. Beggar's ticks, Stickseed	Food (seed, root)
Lithospermum ruderale Dougl. Gromwell	Food (seed), medicine (root)
Brassicaceae – Mustard Family	
Arabis spp. Rockcress	Food (seed)
Brassica spp. Mustard	Food (leaf, seed, seed pod), medicine (leaf, seed)
Capsella bursa-pastoris (L.) Medic Shepherd's purse	Medicine (whole herb)
Descurainia spp. Tansymustard	Food (seed), medicine (seed)
Draba oligosperma Hook. Whitlow grass	Food (seed)
Lepidium spp. Peppergrass	Food (seed, green pods), medicine (herb)
Rorippa spp. Yellow cress	Food (seed, leaf)
Sisymbrium spp. Tumblemustard	Food (seed, leaf)
Stanleya viridiflora Nutt. Prince's plume	Food (seed, leaf, stem)
Thlaspi arvense L. Fanweed	Food (young shoot, leaf, seed?)
Cactaceae – Cactus Family	
Opuntia polyacantha Haw. Prickly pear	Food (stem, fruit)
Capparidaceae – Caper Family	
Cleome lutea Hook. Yellow bee plant	Food (seed, leaf, stem)
Caprifoliaceae – Honeysuckle Family	
Sambucus cerulea Raf. Elderberry	Food (fruit), manufacture (stem, twig)
Symphoricarpos oreophilus Gray. Snowberry	Medicine (fruit, plant), manufacture (bark)

TABLE 1. PLANT SPECIES IN THE PLANNING AREA USED BY NATIVE AMERICANS	
Plant Family / Species / Common Name	**Uses (Parts)**
Chenopodiaceae – Goosefoot Family	
Atriplex spp. Saltbush, Shadscale, Spiny hopsage, Red orache	Food (seed)
[1]*Chenopodium* spp. Goosefoot, Lamb's quarter	Food (seed, young plant)
Monolepis spp. Povertyweed	Food (seed, root, stem, leaf)
[1]*Salsola kali* L. Russian thistle	Food (young plant)
Sarcobatus vermiculatus (Hook)Torr. Black greasewood	Food (seed)
Convolvulaceae – Morning Glory Family	
[1]*Convolvulus arvensis* L. Field morning glory	Medicine (root), starvation food (root)
Cornaceae – Dogwood Family	
Cornus stolonifera Michx. Red-osier dogwood	Food (fruit), medicine (bark, leaf, root, stem), smoking (leaves, cambium), manufacture (twigs)
Cuppressaceae – Cypress Family	
Juniperus spp. Juniper	Medicine (needles), food (cones), manufacture (branches)
Cuscutaceae – Dodder Family	
Cuscuta spp. Dodder	Medicine (plant)
Cyperaceae – Sedge Family	
Carex spp. Sedge	Food (shoot, bulb, seed), manufacture (leaf, plant)
Eleocharis spp. Spikerush	Food (seed, bulb)
Scirpus spp. Bulrush	Food (seed, pollen, root, stem), manufacture (stem)
Fabaceae – Pea Family	
Dalea spp. Dalea	Food (seed)
Glycyrrhiza lepidota Pursh. Licorice-root	Medicine (root), flavoring (root)
Hedysarum boreale Nutt. Northern sweetvetch	Flavoring (root)
[1]*Medicago* spp. Black medic, Alfalfa	Medicine (flower)
[1]*Melilotus* spp. Sweet clovers	Medicine/tonic (flower, leaf)
Thermopsis rhombifolia (Nutt.) Richardson False-lupine	Medicine (flower)
[1]*Trifolium* spp. Red clover, Dutch clover	Food (seed, leaf, whole plant)
Vicia americana Muhl. American vetch	Food (seed, young stem)
Fumariaceae – Fumitory Family	
Corydalis aurea Wild. Ground smoke	Medicine (entire plant)
Grossulariaceae – Currant/Gooseberry Family	
Ribes spp. Currant, Gooseberry	Food (fruit), medicine? (leaf)
Hydrophyllaceae – Waterleaf Family	
Phacelia spp. Phacelia	Food (leaf)
Juncaceae – Rush Family	
Juncus spp. Rush	Food (seed), manufacture (stalks)
Lamiaceae – Mint Family	

TABLE 1. PLANT SPECIES IN THE PLANNING AREA USED BY NATIVE AMERICANS	
Plant Family / Species / Common Name	**Uses (Parts)**
Agastache spp. Horsemint, Giant hyssop	Food (seed)
Mentha arvensis L. Wild mint	Medicine (leaf), flavoring (leaf)
Liliaceae – Lily Family	
Allium spp. Wild onion	Food (leaf, bulb), medicine (leaf), flavoring (boiled juice of bulb), dye (bulb skin)
Calochortus spp.	Food (bulb, seed, plant)
Fritillaria spp. Leopard lily, Yellow fritillary	Food (corm)
Smilacina stellata (L.) Desf. False Solomon's seal	Food (young leaf and stem), medicine (root)
Loasaceae – Blazing Star Family	
Mentzelia spp. Blazing star	Food (seed)
Malvaceae – Mallow Family	
Sphaeralcea munroana (Dougl.) Spach. White-stemmed globe-mallow	Food (seed, fruit, shoot), medicine (leaf), manufacture (plant)
Nyctaginaceae – Four-o'clock Family	
Abronia mellifera Dougl. Sand verbena	Medicine (root?)
Onagraceae – Evening-primrose Family	
Epilobium spp. Fireweed, Willow-herb	Food (leaf, young shoot)
Oenothera spp. Evening-primrose	Food (seed, leaf, young shoot, root), medicine (leaf, root)
Orchidaceae – Orchid Family	
Corallorhiza maculate Raf. Spotted coral-root	Medicine (root)
Orobanchaceae – Broomrape Family	
Orobanche spp.	Medicine (plant), food (plant)
Pinaceae – Pine Family	
Pinus spp. Lodgepole pine, Limber pine	Food (seed, sap), manufacture (lodgepoles), medicine (needles)
Pseudotsuga menziesii (Mirbel.) Franco Douglas fir	Medicine (needles)
Plantaginaceae – Plantain Family	
Plantago spp. Plantain, Indian wheat	Medicine (plant), food (leaf, seed)
Poaceae – Grass Family	
Agrostis stolonifera L. Bentgrass	Food (seed)
Alopecurus aequalis Sobol. Shortawn foxtail	Food (seed)
Bromus spp. Bromegrass	Food (seed)
[1]*Echinochloa crusgalli* (L.) Beauv. Barnyard grass	Food (seed)
Elymus spp. Wildrye grass	Food (seed), medicine (root)
Glyceria grandis Wats. American mannagrass	Food (seed)
Hordeum jubatum L. Foxtail barley	Food (seed)
Leymus spp. Wildrye	Food (seed), manufacture (plant)
Melica bulbosa Geyer Oniongrass	Food (seed)
Oryzopsis hymenoides (R. & S.) Ricker Indian ricegrass	Food (seed)

TABLE 1. PLANT SPECIES IN THE PLANNING AREA USED BY NATIVE AMERICANS	
Plant Family / Species / Common Name	**Uses (Parts)**
Panicum capillare L. Panicgrass	Food (seed)
Poa spp. Bluegrass	Food (seed), medicine (spikelet)
Sitanion hystrix (Nutt.) J.G. Smith Squirreltail	Food (seed)
Sporobolus cryptandrus (Torr.) Gray Dropseed	Food (seed)
Stipa spp. Needle-and-thread grass	Food (seed)
[1]*Triticum aestivum* L. Wheat	Food (seed)
Polemoniaceae – Phlox Family	
Gilia leptomeria Gray Great Basin gilia	Food (seed), medicine (flower, plant)
Polygonaceae – Buckwheat Family	
Eriogonum spp. Buckwheat	Medicine (flower)
Polygonum spp. Knotweed, Doorweed	Food (seed, leaf, stem, root), medicine (root)
Rumex spp. Dock	Food (seed, stem, leaf), medicine (leaf, root)
Ranunculaceae – Buttercup Family	
Aquilegia formosa Fisch. Red columbine	Food (young plants)
Clematis ligusticifolia Nutt. Virgin's bower	Medicine (leaf), clothing (seed tails)
Delphinium spp. Larkspur	Medicine (seed, flower), dye (flower)
Ranunculus spp. Buttercup	Medicine (plant, root), food (herb)
Rhamnaceae – Buckthorn Family	
Ceanothus velutinus L. Snowbrush	Smoking (leaf), soap (flower), medicine (root)
Rosaceae – Rose Family	
Amelanchier spp. Servicebeny	Food (fruit), manufacture (stem), medicine (stem)
Cercocarpus ledifolius Nutt. Mountain mahogany	Manufacture (wood)
Geum macrophyllum Wild. Large-leaved avens	Medicine (root)
Holodiscus dumosus (Hook.) Heller Ocean spray	Food (root for tea)
Potentilla spp. Common silverweed, Cinquefoil	Food (root), medicine (leaf)
Prunus virginiana L. Common chokecherry	Food (fruit, leaf, bark), medicine (bark, seed, cambium, twig), manufacture (twig, branch), dye base (sap), fuel (wood)
Rosa woodsii Lindl. Wood's rose	Food (fruit, root, flower, bud, seed), smoking (cambium), medicine (fruit, stem, root bark)
Rubus ideaus L. Red raspberry	Food (fruit, young shoot, leaf, twig), medicine (fruits, leaf, root, root bark), flavoring (fruit)
Rubiaceae – Madder Family	
Galium spp. Bedstraw	Medicine (plant), dye (root)
Salicaceae – Willow Family	
Populus angustifolia James Narrow-leaved cottonwood	Food (cambium), fuel (upper limbs), manufacture (trunk), dyes (bud, fruits), medicine (bark)
Populus tremuloides Michx. Quaking aspen	Medicine (cambium, leaf, bud), manufacture (branch)
Salix spp. Willow	Medicine (bark, leaf, bud tips)

TABLE 1. PLANT SPECIES IN THE PLANNING AREA USED BY NATIVE AMERICANS

Plant Family / Species / Common Name	Uses (Parts)
Saxifragaceae – Saxifrage Family	
Heuchera parvifolia Nutt. Common alumroot	Medicine (root)
Scrophulariaceae – Figwort Family	
Castilleja spp. Paintbrush	Medicine (plant), dye (flower)
[1]*Linaria* spp. Toadflax, Butter-and-eggs	Medicine (plant)
Mimulus spp. Monkey flower	Food (leaf, stalk)
Penstemon spp. Penstemon	Medicine (leaf)
[1]*Verbascum thapsus* L. Hairy mullein	Medicine (flower, leaf, root), smoking (dried leaf)
Veronica spp. Speedwell	Food (herb)
Solanaceae – Nightshade Family	
[1]*Hysoscyamus niger* L. Black henbane	Medicine (herb)
Nicotiana attenuata Torr. Coyote tobacco	Smoking (leaf), medicine (topical tea)
Solanum spp. Bittersweet	Medicine (leaf)
Typhaceae – Cattail Family	
Typha latifolia L. Common cattail	Food (seed, root, young stem), manufacture (leaf), medicine (seed down)
Verbenaceae – Verbena Family	
Verbena bracteata Lag. and Rodr. Bracted verbena	Food (seeds), medicine (entire plant)
Violaceae – Violet Family	
Viola spp. Violet	Food (whole herb, flower), tonic (plant)

[1] Denotes introduced species

[1+N] Denotes both native and introduced species

Information in table taken from: Anderson, J.E., K.T. Ruppel, J.M. Glennon, K.E. Holte, and R.C. Rope. 1996. Plant Communities, Ethnoecology, and Flora of the Idaho National Engineering Laboratory. ESRF Report Series, No. 005. Environmental Science and Research Foundation. Idaho Falls, ID. 111 pp.

APPENDIX O - FINAL BIOLOGICAL ASSESSMENT AND U.S. FISH AND WILDLIFE SERVICE CONCURRENCE LETTER

BIOLOGICAL ASSESSMENT
for
Fire, Fuels, and Related Vegetation Management Direction Final Plan Amendment and EIS

United States Department of the Interior,
Idaho Bureau of Land Management

Upper Snake and Pocatello Field Offices, Idaho Falls District
and
Burley and Shoshone Field Offices, Twin Falls District

Eastern & South Central Idaho

May 19, 2006

Contact Person: Jeff Gardetto, BLM Phone Number: 208-524-7619

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Table 2. Fire Regime Condition Class[2] (FRCC) Descriptions O-8

INTRODUCTION

The purpose of this biological assessment (BA) is to review the proposed Fire, Fuels, and Related Vegetation Management Direction Final Plan Amendment and EIS for the Upper Snake, Pocatello, Burley and Shoshone Field Offices (Figure 1) in the Idaho Falls and Twin Falls Districts of the Bureau of Land Management (BLM) in sufficient detail to determine to what extent the proposed action may affect any of the threatened, endangered, proposed, or sensitive species listed below. This biological assessment is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)), and follows the standards established in the Bureau of Land Management (BLM), National Environmental Policy Act (NEPA) guidelines, and ESA consultation guidance (USFWS 1998).

Figure 1. FMDA Planning Area includes the Burley, Pocatello, Shoshone and Upper Snake Field Offices.

1.0 FEDERALLY LISTED SPECIES

Section 7 of the ESA requires federal agencies to ensure that any activities they authorize, fund, or carry out, do not jeopardize the continued existence of any species federally listed as threatened or endangered (T&E), or destroy or adversely modify occupied or designated critical habitat. This BA identifies threatened, endangered, proposed, and candidate species that occur or have the potential to occur in the planning area and evaluates potential project-related impacts on those species and occupied or designated critical habitat.

The species considered in this document are shown in Table 1. This species list was compiled from an update supplied by the USFWS, numbers 1-4-05-SP-481 (Upper Snake), 1-4-05-SP-490 (Pocatello), 1-4-05-SP-713 (Burley) and 1-4-05-SP-718 (Shoshone). Note: Although lynx may

show up on individual field office T&E lists, no lynx habitat or lynx analysis units occur within the planning area.

TABLE 1. SPECIAL STATUS SPECIES OF THE DISTRICT

Species	Class	Type	Field Office[1]
Aquatic Species			
Bull Trout (*Salvelinus confluentus*)	F – Threatened	Fish	US
Idaho springsnail (Pyrgulopsis idahoensis)	F – Endangered	Invertebrate	SH
Banbury Springs limpet (*Lanx* spp.)	F – Endangered	Invertebrate	SH
Snake River Physa snail (*Physa natricina*)	F – Endangered	Invertebrate	SH, BU
Bliss Rapids snail (Taylorconcha serpenticola)	F – Threatened	Invertebrate	SH, BU
Utah valvata snail (*Valvata utahensis*)	F – Endangered	Invertebrate	SH, BU, PO, US
Columbia spotted frog (*Rana luteiventris*) - Great Basin population	F – Candidate	Amphibian	SH, BU
Mammals			
Gray Wolf (*Canis lupus*)	F – Experimental/ Non-Essential	Mammal	US, SH, PO
Grizzly Bear (*Ursus arctos*)	F – Threatened	Mammal	US
Bald Eagle (*Haliaetus leucocephalus*)	F – Threatened	Bird	US, SH, BU, PO
Yellow-billed Cuckoo (*Coccyzus americanus*)	F – Candidate	Bird	US
Plants			
Ute ladies' tresses (*Spiranthes diluvialis*)	F – Threatened	Plant	US

[1] Field Office Abbreviations: BU = Burley, US = Upper Snake River , PO = Pocatello, SH = Shoshone

2.0 CONSULTATION TO DATE

A query of existing databases pertaining to the presence of federally-listed species within field offices was conducted. This included an on-line query of the USFWS and Idaho Department of Fish and Game (IDFG) listings and related information available via the Internet. In addition, USFWS, BLM, and IDFG biologists were contacted and interviewed regarding agency knowledge of listed species that could occur within the District. The USFWS has participated

throughout the planning process as a participating agency and has provided input on species of concern, project purpose and need, and project alternatives.

3.0 CURRENT MANAGEMENT DIRECTION (NO ACTION)

The Burley, Upper Snake, Pocatello, and Shoshone BLM Field Offices, administer almost 5.4 million acres of public lands in south-central and eastern Idaho. The four field offices manage numerous parcels of public lands that range in size from less than 40 acres to more than 100,000 acres.

At present, many of the vegetation types within the planning area have altered fire regimes that are not within their historical range of variability. Large and/or severe fires in these vegetation types can threaten human life and property as well as the resiliency, integrity, and long-term sustainability of ecosystem components and processes. Fires are occurring more frequently and are burning more severely in some vegetation types. The invasion of sagebrush steppe by annual grasses such as cheatgrass (*Bromus tectorum*) and medusahead rye (*Taeniatherum caput-medusae*) has substantially increased fine fuel loads in these communities, making them more susceptible to large, frequent and severe fires. In other plant communities, fires are occurring less frequently than they did historically, causing undesirable changes in plant species composition and structure and an accumulation of hazardous fuels. Juniper species, for example, are expanding their range at the expense of sagebrush steppe due to a lack of periodic fire. Dry conifer plant communities are slowly replacing aspen and some mountain shrub communities.

Prehistoric and ecological evidence demonstrate that wildland fire was an integral part of the planning area before modern fire suppression was applied. Numerous plant species and communities in the planning area have responses that enable them to resist, tolerate or take advantage of fire. Since about 1996, wildland fires have occurred in the planning area at an accelerated rate. The majority of these increases are due to fine fuel loads associated with cheatgrass invasion into sagebrush steppe habitat. Altered fire regimes (i.e. changes in fire frequency, severity, and size) adversely affect public and firefighter safety as well as wildlife habitat, cultural resources, air/visual quality, and grazing.

The planning area has experienced decreases in fire frequency and attendant increases in fire severity in its Aspen, Dry Conifer, and Mountain Shrub vegetation types. These vegetation types require more frequent disturbance to decrease fuel loads, facilitate aspen and forb regeneration, and decrease fire intensity. In light of an increase in severe wildland fires nationwide in 2000, the Federal Wildland Fire Management Policy (USDI and USDA 1995) was revised in 2001 (USDI et al. 2001). Currently, all federal land-management agencies are implementing, or preparing to implement, the updated Federal Wildland Fire Management Policy and its resulting National Fire Plan that serves as the means by which the Policy is applied.

The principal goal for implementing fire management direction as mandated by the Federal Wildland Fire Management Policy is to return fire to its historical range of variability in all cover types through management directed to the attainment and maintenance of the landscape-level fire risk index, Fire Regime Condition Class (FRCC 1.) Vegetation in a condition of FRCC 1 would correspond to its historical range of conditions and would be less susceptible to unnaturally severe fires; see Table 2 below for definitions of FRCC 1-3.

TABLE 2. FIRE REGIME CONDITION CLASS[2] (FRCC) DESCRIPTIONS

FRCC	Departure from Natural (Historical) Fire Regime	Description
FRCC 1	Minimal or none (0 to 33% departure)	Vegetation composition, structure, and fuels are similar to those of the historical regime and do no pre-dispose the system to risk of loss of key ecosystem components. Wildland fires are characteristic of the historical fire regime behavior, severity, and patterns. Disturbance agents, native species habitats, and hydrologic functions are within the historical range of variability. Smoke production potential is low in volume.
FRCC 2	Moderate (33 to 66% departure)	Vegetation composition, structure, and fuels have moderate departure form the historical regime and predispose the system to risk of loss of key ecosystem components. Wildland fires are moderately uncharacteristic compared to the historical fire regime behaviors, severity, and patterns. Disturbance agents, native species habitats, and hydrologic functions are outside the historical range of variability. Smoke production potential has increased moderately in volume and duration.
FRCC 3	High (>66% departure)	Vegetation composition, structure, and fuels have high departure from the historical regime and predispose the system to high risk of loss of key ecosystem components. Wildland fires are highly uncharacteristic compared to the historical fire regime behaviors, severity, and patterns. Disturbance agents, native species habitats, and hydrologic functions are substantially outside the historical range of variability. Smoke production potential has increased with risks of high volume production of long duration.

[2] Hann 2001

Existing fire management in the planning area is consistent with the 12 current LUPs' direction, regulation, and policy. It emphasizes wildland fire suppression and minimizes Wildland Fire Use (WFU). Therefore, continued management under would focus on reactive stabilization and rehabilitation treatments following wildland fire (approximately 52 percent of footprint-acres in this alternative), as opposed to proactive restoration treatments (approximately 48 percent of footprint-acres in this alternative).

Vegetation treatments would continue to be conducted on a small scale and emphasize benefits to specific resources (e.g., livestock forage or wildlife habitat). The current LUPs detail activities in these areas although they generally lack specific guidance for WFU, restoration actions, hazardous fuels reduction, and Wildland Urban Interface protection. The activities detailed in current LUPs are being undertaken in response to new regulations, policy and national direction. These types of activities are compatible with other existing LUP program goals/objectives, and the existing LUPs do not preclude these activities.

There are no areas designated as suitable for WFU under current management. Some of the existing LUPs do, however, allow the use of limited fire suppression, which in some LUPs meets the definition of WFU. Current LUPs in which use of limited suppression meets the definition of WFU are the Cassia, Monument, Medicine Lodge, and Pocatello RMPs and the Twin Falls, Big Desert, and Little Lost Birch Creek MFPs. (For more specific information, refer to the appropriate plan.)

The planning area is not currently planning any area-wide WFU or limited suppression programs because of lack of current inventory information and also because WFU is not currently a high priority. The planning area's current high priorities are rehabilitation and restoration. WFU may be considered in the future subject to further planning and NEPA analysis.

Over a 10-year period, up to approximately 250,200 footprint-acres would be treated under current management.

3.1 Assumptions

Annual treatment levels would remain the same as those observed between 1995 through 2000.

3.2 Goals/Objectives and Management Actions

Emphasize protection from and rehabilitation after wildland fire within the Wildland Urban Interface.

Management Actions:

- Use suppression to safely manage and suppress wildland fires.
- Use mechanical, chemical, and seeding treatments for rehabilitation following wildland fire.
- In cooperation with state, county, and local governments and fire departments, develop mitigation plans and implement plan actions, including fuels reduction projects, rural fire department assistance, and public education.
- Reduce fine fuels and invasive exotic plants and create perennial cover types so that wildland fire occurs less frequently and at a smaller scale on the landscape than it currently does.
- Adopt the appropriate management response in Low-elevation Shrub: suppression of all wildland fire starts to protect existing sagebrush cover types.
- Following wildland fire, use chemical, mechanical, and seeding treatments with appropriate plant materials to attempt to stabilize sites and prevent dominance of invasive annual vegetation and noxious weeds. The use of native plant materials would be emphasized.
- Prescribed fire (RxFire) may be used to prepare areas for subsequent chemical, mechanical, and/or seeding treatments.
- Conduct fire and non-fire vegetation treatments in Mid-elevation Shrub, Juniper, Dry Conifer, Aspen/Conifer, and Mountain Shrub.

- Use mechanical, chemical, seeding, or RxFire treatments to meet resource management objectives.
- Remove encroaching or mature juniper using chemical, mechanical, and RxFire treatments to re-establish, maintain, or enhance Mid-elevation Shrub cover types.

3.3 PRIORITIZATION CRITERIA

When multiple wildland fire ignitions occur, suppression priorities are:

- Protect the Wildland Urban Interface and communities-at-risk where public and fire-fighter health and safety are a concern.
- Minimize risks to life and property.
- Minimize risks to resources.

Generally, the highest suppression priorities would be in Low- and Mid-elevation Shrub cover types unless life and/or property are at risk. On an annual basis, FMPs would re-visit priorities for resources. Priorities for establishing fire and non-fire vegetation treatments are:

- In areas dominated by cheatgrass or other annual species, conduct wildland fire rehabilitation or proactive restoration.
- Accomplish resource-related objectives.

3.4 WILDLAND FIRE USE (WFU) AREAS

No acres in the planning area would be identified as being suitable for WFU for resource benefit, due to social, economic, political, or resource constraints.

3.5 TREATMENT LEVELS

To continue current management, 250,200 footprint-acres would be treated over a 10-year period.

4.0 DESCRIPTION OF THE PROPOSED PLAN AMENDMENT

The Proposed Plan Amendment (Alternative E) is designed to improve the ecological health of the sagebrush steppe ecosystem and all of its obligate wildlife species and address the goals of the Cohesive Strategy and the 10-years Comprehensive Strategy for the forested vegetation types; see Figure 3-1 in FMDA FEIS:

- Improve fire prevention and suppression.
- Reduce hazardous fuels.
- Restore fire-adapted ecosystems.
- Promote community assistance.

Treatment levels, treatment locations, and priorities were developed with these goals in mind.

In that the desired future conditions of vegetation types, as analyzed in Alternatives B, C and D, have more natural fire regimes (i.e., more fire in forested types, less fire in shrubland types), the Proposed Plan Amendment emphasizes the conservation and restoration of sagebrush steppe while replicating historical disturbance and succession patterns in forested vegetation types by use of fire, mechanical and chemical treatments, and adopting the goals and priorities set in the Cohesive Strategy.

Vegetation treatments would focus on the Annual Grass, Aspen/Conifer, Dry Conifer, Low- and Mid-elevation Shrub, Mountain Shrub, Perennial Grass and Wet/Cold Conifer cover types, as well as sagebrush steppe invaded by juniper. Mechanical, chemical, and seeding treatments would be emphasized. In sagebrush steppe restoration habitats, RxFire would be used primarily to prepare areas for seeding and to create mosaics for the improvement or enhancement of sagebrush steppe habitats. Restoration priorities would be identified to enlarge and reconnect sagebrush steppe habitat. In forested vegetation types, RxFire would be used to return fire in forested types that historically had more fire disturbance than at present.

Under the Proposed Plan Amendment, wildland fire suppression efforts would emphasize protection of sagebrush steppe and forested habitats. About 600,000 acres are considered suitable for wildland fire use (WFU) under this alternative. These areas were designated by field office personnel where it was determined that WFU would benefit resources and help attain management goals in Aspen/Conifer, Dry Conifer, Juniper, Mountain Shrub and Wet/Cold Conifer vegetation cover types.

This alternative was designed in response to comments received on the November 5, 2004 FMDA DEIS. The Proposed Plan Amendment recognizes that: 1. The sagebrush steppe ecosystem and its associated wildlife species, including sage grouse, are at risk from increased wildland fire and other disturbances. 2. Fuels accumulations in the Aspen/Conifer, Dry Conifer and Wet/Cold Conifer place these forested vegetation types at risk from wildland fire. The emphasis of the Proposed Plan Amendment is to maintain existing, high-quality sagebrush steppe habitat, to increase the quantity of resilient sagebrush steppe and to reduce the risk of stand-replacing fires in forested vegetation types by means of post-wildland fire rehabilitation and proactive restoration. Restoration would be emphasized (approximately 90 percent of footprint-acres), and rehabilitation would be conducted as needed (approximately 10 percent of footprint-acres).

In general, WFU would not be used where there are important wildlife habitats, past rehabilitation treatments, small tracts of BLM-administered lands, or public health and safety concerns. The Proposed Plan Amendment would increase RxFire in Aspen/Conifer, Dry Conifer and decrease the occurrence of wildland fires in the Low- and Mid-elevation Shrub, Perennial Grass, Annual Grass, and Mountain Shrub using aggressive, proactive restoration and post-fire rehabilitation of areas dominated by exotic annual grasses.

Over a 10-year period, under this alternative, up to approximately 1,538,052 footprint-acres would be treated (approximately six times the acreage in Alternative A). It is assumed that the Proposed Plan Amendment would not be limited by existing operations capabilities and resources.

4.1 ASSUMPTIONS

Managing fuels and fire across the sagebrush steppe landscape would provide habitat for a variety of sagebrush-obligate wildlife species as well as other resource benefits. Progress made towards Desired Future Condition (DFC) would result in improved habitat for sagebrush steppe obligate species.

Treatment levels would be maintained at the same rate as the historical fire rotation for the three forested vegetation types, mountain shrub, juniper, and dry conifer (i.e., the acreage treated over 10 years corresponding to the burned acreage expected over 10 years under historical conditions).

After 10 to 15 years of treatment, wildland fires would burn less frequently and would burn smaller acreages than they currently do in Low-elevation Shrub, Perennial Grass, and Annual Grass cover types. This shift would be due to:

- More proactive restoration in areas dominated by exotic annual species.
- More emergency stabilization and rehabilitation (ESR) treatments following wildland fire in areas invaded and/or dominated by exotic annual species.
- Strategic placements of restoration treatments to protect Low-elevation Shrub vegetation types.

4.2 GOALS/OBJECTIVES AND MANAGEMENT ACTIONS

1) **Make progress toward DFC in the Low-elevation Shrub, Perennial Grass, Annual Grass, Mid-elevation Shrub, Mountain Shrub, and Juniper vegetation types.**

Management Actions

- Use chemical, mechanical, seeding, and RxFire treatments as appropriate to achieve DFC.
- In Perennial Grass, Annual Grass, and juniper-invaded cover types, restore the sagebrush steppe with an aggressive sagebrush seeding effort, utilizing the appropriate sagebrush subspecies for the treatment area.

2) **Maintain, protect, and expand sagebrush steppe habitats.**

Management Actions

- Suppress[1] wildland fires in the sagebrush steppe ecosystem (Figure 3-3 in FMDA FEIS), except where WFU would benefit habitat.
- WFU may be allowed in the sagebrush steppe ecosystem for the benefit of the habitat only after site-specific project level coordination with IDFG.

[1] Note: Suppress/Suppression as used in this document refers to the following actions employed in fighting wildfires: Firelines put-in by dozers or by hand (handlines), backfires, fire retardant applied by aircraft, foam, surfactants, adjuvants applied by vehicle to smother fire or to protect dwellings, structures and/or archaeological sites, water applied from helicopters, pumper trucks and/or backpack pumps, and mop-up.

- Conduct vegetation treatments in areas that pose a wildland fire risk to important wildlife habitat.
- Treat areas within the sagebrush steppe ecosystem that have low resiliency (i.e., areas characterized by low species diversity, undesirable composition, and dead or decadent sagebrush).
- Following WFU and RxFire treatments, use chemical, mechanical, and seeding treatments with appropriate plant materials to attempt to stabilize sites and prevent dominance of invasive, annual vegetation and noxious weeds. The use of native plant materials would be emphasized.

3) Treat vegetative communities to expand healthy wildlife habitats. Improve and maintain degraded and key vegetative communities.

Management Actions

- Use appropriate management response to wildland fire in all important sagebrush steppe ecosystems needing restoration and supporting wildlife habitats.
- WFU may be allowed in all important sagebrush steppe ecosystems needing restoration and supporting important wildlife habitats for the benefit of the habitat only after site-specific project level coordination with IDFG.
- Conduct vegetation treatments in important sagebrush steppe ecosystems needing restoration and supporting important wildlife habitats to reduce risk of wildland fire and reconnect-key sagebrush steppe vegetative communities.
- Treat areas of important sagebrush steppe ecosystems and supporting important wildlife habitats that have low resiliency characterized by low species diversity.

4) Make progress towards DFC in the Dry Conifer and Aspen/Conifer vegetation types by increasing WFU and RxFire to create a fire regime within the historical range of variability.

Management Actions

- Use mechanical and chemical treatments to prepare areas in FRCC 2 and FRCC 3 for RxFire and WFU.
- Where prescriptive parameters, resource conditions, and vegetation conditions allow, utilize WFU or RxFire to increase the annual average number of wildland fire treated acres to an average similar to historical conditions. Site-specific NEPA analysis would be completed prior to implementation.
- Following WFU and RxFire treatments use chemical, mechanical, and seeding treatments with appropriate plant materials to attempt to stabilize sites and prevent dominance of invasive, annual vegetation and noxious weeds. The use of native plant materials would be emphasized.

5) **In the Wet/Cold Conifer vegetation type and/or areas in FRCC 1, maintain vegetation conditions using mechanical, chemical, RxFire, or WFU treatments, such that wildland fire regimes are within the historical range of variability (i.e., maintain the current fire regime in these vegetation types).**

Management Action

- Use treatments, as appropriate, to maintain landscapes in FRCC 1.

4.3 PRIORITIZATION CRITERIA

When multiple wildland fire ignitions occur, suppression priorities are influenced by numerous factors. However, to the extent possible, the following criteria will be considered:

Protect the Wildland Urban Interface and communities-at-risk where public and fire-fighter health and safety are a concern.

- Minimize risks to habitats occupied by threatened, endangered and candidate species.
- Minimize risks to resources where changes in fuel accumulation and fire occurrence have occurred (i.e., FRCC 2 and FRCC 3 areas).

To the extent possible, the following criteria would be considered for establishing vegetation treatments:

1. Landscape-scale projects designed to reduce the combined risk to human life/property and resources (e.g., where Wildland Urban Interface and ecosystems at risk coincide).
2. Sagebrush Steppe (Low-Elevation Shrub, Mid-Elevation Shrub and Mountain Shrub)

Projects will be designed through interagency planning performed at the landscape level, in conjunction with active community participation and development of stakeholder partnerships in the planning and monitoring processes.

4.4 WILDLAND FIRE USE (WFU) AREAS

Approximately 600,000 acres across the planning area would be identified as suitable for WFU for resource benefit, and approximately 4,800,000 acres would be identified as not appropriate due to social, economic, political, and resource constraints. The locations of areas that are not appropriate for WFU are shown in Figure 2-3 in the FMDA FEIS. In order to achieve the sage-grouse habitat objectives of this alternative, there may be localized areas of sage-grouse habitat (Figure 3-3 in the FMDA FEIS) within the area identified as not appropriate for WFU where prescribed fire is planned that may also be suitable for small-scale WFU if a natural ignition meets the prescribed fire parameters. These areas will be identified on a case-by-case, site-specific basis and are estimated to be less than 1 percent of the overall prescribed fire acres planned. Appendix D in the FMDA FEIS identifies the specific WFU suitable/not appropriate acres by field office.

4.5 TREATMENT LEVELS

To implement the Proposed Plan Amendment, 1,538,052 footprint-acres would be treated over a 10-year period.

5.0 CONSERVATION/MINIMIZATION MEASURES

Wildland fire suppression restrictions (Section 5.1) and restoration/fuels reduction treatment restrictions (Section 5.2) would be implemented under all alternatives and would be specified in each of the 12 LUP amendments. Restrictions would be applied to suppression activities with the intent of protecting sensitive resources.

Suppression restrictions would be further defined within each area's LUP. Restoration treatment restrictions would be applied to proactive fuels reduction activities with the intent of protecting sensitive resources. All restrictions are intended to prevent significant impacts to natural and human resources. They are organized according to the resource discipline they protect and are considered in the analysis of all alternatives.

5.1 WILDLAND FIRE SUPPRESSION RESTRICTIONS

The following suppression restrictions will be applied to all suppression actions occurring throughout the planning area, consistent with NFP policy and LUP direction.

Threatened, Endangered (T&E) and Candidate Species

The following restrictions apply to T&E and Candidate species occupied habitat and designated critical habitat.

1. Firefighter and public safety are the first priorities in response to fire suppression. At no time will the activities described in this BA compromise firefighter and public safety.
2. The BLM will coordinate annually with the USFWS to update species status in the planning area.
3. Field Managers will ensure resource staff initiates emergency consultation with the USFWS whenever suppression activities may impact listed species habitat; more specifically, during emergency suppression actions to protect life and property.
4. Control lines, base camps, support facilities and other suppression related facilities should not be established within:
   - ½ mile of known bald eagle or yellow-billed cuckoo nests (February 1-July 31)
   - 1 mile of occupied gray wolf den sites (April 15 - June 30)
   - 300 feet of occupied Ute ladies'-tresses habitat
   - 300 feet of all water bodies and springs occupied by T & E and Candidate species
   - Secure habitat within designated grizzly bear management unit (BMU).
5. Follow Minimum Impact Suppression Techniques (MIST) guidelines in occupied T&E and Candidate species habitat where appropriate (Appendix T *in*: Interagency Standards for Fire and Aviation Operations, 2005). MIST guidelines direct suppression techniques,

procedures, tools, and equipment that least impact the environment. Water and wetlining (using water to soak/saturate fuels) are the preferred fireline construction tactic.

6. Field Managers will assign a Resource Advisor or other designated representative as per the current Red Book guidance.
   - BLM will notify USFWS when appropriate; to discuss T&E species mitigation within the suppression area to assure conservation practices are being followed to avoid adverse effects.
   - When Incident Management Teams (IMT) are required, the Resource Advisor will brief the IC about conservation measures needed to avoid adverse effects.
7. Where grizzly bears may reasonably occur:
   - The BLM Resource Advisor will brief all fire crews on general operating procedures including proper bear safety, sanitation, and food storage.
   - Incident Commanders, Fire Management Officers, and Scouts should be equipped with and trained to use bear deterrent spray.
   - Garbage should be disposed of in bear-proof containers, when possible, and removed from camps daily, preferably in the evening.
8. No water-dipping by helicopters will occur within 1/2 mile of any occupied bald eagle nest.
9. Fuel storage, fuel trucks, and refueling activities will not occur within 300 feet of live waters containing T&E and Candidate species. The current District Hazardous Material plan will be followed to ensure T&E and Candidate species and habitat will not be adversely affected in the event of a spill.
10. Dozer blading should not occur within 300 feet of perennial streams or their tributaries occupied by T&E and Candidate species.
11. Drafting equipment for pumps will be properly screened to prevent entrapment of T&E fish species. Maximum screen mesh size shall be 3/32 inch diameter.
12. Any sump created by blocking flow in any occupied T&E habitat will be performed in coordination with a natural resource specialist to prevent dewatering.
13. Do not pump directly from streams if chemical products are going to be injected into the system. If chemicals are needed, pump from a portable tank, or use a backflow check valve.
14. Application of retardant or foam (aerial or ground) will be avoided within 300 feet of perennial streams or their tributaries occupied by T&E and Candidate species pursuant to the current Red Book guidance.
15. To minimize spread of noxious weeds, equipment used for extended attack or Type I/II incidents should be cleaned before arriving on-site and prior to leaving the incident. Staging areas and fire camps will avoid sites with noxious weed infestations.

Reporting Requirements

At the time of this consultation, the exact timing, site specific suppression methods, location, and size of fires are unknown. In order to monitor the impacts of wildland fire suppression activities

as part of the FMDA, the Level I team will meet immediately after the fire season to review a summary of activities (fire suppression) that may have occurred in or adjacent to T&E and Candidate habitat. If the Level I team identifies fire suppression activities for which more information is needed to ascertain potential effects to the environmental baseline for a particular listed or candidate species, BLM will provide a report providing the necessary information identified by the Level I team to the USFWS Snake River Fish and Wildlife Office or the Eastern Idaho Field Office no later than December 31 for the preceding 12-month period. For example, the types of information that may be needed include:

- The location, timing, size, intensity, and suppression activities used for each fire.
- Any mitigations used during fire suppression activities to avoid effects to T&E and Candidate species and habitat, any T&E and Candidate species or habitat affected, and the estimated extend of effects.
- Results of post-fire reviews and monitoring.

5.2 Fire and Non-Fire Vegetation Treatment Restrictions

The following fire and non-fire vegetation treatment restrictions will be applied to site-specific restoration and hazardous fuels reduction treatment actions occurring throughout the District, consistent with NFP policy and LUP direction:

General

No chemical treatment would conflict with existing or future national vegetative treatment guidance. To reduce potential resource impacts from chemical treatments, herbicide use would conform to application criteria described in the 1991 Environmental Impact Statement for Vegetation Treatment on BLM Lands in Thirteen Western States or subsequent revisions and/or replacements of this document. Use would conform, to instructions from BLM Manual 9011 Chemical Pest Control, as well as label restrictions and current policies and state statutes. In addition, the prescription for herbicide application (desired, optimum environmental conditions) would evaluate off-site migration and non-target species by assessing wind speed and direction, temperature, precipitation forecast, soil infiltration potential, constraints on overland water transport due to precipitation or flooding, establishment of riparian buffer strips, and risk to special status species. Fishery and/or wildlife biologists would assist project planners in selecting appropriate herbicides for use among or near terrestrial and aquatic flora and fauna sensitive to herbicides.

Consider the economic effects of alternative fuels management practices. Promote local involvement and economic benefits from fuels reduction projects.

Continue to collaborate with local partners to assess WUI areas and update existing mitigation plans to implement fuels treatments.

Threatened, Endangered, and Candidate Species

The following restrictions apply to T&E and Candidate species occupied habitat and designated critical habitat.

1. Treatment activities may occur near or adjacent to T&E and Candidate species habitat and will be designed to minimize or mitigate impacts to T&E and Candidate species occupied habitat and designated critical habitat, so that the species or their habitats will not be adversely affected. All FMDA related fire and non-fire vegetation treatment activities in areas that may affect T&E and Candidate species would be conducted in consultation with USFWS. Further, all such activities would be designed and implemented in such a manner that potential impacts to T&E and Candidate species from disturbance or habitat modification would be so small as to not be meaningfully measured, detected, analyzed, or would be extremely unlikely to occur.
2. T&E and Candidate species with recovery plans, conservation agreements and conservation strategies, will be protected as specified in their respective plans/agreements/strategies. These protections include such measures as adequate habitat and range for a given species, including mitigation measures for multiple land use activities authorized by the BLM.
3. Fuels management and vegetation treatment activities would be conducted according to standards and guidelines in The Pacific Bald Eagle Recovery Plan, 1986. The planning area within the Greater Yellowstone Ecosystem would conduct fuels management and vegetative treatments according to standards and guidelines in the Greater Yellowstone Bald Eagle Management Plan (Greater Yellowstone Bald Eagle Working Group 1996). No vegetation treatment activities associated with the FMDA EIS would occur within one half mile radius of Bald Eagle nesting zones during February 1 through July 31. No activities associated with the FMDA EIS would occur within one half mile (direct line of site) or one quarter mile of winter Bald Eagle concentration sites during November 1 through March 1.
4. Gray wolf *(Canis lupus)* populations in the area, which includes portions of the District, have been designated as experimental/nonessential. Presence or absence of gray wolf dens or rendezvous sites in fuels management or vegetation treatment areas would be determined prior to initiating projects. In the event active den or rendezvous sites are established within the planning area, vegetation treatments would be designed and implemented to minimize noise disturbance or habitat modifications within one mile of the den or rendezvous sites from April 15 through June 30.
5. Fuels management and vegetation treatment areas within grizzly bear (*Ursus arctos horribilis*) management units (BMUs) would be coordinated with USFS activities to comply with road density restrictions, number and juxtaposition of management activities within BMUs, as provided for in the Grizzly Bear Recovery Plan (USFWS 1993), the Final Conservation Strategy for the Grizzly Bear in the Yellowstone Area (USFWS 2003) when it becomes effective.

   When developing vegetation treatment projects, do not increase open and total motorized access routes or trail density within BMUs. When developing vegetation treatment projects within BMUs, the BLM will coordinate with the Interagency Grizzly Bear committee (IGBC) to develop/implement sanitation guidelines.

6. Fuels management and vegetation treatments that may occur within the Little Lost River drainage would be conducted according to standards and guidelines developed for bull trout *(Salvelinus confluentus)* Riparian Habitat Conservation Areas on BLM lands within the geographic range of bull trout (U.S. Fish and Wildlife Service 1999a, 2002).

   Treatments will follow INFISH guidelines near T&E fish habitat.
7. For those portions of the Snake River drainages that support populations of threatened and endangered Snake River mollusks, BLM will consult with the USFWS for fuels management and vegetation treatments where there is potential for effect, to ensure mitigation measures are adequate to avoid adverse effects to Snake River mollusks.
8. Dozer blading would not occur within 300 feet of streams that have occupied habitat or designated critical habitat.
9. Ground disturbing activities other than tree and shrub planting will avoid occupied habitat within 300 feet of all water bodies and springs containing listed snail, Columbia spotted frog and bull trout species.
10. No aerial application of herbicides within one-half mile of all water bodies and springs containing listed snail, Columbia spotted frog and bull trout species.
11. Dozer blading would not occur within 300 feet of perennial streams or their tributaries occupied by T&E species.
12. No ground-based application of herbicides, surfactants or adjuvants would occur within 100 feet of perennial streams or their live water tributaries occupied by TES species.
13. No aerial application of chemicals, e.g., fertilizers or hydro-mulch within riparian habitats containing listed snail, Columbia spotted frog and bull trout species.
14. Herbicide applications will obtain a weather forecast for the area prior to initiating a spraying project to ensure no extreme precipitation or wind events could occur during or immediately after spraying. Spraying will follow label instructions.
15. Aerial application of herbicides will not occur during periods of inversion.
16. Riparian cottonwood forests with willow understories that may be impacted by fuels management and vegetation treatments would be surveyed for yellow-billed cuckoos *(Coccyzus americanus)* prior to initiating project activities. When developing vegetation treatment projects, no ground-based application of herbicides would occur from May 1 through August 31 within 200 feet of occupied yellow-billed cuckoo habitat.
17. Aerial application of chemicals would not occur from May 1 through August 31 within one half mile of occupied yellow-billed cuckoo habitat.

6.0 PLANNING AREA / ACTION AREA

The planning area is comprised of the Burley, Upper Snake, Pocatello, and Shoshone Field Offices, and collectively administers about 5.4 million acres of lands in south-central and eastern Idaho. The planning area encompasses 23 southern Idaho counties: Bannock, Bear Lake, Bingham, Blaine, Bonneville, Butte, Camas, Caribou, Cassia, Clark, Elmore, Franklin, Fremont, Gooding, Jefferson, Jerome, Lincoln, Madison, Minidoka, Oneida, Power, Teton, and Twin Falls. Major communities in the planning area include Burley, Idaho Falls, Pocatello, Shoshone, Sun Valley, and Twin Falls.

BLM-administered lands of the planning area are adjacent to National Forest System (NFS) lands administered by the U.S. Forest Service (USFS), State of Idaho lands, the Fort Hall Indian Reservation, the Craters of the Moon National Monument and Preserve, the City of Rocks, and the Idaho National Laboratory (INL; a U.S. Department of Energy, Idaho Operations Office [DOE-ID] facility). Also within the boundaries of the planning area are private lands in and around the many urban and rural communities.

7.0 FEDERALLY-LISTED SPECIES ACCOUNTS AND STATUS IN PLANNING AREA

This section describes the federally listed plant, wildlife, and fish species that are known or have the potential to occur in the planning area. Status, habitat use, current known range, and relevant life history characteristics are presented for each species.

There are 13 federally-listed threatened, endangered, and candidate wildlife, fish, and plant species known to occur in the counties associated with the planning area. Habitat for the listed plant species is unique or uncommon due to the limited range of the geological formations and parent soil materials with which they are associated. Plant collection, weed invasions, motorized recreation, and the loss of habitat are considered the primary threats to the continued existence of these plants on BLM lands. Other designed land use practices such as grazing and motorized recreation could also affect management goals for the wildlife and fish species

Effects to threatened, endangered, and candidate species are detailed by management decision in Section 8 below.

7.1 PLANTS

7.1.1 Ute Ladies'-tresses Orchid

Status

The Ute ladies'-tresses orchid (*Spiranthes diluvialis Sheviak*) was listed as threatened on January 17, 1992 (57 FR 2048) due to a variety of factors, including habitat loss and modification, and hydrological modifications of existing and potential habitat areas.

Biology

The Ute ladies'-tresses is a perennial, terrestrial orchid with stems 20 to 50 centimeters cm (8 to 20 inches) tall, arising from thickened tuberous roots. Its narrow leaves are about 11 inches long at the base of the stem, and become reduced in size going up the stem. The inflorescence generally consists of 7 to 32 (mean=16) small white or ivory flowers clustered into a spike arrangement at the top of the stem (Sipes and Tepedino 1995). The species is characterized by whitish, stout, ringent (gaping at the mouth) flowers.

Ute ladies'-tresses is very similar morphologically to *S. romanzoffiana*; thus, it is possible to identify Ute ladies'-tresses only when it is flowering. Both species may occur in similar habitats, and the distribution of Ute ladies'-tresses can overlap with *S. romanzoffiana*, especially above 5,000 feet elevation. Due to its similarity to *S. romanzoffiana*, only a qualified, experienced

botanist will be able to positively identify Ute ladies'-tresses. Because Ute ladies'-tresses was first described in 1984 (Sheviak 1984), it is not found in many commonly used botanical keys.

In Idaho, Ute ladies'-tresses generally blooms from early August through mid-September, depending on microsite and climatic conditions. At various sites throughout its range, this species may begin blooming in early July or flower as late as early October. Ute ladies'-tresses populations can have a staggered flowering pattern, i.e., some plants may be in fruit while others are still in bud stage. This staggered phenology may be adaptive, or reflect unique microsite conditions for individual plants (Heidel 1997).

Throughout the species range, Ute ladies'-tresses is endemic to mesic or wet meadows and riparian/wetland habitats in relatively low elevations near springs, seeps, lakes, or perennial streams (Moseley 1998). Soils may be inundated early in the growing season, normally becoming drier but retaining subsurface moisture through the season. (In drought years, however, subsurface moisture may not be present within 12 inches below the soil surface.) Elevations of known orchid occurrences in the planning area range from Ute ladies'-tresses ranges in elevation from 4,800 ft to 5,300 ft.

In Idaho, Ute ladies'-tresses occurs in a variety of areas including swales, mesic meadows, cottonwood stands, and islands. These areas contain at least some component of grass and/or forb-dominated habitat. However, Ute ladies'-tresses plants can be surrounded by, or located in close proximity, to shrubs or trees, such as willows, silverberry, or cottonwoods. Associated species may include: *Agrostis stolonifera* (bentgrass), *Carex lanuginosa* (woolly sedge), *Eleocharis rostellata* (beaked spikerush), *Eleagnus commutata* (silverberry), *Habenaria dilatata* (bog orchid), *Juncus balticus* (Baltic rush), *Equisetum* spp. (horsetails), *Salix exigua* (sandbar willow), *S. lutea* (yellow willow), and narrowleaf cottonwood (*Populus angustifolia*) (Moseley 1997).

Current Conditions

Range-Wide: Range wide, this species occurs below the coniferous zone in areas where the vegetation is relatively open (e.g., grass- and forb-dominated sites), but some populations are found in riparian woodlands (such as cottonwoods) in Colorado, Utah, and Idaho and in riparian shrub (e.g., willow thickets) communities (Moseley 1998). Soils range from fine silt/sand to gravel and cobbles, sometimes highly organic or peaty soils. In some areas, the wetland habitats and soils that support this species are moderately to strongly alkaline. Ute ladies'-tresses may survive in areas where streams remain in a natural condition, or where conditions mimic naturally created and maintained habitat. For example, it may be found along old gravel pits that have been restored as wetlands, in irrigated pastures, or below leaky diversion dams and irrigation canals.

Planning Area: In the planning area, Ute ladies'-tresses was first discovered in 1996 along the South Fork of the Snake River in eastern Idaho. Most occurrences of Ute ladies'-tresses are from along the South Fork of the Snake River floodplain, near the confluence of the Henry's Fork, upriver to the Swan Valley area in Jefferson, Madison, and Bonneville counties. In 2002, Ute ladies'-tresses was found at Chester Wetlands WMA along the Henry's Fork in Fremont County. The Chester Wetland occurrence is managed by Idaho Fish & Game Department (IFGD).

Monitoring of the South Fork populations began in 1997, with modifications to the monitoring methods in 2001 (Moseley 1998, 2000; Murphy 2000, 2001a, 2001b). A human-caused wildland fire burned a portion of the Annis Island population of *Spiranthes diluvialis* during late spring, 2001. Flowering plants were observed in lightly burned areas of the fire, but it was too early to determine the overall effects of the fire to the population at that time (Murphy 2001a). In 2003, 3,856 individual Ute ladies'-tresses plants were observed at 20 occurrences along the South Fork in the Snake River ACEC. The total was the second highest since inception of monitoring, and over 2,100 individuals more than 2002. Six occurrences had more plants observed when compared to 2002, six occurrences had fewer plants, and eight remained approximately the same. All of these occurrences are monitored annually. Threats to Ute ladies'-tresses habitat were similar to prior years. No new threats were observed in 2003. Conservation actions taken by the BLM and Caribou-Targhee National Forest have minimized, decreased, and/or eliminated threats where possible. However, invasion by noxious weeds and exotic species remains an imminent threat to Ute ladies'-tresses on the South Fork Snake River (Murphy 2004).

Data were collected at 15 of the 23 permanent habitat monitoring transects. No major habitat changes from 2002 were documented at the landscape scale, and only a few major habitat changes, (e.g., differences in recreation trailing and late season grazing on some transects) were documented at the population scale. Five transects had cumulative means of habitat attributes (e.g., habitat characteristics, changes and threats) that increased, suggesting an overall decline in habitat conditions. Three transects had cumulative means that decreased, suggesting an overall improvement in habitat conditions. Seven remained the same or nearly the same (Murphy 2004).

On September 6, 2004 the Bureau of Land Management closed Annis Island (T5N, R39E, S18 Lots 6 & 7; S19 Lots 15,16,17,18,26,27 & 28; S20 Lots 9 & 13) to motorized vehicles due to recent damage of Ute ladies'-tresses habitat. The closure will remain in effect for one (1) year, OR until the completion of the Snake River Activity Plan Amendment that will address management of motorized vehicle use within the Snake River Recreation Area.

7.2 BIRDS

7.2.1 Bald Eagles

Status

The bald eagle was listed as endangered under the Endangered Species Preservation Act of 1966. In 1973, the Endangered Species Act (Act) was passed and the bald eagle was originally listed as endangered in the lower 48 states on February 14, 1978. Their status was upgraded to threatened in Idaho and most of the lower 48 States on August 12, 1995, because of progress in recovery (USFWS 1995). The species is also subject to the Bald Eagle Protection Act of 1940. Critical habitat for this species has not been designated. The bald eagle is currently being considered for delisting by the FWS (USFWS 1999b).

Biology

Mature bald eagles have the distinctive yellow bill, white head and tail with a dark brown to black body (Johnsgard 1990). Immature bald eagles are dark in color and can be confused with

golden eagles. Bald eagles are large raptors with a body size ranging from 31 to 37 inches in length. Females are a larger than males (Johnsgard 1990).

Courtship varies with location and has been observed in the fall, winter and spring (Harmata 1989). Two eggs are laid in large stick nests from March into April (Harmata 1989). Bald eagles incubate their eggs about 5 weeks and the young fledge after 11 - 14 weeks (Johnsgard 1990). Home ranges of nesting bald eagles in the Cascade Reservoir area varied from 15 to 60 km^2 during the breeding period (Groves et al. 1997). Bald eagles usually do not breed until their fifth or sixth year. Adult female bald eagles may not lay eggs every year (Groves et al. 1997). Bald eagles are known to forage and roost communally in areas of carrion or prey abundance (Keister et al. 1987, Crenshaw and McClelland 1989). Diets of bald eagles are known to include fish, waterfowl, small mammals, and carrion (Lingle and Krapu 1986, Isaacs and Anthony 1987, Keister et al. 1987, Johnsgard 1990, Peterson 1986). Peterson (1986) mentioned that bald eagles prey is determined largely by availability.

Bald eagle nesting, perching, roosting, and wintering sites tend to be in riparian areas near large bodies of water because this species relies primarily on fish for food during the spring, summer, and fall. During the winter they feed on waterfowl and scavenge on dead animals such as deer and elk. Wintering bald eagles tend to congregate near bodies of unfrozen water and roost communally. Major rivers and large reservoirs constitute the majority of winter habitats used, although the temporary presence of high-quality foods may entice eagles to areas far removed from aquatic zones. Roost sites are usually located in stands/clumps of mature or old conifers or cottonwoods.

Nests are generally constructed in conifers or cottonwood trees within close proximity to rivers or other water bodies that support adequate food. Disturbance to eagles during nesting and roosting may decrease reproductive success; thus, any activity that displaces eagles during these times is a concern. As long as humans are present, there may be short-term displacement, which could result in nest failure. Riparian areas loss or modification is also an important management consideration.

Current Conditions

Range-Wide: Currently the lower 48 states include five recovery areas for the bald eagle. The Pacific Bald Eagle Recovery Plan covers 7 western states, including Idaho. Idaho contains all or portions of 10 Management Zones identified in the Recovery Plan for the Bald Eagle (USDI FWS 1986). Four Management Zones are included in the planning area: High Desert (Zone 17), Snake River Floodplain (Zone 20), Great Basin (Zone 37) and Greater Yellowstone Ecosystem (Zone 18). Of the13 bald eagle territories surveyed within Management Zones 17, 20 and 37 in 2003, 10 of the 11 occupied territories successfully produced young (Sallabanks 2003). Of the 30 bald eagle territories surveyed in 2003, within Management Zones 18 on lands administered by the BLM , there was an advanced young per occupied nest ratio of 0.98 (Whitfield 2003)

The number of occupied bald eagle territories within Idaho continued to increase over the past decade. Nesting success in Idaho has also been increasing during the last ten years, and that trend is expected to continue. In 2003, the number of occupied bald eagle territories in Idaho increased to 147. Of these 147 occupied territories, 103 territories successfully produced young. This

represents the highest number of occupied territories and the highest number of territories that successfully produced young documented since annual bald eagle survey reporting was initiated in 1979 (Sallabanks 2003). The FWS has proposed to de-list the bald eagle (USFWS 1999b) because of long-term positive population trends across North America that are expected to continue.

In the late 1960s and early 1970s it was determined that dichlorophenyl-dichloroetheylene (DDE), the principal breakdown product of DDT, an agricultural pesticide, accumulated in the fatty tissues of adult female eagles. The chemical impaired calcium release necessary for eggshell formation, thus inducing thin-shelled eggs that are not viable, leading to reproductive failure. In 1972, DDT was banned from use in the United States, reducing the effects of this threat to the species over time.

However, documented increases in bald eagle populations both within Idaho and most of the recovery areas in the United States, and associated delisting efforts by FWS demonstrate a high degree of certainty of implementation and effectiveness of ongoing conservation efforts for this species.

Recent threats to the bald eagle throughout its range are primarily from shooting, poisoning and loss of nesting, brood rearing, and winter habitat due to rural, residential, and commercial development; however, these threats have been reduced since the species was federally listed in the 1970s. An additional threat to the species is from disturbance during nesting and fledging, which may cause reproduction to fail. Losing large trees for nesting and roosting habitat near large water bodies is a moderate threat (USDI FWS 2002). Individual birds vary widely in their response to human disturbance at nesting and roosting sites. However, documented increases in bald eagle populations both within Idaho and within most of the five recovery areas in the United States, and associated delisting efforts by FWS demonstrate a high degree of certainty of implementation and effectiveness of ongoing conservation efforts for this species.

Planning Area: Bald eagle habitat occurs throughout the planning area. The majority of nesting, brood rearing, and winter habitats occur along the South and Main Forks of the Snake River and to a lesser extent, some principal tributaries such as Clover Creek and Big Wood River drainages. Fifty-seven nests occur within the Greater Yellowstone Bald Eagle Recovery Area, which are managed in accordance with the Greater Yellowstone Bald Eagle Management Plan. The Upper Snake FO administers 24 nest sites on public lands and an additional 10 nests where some portion of the territories occurs on BLM administered lands. Twenty-three of these nests occur within the Snake River ACEC. Two occur within the Henry's Lake ACEC. All of the nests on BLM administered lands are monitored annually. There are four other active nest sites on or near public lands along the Blackfoot and Bear Rivers. The Bowen Canyon ACEC was designated to protect a winter roost on public land 10 miles south of American Falls. In the past ten years, the number of nesting eagles has increased in the planning area and the continued expansion of this population is highly likely. There are no documented active bald eagle nest sites on public land in the Shoshone or Burley FO areas.

7.2.2 Western Yellow-billed Cuckoo

Status

The yellow-billed cuckoo was listed as a Candidate species west of the Rocky Mountain crest in 2001 (USFWS 2001).

Biology

The yellow-billed cuckoo is a medium-sized bird of about 12 inches in length, and weighing about 2 ounces. The species has a slender, long-tailed profile, with a fairly stout and slightly down-curved bill, which is blue-black with yellow on the basal half of the lower mandible (bill). The tail feathers are boldly patterned with black and white below.

The legs are short and bluish-gray, and adults have a narrow, yellow eye ring. Juveniles resemble adults, except the tail patterning is less distinct, and the lower bill may have little or no yellow. The feet are distinctive, with two toes pointing forward and two toes pointing back (zygodactyl foot). Males and females differ slightly. Males tend to have a slightly larger bill, and the white in the tail tends to form oval spots, whereas in females the white spots tend to be connected and less distinct (Hughes 1999).

The yellow-billed cuckoo is a migratory land bird that winters in southern Central America and South America. Yellow-billed cuckoos in the western United States appear to require large blocks of riparian habitat for nesting (particularly riparian woodlands including cottonwoods and willows). Home ranges of nesting birds may include 25 acres or more of riparian habitat. Nesting west of the Continental Divide occurs almost exclusively close to water, possibly due to humidity requirements for successful hatching and rearing of young. A dense understory of foliage appears to be important for breeding success. The blocks of riparian habitat used for nesting are usually greater than 25 acres (USFWS 2001).

Yellow-billed cuckoos are low/shrub nesting birds, and produce an open cup nest. Clutch size is generally 2-4 eggs. 9-11 days are required for incubation, and 7-8 days for fledging of young. Yellow-billed cuckoos primarily feed on large insects such as caterpillars and grasshoppers (Nolan and Thompson 1975, Laymon 1980). Nesting peaks (mid-June through August) may be influenced by an abundance of caterpillars and other prey.

Current Conditions

<u>Range-Wide</u>: Yellow-billed cuckoos are Neotropical migrants that overwinter from Columbia and Venezuela south to northern Argentina. Current bird band return data are insufficient to determine migration or wintering patterns.

Historically, the yellow-billed cuckoo was widespread and common in California and Arizona, locally common in a few river reaches in New Mexico, common very locally in Oregon and Washington, and generally scattered in drainages of the arid and semiarid portions of western Colorado, western Wyoming, Idaho, Nevada, and Utah.

In Idaho, the species was considered a rare and local summer resident. In southwestern Idaho, the yellow-billed cuckoo has been considered a rare, sometimes erratic, visitor and breeder in the Snake River valley. It is thought that the species could become extirpated from the State of Idaho in the near future, although the available information is inadequate to judge population or distributional trends. Detailed information about the distribution and status of the yellow-billed cuckoo throughout the western United States can be found in the 2001 Proposed Rule (USFWS 2001).

Current data suggests that the yellow-billed cuckoo's range and population numbers have declined substantially across much of the western United States over the past 50 years. Analysis of population trends is difficult because quantitative data, including historical population estimates, are lacking. However, historic and recent data are sufficient to allow an evaluation of changes in the species' range in the western United States.

This species is declining in parts of its range due to deterioration and loss of riparian forest habitat in the western U.S. Principal causes of riparian cottonwood forest habitat loss are conversion to agricultural and other uses, dams and river flow management, stream channelization and stabilization, livestock grazing, pesticide use, and competition from exotic plants such as tamarisk. These factors have resulted in the remaining habitat being fragmented. Overuse by livestock has been a major factor in the degradation and modification of riparian habitats in the western United States (USFWS 2001).

Dense understory foliage appears to be an important factor in nest site selection and cottonwood trees are important foraging habitat. The principal threat in the summer range of the species is the loss of riparian habitat, which has always been naturally limited in the western United States (USFWS 2001). Available breeding habitats for yellow-billed cuckoos have also been substantially reduced in area and quality by groundwater pumping and the replacement of native riparian habitats by invasive non-native plants, particularly tamarisk/saltcedar (*Tamarix ramosissima*) in the southwestern United States and to a lesser degree in southern Idaho.

Habitat loss, overgrazing, tamarisk invasion of riparian areas, river management, logging, and pesticides have been identified as causes of decline. These factors are consistent with loss, degradation, and fragmentation of riparian habitat as the primary factor causing yellow-billed cuckoo declines in the western United States. Estimates of riparian habitat losses include 90-95 percent for Arizona, 90 percent for New Mexico, 90-99 percent for California, and more than 70 percent nationwide (Ohmart 1994). Much of the remaining habitat is in poor condition and heavily affected by human use (Almand and Krohn 1978). Local extinctions and low colonization rates have also been identified as factors causing population declines, and pesticides and loss of wintering habitat as potential factors (Hughes 1999).

Planning Area: The species is considered a rare and local summer resident in Idaho, with 64 recorded observations for the State; the breeding population is likely limited to a few breeding pairs, at most (TREC, Inc. 2003). Recent surveys indicated the presence of yellow-billed cuckoos in the planning area near Camas NWR, Market Lake, just above American Falls Reservoir, Deer Parks WMU, and on the South Fork of the Snake River between Lorenzo and Heise (TREC, Inc. 2004).

While there are areas that contain cottonwood riparian forest within the planning area, few if any of the areas could be considered extensive, and presently occur mostly as linear bands adjacent to low elevation river systems. Most of the cottonwood forest within BLM administered lands occurs on moderate-gradients streams, which results in narrow, linear pieces of habitat. Some private in-holdings adjacent to BLM administered lands contain cottonwood forest that could be considered extensive, but some of these have been modified by agricultural development or urbanization. It is likely that some of the more extensive cottonwood stands on the BLM lands were inundated by reservoirs.

7.3 MAMMALS

7.3.1 Grizzly Bear

Status

The grizzly bear was listed as a threatened species on July 28, 1975, within the conterminous 48 States (40 FR 31734). Three basic parameters were selected for use in the 1995 revision of the grizzly bear recovery plan as key indicators of population status. These include: (1) sufficient reproduction to offset the existing levels of human-caused mortality; (2) adequate distribution of breeding animals throughout the area; and (3) a limit on total human-caused mortality, which is related to the previous two parameters. The recovery plan recommends monitoring to include (1) the number of unduplicated females with cubs seen annually, (2) the distribution of females with young or family groups throughout the ecosystem, and (3) the annual number of known human-caused mortalities.

Biology

The grizzly bear was first described as a separate species in 1758, and is a member of the Class Mammalia, Order Carnivora, and Family Ursidae. Grizzly bears have long, curved claws, humped shoulders, and a face that appears concave. Coloration ranges from light brown to nearly black. Guard hairs are often paled at the tips, giving it a silvered, grizzly appearance. The average weight is 182 to 272 kg (400 to 600 pounds lbs) for males and 114 to 159 kg (250 to 350 lbs) for females. Adults stand 1 to 1.4 m (3.5 to 4.5 ft) at the hump when on all fours, and over 2.4 m (8 ft) when on hind legs. Muscle structure is developed for massive strength, quickness, and running speeds up to 72 km/h (45 mi/h). Grizzly bears walk on all four legs, and can stand upright on hind legs to improve sight and smell opportunities.

Grizzly bears have one of the lowest reproductive rates of any land mammal. Age at first reproduction is 3.5 to 8.5 years (5.5 years average) for females. Males become sexually mature at around 4.5 years. The female reproductive interval averages once every 3 years. Mating occurs in late May to mid-July. Embryonic development is postponed by delayed blastocyst implantation, which occurs approximately 0-15 days after denning. Birth occurs in early February. Litter size is 1 to 4 cubs (2 cub average). The cubs are born with eyes closed and remain in the den until late March or early April. Cubs usually remain with the female for 2 years, at which time the female is generally ready to breed again. Individuals have been recorded to live 40 years, but life span in the wild may be closer to 25 years.

Natural mortality factors for grizzly bears are not well known. They may include predation of juveniles by adults, predation of adults by adults, dispersal of subadults into submarginal home ranges, and increased human/bear conflicts while dispersing to preferred spring and fall food sources. Human-caused mortality includes direct human/bear confrontations, attraction to improperly stored food and garbage, improper disposal of livestock carcasses, protection of livestock, declining amounts of grizzly bear habitat, and legal and illegal hunting.

Most existing grizzly bear habitat is characterized by contiguous, relatively undisturbed mountainous habitat that has a high level of topographic and vegetative diversity. Cover seems to be important to grizzly bears in the northern Rockies, particularly during bedding periods. Generally cover used is not more than a kilometer from open parks or meadows.

Grizzly bears den when food availability and air temperatures decline. Den sites are generally at higher elevations in areas where snow is not likely to melt during warm periods through the winter. Bears dig a den in the fall, entering for hibernation around November.

Current Conditions

Range-Wide: Grizzly bears currently occupy approximately 2% of their historic range in the continental United States. The Service has identified seven grizzly bear recovery ecosystems in the northern Rocky Mountains of the western United States: Yellowstone; Cabinet/Yaak; Selkirk; Bitterroot; Northern Continental Divide in Montana; North Cascades in Washington; and the San Juan Mountains in Colorado. Grizzly bears are known to occur in all but the Bitterroot and San Juan ecosystems. Varying portions of the first four ecosystems listed occur in Idaho.

Grizzly bears in the Yellowstone ecosystem occupy over 23,300 square kilometers (km^2) (9,500 square miles [mi^2]) of mountainous terrain in and surrounding Yellowstone National Park. Recovery goals for this ecosystem include maintaining 15 females with cubs over a running six-year average both inside the recovery zone and within a ten-mile radius around the recovery zone; 16 of 18 Bear Management Units (BMU) will be occupied by females with young from a running six-year sum of verified sightings and evidence; and no two adjacent BMUs will be unoccupied; known human-caused mortality will not exceed four percent of the population estimate, no more than 30% of this mortality shall be females; and mortality limits cannot be exceeded during any two consecutive years.

Idaho has populations of grizzly bears in the Cabinet-Yaak Ecosystem and an estimated population of 400-600 bears in the Greater Yellowstone Ecosystem.

Planning Area: Within the planning area, 2006 acres of BLM administered lands occur in BMUs in the USFO. Grizzly bear habitat is managed as Bear Management Units (BMUs); see the Grizzly Recovery Plan (1993). There are two units in the Upper Snake FO, the Henry's Lake 1 and 2 BMUs, which contain 2,006 acres of public land. Of that acreage, 963 are secure habitat. These BMUs are within the Henry's Lake ACEC. Although sightings of GB have been documented on USFS lands, no sighting of GB have been documented on BLM administered lands.

7.3.2 Gray Wolf

Status

In 1994, the U.S. Fish and Wildlife Service approved the Final EIS for the Re-introduction of gray wolves to Yellowstone National Park and Central Idaho (USDI FWS 1994). While the gray wolf was listed as an endangered species throughout its range, the populations south of Interstate 90 in Idaho and Montana are currently classified as experimental/non-essential (USDI FWS 1994). Within the planning area, the gray wolf is a re-introduced experimental/non-essential population (ESA Section 10j) currently managed by the USFWS. Critical habitat for this species has not been designated.

Biology

Gray wolves are wide-ranging predators. The basic social unit in wolf populations is the pack. A pack can consist of 2 to 20 wolves (average of 11). Pack members have a strong social bond to each other, and they establish and defend territories. Home ranges vary in size from 80 square miles in Minnesota to over 600 square miles in Alberta. Home ranges over the last several years for central Idaho packs have ranged from 50 square miles to 360 square miles (USDI FWS 2000). Most packs include a pair of breeding adults, pups, and often yearlings and extra adults. In general, wolves depend upon ungulates for food in the winter and supplement this diet during spring-fall with beaver and smaller mammals. In most wolf populations, reproductive packs occupy exclusive territories, and non-breeding loners either live in the buffer zones between territories or avoid the packs.

Historically, wolves utilized a broad spectrum of habitats including grasslands, sagebrush steppes, coniferous and mixed forest and alpine areas. Habitats used by wolves typically have an abundance of natural prey and, more recently, minimal conflict with human interests and uses.

In the Northern Rockies, wolf pups are born any time from late March to late April or possibly early May. Wolves are particularly sensitive to human activity near den sites and may abandon them if disturbed. Den and rendezvous sites are often characterized by having forested cover nearby and by being distant from human activity. Wolf rendezvous sites are specific resting and gathering areas occupied by wolf packs during summer and early fall after the whelping den has been abandoned. They are characterized by matted vegetation in a meadow, a system of well-used trails through the adjacent forest and across the meadow, and resting beds adjacent to trees. A wolf pack will usually move from the whelping den (or occasionally a second den) to the first rendezvous site when the pups are 6 to 10 weeks of age (late May-early July). The first rendezvous site is often within 1 to 6 miles of the whelping den. A succession of rendezvous sites are used by the pack until the pups are mature enough to travel with the adults (September - early October). Rendezvous sites-- especially the first one--may receive traditional use by wolf packs. It is also the initial rendezvous site at which wolves appear most sensitive to prolonged or substantial human disturbances.

Current Conditions

<u>Range-Wide</u>: Historical information on the distribution of wolves in Idaho indicates that nearly all of Idaho is within the former range of the Northern Rocky Mountain wolf. The present

suitable habitat for gray wolves in Idaho includes the area generally north of the Snake River and portions of the eastern part of the State which border on Wyoming and Montana. There are three recovery areas in Idaho. Gray wolf populations have been increasing since their re-introduction to central Idaho in 1995-96.

The population decline of the gray wolf was a result of: (1) intensive human settlement, (2) direct conflict with domestic livestock, (3) humans lack of understanding of the animal's ecology and habits, (4) fears and superstitions concerning wolves, and (5) the extreme control programs designed to eradicate it. Generally, land development, loss of habitat, poisoning, trapping, and hunting are recognized as important reasons for decline of the Northern Rocky Mountain wolf. Gray wolves are primarily limited by non-habitat factors. Activities that occur in or near den sites or rendezvous sites are also a concern with limited numbers of packs. (USDI FWS 2002).

Although maintenance and improvement of suitable habitat may be the key long-term factor in wolf conservation, an important factor limiting wolf recovery in the Northern Rocky Mountains is human-induced mortality.

Planning Area: Gray wolves in the planning area have been designated as an experimental non-essential population (UDSI FWS 1994a and 1994b). There are two separate wolf recovery areas in the Upper Snake and Pocatello Field Offices. The Central Idaho Wolf Recovery Area includes all the lands in the two Field Offices west of Interstate 15 and the Yellowstone Wolf Recovery Area includes all those lands east of Interstate 15. The most recent sighting in the Shoshone FO area was a dead wolf found about 5 miles east of King Hill Creek in the winter of 2002. There has also been documentation of wolves in the Fish Creek drainage north of Craters of the Moon National Monument. There are no documented sightings in the Burley FO area. The successful translocation of wolves into central Idaho coupled with recent activity of a pack of wolves in Stanley Basin make it more likely that wolves may occur more frequently in the planning area. To date no breeding pairs or packs have been documented on lands administered by the BLM.

7.4 AQUATIC SPECIES

7.4.1 Bull Trout

Status

On June 10, 1998 the Service (USDI 1998a) listed the Klamath River and the Columbia River population segments of the bull trout as threatened.

Biology

Bull trout generally exhibit either resident or migratory life history strategies through much of the current range. These different life history patterns may exist separately or in combination in the same tributary. It is suspected that bull trout give rise to offspring exhibiting both resident and migratory behavior (Rieman and McIntyre 1993). Resident bull trout complete their entire life cycle in the streams or nearby tributaries where they were hatched. Migratory bull trout, in contrast, spawn in tributary streams where juvenile fish rear from one to several years before migrating to larger waters. Fluvial populations move to the large rivers, adfluvial populations move to lakes, and in certain coastal areas, anadromous populations move to saltwater, where

they grow to maturity (Fraley and Shepard 1989; Goetz 1989). These diverse life histories are important to the stability and viability of bull trout populations.

The size and age of bull trout at maturity depends upon life-history strategy. Growth of resident fish is generally slower than migratory fish; resident fish tend to be smaller at maturity and less fecund (Fraley and Shepard 1989; Goetz 1989). Bull trout normally reach sexual maturity in 4 to 7 years and live as long as 12 years. Bull trout typically spawn from August to November during periods of decreasing water temperatures. However, migratory bull trout frequently begin spawning migrations as early as April, and have been known to move upstream as far as 250 kilometers (km) (155 miles (mi)) to spawning grounds (Fraley and Shepard 1989). Depending on water temperature, incubation (fertilization to hatching) is normally 100 to 145 days (Pratt 1992). After hatching, fry remain in the substrate and normally emerge from early April through May again depending upon water temperatures and increasing stream flows (Pratt 1992; Ratliff and Howell 1992).

Bull trout are opportunistic feeders with food habits primarily a function of size and life-history strategy. Resident and juvenile migratory bull trout prey on terrestrial and aquatic insects, macro-zooplankton and small fish (Boag 1987; Goetz 1989; Donald and Alger 1993). Adult migratory bull trout are primarily piscivores, known to feed on various fish species (Fraley and Shepard 1989; Donald and Alger 1993).

Current Conditions

Range-Wide: Though wide-ranging in parts of Oregon, Washington, Idaho and Montana, bull trout in the interior Columbia River basin presently occur in only about 44 to 45 percent of the historical range (Quigley and Arbelbide 1997). Declining population numbers and associated habitat loss and fragmentation have been documented rangewide (Bond 1992; Thomas 1992; Ziller 1992; Rieman and McIntyre 1993; Newton and Pribyl 1994; IDFG in lit.1995). Fragmentation and isolation of bull trout populations or subpopulations has occurred through habitat changes caused by human activities. Overfishing and competition by introduced species of fish have restricted the distribution of bull trout to a small portion of the original range. The original populations have been restricted in the number of individuals they contain, their resilience, and in their proximity to or connection with other populations (Rieman and McIntyre 1993). As a result, some populations are extinct and the risk of extinction for many of the remaining populations has increased (Rieman and McIntyre 1993).

Planning Area: Survey work has documented bull trout in widely scattered areas of its former range. An isolated population is found in the Little Lost River near Howe, Idaho between the Lost River and Lemhi mountain ranges (State of Idaho 1996), however there is no critical habitat for bull trout in the planning area.

7.4.2 Idaho Springsnail

Status

The Idaho springsnail (*Pyrgulopsis* [=*Fontelicella] idahoensis*), also known as the Homedale Creek springsnail, was listed as endangered on December 12, 1992 (57 FR 59244). A recovery

plan that included this snail was prepared in 1995 (Service 1995) and is still being used as a recovery guidance document. Critical habitat for this species has not been designated.

On October 7, 2002, the FWS received a petition, dated October 1, 2002, from Governor Kempthorne of Idaho to delist this species on behalf of the State of Idaho's Office of Species Conservation and Idaho Power (IOSC 2002a). On December 13, 2002, Idaho Power withdrew the petition for delisting when it found inconsistencies in the data used in the petition. Idaho Power's data from 1995 to 2001 has undergoing independent review to correct many of these inconsistencies, but due to difficulties in field identification of this species, the current distribution of the Idaho springsnail is in question.

Biology

The Idaho springsnail has a narrowly elongated shell reaching a height of 0.2 to 0.25 inches, with up to 6 whorls. The empty shell has a pale, olive-tan color that can appear white at the apex. The body of live snails is pale with areas of gray to black with a reddish-brown operculum. When properly preserved the body and snout are typically light to moderate brown, the foot being pale with a brown anterior margin and the visceral coil being black. Unlike most other mollusks, individuals are not hermaphroditic, but instead are either male or female (dioecious). This species is a Blancan (Pliocene-Pleistocene) Lake Idaho relict.

Very little is known about the life history of the Idaho springsnail. This species is primarily found in permanent, unimpounded waters of the mainstem Snake River, although live specimens have been collected from three locations within C.J. Strike Reservoir; one colony within the Bruneau arm of the reservoir contains the highest recorded densities of this species. Frest (2002) noted that although the Idaho springsnail may occur in lake habitats, it requires moving water; this species is not known to persist in "slow water" habitats (*ibid*). This snail has not been found in other Snake River tributaries or in cold-water springs adjacent to the river (Taylor 1982a).

The Idaho springsnail may spend some time as an interstitial dweller occurring on mud or sand with gravel-to-boulder size substrate, but may also be found on the surface of rocks and sometimes on aquatic macrophytes (Frest, in lit. 2002). It often attaches to vegetation (e.g., *Potamogeton*) in riffles. There is currently no conclusive information on the depth distribution of this species in the river profile. It is believed that, on average, the Idaho springsnail lives for about a year, with females laying eggs between February and May, but the number of eggs produced per female is not known. Juvenile snails appear in the population between March and July. Laboratory studies have shown that Idaho springsnails are active in water temperatures ranging from 48.5 °F to 92.7 °F (S. Lysne, Boise State U., unpublished M.S. thesis, 2003), but that snails died within one week if temperatures exceeded 87 °F. The Idaho springsnail has been found in lake habitats where summer temperatures are believed to exceed 71.6 °F. It is not known how such elevated temperatures or other eutrophic conditions might affect this snail's numbers, reproduction, or survival. Although their presence in warmer waters is noteworthy, this does not indicate that they can persist as viable populations under such conditions (Frest, in lit. 2002). The Idaho springsnail has been described by most authors as being dependent on cold water of high quality (Taylor 1982a, Frest et al. 1991). While this snail has been found, in one case in high densities, within C.J. Strike Reservoir, initial reports only record it from two of 168 sampled sites (1.2%) (Cazier 1997b). The revised report for these survey results do not provide

sufficient detail to assess the abundance of the species within the C.J. Strike Reservoir. Additional information is needed to better understand the habitat requirements of this species.

There is a paucity of information on the population dynamics of the Idaho springsnail. The Company has provided some density estimates for some river colonies, but given the naturally patchy distribution and high variation in snail numbers, there are no good sample techniques established to provide confident estimates of population size or trends. In addition, there are no data to confirm the long-term persistence of known colonies. The colony at Bancroft Springs could not be detected over a 5-year period (1995-2000), but was recently re-detected (Shinn, Supplemental 2002). Other colonies have also been detected both within C.J. Strike Reservoir and in the Snake River downstream of that dam, but long-term monitoring of those colonies has not been conducted. The species is declining due to deteriorating water quality and fragmentation of previously continuous habitats with free-flowing waters by dams (USFWS 1995). There is evidence that a non-native snail, the New Zealand mudsnail, may compete with or otherwise negatively impact the Idaho springsnail. To date, no population viability studies have been conducted for the Idaho springsnail.

Current Conditions

Range-Wide: The Idaho springsnail was historically found from Homedale (RM 416) to Bancroft Springs (RM 553) (USFWS 1995). This species has declined due to degradation of habitat (e.g., water quality), and habitat fragmentation due to river impoundments and associated habitat changes (USFWS 1995). The target recovery area includes the main stem of the Snake River between RM 518 to RM 553. With the exception of locations within the Bruneau arm of C.J. Strike Reservoir, this species is not known to occur outside of the mainstem of the Snake River.

Surveys conducted by Taylor in 1982 placed the distribution of this species from Bancroft Springs downstream to C.J. Strike Reservoir (RM 495) at that time. Taylor (1982a) stated that it had vanished from river areas below C.J. Strike Reservoir. Work by Dianne Cazier Shinn, a former Idaho Power biologist, provided insight into the possible current distribution of the Idaho springsnail. She reported finding the species throughout its historic range, as far downstream as Weiser (RM 338) (Shinn, Supplemental, 2002). Recent Idaho Power reports (Stephenson and Bean 2003) include density estimates for known colonies of this species upstream of Grandview, C.J. Strike Reservoir (two locations), and Weiser, with densities ranging from zero to 1,460 snails per square meter, from surveys conducted in Spring, Summer, and Fall of 2002.

A presumed colony of springsnails that had been monitored at Frank Lloyd Wright Rapid (RM 570) was recently determined to be the invasive New Zealand mudsnail. Although this species has been reported from multiple locations from Grandview to Weiser, most of these colonies have only been sampled once and difficulties in making positive identification of this species in the field leave these sightings unconfirmed and questionable. At this time, the status and distribution of this species is not well established and makes the assessment of project-related effects difficult.

Planning Area: The Idaho springsnail is currently known to occur in the Snake River from the Weiser area upstream to the King Hill area, a portion of which is located near lands administered by the Shoshone FO. It is not found in any of the Snake River tributaries or marginal cold-water

springs (Taylor 1982). However, its current known range is based on collections done in 1991 ranges from C.J. Strike Reservoir (river kilometer 834) upstream to Bancroft Springs (river kilometer 890). At present, this snail only occurs as a discontinuously distributed population in permanent, flowing waters of the mainstem Snake River. This species is not known to occur on lands administered by the Burley FO.

Because of the similarity of effects of suppression or fuels-reduction treatments, all the listed Snake River snails are analyzed as a group under the Banbury Springs limpet species description.

7.4.3 Utah Valvata Snail

Status

The Utah valvata snail was listed endangered on December 12, 1992 (57 FR 59244). Critical habitat for this species has not been designated.

Biology

The shell of the Utah valvata measures about 0.2 inches in height, is turbinate, and contains as many as four whorls. An angular carina or ridge runs perpendicular to the raised, transverse threads and attenuates toward the circular aperture margin.

Very little is known about the life history of the Utah valvata. In the Snake River, this snail inhabits a diversity of habitats, such as shallow shoreline waters, deep pools, and perennial flowing waters associated with large spring complexes. Numerous colonies are known to occur throughout Lake Walcott and American Falls Reservoir, indicating the ability of these snails to adapt to lake habitats. Frest (in lit. 2002) noted that although the Utah valvata may occur in lake habitats, it requires moving water; this species is not known to persist in "still water" habitats. The Utah valvata generally avoids areas with heavy currents or rapids (Taylor 1982c). This species appears to prefer well-oxygenated areas of non-reducing calcareous mud or mud-sand substrate among beds of submergent aquatic vegetation. Cazier (1997a) has observed the Utah valvata burrow into soft substrates (mud/sand), apparently an evasive behavior. However, preliminary work conducted by Steve Lysne (Boise State University, unpublished M.S. Thesis, 2003) suggests that under laboratory conditions this snail may spend considerable time on gravel- to cobble-sized substrates. Chara, an aquatic plant that concentrates both calcium carbonate and silicon dioxide, is a common associate with the Utah valvata (Service 1995). The Utah valvata is believed to prefer cool water habitats, however, laboratory studies have shown that they are active in water temperatures ranging from 45.1E to 89.1E F (S. Lysne, Boise State U., unpublished M.S. Thesis, 2003), but that snails died within one week if temperatures exceeded 87E F. This snail may consume diatoms, plant debris, aquatic plants, and sessile organisms, but is generally regarded as a detritivore. The species is hermaphroditic. Observations by Cazier (1997a) suggest that reproduction in the colony at The Nature Conservancy's Thousand Springs Preserve occurs in the fall, followed by a seasonal die-back in December. Analysis of size classes in Lake Walcott suggests that these colonies reproduce between June and September (Weigel 2003).

The Utah valvata is documented from Utah Lake, Utah, from which it is now extirpated, and in the Snake River of southern Idaho from the Henry's Fork as far downstream as Grandview (RM

487). This snail was most likely found in slow-moving portions of the river through southwestern Idaho prior to agricultural development and subsequent changes to the Snake River. Taylor (1982c) reported that empty shells were found downstream of C.J. Strike Reservoir and at Indian Cove Bridge (RM 525.4). There is one collection of this species from the Big Wood River (Gustafson, Montana State University, in lit., 2002). These sightings could represent relict populations or more recent colonization from irrigation returns via canals originating from Lake Walcott and/or Milner Reservoir. A single, empty shell was recovered from the Bruneau Arm of C.J. Strike Reservoir (S. Lysne, U.S. Fish & Wildlife Service, pers. Comm., 2004), but extensive surveys by the Company have failed to locate a living colony or other shell deposits. The target recovery area for this snail is RM 572 to RM 709, and includes the mainstem of the Snake River as well as associated cold water spring tributaries (Service 1995). Population strongholds of the Utah valvata include areas in Lake Walcott, American Falls Reservoir, and the Thousand Springs Preserve. Populations of the Utah valvata have been regularly monitored in Lake Walcott and upstream reaches up to and including American Falls Reservoir (Irizarry 1999; Weigel 2002, 2003) and are known or reported from cold water springs or spring-influenced portions of the river within the planning area such as Thousand Springs (Frest and Johannes 1992) and Box Canyon Springs (Taylor 1985). The most recent reports of this species indicate that it is found in scattered colonies as far upstream as the Henry's Fork of the Snake River, Idaho (Gustafson, Montana State U., in lit., 2003).

Current Conditions

Range-Wide: Surveys conducted by Frest and Johannes (1992) identified only two areas within the Thousand Springs Preserve with colonies of the Utah valvata snail. Their population estimate was 6,000 snails per colony with an average population density of 2.2 snails per ft^2 (57 FR 59244). Periodic surveys conducted by Idaho Power suggest one of these colonies has been persistent over time (Cazier 2001, Supplemental). The Utah valvata appears to have relatively large and persistent colonies in Lake Walcott (RM 674-690), where they were found to occur on mud-sand to mud-gravel substrates at depths ranging from 5 to 45 ft. The average life span of this species is believed to be one year, but may slightly exceed this. The reproductive potential of the Utah valvata is unknown, but egg masses with up to 12 eggs have been observed (Lysne, Boise State University, unpublished M.S. Thesis, 2003).

Planning Area: The Utah valvata snail occurs in the middle Snake River from C. J. Strike Reservoir upstream to the confluence of the South and Henry's Fork and Beaver Dick Park. Surveys in the Nature Conservancy's (TNC) Thousand Springs Preserve indicated declines in numbers and range of Utah valvata over a four-year period (Frest and Johannes 1992). The most current information indicates that its most numerous colonies and greatest numbers are found from American Falls Reservoir downstream to Minidoka Dam. Presently, the Upper Snake Field Office is in section 7 consultation for on-going activities and effects to the Utah Valvata snail within the Upper Snake and Pocatello Field Offices.

Because of the similarity of effects of suppression or fuels-reduction treatments, all the listed Snake River snails are analyzed as a group under the Banbury Springs limpet species description.

7.4.4 Snake River Physa Snail

Status

The Snake River physa snail was listed as endangered on December 12, 1992 (57 FR 59244). Critical habitat for this species has not been designated.

Biology

The shells of adult Snake River physa snails are 0.2 to 0.25 inches long with 3 to 3.5 whorls, and are amber to brown in color (Service 1995). This species occurs on the underside of gravel- to boulder-sized substrate in swift currents in the main stem of the Snake River. Live specimens have been found on boulders in the deepest part of the river, accessible to divers, at the margins of rapids.

Very little is known about the life history of the Snake River physa snail. This species existed in the Pleistocene-Holocene lakes and rivers of northern Utah and southeastern Idaho, and is thought to have persisted for at least 3.5 million years in the Snake River (Taylor 1982b, 1988; Thompson 1996). It has been collected only rarely so little is known of its habits other than it appears to prefer rocky substrates in fast-flowing portions of the main Snake River. Based on the life histories of related species of *Physa*, the Snake River physa likely lives for up to, or just over, one year. Nothing is known about its reproductive biology.

Nothing is known of the Snake River physa's population size or natural population dynamics. Surveys conducted by the Company recorded the Snake River physa on two or three occasions over two years (Cazier 1997a, 1999), but the difficulty of distinguishing this species from a more common species of *Physa* make these observations unconfirmed . In each of these observations, the snail was found near turbulent, deeper water and on large cobble- to bolder-sized substrate. Live Snake River physa snails have always been rare at collection sites and fewer than 50 live snails had been collected in the Snake River (Frest *et al.* 1991).

Current Conditions

Range-Wide: The USFWS (1995) reported that the Snake River physa's "modern" range extended from Grandview (RM 487) to the Hagerman Reach (RM 573), and possibly upstream from Salmon Falls. It is believed to be confined to the main stem of the Snake River, never having been reported from tributary streams. Taylor (1982b, 1988) stated that the Grandview sub-population was extirpated in the early 1980's "...as the native bottom fauna has been virtually eliminated in this sediment-laden section of the Snake River." There are recent (late 1995), unconfirmed accounts of this species as far upstream as RM 671 and Idaho Power reports its presence within the Hagerman area as recently as 1996 (Cazier 1997a), but the identity of these specimens were not confirmed. The status of this species remains unknown, but it appears to be very limited in its range and has always been rare. The target recovery area is designated as the Snake River between RM 553 and RM 675 (USFWS 1995).

Planning Area: The recovery area for the Snake River physa snail extends up the Snake River from Grandview to the Snake's confluence with the Malad River. The most recently confirmed collections of live specimens were by Taylor and Bowler (Taylor 1988) and below Minidoka

Dam (river kilometer 1,085) in 1987 (Pentec 1991). Taylor's collections occurred between 1959 and 1985 and were conducted between the Malad River confluence and Grandview, with live specimens coming from the Hagerman Reach, downstream of Lower Salmon Falls Dam (Taylor 1988, Frest *et al*. 1991). Recent communications from Taylor suggests that the species might lie upstream in areas of good water quality, but there have been no confirmed collections of the Snake River physa upstream of Lower Salmon Falls Dam. Snail surveys in southeastern Idaho and northern Utah (Frest et al. 1991) and in a free-flowing stretch near Buhl (Frest and Johannes 1992) failed to find any live specimens.

The Snake River Physa snail occurs in only a few locations in the free-flowing Snake River including a disjunct population in Lake Walcott and at a few locations in the Hagerman and King Hill reaches of the Snake River (Gooding Co.). The free-flowing, cold-water environments required by this snail have been affected by, and are vulnerable to, continued adverse habitat modification and deteriorating water quality from one or more of the following: hydroelectric development, load-following (the practice of artificially raising and lowering river levels to meet short-term electrical needs at local run-of-the-river hydroelectric projects), water pollution, inadequate regulatory mechanisms which have failed to provide protection to the habitat used by the species, and possible adverse affects from exotic species.

Because of the similarity of effects of suppression or fuels-reduction treatments, all the listed Snake River snails are analyzed as a group under the Banbury Springs limpet species description.

7.4.5 Bliss Rapids Snail

Status

The Bliss Rapids snail was listed as threatened on December 12, 1992 (57 FR 59244). Critical habitat for this species has not been designated.

Biology

The Bliss Rapids snail represents a monotypic genus that is restricted to the Mid-Snake River and numerous cold-water tributaries along that river reach. Adult snails measure from about 0.08 to 0.10 inches in length, with three whorls, and are ovoid in shape. There are two color variants of the Bliss Rapids snail, the colorless or "pale" form and the orange-red or "orange" form. The pale form is slightly smaller with rounded whorls and more melanin pigment on the body (Hershler et al. 1994).

Very little is known about the life history of the Bliss Rapids snail. It occurs on hard substrates in spring habitats, primarily within the Hagerman Valley, and in portions of the mainstem Snake River, primarily in areas influenced by springs and tributaries (Hershler et al. 1994). The species does not burrow and avoids fine depositional sediment and surfaces with attached macrophytes (Service 1995), but has been found in association with smaller, pebble- to gravel-sized substrates (Stephenson and Myers 2003). This species is considered negatively phototaxic and primarily resides on the lateral sides and undersides of rocks (Bowler 1990; Hershler et al. 1994). The Bliss Rapids snail can be locally quite abundant, especially in large spring complexes in the Hagerman Valley on smooth rock surfaces with common encrusting red algae (Service 1995). Reproduction appears to occur at different times of the year in different populations of snails.

Those populations found in the main stem of the Snake River lay eggs from December to March, while those located in cold water springs lay eggs from January to June. Eggs are laid individually on the sides and undersides of rocks and require about one month to hatch into fully developed juveniles. The Bliss Rapids snail has been found inhabiting waters ranging from 45.7° to 67.6° F. The Bliss Rapids snail lives for one year and undergoes an annual die-off after reproduction is complete.

Surveys for this snail in pools or reservoirs have failed to locate it. Although the Idaho Power Company (Company) reports this species within every river mile of the main stem Snake River from Bliss Reservoir to Lower Salmon Falls Dam, it is not abundant within the main stem. This species was reportedly collected in a short section of river below Hell's Canyon Dam (RM 225-229), but review of these specimens by qualified taxonomist have called their identity into question (Myers and Foster 2003). At this time the species is not confirmed to occur outside of its historic range.

Idaho Power (Shinn, Supplemental, 2002) reported reproduction and persistence of selected Bliss Rapids snail colonies in both cold water tributaries and within the main stem of the Snake River, but corroborative data to support these findings are not available. Frest and Johannes (1992) noted that this snail was absent from irrigation return waters entering the Snake River at the Thousand Springs Preserve, but were relatively widespread in pristine springs and were able to colonize uncontaminated springs. Even so, those authors noted that water quality alone could not completely explain the species distribution at all locations, as it is absent from some of the more pristine areas within the Thousand Springs Preserve. The target recovery area includes the main stem of the Snake River and cold water spring complexes between RM 547 and RM 585 (USFWS 1995). Other researchers have noted the decline and disappearance of the Bliss Rapids snail from habitats where they were once common (Frest et al. 1991; Frest and Bowler 1992; Bowler, pers. comm. 2003, 2004).

On July 22, 2002, the FWS received a petition, dated July 19, 2002, from Governor Kempthorne of Idaho to delist this species on behalf of the State of Idaho, Office of Species Conservation and the Company (IOSC 2002b). On December 13, 2002, that petition was withdrawn due to inaccuracies and inconsistencies found in the Company's data. The Service is currently conducting an internal review of the species' status in order to ascertain the current status and our understanding of its biology.

Little is known about the population dynamics of the Bliss Rapids snail. This snail reaches its highest densities in cold water springs and tributaries of the Hagerman reach of the mid-Snake. Population densities of this snail are typically much lower in the main stem of the Snake River (Frank Lloyd Wright Rapid, 2001 annual mean = 9.3 per m^2) than they are within tributary springs (Thousand Springs Preserve, 2001 annual mean = 205 per m^2) (Shinn, Supplemental, 2002). The differences between populations occurring in cold water springs and in the Snake River are likely attributable to water quality, but may also be influenced by other undetermined factors.

Taylor (1985) hypothesized that Bliss Rapids snails feed on organic film (perilithon) on cobbles and boulders in moderate current. Taylor (1985) noted that this species is found only on the undersides of rocks, which believed to be a photosensitive response to light (Bowler 1990). Bliss

Rapids snails forage on upper rock surfaces at night (USFWS 1992). In the main stem of the Snake River, Bliss Rapids snails reproduce in October to February, but delay breeding in spring habitats from February through May (USFWS 1992). Egg laying occurs within a 2 months of breeding and the eggs hatch within a month (USFWS 1992). Bliss Rapids snails live, primarily on boulders and cobbles, in swift current in large streams (Taylor 1982). Boulder bars below rapids and rapids/edge environments flanking the shore (USFWS 1992) were described as good habitat. This species has been found in water as shallow as 1 cm as long as water temperature and dissolved oxygen levels were adequate (USFWS 1995b). Cazier and Myers (1996) documented Bliss Rapids snails in white water, eddy, edge-water, and run habitats. Bliss Rapids snails occupied irregular substrates with and without vegetation (Cazier and Myers 1996). Recently, Bliss Rapids snails have been documented in slack water where previously they were not expected to occur.

Current Conditions

Range-Wide: The Bliss Rapids snail is discontinuously distributed in the mainstem Snake River and is especially associated with spring tributaries between Clover Creek (RM 547) and Twin Falls (RM 610.5). Colonies are concentrated in the Hagerman reach in cold water springs (e.g., Thousand Springs, Banbury Springs, Box Canyon Springs, Malad River, and Niagara Springs) and in lower densities in portions of the main stem Snake River (Service 1995), the later likely being influenced by cold water spring discharges (Hershler et al. 1994).

Taylor (1982) commented that the Bliss Rapids snail is a relict survivor from old Lake Idaho in southwestern Idaho about 3.5 million years ago. Historically, Bliss Rapids snails were present from Indian Cove Bridge and upstream past Twin Falls (USFWS 1992). A disjunct population was found near some springs near American Falls Reservoir (USFWS 1995b). Bowler (1990) reported that the expansion of the introduced freshwater snail *Potamopyrgus antipodarum* was a threat to the listed species in the Snake River.

Presently, the Bliss Rapids snail is known to occur sporadically in the Snake River from the mouth of Clover Creek near King Hill upstream to about river mile 589 above Upper Salmon Dam, as well as Box Canyon (Taylor 1982, Taylor 1985). Idaho Power has been conducting inventory for this species as part of renewing their licenses for hydroelectric dams on the Snake River. BLM does not have access to this data. BLM has not conducted inventories for Bliss Rapids snail.

Planning Area: The recovery area for the Bliss Rapids snail extends from the Bancroft Springs area upstream to Twin Falls. Populations of Bliss Rapids snails are found in a few isolated colonies in the main stem of the Snake River from King Hill (river mile 545) to Banbury Springs (river mile 589) in Idaho. The Bliss Rapids snail is discontinuously distributed in the mainstem Snake River and is especially associated with spring tributaries between Clover Creek (RM 547) and Twin Falls (RM 610.5). Colonies are concentrated in the Hagerman reach in cold water springs (e.g., Thousand Springs, Banbury Springs, Box Canyon Springs, Malad River, and Niagara Springs) and in lower densities in portions of the main stem Snake River (Service 1995), the later likely being influenced by cold water spring discharges (Hershler et al. 1994).

Because of the similarity of effects of suppression or fuels-reduction treatments, all the listed Snake River snails are analyzed as a group under the Banbury Springs limpet species description.

7.4.6 Banbury Springs Limpet

Status

The Banbury Springs limpet was listed as Endangered by the FWS on December 14, 1992 (57 FR 59257). Critical habitat for this species has not been designated.

Biology

This snail is a member of Lancidae, a small family of pulmonates (snails that possess lung-like organs) endemic to western North America. The species was first discovered in 1988 (Frest in lit. 1991b) and has not been formally described. It is distinguished by a cap-shaped shell of uniform red-cinnamon color with a subcentral apex, with a length and height that exceeds its width.

The species has been found only in spring-run habitats with well-oxygenated, clear, cold (59 to 60.8^{o}F) waters on boulder or cobble-size substrate. All known locations have relatively swift currents. They are found most often on smooth basalt and avoid surfaces with large aquatic macrophytes or filamentous green algae. Frest and Johannes (1992) found the species in water as shallow as 2 in, but depths up to 6 in were more typical. All lancids are particularly affected by dissolved oxygen fluctuations since respiration is accomplished only through the mantle; lungs, gills, and other specialized respiratory structures are lacking (Frest and Johannes 1992). Common mollusk associates of this species include the threatened Bliss Rapids snail and vagrant pebblesnail (*Fluminicola hindsi*).

Current Conditions

<u>Range-Wide</u>: At present, the Banbury Springs limpet is known to occur only in the largest, least disturbed spring habitats at Banbury Springs, Box Canyon Springs, and Thousand Springs. The limpet was first discovered in 1988 at Banbury Springs (rm 589) with a second colony found in nearby Box Canyon Springs (rm 588) in 1989. During 1991, a mollusk survey at TNC's Preserve revealed a third colony in the outflows of Thousand Springs (rm 584.6). Subsequent to this discovery, a more detailed investigation at the Preserve revealed that the single colony was sporadically distributed within an area of only 129 to 150.7 square feet (ft^2) (Frest and Johannes 1992). Population densities ranged from 4 to 20 individuals/m^2. The total adult population at the Preserve was estimated at between 600 to 1200 individuals. All three known colonies of limpet were discovered in alcove spring complexes. These spring complexes contain large areas of adjacent, presumably similar, habitat that is not occupied by the species.

<u>Planning Area</u>: The Banbury Springs limpet is known to occur in large, relatively undisturbed spring habitats on the north side of the Snake River approximately five river miles upstream and five river miles downstream of the confluence of the Snake River and Salmon Falls Creek. At present, the Banbury Springs limpet is only known to occur in three, minimally disturbed spring habitats at Banbury Springs, Box Canyon Springs, and Thousand Springs between Snake River miles 548.8 and 589.4. A fourth population was recently discovered at Briggs Springs in the Hagerman Valley.

Because of the similarity of effects of suppression or fuels-reduction treatments, all the listed Snake River snails are analyzed as a group under the Banbury Springs limpet species description.

7.4.7 Columbia Spotted Frog

Status

On May 7, 1993 the USFWS published a notice in the Federal Register (58 FR 27260) that listing of the spotted frog as threatened was warranted in four of its five Distinct Population Segments (DPS) but precluded the listing by other higher priority listing actions. The Great Basin (southern Idaho and Nevada) DPS, which occurs in the planning area, was warranted but precluded from listing. Critical habitat for this species has not been designated.

Biology

The Columbia Spotted Frog may be tan, gray, brown, reddish-brown, or red above with irregular black spots with indistinct edges and light centers. The frog has upturned eyes and relatively short hind legs with extensive webbing. There is a stripe on the lower jaw, and dorso-lateral folds or ridges, on both the back and the sides, are usually present. The frog's undersides are usually cream-colored; the lower abdomen and the undersides of the hind legs are usually a reddish-orange, but can also be yellow. Females are generally about 4 inches in size; males are usually about 3 inches.

Spotted frogs can be found in areas up to 9850 feet in elevation. They prefer hilly areas near cool, permanent, quiet water in streams, rivers, lakes, pools, springs, and marshes. The frog is highly aquatic, but may disperse into forests, grasslands, and shrublands. In the Northwest, the Columbia spotted frog prefers areas with thick algae and emergent vegetation, but may use sunken, dead, or decaying vegetation as escape cover. Spotted frogs eat a wide variety of insects, along with mollusks, crustaceans, and arachnids. The larvae eat algae, organic debris, plant tissue, and tiny water-borne organisms.

Spotted frogs hibernate depending on range, and are mostly inactive in winter. They may move overland in spring after breeding. This species is in decline across some of its range, but seems to be widespread and abundant in Idaho. Bullfrogs are predators. Spotted frogs are not sexually mature until 4 years for males and 6 years for females. They usually breed between mid-March through June, depending on elevation. A Wyoming study found that females breed yearly at low elevations, but only every two or three years at higher elevations. Females may lay egg masses in communal clusters.

Current Conditions

<u>Range-Wide</u>: The Columbia spotted frog is widely distributed in western North America, from southern Alaska through British Columbia and western Alberta and the states of Washington, Oregon, Idaho, Montana, Wyoming, Utah, and Nevada. Disjunct populations exist south of the main range in southeastern Oregon, Nevada, southwestern Idaho, and Utah; and east of the main range in the Bighorn Mountains of north-central Wyoming.

In the southern part of the species range, the Great Basin and Wasatch Front populations have undergone significant decline, with wetland habitat loss and modification recognized as the primary causative factor (Worthing 1993). Great Basin population has been adversely affected by habitat degradation resulting from mining, livestock grazing, road construction, agriculture, and direct predation by bullfrogs and non-native fishes. In central Nevada, introduction of exotic trout and cattle are likely the most important anthropogenic factors limiting the distribution and persistence of the Columbia spotted frog (Reaser 2000).

Planning Area: The Columbia spotted frog has been documented in the headwaters of Salmon Falls Creek in southern Twin Falls County. Other potential habitat occurs in the Raft River area and habitats associated with springs or small lowland and foothill streams.

8.0 EFFECTS AND DETERMINATIONS FROM IMPLEMENTATION OF PROPOSED PLAN AMENDMENT

8.1 PLANTS

8.1.1 Ute Ladies'-tresses Orchid

Riparian areas in the planning area would be treated incidentally under the Proposed Plan Amendment as part of the treatment of adjacent vegetation types. Treatments have the potential to contribute indirectly to sedimentation to these riparian areas through both wind-born and water-born soil temporarily exposed by the treatment actions. However, it is anticipated that the (required) 300-foot buffer around riparian areas would largely prevent significant sedimentation to these riparian areas. It is unlikely, due to the minute acreage proposed in the Proposed Plan Amendment that treatments would have any direct short-term negative effect on Ute ladies'-tresses. It is not anticipated that areas supporting Ute ladies'-tresses would be treated, unless site-specific information indicates that small-scale RxFire use would be used to maintain a seral community, thus resulting in long term benefits. The Proposed Plan Amendment would result in a long-term maintenance of FRCC-1 in this cover type, accordingly, they would all result in healthy ecosystems with low risk to key ecosystem components supporting this species. This FRCC is identical to that occurring under existing conditions.

Direct Effects

Ute ladies'-tresses needs would be considered when selecting herbicide types and application methods. Non-herbicide treatments would be considered as a preferred method. To protect pollinators and Ute ladies'-tresses aerial application of chemicals would not occur within 0.5 miles of occupied habitat. If the continued existence of Ute ladies'-tresses would be undermined by noxious weed infestation, emphasis would be placed on hand spot spraying and mechanical control in order to avoid risks to Ute ladies'-tresses. No chemical would be applied directly on Ute ladies'-tresses during spot application. BLM Botanist(s) would supervise weed treatment within Ute ladies'-tresses habitat. Ute ladies'-tresses would directly benefit from weed treatments using the identified restrictions.

Fire retardant application would not be directly applied to Ute's ladies tress habitat. A drift component may be an indirect result from an application, however based upon studies

conducted, current retardants would have no adverse affects to the plant species. Similarly, form application studies have indicated the application of foam products to plant species have no affects to those plant species (Labat-Anderson, 1996). Fire suppression activities including dozer line and hand line construction would not be directly applied to occupied riparian habitats due to existing mitigating measures, therefore no effects to the plant species are expected. Given the locations of Ute ladies'-tresses habitats, emergency suppression actions to protect life and property, which would preclude implementation of mitigation measures designed to protect Ute ladies'-tresses, are highly unlikely.

The Proposed Plan Amendment provides restrictions that avoid all ground disturbing activities within Ute ladies'-tresses sites. As a result, mechanical seedbed preparation and seed covering, broadcast seeding with motorized vehicles, construction of fuel breaks, fence construction or reconstruction, off-road vehicle traffic, and aerial herbicide applications would have no adverse impacts to Ute ladies'-tresses. (See restrictions for Special Status Plant Species).

Therefore a may affect, not likely to adversely affect Ute ladies'-tresses orchid determination is applied.

Interrelated and Interdependent Effects

No interrelated or interdependent effects to the Ute ladies'-tresses have been identified for the Proposed Plan Amendment.

Indirect Effects

Site specific treatments such as chemical weed control would be designed so potential impacts would be so small as to be not meaningfully measured, detected, or analyzed, or would be extremely unlikely to occur. Herbicide treatments implemented with the restrictions to protect riparian areas, water quality, and special status aquatic species would also help to avoid adverse impacts on Ute ladies'-tresses due to overlapping habitat areas.

The Proposed Plan Amendment is also expected to contribute to the return of a more natural fire cycle over time, which would assist in the conservation of Ute ladies'-tresses by reducing future habitat loss and fragmentation due to catastrophic wildland fire. The restoration treatments such as noxious and invasive weed control that are anticipated to return areas to more normal fire cycles would also indirectly benefit Ute ladies'-tresses by maintaining or improving habitat condition for pollinator species over time.

Using the restrictions focused on Ute ladies'-tresses, restoration/fuels reduction treatments under the Proposed Plan Amendment would either have "No Effect" or effects would be discountable, insignificant, or completely beneficial to this plant species. Restrictions would avoid adverse affects by prohibiting activities such as ground disturbing activities on Ute ladies'-tresses sites and avoiding aerial chemical applications within 0.5 miles of occupied Ute ladies'-tresses sites.

Restoration treatments such as noxious and invasive weed control, revegetation, and return to more normal fire cycles would directly and indirectly benefit the Ute ladies'-tresses.

8.2 BIRDS

8.2.1 Bald Eagles

Bald eagle habitat in the planning area is confined largely to riparian habitat. Riparian areas in the planning area would be treated incidentally under the Proposed Plan Amendment as part of the treatment of adjacent vegetation types. These treatments have the potential to contribute indirectly to sedimentation to these riparian areas through both wind-born and water-born soil temporarily exposed by the treatment. However, it is anticipated that the 300-foot buffer that would required around riparian areas would largely prevent significant sedimentation to these riparian areas. It is unlikely that treatments would have any direct short-term negative effect on bald eagle habitat. Additionally, it is not anticipated that areas with bald eagle habitat would be treated, unless site-specific information indicated that small-scale treatments would maintain a seral community beneficial to Bald Eagles. The Proposed Plan Amendment would result in a long-term FRCC of 1 in this cover type, accordingly, they would all result in low risk to key ecosystem components supporting this species. This FRCC is identical to that occurring under existing conditions.

Direct Effects

Natural recovery of vegetation would have no adverse affects on the bald eagle.

Disturbance to eagles during nesting and roosting may decrease reproductive success; thus, any activity that displaces eagles during these times is a concern. While it is unlikely that eagles would use habitat burned to the extent that treatments would be necessary, nesting or roosting could occur in adjacent unburned habitat. Noise generating activities such as aerial overflights or motorized vehicle activities may disrupt breeding, nesting, or feeding behavior, and could cause nest abandonment. The Proposed Plan Amendment provides restrictions to avoid adverse impacts to bald eagles during nesting periods (February 1 through July 31) within 0.5 miles of nest locations. In addition, site specific projects within 0.5 miles of bald eagle wintering sites between November 1 and March 1 will be designed so that adverse impacts to wintering bald eagles due to disturbance would be avoided.

Habitat modification in the vicinity of bald eagle nest or winter roosting sites may also adversely impact bald eagle through loss of vegetation associated with a nest or roost site or other habitat components necessary for bald eagle prey populations. Proposed treatments would be implemented such that no adverse impacts to bald eagle would occur, including impacts to nesting and roosting habitat or prey populations. Mechanical seedbed preparation and seed covering, broadcast seeding with motorized vehicles, construction of fuel breaks, fence construction or reconstruction, off-road vehicle traffic, and aerial seeding and/or herbicide applications would have no adverse impacts on bald eagle. Ground disturbing activities and motorized vehicle use would be designed to avoid impacts from disturbance or habitat modification to occupied bald eagle nesting and roosting sites. Repair and replacement of minor facilities for public health and safety, and cultural site protection and stabilization would also incorporate restrictions for minimizing disturbance and habitat modification, resulting in no short or long term adverse effects to bald eagle.

Fire suppression activities within Bald eagle nesting and rearing habitat, including the application of retardant and foam, construction of fire line, and the use of aviation resources would be mitigated through the use of restrictive measures (i.e. 300 foot buffer zones) and the use of resource advisors to indicate where bald eagle closures remain in effect. These measures would effectively restrict helicopter operations away from known bald eagle nesting, rearing and foraging sites. However, a drift component may be an indirect result from the application of retardant or fire suppressing foam. Current studies indicate that the Relative Toxicity from an inadvertent application or drift of retardant and foam will not adversely affect eagles, and that these products are not harmful to the species (Labat-Anderson, 1996). Given the locations of bald eagle habitats, emergency suppression actions to protect life and property, which would preclude implementation of mitigation measures designed to protect bald eagles, are highly unlikely.

Therefore a may affect, not likely to adversely affect bald eagles determination is applied.

Interrelated and Interdependent Effects

No interrelated or interdependent effects to the bald eagle have been identified for the Proposed Plan Amendment.

Indirect Effects

Chemical treatments such as the application of herbicides could impact reproductive success of individual bald eagles or local prey populations over time. Impacts of DDT use on bald eagle reproduction have been well documented; however, use of chemicals with similar adverse effects in the vicinity of listed species such as bald eagle would not occur. Site specific treatments such as chemical weed control would be designed so potential impacts would be so small as to be not meaningfully measured, detected, or analyzed, or would be extremely unlikely to occur. Herbicide treatments implemented with the restrictions to protect water quality and special status aquatic species would also avoid adverse impacts on bald eagle prey availability while promoting native plant recovery.

Habitat modification in the vicinity of bald eagle nest or winter roosting sites may also adversely impact bald eagle by increasing future potential disturbance associated with increased recreational activities or improved access into the area. Proposed treatments would be implemented such that no adverse impacts to bald eagle nesting and roosting habitat would occur.

Over the long-term, proposed treatments implemented with restrictions to conserve bald eagles would accelerate soil stabilization and recovery of native vegetation, especially riparian trees such as cottonwoods, relative to natural recovery. Hand planting and seed covering, construction of hillslope and in-channel erosions control structures, non-aerial chemical weed treatment applications with riparian habitat restrictions, mechanical weed treatment, protective fencing, road closures, and livestock and wild horse management to allow for rest of treatment areas from grazing are anticipated to have long-term benefits to bald eagle as soil stabilization and revegetation would contribute to improved habitat condition for both bald eagles and their prey species over time. In addition, reestablishment of cottonwood trees in burned riparian areas would contribute to the replacement or enhancement of potential bald eagle habitat, benefiting

the species. The recovery of native, riparian vegetation would also contribute to the re-establishment of roosting and nesting habitat for this species, and reduce the risk of post-wildland fire flooding and landslides that could impact the availability of riparian habitat and associated prey species.

The Proposed Plan Amendment is also expected to contribute to the return of a more natural fire cycle over time, which would assist in the conservation of bald eagle by reducing future habitat loss and fragmentation due to catastrophic wildland fire. The restoration treatments such as noxious and invasive weed control and revegetation that are anticipated to return areas to more normal fire cycles would also indirectly benefit bald eagle by maintaining or improving habitat condition for prey species over time.

Using the restrictions specified for the bald eagle and riparian and aquatic habitats, the Proposed Plan Amendment would either have "No Effect" or effects would be discountable, insignificant, or completely beneficial to bald eagle. Restrictions would avoid adverse affects such as habitat alteration, noise disturbance, and impacts to prey species associated with proposed activities within 0.5 miles of occupied bald eagle nesting or winter roosting sites during use periods. Potential impacts to bald eagle are also limited by the relatively low number of potential bald eagle nesting and known bald eagle roosting sites on the USRD.

8.2.2 Western Yellow-billed Cuckoo

Yellow-billed cuckoo habitat in the planning area is confined largely to riparian habitat. As stated previously, Riparian areas in the planning area would be treated incidentally under the Proposed Plan Amendment as part of the treatment of adjacent vegetation types. These treatments have the potential to contribute to indirect sedimentation to these riparian areas through both wind-born and water-born soil temporarily exposed by the treatment. However, it is anticipated that the 300-foot buffer that would required around riparian areas would largely prevent significant sedimentation to these riparian areas. It is unlikely that treatments would have any direct short-term negative effect on yellow-billed cuckoo habitat. Additionally, it is not anticipated that areas with yellow-billed cuckoo habitat would be treated, unless site-specific information indicated that small-scale treatments would maintain a seral community beneficial to the taxa. The Proposed Plan Amendment would result in a long-term FRCC of 1 in this cover type, accordingly, they would all result in low risk to key ecosystem components supporting this species. This FRCC is identical to that occurring under existing conditions.

Direct Effects

Natural recovery of vegetation would have no adverse affect on the yellow-billed cuckoo.

Disturbance to yellow-billed cuckoo during nesting may decrease reproductive success; thus, any activity that displaces yellow-billed cuckoo during this time is a concern. While it is unlikely that yellow-billed cuckoo would use habitat burned to the extent that treatments would be necessary, nesting could occur in adjacent unburned habitat. Noise generating activities such as motorized vehicle activities may disrupt breeding, nesting, or feeding behavior, and could cause nest abandonment. The Proposed Plan Amendment provides restrictions to avoid adverse impacts to yellow-billed cuckoo due to disturbance during nesting periods near nest locations.

Habitat modification in the vicinity of yellow-billed cuckoo nest sites may also adversely impact yellow-billed cuckoo through loss of vegetation associated with a nest site or habitat components necessary for prey populations. Proposed treatments would be implemented such that no adverse impacts to yellow-billed cuckoo would occur, including impacts to nesting habitat or prey populations. Mechanical seedbed preparation and seed covering, broadcast seeding with motorized vehicles, construction of fuel breaks, fence construction or reconstruction, off-road vehicle traffic, and aerial seeding and/or herbicide applications would be designed to have no adverse impacts on yellow-billed cuckoo. Ground disturbing activities and motorized vehicle use would be designed to avoid impacts from disturbance or habitat modification to occupied yellow-billed cuckoo nesting sites. Repair and replacement of minor facilities for public health and safety, and cultural site protection and stabilization would also incorporate restrictions for minimizing disturbance and habitat modification, resulting in no short or long term adverse effects to yellow-billed cuckoo.

Chemical treatments such as the application of herbicides could impact reproductive success of individual yellow-billed cuckoo or local prey populations over time. Chemical weed treatments near occupied yellow-billed cuckoo habitat would be designed so that potential impacts to food resources and cover would be avoided.

Treatments would incorporate the restrictions for minimal disturbance near occupied yellow billed-cuckoo habitat and are not likely to adversely impact the yellow-billed cuckoo. Treatments include seedbed preparation, planting and seed covering, hillslope and in-channel erosion control structures, chemical weed treatments, mechanical weed treatments, protective fencing, road closures, livestock and wild horse management, and rest of treatment areas from grazing within riparian habitats. Repair and replacement of minor facilities for public health and safety, and cultural site protection and stabilization would also be designed to result in no adverse impact to the yellow-billed cuckoo.

Fire suppression activities within yellow-billed cuckoo nesting and rearing habitat, including the application of retardant and foam, construction of fire line, and the use of aviation resources would be mitigated through the use of restrictive measures (i.e. 300 foot buffer zones) and the use of resource advisors to indicate where yellow-billed cuckoo crucial habitat exists. These measures would effectively restrict helicopter operations away from known yellow-billed cuckoo nesting, rearing and foraging sites. However, a drift component may be an indirect result from the application of retardant or fire suppressing foam. Current studies indicate that the Relative Toxicity from an inadvertent application or drift of retardant and foam will not adversely affect yellow-billed cuckoo's, and that these products are not harmful to the species (Labat-Anderson, 1996). Given the locations of yellow-billed cuckoo habitats, emergency suppression actions to protect life and property, which would preclude implementation of mitigation measures designed to protect yellow-billed cuckoos, are highly unlikely.

Therefore a may affect, not likely to adversely affect yellow-billed cuckoo determination is applied.

Interrelated and Interdependent Effects

No interrelated or interdependent effects to the yellow-billed cuckoo have been identified for the Proposed Plan Amendment.

Indirect Effects

Habitat modification in the vicinity of yellow-billed cuckoo nest sites may also adversely impact yellow-billed cuckoo by increasing future potential disturbance associated with increased recreational activities or improved access into a breeding/nesting area. Proposed treatments would be implemented such that no adverse impacts to yellow-billed cuckoo nesting habitat would occur.

Over the long-term, proposed treatments implemented with restrictions would accelerate soil stabilization and recovery of native vegetation, especially riparian trees such as cottonwoods and willows relative to natural recovery. The recovery of native riparian vegetation would benefit the yellow-billed cuckoo by re-establishing vegetation for insect food sources and nesting habitat for yellow-billed cuckoo, and reducing the risk of post-wildland fire invasion by noxious weeds, flooding and landslides that could degrade riparian habitat.

Using the restrictions specified for the yellow-billed cuckoo and riparian and aquatic habitats, the Proposed Plan Amendment would not be likely to adversely impact the yellow-billed cuckoo. Restrictions would avoid adverse impacts such as habitat alteration, noise disturbance, and impacts to prey species associated with proposed activities near yellow-billed cuckoo nesting sites during use periods. Potential impacts to yellow-billed cuckoo from treatments are also limited by the relatively low amount of suitable yellow-billed cuckoo nesting habitat located on the Shoshone and Burley FO areas. Areas of extensive cottonwood riparian forest within the BLM administered lands within the Shoshone and Burley FO areas are limited. Information regarding populations within Idaho indicates this species is extremely rare, and the breeding population is likely limited to a few breeding pairs, at most.

8.3 MAMMALS

8.3.1 Grizzly Bear

Short-term impacts from RxFire and WFU in the Wet Conifer, Aspen/Conifer and Dry Conifer vegetation types that constitute the available grizzly bear habitat in the planning area are largely dependant on the intensity and extent of the fire. Low-intensity fires in these cover types typically improve grizzly habitat both spatially and temporally by clearing underbrush and encouraging the sprouting of new vegetation, particularly elderberry, serviceberry, and huckleberry. Higher-intensity fires in these cover types typically improve wildlife habitat by creating clearings and movement corridors. Grizzly bears have been shown to respond well to fire due to the increased availability of forage (USFS 2003). The potential for individual mortality of grizzly in the planning area in negligible because 1) there have been no confirmed sightings of grizzly in the planning area; 2) vegetation treatments would be managed to avoid large catastrophic fires that are more likely to result in individual mortality; and 3) there are no treatments planned in secure grizzly habitat (i.e., known grizzly habitat more than 500 meters from the nearest road).

The planning area would provide the closest match to DFC with early seral stages ranging from 22 to 30 percent of total habitat, mid-seral stages at 17 percent, and late seral stages ranging from 53 to 71 percent, with these late seral stages typically including decadent aspen stands and older conifer stands with high-fuel loading. The relatively high proportion of early seral stages would provide openings in the forest canopy that would lead to increased production of new forage vegetation for grizzly bears. FRCC for the Proposed Plan Amendment would range from 2 to 3, which indicates a moderate risk to key ecosystem components from high intensity large fires. This FRCC is virtually identical to the existing conditions in this habitat.

Direct Effects

Disturbance to bears may decrease reproductive success; thus, any activity that displaces bears, particularly females, is a concern. While it is unlikely that bears would use habitat burned to the extent that treatments would be necessary, forage, reproduction, and denning may occur in adjacent unburned habitat. A primary concern for grizzly bear populations is the construction of new trails and roads into previously inaccessible areas for timbering practices and trail construction, resulting in increased livestock-bear conflicts, human-bear conflicts, and illegal poaching. Because the rehabilitation and restoration activities do not include construction of new roads or trails, no adverse short or long term impacts would result on grizzly bears.

Fire suppression activities within Grizzly Bear habitat, including the application of retardant and foam, construction of fire line and the use of aviation resources to suppress wildfires, would be mitigated through the use of restrictive measures (e.g. buffer zones, etc.) and the use of resource advisors to indicate where grizzly bear habitat exists to allow avoidance of the secure habitat. Helicopter operations would be limited to established buffer zones to reduce direct impacts and to reduce any form of displacement potential due to helicopter operations. Although the direct placement of retardant or foam within the limited number of grizzly bear habitat acres is remote, the placement of retardant or foam and the possibility of drift of retardant may occur to protect occupied or designated critical habitat. Current studies indicate that Relative Toxicity from the application of retardant or foam will not adversely affect grizzly bears or their dependent habitat, and that those products are not harmful to the species (Labat-Anderson, 1996). On BLM administered lands outside of secure habitat, there is likely to be no adverse affect on grizzly bears since aerial drops of foam and ground spraying of retardants are highly unlikely to occur on the widely scattered parcels comprised of open bottom and meadows lands surrounding Henry's Lake.

Therefore a may affect, not likely to adversely affect grizzly bear determination is applied.

Interrelated and Interdependent Effects

No interrelated or interdependent effects to the grizzly bear have been identified for the Proposed Plan Amendment.

Indirect Effects

The short and long term results of treatments (i.e., noxious and invasive weed control, revegetation of burned areas, and return to more normal fire cycles) that benefit grizzly bear forage species would indirectly benefit the grizzly bear over time.

Using the restrictions specified, activities would either have "No Effect" or be discountable, insignificant, or completely beneficial for grizzly bears. The proposed treatments would not directly affect grizzly bears. This species is found primarily in contiguous, relatively undisturbed mountainous habitats that have a high level of topographic and vegetative diversity rather than in burned areas where rehabilitation activities would occur. The design criteria for not constructing new roads or trails, minimizing activities that attract bears to roads or human facilities, and avoiding lengthy work in BMU riparian areas would all eliminate any potentially adverse impacts.

Treatments such as noxious and invasive weed control, revegetation, and a return to more normal fire cycles that benefit forage species would directly benefit the grizzly.

8.3.2 Gray Wolf

The effect of fire management activities on gray wolf would largely be identical to the effect on their preferred ungulate prey items; moose, elk and deer. Short-term impacts from RxFire and WFU in the Wet/Cold Conifer, Dry Conifer, and Aspen vegetation are largely dependant on the intensity and extent of the fire. Low-intensity fires in these cover types typically improve wildlife habitat both spatially and temporally by clearing underbrush and encouraging the sprouting of new vegetation. Higher-intensity fires in these cover types typically improve wildlife habitat by creating clearings and movement corridors. Many wildlife species including elk and moose have been shown to benefit from the maintenance of small clearings and regeneration of forage vegetation following fires in the Aspen/Conifer cover types (Hansen et al. 1973, Kramp et al. 1983). However, indirect impacts associated with vegetation management activities may include disturbance from increased traffic and noise from mechanical equipment, which may cause short-term displacement of wildlife from the treatment area.

The Proposed Plan Amendment provides positive benefits to wildlife species inhabiting Conifer, Aspen and sagebrush steppe cover types as it provides the closest match to DFC with early seral stages ranging from 22 to 30 percent of total habitat, mid-seral stages at 17 percent, and late seral stages ranging from 53 to 71 percent. In general, these early to mid-seral stages provide browse for the ungulate prey that wolf use, particularly in the winter months. Frequent fire management activities that promote ungulate browse provide ideal gray wolf habitat. FRCC for the Proposed Plan Amendment would range from 2 to 3, which indicates a moderate risk to key ecosystem components from high intensity large fires. This FRCC is virtually identical to the existing conditions in this habitat.

Direct Effects

The proposed treatments would not directly affect the highly mobile gray wolf. Wolves are most vulnerable to disturbance while denning and rearing pups and noise generating activities in the vicinity of wolf denning or rearing locations could impact the reproductive success of individual wolves. While it is unlikely that wolves would den within habitat so severely burned that treatments would be necessary, denning could occur in adjacent unburned habitat. The design criteria for avoidance of activities near an active wolf den or rendezvous site would eliminate any potentially adverse impacts from direct physical impacts or noise disturbance.

Implementation of proposed activities is also not anticipated to negatively impact wolf prey (*e.g*. large ungulates such as elk and deer) availability.

Therefore a not likely to jeopardize the continued existence of the gray wolf population determination is applied.

Interrelated and Interdependent Effects

No interrelated or interdependent effects to the gray wolf have been identified for the Proposed Plan Amendment.

Indirect Effects

The short and long term results of treatments (i.e., noxious and invasive weed control, revegetation of burned areas, and return to more normal fire cycles) that benefit wolf prey species would indirectly benefit the gray wolf over time.

Implementation of activities will not compromise the recovery and de-listing of the species, and will have no adverse short or long-term impacts on wolf prey availability. Activities may benefit the wolf by increasing prey availability over the long term through habitat restoration efforts. The design criteria to limit noise disturbance near an active wolf den or rendezvous site would avoid potentially adverse impacts to wolf reproduction and recovery.

8.4 AQUATIC SPECIES

8.4.1 Bull Trout

Riparian areas in the planning area would be treated incidentally under the Proposed Plan Amendment as part of the treatment of adjacent vegetation types. These treatments have the potential to contribute to indirect sedimentation to these riparian areas through both wind-born and water-born soil temporarily exposed by the treatment. However, it is anticipated that the 300-foot buffer that would required around riparian areas would largely prevent significant sedimentation to these riparian areas. It is unlikely that treatments would have any direct short-term negative effect on habitat quality for the bull trout. It is not anticipated that areas supporting bull trout habitat would treated, unless site-specific information indicates that small-scale vegetation treatments could be used to maintain a seral community and be beneficial to the taxa. The Proposed Plan Amendment would result in a long-term FRCC of 1 in this cover type, accordingly, they would all result in low risk to key ecosystem components supporting this species. This FRCC is identical to that occurring under existing conditions.

Direct Effects:

Non assisted recovery of native vegetation would have no adverse impact on the bull trout.

Treatments such as armoring or repair or replacement of bridges or culverts that include operation of equipment or other activities within the Little Lost sub-basin or occupied habitats may directly injure or kill bull trout. Because in-stream activities will not occur in the Little Lost sub-basin or associated habitats, no direct effects to bull trout would result.

Treatments such as mechanical seedbed preparation and seed covering, broadcast seeding using motorized vehicles, construction of fuel breaks, fence construction or reconstruction, off-road vehicle traffic, and aerial seeding, or aerial herbicide applications would be designed to have no adverse effect on bull trout. Adverse impacts from ground disturbing activities, herbicide applications, and motorized vehicles use would be avoided within riparian habitats and adjacent upland areas that may influence riparian areas that contain or are upstream of bull trout. Specific streamside, wetland, and riparian herbicide restrictions would avoid impacts of aerial and ground-based chemical weed control on aquatic special status species such as bull trout. No aerial herbicide applications would occur within 0.5 miles of occupied habitats. Water quality will be further protected by use of seed mixtures that do not contain added chemicals such as fertilizer and avoidance of hydro-mulch use in riparian areas that contain or are bull trout habitat. Restrictions for fences would avoid impacts to riparian areas due to livestock or wild horse use, retaining stream bank stability and existing riparian vegetation. Riparian restrictions limiting use of off road vehicles or other equipment in live water to designated crossings and work areas would further avoid the potential for impacts to water quality.

Fire suppression activities within bull trout habitat, including the application of retardant or foam, construction of fire line and the use of aviation resources (helicopters with buckets and tanks) would be limited to non-existent through the implementation of restrictive measures (e.g. 300 foot buffer zones, etc.) and the use of resource advisors indicating where occupied or designated critical habitat exists. These measures would effectively restrict helicopter and engine operations away from occupied or designated critical habitat. The potential exists that a fixed wing drift component, from the application of retardant or foam, could indirectly affect bull trout by drifting into the riparian corridor. Current studies indicate that the Relative Toxicity from inadvertent application of these products would be slightly toxic to the species throughout their early life cycle (i.e. trout egg through 60 day growth stage), with affects decreasing into the adult stage (Labat-Anderson, 1996). Foams are considered to be slightly more toxic than long term retardants. Given the locations of bull trout habitats, emergency suppression actions to protect life and property, which would preclude implementation of mitigation measures designed to protect bull trout, are highly unlikely.

Therefore a may affect, not likely to adversely affect bull trout determination is applied.

Interrelated and Interdependent Effects

No interrelated or interdependent effects to bull trout have been identified for the Proposed Plan Amendment.

Indirect Effects

Bull trout may be impacted by a reduction in water quality and/or increase in water temperature due to the introduction of chemicals or sediment into aquatic systems from upstream riparian areas or adjacent upland areas. Adverse impacts to bull trout associated with mechanical seedbed preparation and seed covering, broadcast seeding using motorized vehicles, construction of fuel breaks, fence construction or reconstruction, off-road vehicle traffic, and aerial seeding, or aerial herbicide applications would be avoided by using project wide and site specific restrictions to avoid adverse impacts.

Bull trout would benefit from re-establishment of native riparian plant species such as sedges, rushes, cottonwood, and willow. The recovery of native riparian vegetation would assist in the maintenance of and/or improvement in water quality for bull trout and its occupied or designated critical habitat by maintaining bank stability, reducing sediment loads, maintaining low water temperatures, and diminish the risk of post-wildland fire floods and landslides that could degrade water quality and aquatic habitat.

Over both the short and long-term, proposed treatments with restriction for aquatic animals and riparian habitats would accelerate soil stabilization and recovery of native vegetation, especially native riparian vegetation such as rushes, sedges, cottonwoods, and willows. Treatments that reduce erosion and sediment transport, maintain natural hydrologic cycles, and rehabilitate riparian vegetative cover would: 1) protect water quality (*e.g.* temperature and sediment), 2) maintain channel morphology (*e.g.* dimensions and sediment budget), and 3) protect habitat for all aquatic species, including bull trout.

The Proposed Plan Amendment is also expected to contribute to a return to more natural fire cycles over time, which would assist in the conservation of bull trout by reducing future sedimentation and associated habitat loss as a result of catastrophic wildfire within watersheds and riparian areas upstream of the Snake River.

Using the restrictions specified for the aquatic animals and riparian and aquatic habitats, the Proposed Plan Amendment would either have "No Effect" or effects would be discountable, insignificant, or completely beneficial to bull trout. Treatment restrictions would avoid adverse effects from changes in water quality and temperatures due to introduction of sediments or chemicals into aquatic systems. Adverse impacts to bull trout associated with restoration treatments such as mechanical seedbed preparation and seed covering, broadcast seeding using motorized vehicles, construction of fuel breaks, fence construction or reconstruction, off-road vehicle traffic, and aerial seeding, or aerial herbicide applications would be avoided by using project wide and site specific restrictions to avoid adverse impacts on trout, including INFISH guidelines.

8.4.2 Snake River Mollusk Species

Riparian and wetland areas in the planning area would be treated incidentally under the Proposed Plan Amendment as part of suppression efforts or restoration treatments of adjacent vegetation types. These activities have the potential to contribute to indirect sedimentation to these riparian areas through both wind-born and water-born soil temporarily exposed by the activities. However, it is anticipated that the 300-foot buffer that would be required around riparian areas under restoration treatments would largely prevent significant sedimentation to these riparian areas. It is unlikely that treatments would have any direct short-term negative effect on habitat quality for the Snake River mollusks. It is not anticipated that areas supporting Snake River mollusks habitats would be treated, unless site-specific information indicates that small-scale vegetation treatments could be used to maintain a seral community and be beneficial to the taxa. The Proposed Plan Amendment would result in a long-term improvement/maintenance of FRCC-1 in riparian areas, accordingly, they would all result in low risk to key ecosystem components supporting this species. This FRCC is identical to that occurring under existing conditions.

Factors that lead to further deterioration in water quality would likely lead to extirpation of listed Snake River mollusks. Factors that further degrade water quality include reduced stream flow as a result of water withdrawals for agriculture, warming due to impoundment, and increases in the concentration of nutrients, sediments, and other pollutants reaching the river. The Snake River is affected by runoff from feedlots and dairies, hatcheries, municipal sewage effluent sources, and other point and nonpoint discharges. Return of irrigation water into the Snake River also plays a major role in degrading water quality, introducing an estimated average of over 300,000 pounds of soil into the river daily (EPA 2002). In addition, commercial, state, and Federal fish culture facilities discharge wastewater into the Snake River and its tributaries. These factors coupled with periodic, drought-induced low flows, have contributed to reduced dissolved oxygen levels and increased plant growth and a general decline of cold-water, free-flowing river habitats in the Snake River.

Water quality in the alcove springs and tributary spring streams in the Hagerman Valley area have also been affected, though not as severely as the mainstem Snake River. The unique hydrogeology of the Hagerman area provides conditions for massive cold-water recharge from the Snake River Plain aquifer. However, several of these springs and spring tributaries have been diverted for hatchery use, which reduces or eliminates clean water recharge and contributes flows enriched with nutrients to the Snake River. At TNC's Preserve, colonies of Utah valvata and Bliss Rapids snail have recently declined or been eliminated at several sites. This decline is due to decreases in water quality primarily from agriculture and aquaculture wastewater originating outside of and flowing into the Preserve (Frest and Johannes 1992).

Another threat to the listed species is the competition with the New Zealand mudsnail (*Potamopyrgus antipodarum*) in the middle Snake River. The widely distributed and adaptable mudsnail is experiencing explosive growth in the Snake River and shows a wide range of tolerance for fluctuations in water level, velocity, temperature, and turbidity. Based on recent surveys, the mudsnail is not abundant in habitats utilized by the Banbury Springs limpet or the Utah valvata. However, the species does compete directly for resources with the Snake River physa, the Bliss Rapids snail, and Idaho springsnail in the mainstem Snake River.

Seven proposed hydroelectric projects, including two high-dam facilities, potentially threaten remaining free-flowing river reaches between C.J. Strike and American Falls Dam. Dam construction adversely affects aquatic species through direct habitat modification and impairment of the ability of the Snake River to assimilate point and nonpoint source pollution. Further hydroelectric development along the Snake River would inundate existing snail habitats through impoundment; reduce critical shallow shoreline habitats in tailwater areas due to stage level fluctuations; elevate water temperatures; reduce dissolved oxygen levels in impounded reaches; and further fragment remaining mainstem populations or colonies of the listed mollusks. Load-following threatens native aquatic species habitat when fluctuating flows through a powerhouse dewater aquatic habitats in shallow shoreline areas. With the exception of the Banbury Springs limpet and possibly the Snake River physa, these daily water fluctuations prevent snail species from occupying potentially favorable habitats.

Direct Effects

Natural recovery of vegetation would have no adverse impact on the Bliss Rapids snail, Utah valvata snail, Idaho springsnail, Snake River physa snail, or the Banbury Springs limpet.

Activities such as armoring or repair or replacement of bridges or culverts that include operation of equipment or other activities within the Snake River or occupied spring habitats may directly injure or kill Bliss Rapids snail, Idaho springsnail Utah valvata snail, or Banbury Springs limpet when they occur in shallow water. Snake River physa are found in deeper water and are less likely to be impacted by in-stream treatments**.** Neither suppression or restoration activities are anticipated to occur in the Snake River or associated spring habitats; therefore no direct effects to the listed snails from operations within water would occur.

Activities that may impact water quality such as treatments within upland or riparian habitats that introduce sediment, organic matter, or chemicals into aquatic systems may also adversely impact Snake River snails by increasing water temperatures, reducing dissolved oxygen levels, or exposing individual snails to toxins. The quality of water in these habitats has a direct effect on the survival of native aquatic species. Water temperature, dissolved oxygen concentrations, and turbidity are all critical components of water quality that affect the survival of the listed Snake River snails. These species require cool, clean, and well-oxygenated waters. They are relatively less tolerant of pollution and factors that cause oxygen depletion, siltation, or elevated water temperatures.

Treatments such as mechanical seedbed preparation and seed covering, broadcast seeding using motorized vehicles, construction of fuel breaks, fence construction or reconstruction, off-road vehicle traffic, and aerial seeding, or aerial herbicide applications would be designed to have no adverse effect on listed snails. Adverse impacts from ground disturbing activities, herbicide applications, and motorized vehicles use would be avoided within riparian habitats and adjacent upland areas that may influence riparian areas that contain or are upstream of listed Snake River snail species. Specific streamside, wetland, and riparian herbicide restrictions would avoid impacts of aerial and ground-based chemical weed control on aquatic special status species such as Snake River snails. No aerial herbicide applications would occur within 0.5 miles of the Snake River or occupied spring habitats. Water quality will be further protected by use of seed mixtures that do not contain added chemicals such as fertilizer and avoidance of hydro-mulch use in riparian areas that contain or are upstream of snail sites. Design features for fences would avoid impacts to riparian areas due to livestock or wild horse use, retaining streambank stability and existing riparian vegetation. Riparian restrictions limiting use of off road vehicles or other equipment in live water to designated crossings and work areas would further avoid the potential for impacts to water quality.

Fire suppression activities within Snake River Mollusk habitats, including the application of retardant and foam, construction of fire line and the use of aviation resources (helicopters with buckets or tanks) would be limited to non-existent through the implementation of restrictive measures (e.g. 300 foot buffer zones, etc.) and the use of resource advisors indicating where critical mollusk habitats exist. These measures would effectively restrict helicopter and engine operations away from occupied or designated critical habitats and avoid affecting the snails. Current studies indicate that the Relative Toxicity from an inadvertent application of these

products would be moderately toxic to these species, with foam having a slightly greater toxicity level than retardants (Labat-Anderson, 1996). However, given the 300 ft. buffer and the composition of retardant and foam, it is highly unlikely that these substances would mist or drift and enter the Snake River mollusks aquatic habitat. Habitats of snails are in springs or river channels with snails occurring in or on mud, gravel and boulder-sized substrate. No direct exposure to foam or retardant is expected. Additionally, it is expected the average volume of water flow within these species known habitats would sufficiently dilute the toxicity levels and avoid affects on these populations. Given the locations of Snake River snail habitats, emergency suppression actions to protect life and property, which would preclude implementation of mitigation measures designed to protect Snake River snails, are highly unlikely. No adverse affects on Snake River snails are expected.

Therefore a may affect, not likely to adversely affect Snake River snails determination is applied.

Interrelated and Interdependent Effects

No interrelated or interdependent effects to the Bliss Rapids snail, Snake River physa snail, Idaho springsnail, Utah valvata snail, or Banbury Springs limpet have been identified for the proposed plan amendment.

Indirect Effects

Listed Snake River snails may be impacted by a reduction in water quality due to the gradual introduction of chemicals or sediment into aquatic systems from upstream riparian areas or adjacent upland areas. Adverse impacts to listed Snake River snails associated with treatments such as mechanical seedbed preparation and seed covering, broadcast seeding using motorized vehicles, construction of fuel breaks, fence construction or reconstruction, off-road vehicle traffic, and aerial seeding, or aerial herbicide applications would be avoided by using project wide and site specific restrictions to avoid adverse impacts on snails.

Listed Snake River snails would benefit from re-establishment of native riparian plant species such as sedges, rushes, cottonwood, and willow. The recovery of native riparian vegetation would assist in the maintenance of and/or improvement in water quality for bull trout and its occupied or designated critical habitat by maintaining bank stability, reducing sediment loads, maintaining low water temperatures, and diminish the risk of post-wildland fire flooding and landslides that could degrade water quality and aquatic habitat.

Over both the short and long-term, proposed treatments with design features for aquatic animals and riparian habitats would accelerate soil stabilization and recovery of native vegetation, especially native riparian vegetation such as rushes, sedges, cottonwoods, and willows. Treatments that reduce erosion and sediment transport, maintain natural hydrologic cycles, and rehabilitate riparian vegetative cover would: 1) protect water quality (*e.g.* temperature and sediment), 2) maintain channel morphology (*e.g.* dimensions and sediment budget), and 3) protect habitat for all aquatic species, including listed Snake River snails.

The recovery of native riparian vegetation would assist in the maintenance of and/or improvement in water quality for listed Snake River snail species by maintaining bank stability,

reducing sediment loads, maintaining low water temperatures, and diminish the risk of post-wildland fire flooding and landslides that could degrade water quality and aquatic habitat.

The Proposed Plan Amendment is also expected to contribute to a return to more natural fire cycles over time, which would assist in the conservation of listed Snake River snail species by reducing future sedimentation and associated habitat loss as a result of catastrophic wildfire within watersheds and riparian areas upstream of the Snake River.

Using the restrictions specified for the aquatic animals and riparian and aquatic habitats, the Proposed Plan Amendment would either have "No Effect" or effects would be discountable, insignificant, or completely beneficial to listed Snake River snail species. Treatment restrictions would avoid adverse effects from decreased water quality due to introduction of sediments or chemicals into aquatic systems. Adverse impacts to listed Snake River snails associated with treatments such as mechanical seedbed preparation and seed covering, broadcast seeding using motorized vehicles, construction of fuel breaks, fence construction or reconstruction, off-road vehicle traffic, and aerial seeding, or aerial herbicide applications would be avoided by using project wide and site specific design features to avoid adverse impacts on snails.

8.4.3 Columbia Spotted Frog

Riparian areas in the planning area would be treated incidentally under the Proposed Plan Amendment as part of suppression in riparian areas or restoration activities to the adjacent vegetation types. These activities have the potential to contribute to indirect sedimentation to these riparian areas through both wind-born and water-born soil temporarily exposed by the treatment. However, it is anticipated that the 300-foot buffer that would required around riparian areas would largely prevent significant sedimentation to these riparian areas. It is unlikely that treatments would have any direct short-term negative effect on habitat quality for the Columbia spotted frog. Although care would be taken in treatments in and around riparian areas, these species could still be impacted by treatments in upland areas bordering riparian areas. Vegetation treatments could remove vegetation in upland areas near riparian habitat, increasing the potential for sedimentation to streams and wetland areas supporting habitat for these species. The use of chemical treatments, in particular, has the potential to impact boreal toad and leopard frogs. However, excluding vegetation treatments within the 300-foot buffer zones around riparian areas, combined with prompt rehabilitation or restoration would minimize short-term adverse impacts to these species from fire management activities.

It is not anticipated that areas supporting Columbia spotted frog would treated, unless site-specific information indicates that small-scale vegetation treatments could be used to maintain a seral community and be beneficial to the taxa. The Proposed Plan Amendment would maintain long-term FRCC of 1 in this cover type, accordingly, they would all result in low risk to key ecosystem components supporting this species. This FRCC is identical to that occurring under existing conditions.

Fire suppression activities within Columbia Spotted Frog habitat, including the application of retardant or foam, construction of fire line and the use of aviation resources (helicopters with buckets or tanks) would be limited to non-existent through the implementation of restrictive measures (e.g. 300 foot buffer zones, etc.) and the use of resource advisors indicating where

occupied or designated critical habitat exists. These measures would effectively restrict helicopter and engine operations away from occupied or designated critical habitat. The potential exists that a fixed wing drift component, from the application of retardant or foam, could indirectly affect Columbia Spotted Frogs by drifting into the riparian corridor. Current studies indicate the Relative Toxicity from an inadvertent application of these products would be considered slightly toxic to this species, but have no long term effects (Labat-Anderson, 1996). Additionally, it is expected the average volume of flow within this species known habitat would sufficiently dilute the toxicity levels to only slight affect this species with no long term effects.

Therefore a may affect, not likely to adversely affect the Columbia spotted-frog determination is applied.

9.0 CUMULATIVE EFFECTS OF STATE AND PRIVATE ACTIONS IN THE PLANNING AREA

All actions authorized by the federal government must comply with the ESA of 1973, as amended. The ESA defines cumulative effects (50 CFR 402.2) as the additive effects of state and private activities that are reasonably certain to occur in the watershed where the Federal action occurs. For the purpose of this report, cumulative effects include impacts to federally listed species associated with past, present, and reasonably foreseeable future actions near or within the proposed planning area.

In general, past and existing water diversions for agricultural use, hydroelectric dams, reservoir construction, and agricultural runoff have had and will continue to have a much greater cumulative impact on aquatic special status species than the Proposed Plan Amendment. Similarly, state and private activities, including grazing, motorized recreational use, and agricultural practices will likely continue to impact sagebrush steppe habitat and the special status species that inhabit it. Private land within the planning area is usually concentrated around towns such as of Pocatello, Preston, Soda Springs, Twin Falls, Shoshone, and Idaho Falls. Private land in the uplands will likely continue to be developed for housing, grazing operations, and agricultural use. Development of private land could result in the loss of riparian, river valley, and upland habitats that support special status species. Private land could also be explored and/or developed for their mineral resources, including phosphate. Exploration for and development of these resources could affect the special status species that occur in the area. Finally, locatable and saleable minerals operations (e.g. sand and gravel mining) on private land could contribute to cumulative effects on special status species.

Special status wildlife species associated with the planning area regularly traverse lands managed by state agencies as well as private lands. To ensure the continued viability of the these special status species, efforts must be made between these groups to coordinate land use. There are several planning efforts for these lands currently underway which may, in conjunction with this planning effort, affect the special status species associated with the planning area. These plans include Idaho Statewide Implementation Strategy for the National Fire Plan, the State of Idaho Yellowstone Grizzly Bear Management Plan, and the State of Idaho Bull Trout Conservation Plan. Additionally, several counties in the planning area are developing Risk Assessments and fire management plans to address concerns in the Wildland Urban Interface (WUI). In general,

these state planning efforts are likely to contribute positively to the long-term population viability of special status species in the planning area.

9.1 PLANTS

All occurrences of Ute ladies'-tresses on the South Fork Snake River, except Lower Conant Valley, Upper Conant Valley and possibly Lower Swan Valley, are threatened by either localized human activities (e.g., recreation, inappropriately-timed cattle grazing) and/or noxious weed invasion. Conservation actions and compliance inspections taken by the BLM, Caribou Targhee National Forest (CTNF), and IDFG generally have been effective in minimizing, decreasing, and/or eliminating threats where possible. The types of threats to the Ute ladies'-tresses metapopulation have not changed much over time, and no new threats were observed in 2003. However, the magnitude of threats varies across occurrences and from year to year, even with conservation actions taken to avoid these threats (Murphy 2004). The primary conservation measure on private lands that protect Ute ladies'-tresses habitat consist of land and water conservation easements that limit development within the Snake River corridor.

No rehabilitation actions would be taken in Ute ladies'-tresses habitats, other than spot spraying of herbicides and hand pulling. Therefore, the proposed action would not cumulatively contribute to an increase in weeds, but would benefit Ute ladies-tresses by maintaining or improving habitat for pollinators.

9.2 MAMMALS

As wolf populations increase, additional wolves will disperse from other areas throughout the planning area. This dispersal will bring wolves into increasing contact with human population centers and activities such as domestic livestock grazing on state and private lands. Over the long term, human social pressures will most likely restrict the distribution of wolves to areas of limited human occupation and away from concentrated domestic livestock production. Human tolerance and lack of persecution will be needed to achieve long-term successful recovery. Both regulatory and educational efforts will be important parts of wolf conservation and management efforts.

As grizzly bear populations increase and/or bear-human interactions increase, bear mortality will likely also increase. Over the long term, human social pressures will most likely further restrict the distribution of bears to areas of limited human occupation and away from concentrated domestic livestock production. Proactive habitat management/conservation and lack of persecution will be needed to achieve long-term successful recovery of grizzly bears in Idaho. Both regulatory and educational efforts will be important parts of bear conservation and management efforts.

9.3 BIRDS

Bald eagle nesting and roosting areas occur on both federal and nonfederal land ownerships where large water bodies (lakes, reservoirs, and larger rivers) occur. Actions such as vegetation management, fish population regulation by state agencies, and reservoir level and river flow management by the Bureau of Reclamation, Idaho Power Company, other agencies, and

irrigators may have positive or negative effects on bald eagle habitat and populations. Also, some eagles that winter roost in the planning area spend their summers elsewhere. These summering areas may be on lands not administered by BLM, and may not be managed for the benefit of bald eagles. However, bald eagle populations continue to increase within most of the five recovery areas in the United States. Current BLM Zone 1 closures ensure minimal activities around nesting areas in the Upper Snake Field Office.

Yellow-billed cuckoos may nest and use areas on BLM and other land ownerships where extensive areas of cottonwood riparian forests occur. Most of this type of habitat in the western U.S. is in private ownership because of its desirability for agriculture production due to the presence of water and forage for livestock grazing. One of the best examples of this type of habitat is found downstream of Palisades Reservoir on the South Fork of the Snake River in South Eastern Idaho. Extensive areas of this type of habitat were likely lost during reservoir construction, which was commonplace in the western U.S. Additionally, actions such as vegetation management, livestock grazing, and reservoir level and river flow management (by the Bureau of Reclamation, Idaho Power, other agencies, and irrigators) can have positive or negative effects on yellow-billed cuckoo habitat.

Also, yellow-billed cuckoos that may nest on Shoshone and Burley FO administered lands spend their winters in Central and South America. These wintering areas may not be managed for the benefit of yellow-billed cuckoos.

9.4 AQUATIC SPECIES

Private lands used for irrigated agriculture and livestock grazing within the area will continue to have effects to riparian areas and stream flows. Impacts from past mining activity remain throughout portions of the sub-basin. Diversions on private and federal land that impact stream flows, and in some areas divert streams entirely, will remain a significant effect to aquatic and fisheries resource values in the Little Lost sub-basin. Stream diversions have not significantly reduced or eliminated bull trout migratory forms throughout much of its range. However, the use of ditches as water diversions often entrain bull trout, isolating them from the rest of the population in the stream, or traps them in the fields which ultimately kills individuals.

Operation of the Little Lost River Flood Control Project is the largest stream flow reduction impact on bull trout on the Little Lost River sub-basin. The lower 10.5 miles of the lower Little Lost River is dewatered in the winter. The annual loss of trout has not been estimated but it is likely that some adult bull trout are lost every winter when the diversions begin.

The free-flowing, cold-water environments required by the listed Snake River snail species have been affected by, and are vulnerable to, continued adverse habitat modification and deteriorating water quality from one or more of the following: hydroelectric development, load-following (the practice of artificially raising and lowering river levels to meet short-term electrical needs at local run-of-the-river hydroelectric projects), water pollution, inadequate regulatory mechanisms which have failed to provide protection to the habitat used by the listed species, and possible adverse affects from exotic species.

Ongoing activities on nonfederal lands that may impact listed Snake River snails include water diversion and discharge of irrigation return water into the Snake River associated with agricultural activities, and impacts to water quality associated with runoff from feedlots and dairies, hatcheries, municipal sewage effluent sources, and other point and nonpoint discharges. In addition, discharge of wastewater from commercial, state, and Federal fish culture facilities into the Snake River and its tributaries also may impact listed Snake River snails.

Hydroelectric facilities along the Snake River may impact listed Snake River snails by inundating snail habitats through impoundment; reducing critical shallow shoreline habitats in tailwater areas due to stage level fluctuations; elevating water temperatures; reducing dissolved oxygen levels in impounded reaches; and fragmenting mainstem populations or colonies of the listed snails. Load-following may also impact native aquatic snail habitat when fluctuating flows through a powerhouse dewater aquatic habitats in shallow shoreline areas.

Commercial or recreational activities on non-federal lands may also impact listed Snake River snails by contributing to the spread of the New Zealand mudsnail. Use of equipment or discharge of water that contains this invasive snail species may inadvertently introduce New Zealand mudsnail into reaches of the Snake River or its tributaries currently not inhabited by this exotic species.

10.0 OTHER CONSULTATIONS OF FEDERAL ACTION AGENCY IN THE PLANNING AREA TO DATE

Resource management plan level consultations are currently being developed by BLM for all proposed and listed species throughout Idaho. Consultation has also occurred or is pending on individual projects in relation to proposed and listed species.

BLM has completed Section 7 consultation with FWS regarding the Boise to Borah powerline for both bald eagle and listed Snake River snails. In 2000, Section 7 consultation was also completed for the Bell Mare ESR Project for listed Snake River snails. Section 7 consultation for listed Snake River snails in relation to ongoing livestock grazing allotment permits is currently being worked on by BLM.

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12.0 LIST OF CONTACTS/CONTRIBUTORS/PREPARERS

Contact:	**Affiliation:**
Jeff Gardetto	Bureau of Land Management
Karen Rice	Bureau of Land Management
W. Eric Limbach	Bureau of Land Management
Troy Smith	U. S. Fish and Wildlife Service
Deb Mignogno	U. S. Fish and Wildlife Service

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Eastern Idaho Field Office
4425 Burley Dr., Suite A
Chubbuck, Idaho 83202
Telephone (208) 237-6975
http://IdahoES.fws.gov

JUN 20 2006

Memorandum

To: Joe Kraayenbrink, District Manager, Idaho Falls District Office, Bureau of Land Management, 1405 Hollipark Drive, Idaho Falls, Idaho 83401

From: Deb Mignogno, Supervisor, Eastern Idaho Field Office, Fish and Wildlife Service, 4425 Burley Drive, Suite A, Chubbuck, Idaho 83202

Subject: Biological Assessment for Fire Fuels and Related Vegetation Management Direction Amendment (Memorandum 1610), Request for Concurrence
File #1004.0000 TAILS 2006-I-0736

This memorandum acknowledges the U.S. Fish and Wildlife Service's (Service) June 13, 2006 receipt of the Bureau of Land Management's (Bureau) June 12, 2006 memorandum and May 19, 2006 Biological Assessment (Assessment), requesting the Service to review the Assessment and concur with its findings. In the Assessment, the Bureau found that actions described in the Proposed Plan Amendment for the Fire Fuels and Related Vegetation Management Direction Amendment (FMDA) may affect, but are not likely to adversely affect the Ute ladies'-tresses (*Spiranthese diluvialis*), bald eagle (*Haliaeetus leucocephalus*), yellow-billed cuckoo (*Coccyzus americanus*), grizzly bear (*Ursus arctos*), bull trout (*Salvelinus confluentus*), Idaho springsnail (*Pyrgulopsis idahoensis*), Banbury Springs limpet (*Lanx spp.*), Snake River Physa snail (*Physa natricina*), Utah valvata snail (*Valvata utahensis*), and the Great Basin population of Columbia spotted frog (*Rana luteiventris*), and the proposed actions in the FMDA are not likely to jeopardize the continued existence of the gray wolf (*Canis lupus*). The Service's comments are provided in accordance with the provisions of section 7 of the Endangered Species Act of 1973 (Act), as amended.

The Service and the Bureau originally consulted on the proposed FMDA and, by memorandum dated October 14, 2005 (attached), the Service concurred by with the Bureau's finding that the proposed actions covered under the FMDA may affect, but are not likely to adverse affect the above species. Since that time, the BLM has slightly modified the proposed actions and now requests Service concurrence with its findings that the actions described in the revised proposed FMDA may affect, but are not likely to adversely affect the above species.

The FMDA emphasizes the conservation and restoration of sagebrush steppe by maintaining existing, high-quality sagebrush habitat and increasing the quantity of resilient sagebrush.

Additionally, FMDA activities aim to reduce the risk of stand-replacing fires in forested vegetation types by mimicking historical disturbance regimes and succession patterns through fire, mechanical and chemical treatments, and post-wildland fire rehabilitation and proactive restoration. Over a 10-year period, up to approximately 1,500,000 footprint-acres would be treated, assuming FMDA actions would not be limited by existing operations capabilities and resources. Restoration would be emphasized (approximately 90 percent of footprint-acres), and rehabilitation would be conducted as needed (approximately 10 percent of footprint-acres).

The goals and objectives for the FMDA include reducing risks to public and firefighter safety, dealing with impacts of invasive species on fire intervals and wildlife, reducing hazardous fuel loads at the wildland-urban interface, and decreasing the potential for repeated fires in the same areas. These goals and objectives provide direction for making progress toward maintaining wildland fire within the historical range of variability for areas within four Bureau Field Offices of the Idaho Falls and Twin Falls Districts.

FMDA activities associated with fire and non-fire vegetation treatments and wildland fire suppression all have the potential to affect each of the federally-listed species in the action area. However, the Bureau's determination that the proposed action may affect, but is not likely to adversely affect any of the listed species within the action area are based on the following measures that the Bureau will undertake to protect threatened, endangered and candidate species (TEC).

The Service concurs that effects to the above-listed species resulting from implementation of the proposed Plan Amendment are entirely beneficial, insignificant, or discountable. Service concurrence with the Bureau's determination that the proposed action may affect, but is not likely to adversely affect listed species is partially based on the measures the Bureau will implement to avoid adverse impacts to TEC, including:

<u>Wildland Fire Suppression TEC Protection Measures</u>

1. Firefighter and public safety are the first priorities in response to fire suppression. At no time will the activities described in the Assessment compromise firefighter and public safety.
2. The Bureau will coordinate annually with the Service to update species status in the planning area.
3. Field Managers will ensure resource staff initiates emergency consultation with the Service whenever suppression activities may impact listed species habitat; more specifically, during emergency suppression actions to protect life and property.
4. Control lines, base camps, support facilities and other suppression related facilities should not be established within:
    a. ½ mile of known bald eagle or yellow-billed cuckoo nests (February 1 – August 15),
    b. 1 mile of occupied gray wolf den sites (April 15 – June 30),
    c. 300 feet of occupied Ute ladies'-tresses habitat,
    d. 300 feet of all water bodies and springs occupied by TEC, and
    e. Secure habitat within designated grizzly bear management unit (BMU).

5. Follow Minimum Impact Suppression Techniques (MIST) guidelines in occupied TEC habitat, where appropriate (Appendix T in: Interagency Standards or Fire and Aviation Operations, 2005). MIST guidelines direct suppression techniques, procedures, tools, and equipment that least impact the environment. Water and wetlining (using water to soak/saturate fuels) are the preferred fireline construction tactic.
6. Field Managers will assign a Bureau Resource Advisor or other designated representative as per the current Red Book guidance.
    a. The Bureau will notify the Service, when appropriate, to discuss endangered and/or threatened species mitigation within the suppression area to assure conservation practices are being followed to avoid adverse effects.
    b. When Incident Management Teams are required, the Resource Advisor will brief the Incident Commander about conservation measures needed to avoid adverse effects.
7. Where grizzly bears may reasonably occur:
    a. The Bureau Resource Advisor will brief all fire crews on general operating procedures including proper bear safety, sanitation, and food storage.
    b. Incident Commanders, Fire Management Officers, and Scouts should be equipped with and trained to use bear deterrent spray.
    c. Garbage should be disposed of in bear-proof containers, when possible, and removed from camps daily, preferably in the evening.
8. No water-dipping by helicopters will occur within ½ mile of any occupied bald eagle nest.
9. Fuel storage, fuel trucks, and refueling activities will not occur within 300 feet of live waters containing TEC species. The current District Hazardous Material plan will be followed to ensure TEC and habitat will not be adversely affected in the event of a spill.
10. Dozer blading should not occur within 300 feet of perennial streams or their tributaries occupied by TEC.
11. Drafting equipment for pumps will be properly screened to prevent entrapment of listed fish species. Maximum screen mesh size shall be 3/32-inch diameter.
12. If chemical products will be injected into the system, water will not be pumped directly from streams. If chemicals are needed, water will be pumped from a portable tank or a backflow check valve will be used.
13. Application of retardant or foam (aerial or ground) will be avoided within 300 feet of perennial streams or their tributaries occupied by TEC pursuant to the current Red Book guidance.
14. To minimize spread of noxious weeks, equipment used for extended attack or Type I/II incidents should be cleaned before arriving on-site and prior to leaving the incident. Staging areas and fire camps will avoid sites with noxious weed infestations.

At the time of this consultation, the exact timing, site specific suppression methods, location, and size of future wildfires are unknown. In order to monitor the impacts of wildland fire suppression activities as part of the FMDA, the Level I team will meet immediately after the fire season to review a summary of fire suppression activities that may have occurred in or adjacent to TEC habitat. If the Level I team identifies fire suppression activities for which more information is needed to ascertain potential effects to the environmental baseline for a particular TEC, the Bureau will provide a report containing information identified by the Level I team to

the Service's Snake River Fish and Wildlife Office or the Eastern Idaho Field Office no later than December 31 for the preceding 12-month period. For example, the types of information that may be needed include:

- The location, timing, size, severity, and suppression activities used for each fire;
- Any mitigations used during fire suppression activities to avoid effects to TEC and habitat, any TEC or habitat affected, and the estimated extent of effects; and
- Results of post-fire reviews and monitoring.

Fire and Non-Fire Vegetation Treatment Restrictions TEC Protection Measures

1. Treatment activities may occur near or adjacent to TEC habitat and will be designed to minimize or mitigate impacts to TEC-occupied habitat so that the species or their habitats will not be adversely affected. All FMDA related fire and non-fire vegetation treatment activities in areas that may affect TEC would be conducted in consultation with the Service. Further, all such activities would be designed and implemented in such a manner that potential impacts to TEC from disturbance or habitat modification would be so small as to not be meaningfully measured, detected, and analyzed, or would be extremely unlikely to occur.
2. TEC with recovery plans, conservation agreements and conservation strategies will be protected as specified in their respective plans/agreement/strategies. These protections include such measures as adequate habitat and range for a given species, including mitigation measures for multiple land use activities authorized by the Bureau.
3. Herbicide applicators will obtain a weather forecast for the area prior to initiating a spraying project to ensure no extreme precipitation or wind events could occur during or immediately after spraying. Aerial application of herbicides will not occur during periods of inversion. Spraying will follow label instructions.
4. Fuels management and vegetation treatment activities would be conducted according to standards and guidelines in the Greater Yellowstone Bald Eagle Management Plan (Greater Yellowstone Bald Eagle Working Group 1996) or the Pacific Bald Eagle Recovery Plan (USFWS 1986). No vegetation treatment activities associated with the FMDA would occur within 0.5 mile radius of bald eagle nesting zones during February 1 – July 31. No activities associated with FMDA would occur within 0.5 mile (direct line of site) or 0.25 mile of winter bald eagle concentration sites during November 1 – March 1.
5. Riparian cottonwood forests with willow understories that may be impacted by fuels management and vegetation treatments would be surveyed for yellow-billed cuckoos prior to initiating project activities. When developing vegetation treatment projects, no ground-based application of herbicides would occur from May 1 – August 31 within 200 feet of occupied yellow-billed cuckoo habitat.
6. Aerial application of chemicals would not occur from May 1 – August 31 within 0.5 miles of occupied yellow-billed cuckoo habitat.
7. Fuels management and vegetation treatment areas within BMUs would be coordinated with U.S. Forest Service activities to comply with road density restrictions, number and juxtaposition of management activities within BMUs, as provided for in the Grizzly Bear Recovery Plan (USFWS 1993) or the Final Conservation Strategy for the Grizzly Bear in the Yellowstone Area (USFWS 2003) when it becomes effective.

8. When developing vegetation treatment projects, do not increase open and total motorized access routes or trail density within BMUs. When developing vegetation treatment projects within BMUs, the Bureau will coordinate with the Interagency Grizzly Bear Committee to develop/implement sanitation guidelines.
9. Gray wolf populations in the area have been designated as experimental/nonessential. Presence or absence of gray wolf dens or rendezvous sites in fuels management or vegetation treatment areas would be determined prior to initiating projects. In the event that active den or rendezvous sites are established within the planning area, vegetation treatments would be designed and implemented to minimize noise disturbance or habitat modifications within one mile of the den or rendezvous sites from April 15 – June 30.
10. Fuels management and vegetation treatments that may occur within the Little Lost River drainage would be conducted according to standards and guidelines developed for bull trout Riparian Habitat Conservation Areas on Bureau lands within the geographic range of bull trout (USFWS 1999, 2002).
11. No aerial application of herbicides within 0.5 miles of all water bodies and springs containing listed snails, Columbia spotted frog, and bull trout.
12. No ground-based applications of herbicides, surfactants, or adjuvants would occur within 100 feet of perennial streams or their live water tributaries occupied by listed snails, Columbia spotted frog, and bull trout.
13. No aerial application of other chemicals (e.g., fertilizers or hydro-mulch) within riparian habitats containing listed snails, Columbia spotted frog, and bull trout.
14. Dozer blading will not occur within 300 feet of streams that have habitat occupied by TEC.
15. Ground disturbing activities except for shrub and tree planting would not occur within 300 feet of all water bodies and springs containing listed snails, Columbia spotted frog, and bull trout.
16. Treatments will follow PACFISH/INFISH guidelines in bull trout habitat.
17. For those portions of the Snake River drainages that support populations of threatened and endangered Snake River mollusks, the Bureau will consult with the Service for fuels management and vegetation treatments where there is potential for effect, to ensure mitigation measures are adequate to avoid adverse effects to Snake River mollusks.

Direct effects to species from treatments in areas supporting federally-listed species are not anticipated, unless site-specific information indicates that small-scale treatments would result in long term benefits to the species. However, treatments are anticipated to occur in areas near or adjacent to listed species and their habitats. If treatments do occur in areas that may affect listed species, treatments will take place in consultation with the Service, and treatments will be conducted in such a manner as to avoid adverse effects. Further, such activities will focus on reducing future habitat loss and fragmentation by returning fire cycles to their natural regimes, and reducing the spread of invasive exotic species. These actions will benefit listed species through improved habitat conditions and reduced competition from exotics. Finally, no interrelated or interdependent effects were identified in the Assessment, and FMDA-related activities should not contribute to any of the potentially adverse cumulative effects (non-federal) in the action area.

Alternatively, wildland fire suppression activities or fire and non-fire vegetation treatments which may adversely affect any of the federally listed species in the action area are not covered in the Assessment or this Letter of Concurrence. That is, any activities related to wildland fire suppression that may adversely affect any of the listed species should only occur when life or properties are at risk and would, thus, fall under a separate section 7 emergency consultation. Likewise, all fire and non-fire vegetation treatments that may affect listed species must be conducted in consultation with the Service, and the Service must concur that those actions either have no effect or are not likely to adversely affect listed species.

Based on information provided in the Assessment, and other information available to the Service, we concur with the Bureau's finding that the proposed actions described in the Assessment may affect, but are not likely to adversely affect the Ute ladies'-tresses, bald eagle, grizzly bear, bull trout, or any of the listed Snake River snails, and are not likely to jeopardize the continued existence of the gray wolf in the project area. Further, the Service acknowledges the Bureau's determination that the proposed actions are not likely to adversely affect the yellow-billed cuckoo or the Great Basin population of Columbia spotted frog, two candidate species.

This concludes informal consultation pursuant to section 7 of the Act. Please contact the Service to verify the above determination is still valid if: 1) project parameters are changed or new information reveals effects of the action to a listed species to an extent not considered in the Assessment; or 2) a new species is listed or critical habitat is designated that may be affected by one or more of the projects.

Thank you for your continued interest in threatened and endangered species conservation. If you have any questions about the consultation process or the above Service letter please contact Troy Smith or me at 208-237-6975.

cc: Twin Falls District Office, Twin Falls (Hedrick)
SRFWO, Boise

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APPENDIX P - COMMENT SUMMARY AND RESPONSE TO COMMENTS

P.1 READER'S GUIDE

P.1.1 HOW IS THIS APPENDIX ORGANIZED?

This Comment Summary and Response to Comments contains three main sections.

- The first section briefly introduces and summarizes the process of soliciting, receiving and evaluating comments on the Draft EIS. Section 1 also includes a table to assist the reader in finding specific comment letters, facsimiles, and emails that were received on the Draft EIS (hereafter collectively referred to as comment letters; Table 1). Each comment letter received was assigned a numeric identification code, which is the first column in the table. Additional information in Table 1 includes the name of the commenter (whether individual or organization), their address, the date the letter was postmarked/faxed/emailed, and a listing of the letter's substantive comments.
- Section 2 contains photocopies of all letters received by the BLM along with comments broken out (but still contained within the letter).
- In Section 3, individual comments have been extracted from the comment letters and arranged by subject or resource discipline, and the BLM response to each comment is provided. Please note that Section 3 responds to individual comments in the letters received, not just the comment letters found in Section 2; there is often more than one comment per letter.

P.1.2 HOW DO I KNOW THE BLM RECEIVED MY LETTER?

All letters received by the BLM during the comment period for the Draft EIS are listed in Table 1. If your name appears in Table 1, your letter was received. This table can be used to find your name (or organization's name), the identification (Source Code) number of your letter, and the comments that received responses. The letter's Source Code number can also be used to locate the responses to your individual comments in Section 3.

P.1.3 HOW ARE COMMENTS SHOWN IN THE EIS?

BLM policy requires the printing of comments from federal, state, and local agencies and elected officials in the Final EIS and responses to those comments. The letters from these agencies and officials are included in Section 2 of this appendix, along with the comment letters received from other individuals or entities. Whenever a comment resulted in a change to the EIS, in most cases, the response to the comment states that the change was made and indicates where in the document the change can be found.

P.1.4 HOW DO I FIND MY COMMENT?

A specific comment letter (and any responses to the comments in that letter) can be located by looking up the author(s) of that letter in Table 1, then using its Source Code number to locate the individual comments in Section 3 of this document.

P.1.5 WHAT OTHER COMMENTS WERE MADE THAT WERE SIMILAR TO MINE?

Comments similar to one another are grouped together by subject in Section 3.

P.1.6 WHAT WAS THE RESPONSE TO MY COMMENT?

Responses to the identified comments are grouped by subject in Section 3. You can use the Source Code number that was assigned to your letter in Table 1 to help you locate responses to your comments.

P.1.7 HOW DO I FIND WHAT COMMENTS ANOTHER INDIVIDUAL, GROUP, ORGANIZATION HAD?

Table 1 details agency, group, and/or individual authors of the comment letters. Once the agency, group, or individual is located in Table 1, the Source Code number can be used to cross-reference individual comments in Section 3. A listing of the comment letters containing that comment in Section 3 also follows each comment.

P.2 SUMMARY OF THE COMMENT PROCESS

The main function of Appendix P of the Final Environmental Impact Statement (Final EIS) is to provide the BLM's response to comments received on the Draft EIS. This section explains how comments were solicited on the Draft EIS and processed. You will find a detailed list of persons, organizations, and agencies that submitted comments on the Draft EIS in Table 1.

The comments on the Draft EIS that were used to prepare the Final EIS followed the National Environmental Policy Act of 1969, as amended (NEPA) and a process established by the Council on Environmental Quality (CEQ) regulations, which provide that agencies must "(m)ake diligent efforts to involve the public in ... NEPA procedures" (40 CFR § 1506.6(a)). Although this appendix deals primarily with the comments received on the Draft EIS released at the end of October 2004, the reader should also be aware that substantial public involvement preceded and coincided with the writing of the Draft EIS; this prior public involvement helped to define the scope of issues that has been addressed by the EIS.

P.2.1 PUBLIC SCOPING

Public scoping, typically done prior to the preparation of the Draft EIS, should not be confused with the comments received on the Draft EIS. Preparation of the Draft EIS included soliciting comments from various organizations and the public to determine the scope of the document (see Chapter 5 for more details). NEPA requires early public involvement in the EIS process to identify issues and address any potentially significant concerns related to the Proposed Action. Public and agency involvement continued in various ways throughout this particular EIS process. The Purpose and Need, identification of important issues and concerns by the public and other agencies, and particulars of the Proposed Action were all discussed during public scoping and are detailed in Chapters 1 and 2 of the Final EIS. Public and agency input was extremely important in formulating the scope and content of the Draft EIS.

P.2.2 PUBLIC AND AGENCY MEETINGS

Following the release of the Draft EIS in late October 2004, public meetings were held in Idaho in the following cities to explain the NEPA process, to receive comments regarding the Draft EIS, and to answer any questions related to the Proposed Action and alternatives: Idaho Falls (on December 1, 2004), Pocatello (on December 2, 2004), Boise (on December 8, 2004), and Twin Falls (on December 9, 2004).

P.2.3 COMMENT PROCEDURE

The Draft EIS was released to the public on October 28, 2004. The Notice of Availability initiating the formal, 90-day comment period on the Draft EIS appeared in the *Federal Register* on November 5, 2004. The 90-day comment period ended on February 3, 2005.

Those who received a full or summary copy of the Draft EIS and/or attending the public meetings were given instructions on how to provide comments and where they should be sent. They were advised that comments should be as specific as possible in terms of adequacy of the Draft EIS and/or merits of the alternatives discussed. Individuals that submitted oral comments, either by phone or at the public meetings, were advised that in order for the comment to be considered and included in the Final EIS, it would also have to be submitted in writing.

All comment letters were copied and sent to the BLM's third-party consultant, where they received a source code. The full text of each comment letter, facsimile, or email received from individuals or groups are included in Section 2 of this appendix. Individual comments were extracted from each letter and were organized by subject, primarily into resource or discipline categories. Those comments that were identical or very similar were grouped together and summarized. Section 4 lists the individual comments by subject, the source code denoting the comment letter, and the associated response to the comment. Resource specialists from the third-party consultant prepared draft responses to each substantive comment, which were then reviewed, edited, and approved by BLM.

Consistent with NEPA regulations (40 CFR § 1503.4(b)), this document focuses on substantive comments on the Draft EIS. Substantive comments include those that challenge the information in the Draft EIS as being accurate or inaccurate, or that offer specific information that may have a bearing on the analysis and/or decision. Comments that merely expressed an opinion for or against the Proposed Action were considered non-substantive and thus were identified as a comment not requiring a response. These non-substantive comments were nonetheless valuable in conveying public opinion regarding the project and so were included in Section 3. In cases where the comment was substantive but appeared to indicate that information in the EIS was either misunderstood or unclear, a response was prepared to clarify the information.

Table 1 provides an index of agencies, organizations, and individuals that commented on the Draft EIS. It is organized by source code, and also contains the name of the commenter, his/her associated organization and/or address, the date the letter was postmarked faxed/emailed to the BLM, and a list of numbered, individual comments contained in the letter.

TABLE 1. LIST OF COMMENTERS ON THE FIRE, FUELS, AND RELATED VEGETATION MANAGEMENT DIRECTION PLAN AMENDMENT AND DRAFT EIS

Letter Code	Name	Organization/Address	City, State	Date Postmarked	Comment Code (s) Receiving Responses
1	Steven R. Paulsen	506 Center Street West	Kimberly, ID	Public meeting	LG1, LG2, LG3, VR1, VR2, VR3, VR5
2	Karl Ruprecht	649 Lynwood	Twin Falls, ID	Public meeting	LG1, LG4, VR3
3	Lahsha Johnston	The Wilderness Society, Regional Conservation Associate	Boise, ID	02/11/05	AT1, AT2, AT3, AT4, AT5, PR1, PR2, LG5, VR6, VR7, VR8, VR9, VR10, WUI1, WUI2, WUI3, WUI4, WI1, WI3, WI4
4	Kent Fothergill	Conservation Committee Prairie Falcon Audubon	Twin Falls, ID	02/10/05	LG6
5	Jack Depperschmidt	Department of Energy, Idaho Operations Operator, NEPA Compliance Officer		02/07/05	LG1, VR11, VR12, IN1
6	Rick Just	Idaho Parks and Recreation	Boise, ID	01/28/05	AT1, AT6, RR1, RR2, RR3, GM1
7	Timothy C Duffner	Idaho Department of Lands	Gooding, ID	02/08/05	AT6, LG8, VR13
8	Kenneth Sanders	University of Idaho, Twin Falls R&E Center	Twin Falls, ID	01/05/05	AT7, AT8, AT9, AT10, LG9, VR11, VR14, VR15, GM2
9	Patrick A Takasugi	Idaho Department of Agriculture	Boise, ID	02/03/05	AT11, AT12, AT13, AT14, VR16, VR17, GM3

TABLE 1. LIST OF COMMENTERS ON THE FIRE, FUELS, AND RELATED VEGETATION MANAGEMENT DIRECTION PLAN AMENDMENT AND DRAFT EIS

Letter Code	Name	Organization/Address	City, State	Date Postmarked	Comment Code (s) Receiving Responses
10a	Katie Fite	Western Watersheds Project	Boise, ID	02/09/05	AT15, LG1, LG2, LG4, LG6, LG7, LG10, LG11, LG12, LG13, LG14, LG15, LG16, LG17, VR1, VR2, VR3, VR4, VR5, VR6, VR18, VR19, VR20, VR21, VR22, VR23, VR24, VR25, VR26, VR27, VR28, VR29, VR30, WUI4, WUI5, WI2, WL1, WL2, WL3, SE1, SR1, GM4, GM5, GM6, GM7, GM8, GM9, GM10, GM11, GM12
10b	Katie Fite	Western Watersheds Project	Boise, ID	02/09/05	AT15, LG6, LG10, LG11, LG12, LG17, LG21, VR6, VR8, VR9, VR11, VR18, VR23, VR24, WL2, WL3
11	Deb Mignogno	USFWS	Chubbuck, ID	02/11/05	VR2, VR3, VR31, WL1, WL4, WL5, W6, WL7, WL8, WL9, WL10, GM13
12	Kelly Adams	Twin Falls District RAC	Twin Falls, ID	02/10/05	A16, LG18, LG19, VR32, VR33, VR34, VR35, SE2
13	Christine Reichgott	EPA	Seattle, WA	02/03/05	LG20, LG21, WL12, AQ1, AQ2
14	Tracey Trent	Idaho Fish and Game	Boise, ID	02/11/05	AT6, VR13, VR16, WL13, WL14, WL15, WL16
15	Tess O. Sullivan	Lava Lake Land & Livestock, LLC	Hailey, ID	02/10/05	VR2, VR5, VR11, VR16, WI5, WL15, WL17
16	B. Sachau	15 Elm Street	Florham, NJ	11/20/04	WL18, GM14, GM15
17	Bob Stoltz	1150 East 3400 North	Buhl, ID	12/10/04	LG15, VR3, VR36, GM14
18	Ted Howard	Shoshone-Paiute Tribes		11/7/07	NAI18, 1-23

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P.3 COMMENT LETTERS

This section contains copies of letters, facsimiles, and emails received from tribes, federal, state, and local agencies, organizations, and the general public during the comment period—November 5, 2004 to February 3, 2005—for the Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and Draft EIS. Refer to Section 3 for individual comments, organized by subject, and responses to those comments.

FMDA DRAFT EIS/PLAN AMENDMENT

Comments/E-Mails/Letters Received Regarding the FMDA DEIS

(Comment Period Ended 10 February 2005)

Letter Number	Letter Received From/Address	Comment Received Via (US Mail, E-Mail, Other - Explain)
1	Steven R. Paulsen 506 Center Street West Kimberley, ID 83341	Public Meeting
2	Karl Ruprecht 649 Lynwood Twin Falls, ID 83301	Public Meeting
3	Lahsha Johnston Regional Conservation Associate The Wilderness Society 350 N. 9 St. Ste. 302 Boise, ID 83702	Email
4	Kent Fothergill Conservation Committee Prairie Falcon Audubon 780 Falls Avenue #159 Twin Falls, ID 83316	Email
5	Jack Depperschmidt NEPA Compliance Officer DOE, Idaho Operations Office depperjd@id.doe.gov	Email
6	Rick Just Idaho Parks and Rec PO Box 83720 Boise, ID 83720-0065	Mail
7	Timothy C. Duffner Idaho Department of Lands 329 Washington St. Gooding, ID 83330	Mail
8	Kenneth Sanders U of Idaho Twin Falls R&E Center	Mail

	PO Box 1827 Twin Falls, ID 83303	
9	Patrick A. Takasugi Idaho Department of Agriculture PO Box 790 Boise, ID 83701	Mail
10	Katie Fite Western Watersheds Project PO Box 2863 Boise, ID 83701	Mail
11	Deb Mignogno USFWS 4425 Burley Dr. Ste. A Chubbuck, ID 83202	Mail
12	Kelly Adams Twin Falls District RAC	Internal Mail
13	Christine Reichgott EPA 1200 6 Ave. Seattle, WA 98101	Mail
14	Tracey Trent ID Fish and Game PO Box 25 Boise, ID 83707	Mail
15	Tess O. Sullivan Lava Lake Land & Livestock, LLC PO Box 2249 Hailey, ID 83333	Mail
16	B. Sachau 15 Elm St. Florham Park, NJ 07932	Email
17	Bob Stoltz 1150 E. 3400 N. Buhl, ID 83316	Email
18	Ted Howard Director, Cultural Resources Shoshone-Paiute Tribes	Mail

1

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Upper
Snake
River
District

United States
Department of Interior

Bureau of Land
Management

Comments specific to the Fire, Fuels and Related Vegetation Management Direction Plan Amendment, Draft Environmental Impact Statement (DEIS) should be sent to:

FMDA Project Manager
Bureau of Land Management
Pocatello Field Office
4350 Cliffs Drive
Pocatello Idaho 83204.

Public comments, including names and street addresses of respondents, regarding this planning review will be available for public review at the Pocatello Field Office during business hours (7:45 a.m. to 4:30 p.m.) Monday through Friday, except holidays, and will be published as part of the EIS. *Individual respondents may request confidentiality.* If you wish to withhold your name or address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your comments (below). Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

I wish to withhold my name or address from public review or from disclosure under the Freedom of Information Act. [ ] Yes [X] No

Please Print
Name Steven R. Paulsen CSR Inc
Street Address 556 Center St West
City Kimberly State IDAHO Zip 83341
E-Mail (optional) Steven@CSR-Inc.com

Comment(s):

D 1-1 * Monitor your Restoration Sites for No Less than 5 years

1-2 * Have/Find Money to Steward all Restoration for No Less than 5 years

A 1-3 * USE ONLY NATIVE PLANTS & SEEDS in Your Restorations

B 1-4 * Change post Restoration Rest Period from 2 growing Seasons to 5 growing Seasons

1-5 * In Your Monitoring change your outlook on Range Condition to Encompass Environmental Health (ie Plant Diversity, No Shrubs in available forage for Cattle USE)

1-6 * Be Proactive in Weed Control - Enrole burn Sites in Restoration in the First Fall/SPRING Post Burn

C 1-7 * Remove Cattle grazing Entirely from Sites that are Great

further comments may be written on back of card or on paper sheets attached to this card. (over)

grass dominant.

1-8 * USE outside resources for Monitoring if in house (BLM) Resources are not available.

2

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Upper
Snake
River
District

United States Department of Interior

Bureau of Land Management

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I wish to withhold my name or address from public review or from disclosure under the Freedom of Information Act. [ ] Yes [ ] No

Please Print
Name KARL RUPRECHT
Street Address 649 LYNWOOD
City TWIN FALLS State ID Zip 83301
E-Mail (optional) ruprechtjk@hotmail.com

Comment(s):

whichever alternative is chosen:
please emphasize native grasses - not acres
and acres of crested wheat grass
- please rest the replanted land from
grazing for more than one or two years

Grazing increases cheat grass, cheat grass
increases fire - please decrease grazing.

A 2-1

B 2-2

C 2-3

further comments may be written on back of card or on paper sheets attached to this card.

3

Terry Smith/USRD/ID/BLM/DOI
Sent by: Terry Lee Smith

02/11/2005 07:55 AM

To "Lahsha Johnston" <lahsha_johnston@tws.org>
cc
bcc
Subject Re: FMDA Comments

Lahsha Johnston, Regional Conservation Associate
The Wilderness Society
350 N. 9th Street, Suite 302
Boise, ID 83702

This e-mail is to acknowledge receipt of your comments for the Darft Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and Environmental Impact Statement (FMDA) on behalf of The Wilderness Society (TWS).

"Lahsha Johnston" <lahsha_johnston@tws.org>

"Lahsha Johnston" <lahsha_johnston@tws.org>

02/10/2005 11:11 PM

To <ID_USRD_FMDA@blm.gov>
cc
Subject FMDA Comments

Are attached as a word doc. Please let me know if there is any problem with the attachment. LJ

Lahsha Johnston, Regional Conservation Associate
The Wilderness Society
350 N. 9th Street, Suite 302
Boise, ID 83702
208-343-8153 x. 12 208-343-8184 fax
www.wilderness.org

SE ID BLM Fire & Veg DEIS Comments 2 05.doc

10 February 2005

Mr. Eric Limbach
FMDA Project Manager
Bureau of Land Management
4350 Cliffs Drive
Pocatello, ID 83204

RE: Fire Fuels, and Related Vegetation Management Direction Plan Amendment DEIS; comments submitted via email (ID_USRD_FMDA@blm.gov)

Dear Mr. Limbach:

Please accept these comments on the Draft Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and Environmental Impact Statement (FMDA) on behalf of The Wilderness Society (TWS). Founded in 1935, The Wilderness Society works to protect America's wilderness and wildlife and to develop a nationwide network of wild lands through public education, scientific analysis, and advocacy. Our goal is to ensure that future generations enjoy the clean air and water, beauty, wildlife, and opportunities for recreation and spiritual renewal provided by the nation's pristine forests, rivers, deserts, and mountains. Our members enjoy the beauty, recreational and educational opportunities provided by the unique landscape of south-central and eastern Idaho.

The Wilderness Society is supportive of the purpose and need of the proposed action- to create a comprehensive framework addressing fire management on a landscape-scale.
3-1 However, we feel the analysis is incomplete and lacking in several key areas. The analysis document is difficult to follow and repeats good portions of the same, general
3-2 information in each chapter. There is a significant lack of specificity to the proposed
3-3 actions. Further, the impacts of each alternative are difficult to understand because of the use of footprint acres vs. treatment acres.

In addition to general support for the overall concept and goals, we would offer the following observations, concerns, and suggestions with the hope that such information proves useful to BLM in crafting a management alternative that promotes ecological, economic, and social sustainability for the landscape of Idaho.

Sagebrush Steppe

The origins of the analysis appear to be quite clear, satisfy the purpose and need to address fire management. Despite repeated attempts to incorporate the goals behind
3-4 Issue 2 (sagebrush), the analysis lacks sufficient integration and examination of sagebrush steppe restoration and rehabilitation. These issues seem to be an after thought, thrown in at the last minute and cobbled together as alternative D.

3-4 The complexities of sagebrush steppe restoration seem almost non-exist in the analysis. This is especially true when it comes to the impacts of restoration and rehabilitation through the use of chemical, mechanical and other treatments. The Affected Environment analysis (Chapter 3) is limited to a description / risk / opportunities assessment of the impacts/relationship of fire (Rx, wildfire and WFU) on resources.

3-4 There is no discussion of past rehabilitation or restoration efforts in the area and their success or problems. Likewise, it is unclear how treating every acre of cheat grass dominated landscape (in 10 years) will lead to restoration of the sagebrush steppe under this plan.

Mechanical and Chemical Treatments

3-5 These treatments are presented as a significant part of the overall strategy to treat land acres as part of the FMDA. However, there is no real analysis of these treatments. Appendix H is a very short description of some other broad (regional and national) agency guidance documents on these treatments. There is no specificity as to how these treatments will be used or prioritized in the Upper Snake River District.

3-6 For example, the criteria for establishing vegetation treatments (p 2-28) all have to do with location, not vegetation type, class, condition, likelihood of restoration and other key factors. There is no discussion of how to prioritize what treatment(s) will be used and in what circumstances. What constitutes successful restoration? How will prioritization be given to an area depending on the likelihood of it responding to a type of treatment?

3-7 Chemical and mechanical treatments should only be considered if it can be assured that they would - minimize damage to soil, watershed, vegetation, air, or other resources of the public lands, and to prevent impairment of wilderness suitability; minimize harassment of wildlife or significant disruption of wildlife habitats, and especially for protection of endangered or threatened species and their habitats; minimize impacts to recreational and other multiple uses of the same or neighboring public lands; and outside officially designated wilderness, primitive or wilderness study areas, and in natural areas only if the agency determines that will not adversely affect their natural, aesthetic, scenic, or other values for which such areas are valued.

Community Protection

The highest priority of fire management must be the protection of people and their homes, and management plans must be structured to support this goal.

3-8 As such, in reviewing the Analysis of Effects on Wildland-Urban Interface (4.3), we do not understand why the Alternatives would prescribe varying levels of treatment to reduce risk to at-risk communities. For example, as detailed in Table 4-31, Alternative B proposed treatment acres are less than half that of Alternative D and less than a fifth of the proposed treatments of Alternative C. As noted in section 4.3, alternatives C and D propose the highest amount of treatment acres and "therefore would make the most progress towards creating fire safe communities." Yet, alternative D, given its bias to maintaining or improving sage grouse habitat, would focus only on Low and Mid-elevation Shrub, Mountain Shrub, and Perennial and Annual Grass cover types.

We firmly believe that all alternatives should seek to unequivocally place community risk reduction as its foremost goal and prioritize planning and treatments accordingly. In the long term, it is not only the restoration of fire as a natural process that is contingent on safe communities, but the health and viability of ecosystems such as Sage Grouse habitat as well.

3-8

Please discuss how the final preferred alternative will maximize proposed treatments to reduce risk to communities-at-risk.

Prioritizing proposed treatments to target community risk reduction is also of great concern to The Wilderness Society. Has the BLM has taken a first step in narrowing the list of 145 communities at risk within the planning boundary to a short-list of communities at the highest risk of wildfire? It is worth noting that where communities at the highest risk in the Burley and Shoshone Field Offices have largely completed or are completing mitigation plans, none of the highest risk communities in the Idaho Falls or Pocatello Field Offices have completed mitigation plans.

3-9

We would suggest that for communities that have not yet developed detailed mitigation plans, the first step in designing a management plan that addresses fire is to identify the "Community Fire Planning Zone," the area around communities that should be managed for their protection. This zone is sometimes called the "wildland-urban interface," but we prefer the Community Fire Planning Zone (CFPZ) because it conveys the overriding objective of community protection. The CFPZ is that area in and around communities that should be examined for opportunities to improve public safety through infrastructure improvement and fuel treatment to protect homes. Within that zone, it will not be necessary to treat fuels everywhere, but quantifying the extent of that zone can help focus community protection efforts. Beyond the CFPZ, there may still be a need for fuel treatment, but the focus will be on ecological restoration, which may require different kinds of treatment.

3-10

It has been demonstrated that the most effective way to protect homes is to build them out of fire-resistant materials and aggressively reduce immediately adjacent fuels. The simple principle behind this notion is that homes will not burn if they do not ignite, regardless of what happens to the surrounding forest, and it is a very narrow "home ignitability zone" that determines whether a home will burn. Research by the U.S. Forest Service has shown that there are three primary mechanisms for home ignition. First, houses can ignite when shingles and siding are exposed to direct contact with flames from adjacent fuels, particularly flames carried in fine fuels, such as grasses, needles, leaves, and small branches. The second way homes can catch fire is through radiant heat from nearby flames elevating the temperature of structures themselves above their ignition thresholds. Third, the roofs of houses can ignite when exposed to showers of lofted embers. Fuel reduction treatments should focus on these three mechanisms of home ignition. By reducing fine fuels directly within the home ignitability zone, firefighters can prevent flames from reaching the house itself. By thinning small-diameter trees within 60 meters of homes, fire managers can reduce the potential for

3-11

radiant heat to ignite a home (Cohen and Butler 1998, Cohen 2000), and by building rooftops out of non-flammable materials, fire risk to homes can also be drastically reduced. Together, these three mechanisms for home ignition can be prevented by focusing on the area directly around individual structures within the home ignitability zone.

While structure protection demands a focus on the immediate vicinity of the home, there are reasons why treatments may be extended beyond 60 meters. Communities may wish to create "defensible space" within which firefighters may work safely, or they may wish to thin trees to reduce the probability of crown fire in order to protect scenic views or watershed quality. Nowicki (2002) applied rules of thumb developed by fire physicists
3-11 and fire safety personnel to conclude that community protection zones of 400 meters could provide an area that would allow firefighters to work safely to protect structures. The calculations assumed that an adequate safety zone would be four times the maximum sustained flame length of a crown fire, where the length of a crown fire flame may be twice the height of the forest canopy. Since few communities are surrounded by forests with trees exceeding 50 meters (165 feet) in height, the study arrived at the estimate of 400 meters, or approximately one-quarter mile as an adequate "buffer" width within which to plan fuel treatments.

In 2003, The Wilderness Society released the report, *The Wildland Fire Challenge* (Aplet and Wilmer 2003) that suggested that a buffer distance of a half-mile may be necessary to provide the latitude needed to adjust community fire planning zones to terrain, taking advantage of natural fuel breaks such as cliffs and rock outcrops. The Healthy Forests
3-11 Restoration Act of 2003 generally endorses the half-mile distance but allows that there may be times when the provisions of the law should be extended to 1.5 miles to account for steep slopes, natural fuel breaks, or particularly dangerous fuel conditions. While there may occasionally be situations that require extension of the CFPZ to distances greater than ¼ - ½ mile, we encourage the BLM generally to employ a CFPZ up to one-half mile beyond communities.

If there are situations where extending the width of the CFPZ helps improve community safety, it may fairly be asked here, "Why limit the width of the CFPZ at all?" The answer
3-11 is that management for community protection may compromise other resource objectives. Treating fuels to protect homes may result in unnatural vegetative conditions that compromise wildlife habitat, water quality, and aesthetics. It is therefore important to limit the CFPZ to the area where it will do the most good to protect homes. Narrowing the width of the CFPZ also helps to focus limited resources (money, personnel) where they will have the greatest impact.

It is important to emphasize here that this logic does not argue for clearing a half-mile buffer around every community. Rather, the CFPZ is the area within which to look for
3-11 *opportunities* to treat fuels to protect homes. Not every type of vegetation will need to be treated, and there are some vegetation types, such as chaparral and subalpine forest, within which thinning will be only marginally effective at lowering the probability of

crown fire. There, the focus must be on ensuring that assets are constructed of fire-resistant building materials rather than on treating fuels.

Management within the CFPZ consists of actions that minimize the threat of fire to homes. Obviously, paramount among those actions is aggressive suppression when fires start. The CFPZ is a place where, ideally, fire is excluded. This task is enhanced by sufficient suppression infrastructure, such as hydrants and access roads, as well as suppression forces ready to attack at a moment's notice. It is also enhanced by fuel treatments, such as mowing and pruning, that minimize fine fuels that contribute to rapid fire spread.

Fire exclusion, however is only an unachievable ideal. We will never be able to keep fire out of the CFPZ completely. Accordingly, precautions must be taken so that, when fire does eventually burn, that fire poses a minimal risk to homes. Such precautions include reducing tree density (thinning) to reduce the heat output during fires. Reducing heat output may keep homes from igniting and give firefighters the space they need to protect structures. Fortunately, many of these precautions have been formalized for public education through programs such as FIREWISE.

Historian Stephen Pyne (2003) has called fire in the CFPZ "a dumb problem to have" because it is preventable. Within the CFPZ, we know what must be done to minimize fire risk; we simply need the will to do it. Pyne imagines a future in which

> "...good sense prevails and the frontier reaches an equilibrium in which a working replacement of a rural landscape emerges. Although no doubt shaped by urban values this replacement will be a lived-in landscape, one that finds people as active agents in shaping the fire regime of their surroundings, not simply passive victims and whining litigants."

Becoming an "active agent" can be achieved in two ways. First, homeowners must manage their property to minimize risks to their homes and their neighbors. Second,
3-11 community members, including the Bureau of Land Management (and the Forest Service) can work together across ownerships to develop plans that meet community fire protection needs. The Community Wildfire Protection Plan (CWPP) process, described in the Healthy Forests Restoration Act, provides an excellent opportunity for citizens and agency managers to work together to achieve common goals for the CFPZ. The BLM should be part of every CWPP process involving communities whose CFPZ overlaps with BLM managed lands. Where these processes have not already begun, we encourage the BLM to take the lead in pulling stakeholders together to develop these plans.

Fire Regime Condition Class (FRCC) Assessment

3-12 Our analysis of the condition class approach shows that the data needed to assess the condition of vegetated landscapes are not available and that while the concepts behind mapping efforts are sound, at least for some vegetation types, they cannot be applied to existing data. Too little is known about historical and current vegetation conditions,

especially vegetation structure, and the scale of available data is too coarse to produce accurate and meaningful results.

Reviewing the DEIS confirms these reservations about the FRCC assessment approach in general. Not only are assumptions used in the model expert opinion and therefore
3-12 speculative, precious little site-specific research on the historic range of variability (HRV) is offered to provide any sort of context for assessment results. We believe that until the data "required by the methodology" are compiled, any results from applying that methodology should be viewed with skepticism.

We therefore would ask that BLM discuss in far greater detail the data used in the FRCC
3-12 Assessment, where applicable data was lacking, how these data gaps were accounted for, and the extent to which site-specific scientific research and analysis either supports or contradicts assumptions made.

Wilderness Resources

The Wilderness Society is concerned about wilderness resources and the potential implications of this plan to those wilderness resources. When considering actions in WSAs (Wilderness Study Areas), lands with wilderness characteristics[1](WC), or eligible Wild and Scenic Rivers (WSR) the lands should maintain the attributes of naturalness
3-13 (similarity to the natural ecological variability) and wildness (freedom from human control, i.e., "untrammeled"). A dilemma arises when managers consider manipulating wilderness or proposed wilderness to restore natural conditions; wildness (untrammeled conditions) is compromised for naturalness (natural conditions). Although we recognize that there may be circumstances which would require treating WSAs, lands with wilderness character, and Wild and Scenic Rivers, we do place a high burden of proof on those proposals and actions.

Treatments in Wilderness Study Areas, Lands with Wilderness Characteristics, and Wild and Scenic Rivers

We suggest that two threshold questions must be answered before intervention/treatment/restoration should be undertaken in WSAs, WC, or WSR.

1. *Is* intervention/treatment/restoration appropriate in this case?

If this is answered affirmatively, then the "minimum requirement question

2. *What* intervention is appropriate in this case?

Usually, the first threshold can quickly be accepted or rejected by the application of a procedural screen: For example, "What does the IMP allow for fire treatment, restoration, etc?"

In order to address the first threshold, a set of questions must next be asked that evaluate context. They examine the role of the WSA, WC, or WSR in the larger system:

---

[1] According to current BLM policy (IM 2003-274), The BLM may continue to inventory public lands for resources or other values, including wilderness characteristics, as a part of managing the public lands and land use planning

1. Is the WSA, WC, or WSR itself a large landscape ecosystem that is on a clear trajectory of degradation that will continue without human intervention?
2. Is the WSA, WC, or WSR critical to the function of the larger ecosystem outside the WSA, and is its unnatural condition a threat to the integrity of the larger landscape?
3. Are there especially rare or valued elements within the WSA, WC, or WSR that are at risk without intervention?

A possible example might be action taken to control weed invasions in the 2.3 million acre Frank Church-River of No Return Wilderness in Idaho. Much of the lowland country surrounding "the Frank" is highly degraded by weeds, and many people would view it as a tragedy if such degradation spread to the wilderness. Taking action there may be necessary to protect a vast ecosystem. Some of the WSAs in the planning area are relatively small in comparison (160 – 9700 acres) and would not qualify as a landscape ecosystem by itself.

The second question refers to WSA, WC, or WSR that are so degraded or so important that their degradation is a threat to a larger ecosystem. An example might be an
3-13 abandoned mine that is poisoning an entire downstream ecosystem. There, reclamation and restoration may be justified due to the magnitude of the threat.

We strongly believe that before we "trammel" the wilderness resources, we need to be sure that conditions are on a deteriorating course that will get worse without our help. Therefore, what criteria will the BLM use as a baseline for determining that conditions within WSAs, WC, or WSR are on a deteriorating course?

Use of Minimum Tools

Of particular importance in this plan will be the use of minimum tools in WSAs, proposed wilderness and lands with wilderness characteristics. For example, strong arguments can be made for non-mechanized thinning in proposed wilderness areas, as dense thickets of small trees are unnatural artifacts of anthropogenic fire suppression (Fulé, 2002), the anomalously intense fires they may fuel would be equally unnatural (Allen and others, 2002), and the natural fires that thinning would facilitate would soon burn remnant stems and slash destroying any evidence of "trammeling". Similarly strong arguments can be made in defense of wildness attributes.

3-13 When conducting vegetation treatments within WSAs, WCs, or WSR BLM should minimize use of tools according to BLM Manual H-8550-1 Interim Policy for Lands Under Wilderness Review. The plan (FMDA) states that "Method of application and equipment used would be carefully planned". In the context of this plan we ask, what does this mean? Will the BLM Field Office consult with wilderness staff? Will a minimum tool analysis be conducted?

Wild and Scenic Rivers

In reviewing this document it was unclear whether or not BLM can assure the public that the decisions made from the final plan will not affect the field office's ability to manage

11 stream segments that have been identified eligible for future suitability studies for
3-14 Wild and Scenic River designation and whether or not any actions, i.e. restoration would affect that suitability study.

It seems fundamental that the following questions should be clearly answered in relationship to the FMDA. What will the agency do prior to treating an area identified eligible for a WSR study or directly adjacent to? Will you consider minimum tool analysis?

Treatments in Wilderness Study Areas

Aside from using the FRCC model, we would like to know what other scientific data was analyzed and included in the decision found in Alt. C that states plant communities outside of vegetated lava (approx. 50% of WSAs) are 6.7 times more likely to receive treatment. Additionally, what evidence and/or scientific data exists that proves such treatments will actually restore the area to a "more" natural state, thus maintaining or
3-15 enhancing the wilderness values of the area?

We have similar concerns with Alt. D. Again, aside from using the FRCC model, what other scientific data was analyzed and included in the decision found in Alt. D that states plant communities outside of vegetated lava (approx. 50% of WSAs) are 6.1 times more likely to receive treatment. What evidence and/or scientific data exists that proves such treatments will actually restore the area to a "more" natural state, thus maintaining or enhancing the wilderness values of the area?

The document assumes that treatments that would occur in the vicinity or within WSAs and effects would be positive. Again, we assert that a high burden of proof of need is necessary before any treatment is done within these areas. We question whether or not
3-15 there is significant scientific data that proves restoration to this particular ecosystem with such a large footprint would be successful. Where else has such a large scale restoration action in a similar ecosystem been successful? It also brings us to ask, do you know, and with what relative certainty, that treatments to WSAs will maintain or enhance the wilderness values of the area?

We recommend that before acting in WSAs, WCs, or WSR, treatments should be done in
3-15 adjacent areas of appropriate size and with similar vegetation type using minimal tool techniques and methods. The area then needs to be closely monitored over a period of time that would allow for verification of success and effectiveness of treatment

Although use of earth-moving equipment may be used in WSAs, per approval of field office manager, what is the line of communication established to assure that those uses
3-14 would not be done before approval from FO manager?

Potential Impacts to Wilderness Resources Due to Treatment

As an example, restricting motorized use to existing roads for prescribed burning and fuel reduction operations (excepting emergencies) in these areas must not be compromised. Despite the relative harshness of the climate, the soils, vegetation, and wildlife of the

landscape have proven to be, in many cases, extremely fragile. Allowing vehicles to travel off-road in all but the rarest of emergency circumstances is ill-advised in that
3-14 obliteration of such routes, once their use has been fulfilled, is anything but certain. In addition, off-road travel, once begun for whatever purpose, would be all but impossible to manage after the fact. Such illegal travel would not only further fragment the landscape, it may very well also increase fire danger through exhaust sparks and heat.

Craters of the Moon National Monument and Preserve

The Wilderness Society provided the following comments in July of 2004 to the BLM and National Park Service in response to the Draft EIS Management Plan. Development
3-16 of a fire plan for the monument lands must be part of the comprehensive planning process. Protection of existing native habitat, especially sagebrush, should be identified as a top priority in fire situations. Whether a wild fire or a prescribed burn, all areas should be reseeded with native plants and adequately rested from livestock grazing and recreation use to allow native plant establishment and lessen the spread of weeds. No new crested wheat grass seedlings or other exotic species should be used to restore native habitat.

The BLM and NPS should work to establish their own, local seed sources from within the
3-17 monument. Areas should be identified (possibly Laidlaw Park) where select removal of a desired species seed will not impact the current location, but will provide native seed to another location if none is available from the usual DOI sources.

3-17 The monument plan should identify as one of its primary goals, restoration and maintenance of native vegetation on all lands altered by fire or other disturbance. Restoration should be conducted using only native species. Specific timelines for restoration, revegetation and rest should be included in the management plan. The
3-18 management plan should also include a timeline for revegetation and/or restoration to natural conditions of all "user-created" motorized routes in the monument.

Livestock Grazing

The FMDA analysis of effects on livestock grazing and management is flawed. It specifically estimates the loss of revenue to the BLM in the form of grazing fees
3-19 associated with the impacted AUMs. The analysis even goes on to estimate the cost of leasing private land and purchasing hay to replace lost AUMs. However, there is no estimate or attempt to quantify in any monetary way the funds saved by BLM in administering these AUMs and associated resource impacts.

Alternative C versus Alternative D

As noted in the DEIS, of the several issues that were identified during the scoping process, two in particular were deemed appropriate for additional analysis. These are: 1) questions concerning fulfillment of Cohesive Strategy objectives and 2) impacts to Sage Grouse habitat and population.

We are concerned that the analysis conducted and conclusions drawn from these specific issues unnecessarily set the two alternatives (Alt. C and Alt. D) as contrary to one

3-20 another. That is, the analysis leads to the conclusion that the FMDA can *either* fulfill the objectives outlined in the Cohesive Strategy *or* it can address Sage Grouse habitat restoration but not both. This dichotomy fragments rather than promotes the plan amendment's purpose and need of promoting comprehensive fire management.

We are specifically concerned that the agency's preferred alternative- D- would unnecessarily restrict the discretion of local land managers to use the process of fire-
3-21 either through prescribed fire or as Wildland Fire Use- to achieve land management goals in the short and long term.

If a specific landscape area is deemed in Alternative D as not suitable for the use of fire as a management tool, what provisions within the Alternative would allow managers the discretion to use fire in future years when and where the landscape has been sufficiently
3-21 restored to a degree where the use of fire does not pose undue risk to habitat components?

When examining the summary of alternatives table (Table S.3), we note with some frustration that projected treatment levels over a 10-year planning period allow for the possibility of up to 3 times the potential use of fire- prescribed and WFU- as a viable management tool under Alternative C than in Alternative D. This disparity results in the
3-22 expectation that over 4.3 million acres will be treated using non-fire vegetation treatments over that same time period in Alternative D. Suffice to say, by overruling the possibility of the use of fire as a management tool on so broad a landscape unnecessarily commits BLM to using a non-fire vegetation management approach on an unrealistic scale.

Does BLM currently have the capacity to address non-fire fuel treatments over up to 4.3 million acres?

3-23 Following this same line of thought, it seems irresponsible of the BLM to carry forward and analyze an alternative described as alternative C, not "limited by existing operations capabilities and resources". The figures represented in alternative C do not seem to be realistic or even achievable as target figures.

In conclusion, The Wilderness Society holds as a core value that the "freedom from human control," and the humility it represents, is an essential quality of wilderness that cannot be tossed aside in the interest of maintaining naturalness. At the same time, we are not willing to stand idly by and watch the natural quality of wilderness quality lands degrade through neglect. However, the importance of maintaining "the freedom of the wilderness" demands a high burden of proof from those who seek to intervene on behalf of naturalness.

Sincerely,

Lahsha Johnston, Regional Conservation Associate

Management Direction Plan Amendment (FMDA). The Department of Energy (DOE) has informally provided input to BLM during the development of the EIS as it pertains to the Idaho National Laboratory site. If, however, you believe a more formal comment document is required, please don't hesitate to contact me at (208) 526-5053 and I will make the appropriate arrangements.

Jack Depperschmidt
NEPA Compliance Officer
DOE, Idaho Operations Office

<<Comments on the November 2004 Fire.doc>>

(See attached file: Comments on the November 2004 Fire.doc)
----- Forwarded by Terry Lee Smith/USRD/ID/BLM/DOI on 03/15/2005 01:02 PM -----

cyberzono@netscape.net

02/10/2005 06:51 AM

To: ID_USRD_FMDA@blm.gov, kfite@juno.com, jrandall@lightcom.net

cc:

Subject: Fire, Fuels and Related Vegetation EIS

4

Please acknowledge receipt*
Eric Limbach
FMDA Project Manager
Bureau of Land Management
4350 Cliffs Drive
Pocatello, ID 83204

10-Feb-05

Dear Eric,

I am writing concerning the Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and Environmental Impact Statement November 2004.
4-1
Amazingly, no alternative addresses livestock grazing in other than cursory manner. Vegetation communities are shaped by climate, soils and disturbance regimes (Pianka 1983); and live stock grazing is a disturbance (Noss and Cooperrider 1994, Fleischner 1994) that is responsible for changes that: predispose landscapes to fire (West 1999), create impoverished soils (Belknap et. al. 2001) and the presence of cheat grass (Leopold 1949), without returning a meaningful economic benefit to the American public (Frewing-Runyon 1995).
4-1
The Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and Environmental Impact Statement November 2004 is extremely flawed because it does not address the ubiquitous disturbance of livestock (Wuerthner and Matteson 2002). Meaningful, cost effective Fire, Fuels, and

Related Vegetation Management will not occur without examining the entire disturbance regime and being willing to make changes.

I have kept these comments extremely simplistic for reasons of clarity. If you require further explanation of how the major commercial permitted use of BLM lands in the USRD impacts the vegetative, soil, and water resources the industry exploits, need a more extensive bibliography so you can read up on grazing processes and impacts, or require a guided tour of BLM lands so you can see this landscape for yourself; please don't hesitate to get in
4-1 touch. I would greatly enjoy the opportunity to participate in a meaningful way in the process of saving the public lands I love.

Thank you,

Kent Fothergill
Conservation Committee, Prairie Falcon Audubon
780 Falls Avenue #159
Twin Falls, ID 83316

PS. Bibliography for this letter below.

CC: WWP, PFA

Belknap J, Hilty-Kaltenecker J, Rosentreter R, Williams J, Leonard S, Eldridge D. 2001. Biological Soil Crusts: Ecology and Management. Technical Reference 1730-2. Denver, CO: USDI. 110 p.

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Wuerthner G, Matteson M editors. 2002. Welfare ranching- the subsidized destruction of the American west. California: Island Press. 346 p.

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5

"Depperschmidt, Jack D"
<depperjd@id.doe.gov>

02/07/2005 10:15 AM

To <ID_USRD_FMDA@blm.gov>
cc
bcc
Subject Comments on the Draft FMDA EIS

Attn: Eric Limbach:

I have attached comments on the Draft Fire, Fuels and Related Vegetation Management Direction Plan Amendment (FMDA). The Department of Energy (DOE) has informally provided input to BLM during the development of the EIS as it pertains to the Idaho National Laboratory site. If, however, you believe a more formal comment document is required, please don't hesitate to contact me at (208) 526-5053 and I will make the appropriate arrangements.

Jack Depperschmidt
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DOE, Idaho Operations Office

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Comments on the November 2004 Fire.doc

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2/7/05

Comments on the November 2004 Fire, Fuels, and Related Vegetation Management Direction Plan Amendment Draft Environmental Impact Statement

5-1 1. Global document change: replace "Idaho National Engineering and Environmental Laboratory (INEEL)" with "Idaho National Laboratory (INL)" and, naturally, "INEEL" with "INL."

5-2 2. The primary goal of Alternative D must be no net loss of sagebrush habitat. Areas where sagebrush has already been removed should be restored to a self-sustaining sagebrush community before areas containing even marginal sagebrush communities are "treated." To do otherwise, results in losing more sagebrush habitat without ensuring habitat is being restored in the short term (i.e. less than 20 years).

5-3 3. It is not appropriate to consider all sagebrush types as equally responsive to treatment and restorations activities. A condition should be included in the EIS for all alternatives that stipulates, "No treatments should occur in sagebrush communities dominated by wyoming big sagebrush unless a there is a funded plan to aggressively re-establish with seedlings." Those communities do not appear to re-establish very well by simply reseeding or natural processes. Do not manage Wyoming big sagebrush communities like mountain sagebrush communities that appear to re-establish more readily after treatments. Generally, those two communities types show completely different responses after a fire. This comment relates to comment 2.

5-4 4. Replace the entire section 1.8.3 Idaho National Engineering and Environmental Laboratory with the following:

1.8.3 Idaho National Laboratory (INL)

The INL is located entirely within the administrative boundary of the District. The U.S. Department of Energy, Idaho Operations Office (NE-ID) and the BLM both have management responsibilities within the INL boundaries, as identified in a 2003 Memorandum of Understanding (MOU). While most INL activities are overseen by NE-ID, certain responsibilities, such as grazing management, remain with the BLM. The INL has primary responsibility for suppressing wildland fires within it's administrative boundaries, and BLM provides mutual aid for wildland response.

In April 2003, NE-ID completed a wildland fire management environmental assessment that detailed the environmental impacts of various wildland fire management strategies. In August 2004, BLM, in cooperation with NE-ID, completed the Final Management Plan and Environmental Assessment for the INEEL Sagebrush Steppe Ecosystem Reserve located within the INL boundary. NE-ID is supportive of the BLM's fire management planning effort and agrees that describing the INL lands in the District planning document would be beneficial to the two agencies and interested publics.

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As identified in the 2003 MOU, the District will consult with NE-ID prior to making any final decisions regarding wildland fire suppression and control that might affect the INL.

5-5 5. Section 2.2, first paragraph, last sentence; change "INEEL" to "NE-ID."

5-6 6. Page 2.11, Section 2.4.3.3.2, under subheading "Livestock Grazing". The first sentence is not appropriate for Alternative D, the preferred alternative. To adequately address Issue 2, the first sentence needs to read; "All RxFire treatment areas would be rested from livestock grazing until vegetation establishment and resource objectives are achieved." This does not disallow grazing, it simply requires a healthy system exists before resuming grazing.

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Eric Limbach, FDMA Project Manager
Pocatello Field Office
4350 Cliffs Drive
Pocatello, ID 83204

RE: Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and DEIS

Dear Mr. Limbach:

The Idaho Department of Parks and Recreation reviewed the Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and DEIS. The plan amendments serve as the management strategy for fire, fuels and related vegetation in the field offices for the next 15 years.

The DEIS identifies Alternative D as the preferred alternative. This alternative emphasizes retaining and enhancing sagebrush habitat.

Plan amendments generally are strategic in nature. It is hard to quantify the impacts that Alternative D or the other alternatives would have on recreation. As you know, recreation activities can be temporarily displaced by wildfire recovery efforts or vegetative treatments. 6-1

The DEIS mentions off-highway vehicles in Section 3.10.1.5 on page 3-72. The DEIS uses an outdated reference for the increase in Motorbike/ATV Registrations. The FEIS should also compare use in the planning area, not statewide. 6-2 6-3

Our registration records show (see attachment) that Motorbike/ATV registrations increased 155.9% in South Central Idaho, 129.1% in Southeast Idaho, and 162.8% in East Idaho from 1999 to 2003. South Central and East Idaho had a higher percentage increase than the statewide increase of 131.9%. 6-2

Section 4.10 analyzes the effects this amendment would have on recreation resources. 4.10.1 assumes that wildland fire or prescribed fire would expose previously hidden recreational resources that could become subject to unmanaged use. 6-3

This assumption would only hold true if the BLM failed to manage recreation use. Most recently burned areas have a temporary recreation use closure. If the Field Offices properly sign, educate and enforce the closure, the previously hidden recreation resources could remain unused. 6-3

The rest of Section 4.10 is accurate in its recreation resource analysis.

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6-4 In our review of the other parts of the DEIS, we found old references that need to be updated. For instance, on Page 4-129, the DEIS states "The Sawtooth National Forest is currently revising its Forest Plan," The Sawtooth National Forest has already revised its Forest Plan.

It seems the plan and DEIS writers used other BLM plans and EISs to write various sections. Plan writers need to closely look at these references to make sure they are not outdated.

In the long run, we believe that Alternative D will help improve recreation opportunities by restoring sagebrush communities. We appreciate the opportunity to comment on this DEIS. If you have any questions about these comments, contact Jeff Cook, Outdoor Recreation Analyst at (208) 334-4180 ext. 230.

Sincerely,

Rick Just, Coordinator
Comprehensive Planning, Research and Review

Enclosure

IDAHO ATV REGISTRATION STATISTICS 1999 - 2003

County	1999 Registrations	2000 Registrations	2001 Registrations	2002 Registrations	2003 Registrations	1999-2003 % Change
Benewah	403	461	517	901	955	137.0%
Bonner	436	625	762	1,051	1,307	199.8%
Boundary	47	52	108	174	243	417.0%
Kootenai	1,601	2,054	2,454	3,457	4,037	152.2%
Shoshone	472	576	599	834	972	105.9%
North Idaho Total	**2,959**	**3,768**	**4,440**	**6,417**	**7,514**	**153.9%**
Clearwater	350	480	526	675	743	112.3%
Idaho	471	615	708	941	1,095	132.5%
Latah	649	945	976	1,172	1,281	97.4%
Lewis	199	260	271	351	432	117.1%
Nez Perce	1,392	1,461	1,588	1,917	2,153	54.7%
North Central Total	**3,061**	**3,761**	**4,069**	**5,056**	**5,704**	**86.3%**
Ada	3,848	4,696	5,638	7,245	8,188	112.8%
Adams	129	191	233	281	294	127.9%
Boise	164	225	325	452	482	193.9%
Canyon	2,137	2,498	3,174	4,672	5,396	152.5%
Elmore	310	382	470	665	782	152.3%
Gem	557	657	712	957	1,047	88.0%
Owyhee	194	240	273	427	496	155.7%
Payette	416	585	654	897	1,003	141.1%
Valley	358	407	436	561	661	84.6%
Washington	171	241	238	366	414	142.1%
Southwest Total	**8,284**	**10,122**	**12,153**	**16,523**	**18,763**	**126.5%**
Blaine	171	245	292	423	483	182.5%
Camas	10	25	35	45	49	390.0%
Cassia	298	431	480	668	803	169.5%
Gooding	231	307	321	533	607	162.8%
Jerome	316	419	502	667	761	140.8%
Lincoln	51	87	148	192	207	305.9%
Minidoka	319	467	516	744	872	173.4%
Twin Falls	994	1,191	1,409	1,948	2,335	134.9%
South Central Total	**2,390**	**3,172**	**3,703**	**5,220**	**6,117**	**155.9%**
Bannock	1,297	1,633	1,895	2,622	2,903	123.8%
Bear Lake	379	507	571	782	878	131.7%
Bingham	777	1,025	1,268	1,744	2,128	173.9%
Caribou	399	470	489	647	691	73.2%
Franklin	468	529	712	904	983	110.0%
Oneida	90	137	160	209	215	138.9%
Power	102	143	152	204	248	143.1%
Southeast Total	**3,512**	**4,444**	**5,247**	**7,112**	**8,046**	**129.1%**
Bonneville	1,450	1,592	2,145	2,973	3,441	137.3%
Butte	74	90	131	191	228	208.1%
Clark	9	9	15	12	23	155.6%
Custer	134	148	161	244	283	111.2%
Fremont	246	307	371	567	727	195.5%
Jefferson	532	669	688	1,018	1,237	132.5%
Lemhi	81	74	213	353	452	458.0%
Madison	299	363	529	733	998	233.8%
Teton	50	75	95	124	166	232.0%
East Total	**2,875**	**3,327**	**4,348**	**6,215**	**7,555**	**162.8%**
Out of State	1,126	1,654	1,947	2,364	2,444	117.1%
Grand Total	**24,207**	**30,248**	**35,907**	**48,907**	**56,143**	**131.9%**

Note: These registration numbers are not absolutely definitive. This table includes only registered all-terrain vehicles. The previous IDPR Registration System counted any change of registration as a new registration, creating some duplication. There is also varying yearly compliance rates.

Source: IDPR Recreation Registration Information System

Prepared by Jeff Cook,
Outdoor Recreation Analyst 7/15/04

7

SOUTH CENTRAL SUPERVISORY AREA
329 Washington Street
Gooding ID 83330
Phone (208) 934-5606
Fax (208) 934-5362

IDAHO DEPARTMENT OF LANDS

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EQUAL OPPORTUNITY EMPLOYER

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Marilyn Howard, Sup't of Public Instruction

February 8, 2005

Bureau of Land Management
Attn: Eric Limbach
FMDA Project Manager
4350 Cliffs Dr.
Pocatello, ID 83204

Dear Eric:

We have reviewed the Draft Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and Environmental Impact Statement and have the following comments.

7-1 In general we would support Alternative D. This alternative would apparently treat
E the greatest acreage overall. We are in full agreement with the proposal to use non-native
7-2 "place holder" species where the risk of invasion by undesirable species is high. We encourage the Bureau of use grazing when possible to manipulate fuels and reduce undesirable species. This may be a way of reducing the number of AUMs that are
7-3 actually temporarily reduced while still achieving a desirable end.

Thanks for the opportunity to comment we now look forward to implementation.

Sincerely,

TIMOTHY C. DUFFNER
Area Supervisor

C: Tracy Berhens
Bob Brammer

8

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University of Idaho
College of Agricultural and Life Sciences
Cooperative Extension System
Twin Falls R&E Center
P.O. Box 1827
Twin Falls, ID 83303-1827
Phone: 208/736-3600
Fax: 208/736-0843

January 5, 2005

Bureau of Land Management
FMDA Project Manager
4350 Cliffs Drive
Pocatello, ID 83204

Attn: Eric Limbach:

I wish to offer the following comments on the Draft Fire, Fuels and Related Vegetation Management Direction Plan Amendment and Environmental Impact Statement for the former Upper Snake River District.

8-1 While I found many statements in the details of the plan that I question from a scientific standpoint and personal experience, I certainly support the need for amending the 12 existing land use plans to incorporate a fire, fuels and vegetation management plan. I think the BLM has chosen the correct approach in writing a general guidance plan for the
8-2 District, but leaving the details to be determined on a site specific basis.

8-3 I support the proposed alternative over the other three. I believe it is more realistic, in terms of what can be accomplished, given the time-frame, manpower, and budget available. I question alternative D being identified as the preferred alternative. I feel it is based on false assumptions of what it will do for sage grouse and to identify it as the
8-4 USRD's preferred alternative only sets you up for protests/litigation. Alternative A has not worked in stopping the spread of invasive species or reducing the frequency of
8-8 wildfires, thus it is unacceptable.

One of my concerns with the plan is the emphasis on reseeding native species. I do not believe the low success that has been achieved in seeding natives justifies the expense. I
A have seen examples of what the USRD considers successful native grass seedings, but I have yet to see one that I would consider a success. The primary objectives in reseeding
8-5 following a fire should be: 1) preventing soil erosion and 2) establishment of perennial vegetation that has a chance of out competing annual grasses (cheatgrass and medusahead wildrye). If that means seeding an introduced grass (i.e. crested wheatgrass), and it does on the more arid rangelands (in my experience, <12 inches), then that is what should be seeded. For all practical purposes, crested wheatgrass should be considered a naturalized species, rather than an exotic, in the low elevation shrub/annual grass areas.

B I question that BLM guidance "dictates" no grazing for two growing seasons following a
8-6 fire. While guidance may "recommend" such, I have it on pretty good authority that it does not "dictate" a minimum of two growing seasons rest. In some cases, it may be advantageous to timely graze the first spring after the fire to prevent cheatgrass from

To enrich education through diversity the University of Idaho is an equal opportunity/affirmative action employer and educational institution.

going to seed. In a review of scientific literature, it appears questionable that grazing after seed ripe the first year after seeding is necessarily detrimental to the perennial grasses and in some cases it may be beneficial. I refer you to a paper I wrote in 2000 on "How Long Should Rangelands Be Rested from Livestock Grazing Following a Fire?" that can be found at the website: http://www.cnr.uidaho.edu/range/ under publications.

8-7 I was initially concerned that the document did not recognize that there are thousands of acres in the USRD where sagebrush density is greater than it should be for any use, including sage grouse habitat and that it poses a high fire risk, once it gets started burning. However, I was pleased to see that both the Shoshone and Burley resource areas did indicate that they had such areas that needed to be treated.

Again, I support your proposed alternative and appreciate the opportunity to comment.

Sincerely,

Ken Sanders

Kenneth D. Sanders, Professor

Since cheatgrass generally initiates growth earlier in the spring than crested wheatgrass (or other perennial bunchgrasses), competition from the cheatgrass might be reduced with livestock grazing in the spring, before the perennial seedlings have made sufficient growth to be grazed.

The final criteria for successful seed germination and establishment is adequate seed coverage. All perennial grasses require some seed coverage by mineral soil before the seed can germinate. However, cheatgrass can germinate and become established lying on top of the soil, again giving it a competitive advantage. It is widely accepted by those with experience in seeding rangelands that aerial broadcasting of seed on burned areas at lower elevations is seldom successful and it is only slightly more successful at the higher elevations. The greater success at higher elevations is probably related to a deeper ash layer to cover the seed and more available moisture. Why is aerial broadcasting seldom successful at lower elevations? The most likely cause is inadequate seed coverage, especially when the area is placed off limits to livestock grazing for two or more growing seasons. The principles of rest-rotation grazing, developed by Gus Hormay (1961) and widely applied throughout the Intermountain Region and the Pacific Northwest, especially the treatment of grazing after seed ripe to get seed coverage applies to burned areas as well as low condition rangelands.

The argument can be made that in some cases it might be better to graze the first year following fire. When there is an adequate stand of perennial bunchgrasses surviving a fire, grazing after seed ripe may enhance the establishment of new plants through seed coverage. However, if the perennial plants were in low vigor prior to the fire, then the area should probably be rested for the entire first year. Those species more susceptible to fire (i.e. Idaho fescue, needle-and-thread) should also be rested the first year. Following the principles of rest-rotation grazing, if there are abundant seedlings the second spring and average or above spring precipitation, the area should probably be rested that entire grazing season to give the seedlings a chance to become established. Second, on lower elevation rangelands faced with heavy competition from annual grasses, consideration should be given to grazing the burned area early the first spring or two to reduce competition from the annuals with perennial grass seedlings.

A blanket policy of withholding livestock grazing on a burned area for two or more growing seasons is open to question. The decision to graze or not to graze the first year following the fire may vary from one pasture to another within an allotment, depending on the many variables affecting plant survival, growth and reproduction. Because of the many variables involved, such decisions should be made on a case by case basis.

Literature Cited

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HOW LONG SHOULD RANGELANDS BE RESTED FROM LIVESTOCK GRAZING FOLLOWING A FIRE?

A Viewpoint

Kenneth D. Sanders, Professor
Rangeland Ecology & Management
University of Idaho

September 13, 2000 (Revised 10/12/00)

Some land management agencies have a general policy that rangelands are to be rested from grazing for at least two growing seasons following fire. Many range scientists and range managers, including myself, question this policy. There are three reasons commonly cited for a post-burn rest from grazing: recovery of residual plants, regeneration of desirable plant species and accumulation of litter for soil stability. The effect of fire on plant survival and regeneration depends on several variables, including plant species, season of the fire, intensity of the fire, vigor of the plants prior to the fire, associated species and climatic conditions during and following the fire. Soil stability varies by soil type, topography and climatic conditions. Therefore, a more reasonable approach would be to decide on a pasture by pasture basis whether to graze the year following the fire or to rest the pasture for two or more growing seasons. This paper is not intended as an exhaustive literature review, but rather, as a starting point for on-the-ground discussions between land managers and livestock permittees in the coming year.

I will limit my discussion to the effect on major perennial grass species of the sagebrush-grasslands in the Intermountain Region. The late Henry Wright, widely regarded as the preeminent rangeland fire ecologist of the western U.S., discussed fire effects on this vegetation type (Wright 1985). He reported that fire effect on grasses is largely dependent on growth form and season of burning. Bunchgrasses with densely clustered culms and lots of leaf tissue (Idaho fescue and needle-and-thread) are more susceptible to damage by fire and are slower to recover because the they will burn longer and hotter than those without dense culms and less leaf tissue (wheatgrasses). The latter burn quickly with little heat transfer below the soil surface. Rhizomatous grasses (thickspike and western wheatgrasses) tolerate fire well, as does Indian ricegrass. June and July is the most detrimental season to burn bunchgrasses, with spring burns less detrimental than fall burns.

In reviewing research on how long it takes for bunchgrass production to return to preburn levels, Wright (1985) reported that bluebunch wheatgrass will recover in 1 to 3 years; Idaho fescue 2 or more years; and needlegrasses 3 or more years, all depending on soil moisture, season and intensity of the fire. But what is the effect of grazing on perennial grasses the first season after they burn? Jirik and Bunting (1994) examined the response of bluebunch wheatgrass and bottlebrush squireltail grass to post-fire defoliation at two locations in southern Idaho. They found that late season defoliation (after seedset) the first year after burning did not significantly reduce the vigor of either grass species. Production, basal area and tiller numbers of bluebunch wheatgrass were not affected by late season defoliation, despite two years of below normal precipitation following the fire. Squireltail grass was slightly more sensitive to late

season defoliation than bluebunch wheatgrass. Early season defoliation (during the boot phenological stage) the first year after burning did reduce vigor of the two grasses. Bunting et al. (1998) found that early-season defoliation the first year after fire resulted in plant mortality as high as 50% for Idaho fescue and 70% for bluebunch wheatgrass in a study in northern Idaho. However, the effects were lessened when defoliation was delayed one growing season after the fire.

Uresk et al. (1980) reported an increase in vegetative growth and superior reproductive performance in bluebunch wheatgrass during the first post-burn season. Patton et al. (1988) also found greater seed production of bluebunch wheatgrass on 2 out of 4 one-year old burns, compared to unburned control plots. Idaho fescue had less seed production on the burned areas than the unburned controls on one-year old burns, but recovered by the third year. Bunting (1985) pointed out that most studies indicate two to several years may be required for this to occur. He attributes the increase in production primarily to an increase in production per plant and not an increase in density of plants (new plants established from seed). Thus it appears that the increased seed production does not necessarily result in new plants becoming established. What causes a low establishment rate has not been addressed by research, except when there is competition from invading annual grasses, such as cheatgrass.

In order for perennial grasses to establish from seed, certain requirements have to be met. These are a source of viable seed, adequate seed coverage, suitable germination temperatures, minimal competition from other plants and last, but probably most important, adequate soil moisture for the seedling to develop sufficiently that it can survive the dry summers. Patton et al. (1988) reported the number of filled florets (i.e. viable seed) was greater on burned plots than on unburned control plots on bluebunch wheatgrass, Idaho fescue and Columbia needlegrass. Thus it is likely there is an adequate source of viable seed the first year following a burn. Suitable temperatures for seed germination will occur every spring, although the date may vary from year to year

Soil moisture is not only required for a plant to germinate, but there must be sufficient moisture in the seedling root zone over a long enough period for the plant to develop sufficiently to survive an extended dormant period. For most bunchgrasses, this requires the seedling to reach the 3-leaf or greater stage of growth. At higher elevations (6000 ft plus), there is generally adequate soil moisture for seedling establishment. At lower elevations in the Intermountain Region, adequate soil moisture is dependent on the frequency of spring precipitation. Some years it is adequate, some it is not. It is common at the lower elevations to see seedlings of plants every year of both grasses and sagebrush. However, in years with below average spring precipitation, most of those seedlings do not survive.

Competition from other plants, especially annual grasses, is generally not a problem on higher elevation rangelands. However, where cheatgrass or medusahead was present prior to the fire or a seed source is at hand, competition for moisture on the lower elevation rangelands can be a problem for perennial grass seedling establishment. Considerable research has been conducted on reducing or controlling the competition from these annual grasses, but such control is not assured with mechanical or chemical means. The most successful biological control method has been to seed crested wheatgrass. Crested wheatgrass and squireltail grass are the only perennial grass species that have been shown to successfully compete with the annual grasses in the Intermountain Region.

9

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IDAHO STATE DEPARTMENT OF AGRICULTURE
P.O. BOX 790 • 2270 OLD PENITENTIARY ROAD
BOISE, IDAHO 83701
TELEPHONE: (208) 332-8500
FAX: (208) 334-2170

DIRK KEMPTHORNE
GOVERNOR

PATRICK A. TAKASUGI
DIRECTOR • SECRETARY

February 3, 2005

Bureau of Land Management
Attn: Eric Limbach
FMDA Project Manager
4350 Cliffs Drive
Pocatello, Idaho 83204

Dear Mr. Limbach:

The Idaho State Department of Agriculture (ISDA) appreciates the Bureau of Land Management's (BLM) efforts to address fire and fuels management in the Eastern Idaho Cooperative Fire Management District, and the opportunity to comment on the Draft Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and Environmental Impact Statement (DEIS). The plan's stated intent, to develop a comprehensive directive for the management of Fire, Fuels, and Related Vegetation Management by providing guidance through clearly stated objectives, policies, and resource goals, is commendable. ISDA would like to support your efforts by providing direction to enable incremental steps toward long-term goals of more natural fire conditions and related vegetative communities throughout the landscape.

ISDA's remarks are organized to comment on the merits of each alternative as they relate to the purpose and need of this plan. The DEIS states, "Current land use plans do not address fire management issue in a comprehensive way…Amending the land use plans is necessary in order to integrate comprehensive fire management direction into the land use plans." (pg. S-2) ISDA contends that neither the Proposed Action, nor the Preferred Alternative provides for a "comprehensive fire management direction." The comments that follow explain our reasoning for this assertion. We also incorporate ideas from the analyzed alternatives and suggest an additional alternative to better meet the stated objectives, and to aid the deciding officer's final decision.

9-1 (ALT B)

9-2 (ALT D)

General

ISDA is concerned that the DEIS may be too ambitious in the targeted acres to be treated. Funding is always inadequate and inconsistent so the BLM should be cautious in projecting goals and objectives that may not be realistically achievable. This situation is common and creates several complications. One, litigation by unsatisfied user groups is more likely because the BLM is unable to fulfill objectives of the DEIS and Land Use Plans (LUPs). Second, cooperators become dissatisfied with the inability of the BLM to fulfill their commitments and are less likely to participate in collaborative

9-3

programs and projects primarily because they don't want to engage in a process that is foreseen as a waste of their limited time and resources.

Alternative B

9-1 The proposed alternative, Alternative B, though it does satisfy certain aspects of the purpose and need of the action, does not address it in a comprehensive manner. The DEIS admits that this alternative does not "...treat all cover types to a level that returns the fire regime to the range of historical variability." (pg. 2-22) The DEIS also implies that Alternative B would be "...limited by existing operations capabilities and resources." (pg. 2-22)

9-1 Alternative B also does not effectively address Issue 1, which stemmed from the scoping process that drove the development of alternatives (Section 1.4.1). The DEIS even recognizes this fact: "The Proposed Action does not incorporate the recommended level of treatment in the national-scale program option..." nor does it "...directly address the goals and priorities..." of the Cohesive Strategy/10-year Comprehensive Strategy prepared by the USDA for restoring fire's natural role in the ecosystem. (pg. 1-10)

Alternative D

9-2 Alternative D, the preferred alternative, changes the direction of the plan entirely and inadequately addresses the purpose and need of the plan. Though Alternative D was formulated to address Issue 2, which deals with sagebrush obligate species, it should be remembered that this is a Fire, Fuels, and Related Vegetation Management Direction Plan and not a habitat conservation directive for sage steppe obligates. If the BLM selects this alternative, the BLM will miss out on a great opportunity to return fire regimes to the range of historical variability, and provide for a complete and healthy range ecosystem.

9-4 If Alternative D is chosen, the BLM will also limit itself to treating only certain types of vegetative cover, in this case, low-elevation shrub, perennial grass, annual grass, mid-elevation, shrub, mountain shrub, and juniper. These are not all types of habitats which are under BLM's jurisdiction where fire historically played a critical role in vegetation health. Cover types not included in Alternative D are aspen/conifer and dry conifer vegetation types. Aspen is a critical part of western landscapes as it provides forage for livestock, habitat for wildlife, watershed protection, and water yield for downstream users, esthetics, recreational opportunities, and landscape diversity (Bartos and Cambell 1998). Bartos and Cambell also state that not only is plant diversity reduced, but for every 1,000 acres converted to mixed conifer stands 250-500 acre-feet of water is transpired into the atmosphere and is not available for streamflow or undergrowth production. Additionally, 500-1,000 tons of undergrowth biomass is not produced. Of this biomass 40-60 percent is usable forage for livestock and wildlife, the remaining is valuable hiding and thermal cover for wildlife. Records indicate Idaho has already lost approximately 60 percent of its aspen ecotypes emphasizing the impact of this community change to the state of Idaho.

None of BLM's field offices covered by this DEIS have a Fire Regime Condition Class (FRCC) of 1, meaning that aspen stands in the Upper Snake River District are predominately made up of late successional forest. As a result, most of BLM's seral aspen stands have been taken over by conifer and stable aspen stands are decadent. Late successional aspen stands greatly alter available water, undergrowth biomass production, and biodiversity (Bartos 2005). The BLM must include this

important vegetation type to properly manage watersheds, and assist the state of Idaho in meeting its objectives for a sustainable forage base for livestock grazing, wildlife habitat and disease control, and water production.

Alternative D also does not return juniper woodlands to their historical fire regime. As stated in the DEIS, juniper and pinyon woodlands have expanded ten-fold in the last 130 years in the
9-5 Intermountain West (pg. 3-13), due in large part to fire suppression. Though important to several wildlife species, juniper woodlands and associated encroachment leads to a depleted understory, and increased hillslope runoff and erosion. Many juniper-dominated watersheds produce less water and many springs and meadows within them have dried up. Juniper dominated stands can also shorten the growing season of surrounding plants by as much as six weeks because of juniper's extensive root system (Pierson 2005).

ISDA appreciates the BLM's efforts in sage grouse recovery and we support any attempt at
9-2 improving sage grouse habitat. Alternative D is more than adequate at accomplishing that mission for the Upper Snake River District. However, the purpose and need of the plan isn't to develop a landscape strategy to benefit sage grouse and the Sagebrush Guild. Doing so would come at a cost of not having good rangeland health on all landscape levels.

Alternative C

As outlined above, Alternatives B and D do not accomplishment the purpose and need of the plan. Alternative C or some variation thereof, if chosen, would more effectively fulfill the purpose and
9-6 need of the plan and move the landscape toward Desired Future Conditions as outlined in Table 2-1, page 2-5. Alternative C would create a wildland fire regime within the historic range of variability for all cover types. The DEIS states, "...most fire regimes have been altered, resulting in shifts toward Annual Grass cover types, loss of desirable sagebrush steppe, encroachment of junipers, and decadence in Mountain Shrub, Aspen/Conifer, and Dry Conifer cover types." (pg. 3-30) Alternative C is equal to Alternative D in providing the greatest long-term benefits for Annual Grass habitat (pg. 4-99), and Perennial Grass habitat (pg. 4-99), and have a more desirable impact on the Juniper and Mountain Shrub Guild (pg. 4-104), and Wet/Cold Conifer cover types (pg. 4-106) than all other alternatives.

Alternate Alternative

As mentioned earlier, the sagebrush steppe habitat is an extremely critical component to the long-term integrity of sage grouse populations, and ISDA supports efforts to improve sage grouse habitat. One shortcoming of Alternative C is that it doesn't sufficiently address Issue 2 and could have potential negative impacts on sagebrush steppe obligate species. The DEIS states, "Even though Alternative C more closely mimics the historical fire regime, it is not sensitive to the needs of the
9-7 Sagebrush Guild." (pg. 4-85) This situation could easily be remedied if the treatments outlined for the sagebrush steppe ecosystem in Alternative D were incorporated into Alternative C. Two specific elements that could be incorporated into Alternative C are Alternative D's treatments in Low-elevation Shrub and Perennial Grass ecosystems. As acknowledged by the DEIS in Section 4.4, this would speed up the process in converting Perennial Grass to sagebrush steppe habitat in the short term, and improve the proportion of 15- to 30-year sagebrush age class and significantly reducing cheatgrass in the long term.

9-2 Again, ISDA would like to emphasize that the BLM should not select the Preferred Alternative. If the BLM proceeds with Alternative D, they will limit their range of management options by focusing on a single species of sagebrush obligate (sage grouse). This will not give the BLM the needed flexibility to manage all types of ecosystems, especially if and when public policy and political forces switch their focus from sagebrush obligate species to other potential species of interest in the next 10 years.

ISDA recommends adopting Alternative C, with the suggested changes, as the Proposed Action.

Sincerely,

Patrick A. Takasugi
Director
Idaho State Department of Agriculture

Bartos, Dale and Robert B. Cambell, Jr. 1998. Decline of quaking aspen in the Interior West—examples from Utah. *Rangelands* 20(1):17-24.

Bartos, Dale. 2005. Aspen, a critical component of the southern Idaho landscape. *Symposium*: Aspen and Conifers in Rangelands. Idaho Section Society for Range Management Annual Meeting, January 6, 2005.

Pierson, Frederick B. 2005. Juniper encroachment and the hydrologic cycle: What do we know? *Symposium*: Aspen and Conifers in Rangelands. Idaho Section Society for Range Management Annual Meeting, January 6, 2005.

10

Terry Smith/AKSO/AK/BLM/DOI
02/10/2005 02:46 PM

To Terry Lee Smith/USRD/ID/BLM/DOI@BLM
cc
bcc
Subject Fw: Fuels Comments 1

----- Forwarded by Terry Smith/AKSO/AK/BLM/DOI on 02/10/2005 12:46 PM -----

"kfite@juno.com" <kfite@juno.com>
02/10/2005 12:40 PM

To ID_USRD_FMDA@blm.gov, kfite@juno.com, terry_smith@blm.gov
cc
Subject Fuels Comments 1

Pasted below is the first of 3 documents - 2 sets of comemnts, and lit. cited submitted by WWP on the Fire, Fuels and Related Veg. Mgmt. EIS

Please let me know that you have received them.

Katie Fite
kfite@juno.com

February 9, 2005

Terry Smith
FMDA Project Manager
BLM
1111 N. 8th Avenue
Pocatello, ID 83201

Here are comments of Western Watersheds Project on the Upper Snake River District Fire, Fuels and Related Vegetation Management Plan Amendment. We incorporate by reference past comments (scoping) of American Lands Alliance and Committee for the High Desert on this process. We are also submitting additional comments.

LIVESTOCK GRAZING AS A CAUSAL AGENT IN FIRE, FUELS, VEGETATION "PROBLEMS"

The Draft EIS fails to adequately address the role of livestock, and BLM and other agency management of livestock, on the ecological health and fire regime of lands across the Project area.
10a-1 It fails to present scientific information and analysis necessary to understand the role of livestock

in causing fuels problems – including the role of ongoing livestock grazing across the lands of the EIS area.

The EIS and alternatives are based on BLM's false premise that it can impose fire and other
10a-2 treatments to bring about "historical" ranges of fire occurrence and achieve an artificially derived "desired" future conditions is not based on the facts that cattle and sheep grazing in the USRD lands have created an UNNATURAL environmental setting – often with massive topsoil loss, lowered site potential, desertification, and great vulnerability to weed invasion following disturbance. BLM's complicated modeling fails to address this. BLM has not used current ecological science in deriving its models, desired conditions, and predicted outcomes of treatments.

BLM must fully update the livestock grazing and vegetation allocation components of all 12 affected Land Use Plans in conjunction with this process. The livestock grazing and vegetation portions of all these Land Use Plans are woefully outdated. They allow extremely high utilization rates on both
10a-3 upland and riparian sites. They lack quantified trampling standards. Most of the old plans view threatened native sagebrush vegetation communities as "brush", primarily suitable for burning, spraying and discing up. These plans fail to consider current science, such as stubble height standards necessary for riparian protection, utilization levels necessary for successful sage grouse nesting, or grazing systems that protect microbiotic crusts necessary for soil health and keeping cheatgrass and other weeds that cause a fuels problem from invading. As a result, we believe it is not possible for BLM to tier to, or rely on, these documents in this planning effort. This is especially the case as the EIS proposes large-scale alteration of landscapes across hundreds of thousands of acres of public lands.

10a-3 In addition, these old Land Use Plans do not provide for protections necessary to slow down or halt weed invasions and alterations of the fire cycle. The current scientific literature overwhelmingly shows that livestock grazing is a primary cause of problems affecting native vegetation, including altered fire frequencies and altered fuel situations. See Attachment 1 to our scoping comments, an extensive annotated bibliography provided with these comments, which we ask you to carefully review in relation to the whole range of our comments. An EIS grappling with fire, fuels and vegetation management on southern Idaho lands must address livestock grazing as a causal agent,
10a-4 and analyze the impacts of livestock grazing in causing "unnatural" fire cycles, and the impact of livestock grazing on the ultimate outcome/effectiveness/success of any treatments. Without
10a-2 including significant changes in livestock grazing practices including reduced stocking rates and/or removal of livestock from lands at risk to cheatgrass invasion, or where restoration actions may be undertaken, and more protective levels and standards of use, BLM will be wasting taxpayer dollars on this Fire EIS effort.

BLM must fully address livestock as a causal agent in ecosystem disruption, and alteration of
10a-2 composition, structure and function of native ecosystems in the arid lands (see Fleischner 1994) covered by the EIS. Thus, the role of livestock in causing any fuels problem must be fully assessed, including all direct, indirect and cumulative impacts of past and ongoing livestock use on rangeland health problems associated with fire, hazardous fuels and weeds. A wide range of up-to-date livestock management alternative components must accompany all alternatives in this EIS process. These should include analysis of a range of reductions in stocking rates, and their effects on ecosystem processes, fire, fuels, weeds, restoration, rehabilitation efforts.

10a-4 BLM must fully analyze cessation of livestock use/grazing permit retirement as part of any treatment analysis that is conducted. Federal fire funds should be used to buyout the grazing permits on lands that are treated, or determined to be at risk to weed invasion, or determined to be at risk of crossing thresholds from which recovery may not be possible, and the inextricable link between fire/fuels problems and livestock grazing effects must be addressed.

Information that needs to be acquired and assessed includes:

- Current stocking rates (average actual use as well as active permitted use) in all allotments, and in all vegetation types
- 10a-5 Utilization levels allowed in all allotments and in all vegetation types
- Season of grazing use
- Condition of soils, vegetation, habitats related to stocking rates, levels of use allowed, etc.

10a-5 BLM must Conduct Population Viability, Persistence, Extinction/Extirpation Models for species of Native Wildlife Under all Alternatives. The Proposed Action would treat 646,000 acres over a 10-year period. The Preferred Alt. would treat 1,522,300 acres over a 10-year period. This will have a widespread, and drastic, impact on special status species habitats and populations

ADEQUATE BASELINE INFORMATION ON VEGETATION COMMUNITIES MUST BE COLLECTED

Unfortunately, the Draft EIS does not provide adequate information on vegetation communities in the affected lands and their surroundings.

BLM must collect and analyze extensive baseline information on past fire and vegetation conversion or manipulation projects in the affected lands, and other factors that result in weed corridors, 10a-6 habitat fragmentation, increase likelihood of human-caused fires or disturbance, etc. Data and maps must be compiled and assessed that indicate where all past treatments have been conducted by state and federal land managers (and private - where known) within the EIS area. Without understanding the past dispersion and impacts of treatments and disturbance across the landscape, BLM can not adequately assess the impacts of various alternatives related to treatment and land health.

Information that needs to be acquired and assessed includes data and maps of:

- 10a-6 Past disturbance events on these lands (fire- prescribed or wild, chemical treatment, mechanical treatment, other);
- Seedings or any other post-disturbance treatments that have occurred
- Condition of seedings, including cheatgrass and other fine fuels and weeds in interspaces
- Comparison of current seeding condition to stocking rate based on good or better condition seeding
- Location of all livestock facilities

· Location of all roads.

10a-6 Assessment should include a study of the current ecological condition and health of soils, vegetation, important wildlife habitats and other important values of the affected lands, a comparison between these conditions and conditions at the time of the disturbance.

10a-6 For all 5.3 million acres, BLM must collect current information on: Vegetation species composition, its current ecological condition; livestock grazing regimen and standards of use; wildlife habitats and populations occurring here. Information on periods of rest, trespass, and other livestock factors must be included.

10a-6 Current information on ecological condition, presence of weeds and other exotic species, etc. on all lands within the 5.3 million acre project area must be collected as part of this effort. It must be the basis for decisionmaking on "acres to be treated" for various purposes in the EIS.

10a-6 For example, how many acres of salt desert shrub communities, Wyoming big sagebrush, or other communities have a significant component of cheatgrass in the understory? How many of these lands have already crossed thresholds, where succession is truncated? How many are at risk of crossing thresholds? How many acres, and what is the location, of each vegetation type is in good or better ecological condition?

10a-6 After solid, on-the-ground collection of new information, BLM must develop a rigorous protocol for determining all lands in need of "treatment", and explain in comprehensive detail, with supporting science, why these lands need treatment.

10a-7 We are alarmed that BLM in the EIS proposes to NOT treat the extensive crested wheatgrass seedings that have so altered and largely destroyed wildlife habitats, and which often form the basis of continuing to graze excessive numbers of livestock that also affect native vegetation in or near these seedings. Many crested wheatgrass seedings have become infested with cheatgrass, halogeton or other weeds and now contain continuous fine fuels. They are now not acting to stop fires, but instead are susceptible to burning. Plus, the harm and fragmentation of native species habitats caused by these seedings must be assessed – as it is important to understand their role in habitat fragmentation on top of the extensive alterations of habitat proposed by BLM under the Draft EIS. The Burley BLM lands provide a perfect example of a woefully fragmented landscape where crested wheatgrass seedings have greatly fragmented sage grouse habitats across middle to lower elevations, and many are in very poor condition and have rampant cheatgrass, halogeton and other problems – as well as loss of forage. Yet, BLM persists in promoting the killing of native vegetation (junipers, mountain big sagebrush, pinyon, and other species) in the Jim Sage and other areas, while ignoring the habitat loss, and weed and fire risks, posed by the creasted wheatgrass and other purposefully altered lands, including those BLM itself "treated" with fire and which have become weedlands.

10a-8 We attended the EIS Scoping meeting held in Boise, and were shocked that BLM had no sound basis for estimates of acres proposed to be treated in the information that was provided to the public. We were told that BLM asked land managers in each field office to come up with estimates. However, there was no protocol followed as a basis for these estimates, and it appears no scientific

10a-8 methodology was followed. Our review of the Draft EIS confirms that a systematic method to assess treatment "need" has not been used.

Cohesive Strategy and Fire's Natural Role. The EIS must base its analysis on science, and not the
10a-8 mis-begotten hope that fire still retains a "natural" role in many of the highly disturbed systems here. This is key to understanding that many of the DFCs are not attainable - especially if large-scale chronic disturbance factors like grazing continue unabated, and spread cheatgrass and weeds in their wake.

10a-9 The EIS's discussion of Age, Seral Status and other elements ignores alterations in composition, function and structure that exist in the real world as a result of livestock grazing and other disturbances, past vegetation treatments followed by livestock grazing, etc.

RISK ASSESSMENTS MUST BE CONDUCTED

Following careful and systematic data collection on current ecological condition, current vegetation
10a-10 type, range trend, and current weediness of the 5.3 million acres of lands, BLM must prepare honest and accurate assessments of "risks" of and "need for" various treatment disturbances or treatments to the affected lands, as well "risks" of invasions with continued livestock grazing under the old Land Use Plan paradigms, and under updated paradigms under the alternative actions that BLM needs to develop for this process.

ICBEMP assessed lands and categorized them "at risk" to weed invasion. This EIS effort can build on that, and take a much more detailed look at the Upper Snake BLM lands affected by this proposal. Shockingly, ICBEMP also found that only a very small portion of the entire USRD had even "moderate" ecological integrity (PNW-GTR-385 at 118, Map 18). Nearly all the USRD lands except
10a-11 for the Upper Little Lost and Birch Creek are in "Low" ecological condition. The EIS fails to provide information to tie proposed treatments to such land areas, and fails to assess the role (and ecological condition) of past treatments past and current livestock management (especially under out-dated paradigms and levels of use), and develop new goals, objectives and allocations that better address the pressing habitat needs of many important species and that address root causes of hazardous fuels problems, and thus provide better and more cost-effective protection from hazardous fuel problems.

SUITABILITY OF LANDS FOR TREATMENT - WILDERNESS, ACECs, ROADLESS LANDS

We are very concerned about the lack of necessary analysis of the impacts of the various
10a-12 alternatives on the integrity of, ecosystem processes within, and important and special features of WSAs; relevant and important values of ACECs; integrity and values to society and watersheds of roadless lands. BLM's proposal will cause irreparable harm to values ranging from recreational spiritual and aesthetic values, to unroaded watersheds that do not release road sediment to streams.

SUITABILITY OF LANDS FOR LIVESTOCK GRAZING

In many areas, sheep AUMs have been converted to cattle AUMs, with no intensive "look" taken at the impacts of sheep vs. cattle use, and the often decreased suitability of steep, rocky or other terrain for cattle use (vs. sheep).

10a-13 This suitability of lands for livestock grazing must be assessed as part of this process. Please see USFS methods used in development of the Boise, Payette and other recent southern Idaho Forest Plans.

BLM has failed to employ the analytical procedures described by Professors Holechek, Galt and others, and which the Forest Service uses in its grazing management, in setting stocking levels by first determining the amount of land area that is both "capable" and "suitable" for grazing.

Under the "capability", an evaluation is made to determine the number of acres of lands that are "capable" of livestock grazing, based on specific slope, distance from water, rockiness, and other factors. Then, out of the "capable" lands, a further determination is made about which acres are "suitable" for grazing, based on considerations such as special management areas, fragile ecological resources, or other considerations. After this analysis is done, then the
10a-13 remaining lands that are both "capable" and "suitable" are assessed to determining grazing levels by setting proper stocking rates. This analytical process is central to ensure a proper grazing management system that does not degrade range resources, and must be considered as part of the determination under various alternatives of the impacts or effects of the outcomes of any of the many large-scale disturbance treatments of fuels or weeds across vast acres that BLM is proposing in the EIS. Plus, BLM must understand if setting stocking rates, and the action to sustain them, in grazing unsuitable lands is a major contributing factor to fuels and weeds problems.

10a-13 All alternatives must include 25% or less allowable utilization of upland vegetation, no grazing during critical growing periods for native species, no grazing during nesting periods for migratory birds and sage grouse, measurement of livestock trampling damage to native vegetation and microbiotic crusts and means to minimize trampling damage, no movement of livestock from lands infested with exotics to more intact communities.

BLM MUST EXAMINE USE LEVELS, AND THEIR ROLE IN FUELS PROBLEMS

BLM does not take into account the scientific literature - much of it published in the Journal of
10a-14 Range Management - demonstrating that utilization limits historically followed by BLM (typically, 40%, 50% or 60% utilization limits) may contribute to degradation of native forage, and plant community changes that result in fuel and weed problems.

A FULL RANGE OF PASSIVE TREATMENTS MUST BE EVALUATED

Passive treatments primarily minimize site disturbance, and generally remove or minimize an environmental irritant that is affecting the health of the plant community. Thus, they have less risk
10a-15 of soil erosion, weed invasion or proliferation and other negative impacts associated with them. They also have a high probability of being beneficial to watersheds, native wildlife habitats and populations and the economic well-being of western communities that are increasingly dependent on tourism and recreational uses of public lands.

An array of passive treatments exist that will enable BLM to treat many of the affected lands. Such treatments include:

10a-15 Livestock grazing treatment: Livestock grazing treatments can reduce spread of flammable invasive species, heal damaged understories so that more natural, cool-burning fires can occur, and reduce the proliferation of doghair thickets of dense young trees which serve as ladder fuels. Treatments include significant reductions in livestock numbers accompanied by prudent utilization and trampling standards in plant communities found to have damaged understories vulnerable to invasion by flammable exotic species.

Closure of pastures with known exotic infestations. Closure of lands to grazing that have known exotic species infestations is a prudent first step toward control of spread of flammable, watershed-altering exotics.

Closure of pastures "at risk" to weed invasion – such as any Wyoming big sagebrush, Basin big sagebrush, or juniper communities that still contain relatively intact understories. This EIS process should map and identify such areas, as well as all areas where cheatgrass already dominates the understory.

Livestock removal treatment: Grazing permit buyout and permit retirement using federal fire funds is a very reasonable treatment that will heal damaged lands, help restore natural fire cycles, minimize the spread of exotics and other hazardous fuels.

Livestock facility removal treatment: Livestock facilities (fences, artificial watering sites – especially troughs associated with pipelines and water haul sites, corrals, etc.) serve as zones of livestock concentration, and result in areas of severe disturbance readily colonized by highly
10a-15 flammable exotic species. Removal of these facilities and restoration of disturbed zones will limit spread of invasive flammable species, and help develop healthy understories necessary to carry cool, light fires in surrounding lands.

We are alarmed that BLM's Draft EIS casually casts aside Alternatives development based on a series of passive livestock treatments, and fails to explain the actions such treatments entail .

Road/ORV trail closure and rehab/restoration treatment: Closures and restoration treatments quell the spread of flammable invasive species from disturbed road and trail edges. Roads are known to serve as conduits for weed invasion (Gelbard and Belnap 2003).

10a-16 Road closure coupled with grazing reductions can have large-scale positive effects, as roads as weed conduits can be closed, and livestock reductions minimize spread of weeds already present within the area.

Allowing natural successional processes and healing processes to occur in plant communities that are still relatively intact is the most cost-effective method of attaining natural fire cycles, reducing buildup of hazardous fuels over time, etc. Natural mortality occurs in sagebrush, sagebrush-bitterbrush and other vegetation types. Allowing natural processes to play out, while

10a-16 removing or minimizing those agents that are disturbing natural ecological processes takes patience, but minimizes risks of exotic invasion that accompany aggressive intervention such as fire or mowing.

HAZARDOUS FUEL

If BLM plans on using this term in its analysis, we ask for a careful and scientific description of the basis for its use. For example, Idaho Falls BLM engaged consultants to prepare an EA for "hazardous fuels reduction" in Sands Checkerboard. We are uncertain just what the hazard is here. Who or what is threatened by the woody vegetation termed hazardous fuels? Is cheatgrass a
10a-17 "hazardous fuel"? We certainly think this term is far more apt for cheatgrass than it is for most other vegetation situation where BLM applies it. BLM must develop a methodology to prioritize any "treatments' of hazardous fuels. This is necessary to most effectively spend scarce taxpayer dollars, best protect habitations and areas that are truly "at risk". Instead of spending hundreds of thousands of dollars planning 6-10 million dollars or more of "treatments" in the Jim Sage Area, or drastic "treatment" of the entire Samaria Mountain Range, These projects are primarily aimed at killing woody vegetaiton top promote livestock grazing. BLM must use a sound methodology to determine needs for treatment - and focus should always be on the areas withn approx. 1/8 mile of actual interfaces with human habitation.

RESTORATION

Restoration of native vegetation communities and ecological processes must be the goal of all treatments. Restoration means restoring and maintaining ecological integrity. Ecological integrity is the ability of an ecosystem to support and maintain a balanced, adaptive community of organisms having a species composition, diversity and functional organization comparable to that of natural habitats within the region.

Lands of primary focus for most active restoration should be: Lands that have been invaded by exotics such as cheatgrass, medusahead, knapweed or leafy spurge; Lands purposefully seeded to exotics such as crested wheatgrass following past agency vegetation manipulation or fire. These
10a-18 should be prioritized for treatment on the basis of: Geographic location and continuity/connectivity of native habitats that restoration would provide for native species. For example, crested wheatgrass seedings in the Little Lost River Valley are located in an area of great importance to sage grouse. Restoring the native sage-steppe vegetation on these sites as habitat for sage grouse and pygmy rabbit should be top priority, as well as prevention of any further degradation to still-native communities.

BLM must focus significant treatment and restoration efforts and spending of federal fire funds on restoration of native species composition and function to crested wheatgrass that has been rampantly seeded as following ill-conceived sagebrush removal or as post-fire "rehab", and lands overrun by cheatgrass. The current abundance of federal fire funds should be used to follow-through on BLM post-fire rehab actions that have failed in the past (please evaluate all seddings and identify failures and causes of failure), or where crested wheatgrass and other exotics were planted as a first step in arid lands rehabilitation. BLM now has the opportunity to complete post-fire rehabilitation that has been undertaken, but has failed or had poor results on

10a-18 likely millions of acres of USRD lands. As part of this process, BLM should identify all lands where post-fire rehab/"emergency" stabilization with crested wheatgrass, intermediate wheatgrass and other exotics was conducted, and prioritize treatment of these lands to return them to native vegetation and restore natural fire cycles.

Experimentation with new techniques, especially new chemicals, should be limited to lands overrun by cheatgrass and crested wheatgrass seedings.

10a-19 For lands still in reasonable health with reasonable ecological integrity, passive treatments should primarily be applied. Techniques which minimize soil and native vegetation disturbance should be the first steps taken. Try these first. See if they work.

10a-20 As the result of past proliferation of purposeful seedings of exotic species by BLM in ESR situations, huge sterile monocultures of exotic species dominate hundreds of thousands of acres of Idaho BLM lands. These seedings, a result of activities to produce firage, sometimes under post-fire ESR, have had disastrous consequences for native ecosystems. Plus, instead of restoring lands seeded immediately after fire to exotics, BLM instead has let these lands in a highly altered and unnatural condition. BLM now manages these seeded lands as permanent BLM sacrifice zones to the livestock industry - issuing TNR, converting TNR to permanent AUMs, etc. It is these post-fire seedings, a direct result of BLM's short-sighted livestock forage or ESR efforts of the past, that are facing massive AUM increases to wealthy permittees, such as JR Simplot, in the Jarbidge Field Office.

You must fully assess the impacts of these past actions in order to understand the context of your current decisionmaking process, as well as to assess environmental impacts and reasonably foreseeable outcomes.

10a-21 As part of this EIS, you must commit to restoration of native vegetation on all lands seeded to exotics as a part of past or future ESR activities. This NEPA document should include a timetable for accomplishing this.

10a-22 BLM also appears to be segmenting the NEPA processes associated with this EIS, by preparing two separate small "EAs" for ESR activities that occur on its lands throughout Idaho. No explanation is provided for why this is occurring.

PREVENTION

10a-23 Arid lands may become so degraded that they can never recover. These communities have been described (Archer and Smeins 1991) as crossing a "transition threshold" -with loss of topsoil, dominant species that have become locally extinct, and introduced species that have become so dense that weedy annuals become the climax species. All efforts must be made to keep plant communities from crossing this threshold, and thus requiring massive amounts of funds and elaborate treatments to attempt restoration.

Moderately degraded communities can become severely degraded if preventive action is not taken.

10a-23 Pristine and near-pristine efforts should be protected using all possible techniques, especially passive restoration techniques such as immediate removal of all livestock disturbance as they typically serve as important habitats for native species and protection of biodiversity. Economically, it is a lot more cost-effective to keep lands from becoming degraded than it is to conduct wide-scale treatments after they have become degraded.

Prevention is especially critical in upland communities, as they are less resilient to recovery following site disturbance than are riparian areas. Plus, the greater the aridity, the greater the difficulty of recover. This may even vary within the same geographic area, as south and west faces are more likely to face cheatgrass invasion following treatments.

10a-23 Almost universally throughout the Upper Snake District, wetlands (springs, seeps, streams, playas, etc.) have been heavily damaged by livestock grazing and trampling activity. This has altered their morphology, areal extent of water tables/wetted soil areas, plant and animal species composition, plant and animal ecology. However, the current path of livestock shifting use onto upland sites to take pressure off riparian areas is an ecologically destructive path, and prevention must be conducted in an integrated way. Both the riparian and upland areas are undergoing desertification processes, which ultimately make them less resilient, and less likely to be able to be restored to native systems.

ROLE OF DESERTIFICATION IN FUELS AND FIRE PROBLEMS AND ECOSYSTEMIC CHANGE

No Letter

Please see our "Additional Comments" explaining the role of desertification caused by livestock grazing and other activities in causing fuel and weed problems.

WEEDS AND INVASIVE SPECIES

Exotic species are invading lands in the Interior Columbia Basin at an alarming rate. Exotic species alter western ecosystems by increasing fire frequency, disrupting nutrient cycling and hydrology, increasing erosion, altering soil microclimates, reducing biodiversity, and reducing wildlife habitat.

10a-24 Disturbance related to livestock grazing, livestock grazing facilities, ORVs and extensive road networks are causes of weed invasion. Removing these sources of disturbance from "at risk" lands, and any lands that have been treated is a vital and integral part of any treatment, as well as prevention and restoration.

Livestock and ORVs are weed seed vectors. Livestock carry weed seeds in fur, feces, mud on hooves, etc. They also disturb soils and created ideal sites for weed seed establishment (Belsky and Gelbard 1999).

Recent observations show that exotics like cheatgrass and medusahead may be only the first in a wave of exotics and that new infestations of aggressive species such as white top or knapweed occur in areas overtaken by cheatgrass and medusahead. Thus, BLM's current practice of using these weeded areas as "sacrifice zones" for excessive levels of livestock use; issuance of TNR, etc. only increases chances of invasion by new and even more aggressive exotic species.

REMOVAL OF LIVESTOCK

Livestock grazing and trampling is the major cause of damage to upland plant communities and western ecosystems. They are also the major factor preventing recovery of these systems.

10a-25 Removal of livestock, including through use of federal fire funds to permanently buy out grazing permits, must be a treatment that is evaluated under all alternatives. USRD lands should be prioritized for buyouts, based on the need for passive and active treatment measures to be applied.

It makes no sense to spend hundreds of dollars an acre on "restoration", or $40 an acre on a "prescribed" fire treatment if livestock grazing disturbance is then to again occur. Livestock are the primary cause of vegetation/fuels problems. Allowing the primary causal agent of ill-health to then again be allowed to graze and trample these same lands, and cause a "need" for future treatments, makes no sense at all. BLM typically receives around 13 cents an acre annually for livestock grazing on these lands, so the economic folly of returning livestock to treated lands is extreme – just like the ecological folly.

REST FROM LIVESTOCK

10a-26 BLM's EIS and the "updated" EFR plans are woefully deficient in providing adequate periods of rest from livestock grazing following treatments. In order to determine necessary rest periods, BLM must understand the condition of the community pre-treatment (see, for example, Eddleman et al 1994). Specific time periods must be applied, along with measurable recovery standards for soils, microbiotic crusts, herbaceous and woody vegetation recovery before livestock grazing can resume.

FIRE

BLM can not use "natural fire regimes", historical ranges of variability and other models as a basis for any fire planning. The potential for anything resembling a "natural "fire regime has been drastically altered by 150 years of livestock grazing and other disturbance so that natural fire 10a-27 regimes no longer exist in many areas. As part of its assessment, BLM must first determine the current condition of all the vegetation communities in the affected lands in the planning area. This information must be newly collected as part of this process, since most BLM inventories, especially in these lands with ancient LUPs, are nearly 25 or more years old. This necessary is critical to understanding the risks of any treatment disturbance to these lands.

We believe that until effective answers are found for the vexing problems of noxious weeds and exotic annual grasses, a cautious and prudent fire suppression plan must be in place. This is also necessary because of the dramatically altered and unnatural condition of many sites caused by 150 years of livestock grazing.

FUELS REDUCTION

Shrub-Steppe Communities: Livestock grazing has fundamentally altered (and continues to alter and degrade) native understories, by killing and weakening native grasses and forbs and harming

microbiotic crusts. As native bunchgrasses have been replaced by cheatgrass and other exotics in the wake of livestock grazing, USRD plant communities are now subject to hot, early season fire instead of cooler, late-season fires. Cheatgrass provides dense, continuous fuel that causes fires to flash across the landscape. Cheatgrass results in frequent re-occurrence of fire, preventing regrowth of native vegetation. Plus, cheatgrass litter chokes soil surfaces, preventing germination of native shrubs (sagebrush, rabbitbrush). Fuels reduction in sage-steppe communities should focus on restoration of these cheatgrass-invaded sites and damaged understories. This is the primary active restoration measure/treatment that needs to be taken to fundamentally alter the nature of fire in these arid lands.

10a-27

Low Elevation Forests: Here too, livestock grazing has fundamentally altered (and continues to alter and degrade) native plant understories. By creating abundant areas of bare soils, it creates ideal conditions for increased densities of young trees. These become the fire-prone doghair thickets of young trees that create ladder fuels and other incendiary conditions in arid forests.

Before Euro-American settlement, periodic fire cleared Ponderosa pine and Douglas fir understories, and the build-up of fuels was too slow to create hot canopy fires. With Euro-American settlement, and continuing to the present: 1) Selective logging of large trees occurred, and small, highly flammable trees were left; 2) Fire control was instituted; 3) Domestic livestock consumed grasses that carried low-intensity fires, and such fires became less frequent, and woody fuels built up.

Hot fires occurred in the past, and were a part of natural forested ecosystems. In many areas away from human habitation, fuel reduction may not be necessary.

To prevent buildup of woody, highly flammable fuels in arid forests at times need to be let burn under carefully controlled conditions. This should only occur in lands that are not at risk to exotic species invasion in the post-fire environment. Selective logging of old, fire-tolerant trees must be halted. Domestic cattle and sheep grazing must be decreased or ended.

JUNIPER

Juniper and other woody vegetation throughout Idaho have been vilified by the ranching industry. Juniper in the USRD-BLM managed lands have been greatly fragmented by purposeful fire, escaped prescribed fire and wild fire. NO additional acreage of juniper should be removed until BLM-prescribed fire-ravaged lands, such as those at Rice Canyon in the Burley District, are fully restored with native species.

10a-28

Any juniper removal should be highly selective, individual tree cutting of smaller-sized trees. Fire or extensive soil disturbance paves the way for weedy species invasion in juniper communities. Grazing causes juniper expansion by destroying and weakening native understories, and altering natural cool burning fires and fire cycles.

A CRITICAL AND METHODICAL EXAMINATION OF SUCCESS/FAILURE OF PAST BLM TREATMENT PROJECTS IS NECESSARY

10a-29 A careful scientific evaluation and assessment of past BLM "treatments" on USRD lands must be prepared. How many acres have been burned in prescribed fires? What post-fire management was done by BLM? What were the results? What are their current vegetative communities? What past herbiciding has been done by BLM? Where? How many acres? What were the results? How many acres, and where, was post-fire rehab. done? What is the current condition and vegetation of these lands? Please provide maps that adequately depict the above information.

FIRE SUPPRESSION

10a-30 Fire suppression is critical in areas of high ecological value habitats that are "at risk" to exotic species invasion following fire, areas where irreplaceable ecological values, human life, or cultural resources are at stake. Effective fire suppression plans must be in place for these lands.

Minimum impact suppression tactics should be followed.

PRESCRIBED FIRE

Prior to conducting any prescribed burn, BLM must thoroughly consider and analyze in an open NEPA process with full public comment and review periods:

10a-31 Long-term damage to microbiotic crusts, soil erosion through wind and runoff events, long-term loss of nutrients from already nutrient-deficient landscapes, loss of native species, radionuclide levels in surrounding vegetation, interrelation between prescribed burns and other "treatments" on neighboring federal/state/private lands, increased risks of exotic species invasions, impacts on habitat for native wildlife, indigenous uses of plants that may impacts, air quality impacts. BLM must also conduct a

We are very concerned that BLM may initiate a program of widespread "prescribed" burns on lands that have been, and continue to be, seriously damaged by livestock grazing and other abuses, and which will are very vulnerable to exotic invasions in post-fire environments.

All fuels reduction projects must be based on comprehensive restoration assessments before any reduction takes place.

USE OF LIVESTOCK AS A "TOOL"

10a-32 Livestock should not be used as a "tool". They are only a temporary, stop-gap measure and simply mowing weeds to ground level does not address the fundamental problem of eliminating weeds, and getting native species to grow. Native species will not recover if sites are grazed by livestock. In fact, the extreme disturbance caused by livestock will make sites MORE fire prone. In most instances, it would be just as effective to mow weeds as to use livestock, and would have far less impacts to soils. Plus, the possibility of introduction of new weedy species as a result of livestock disturbance would be minimized. BLM should examine the appalling fire history of the Jarbidge FO and assess how seeding of crested wheatgrass, heavy grazing, high stocking rates, etc. -have resulted in extensive and large acreage fires.

USE OF HERBICIDES

Herbicide use should be kept to an absolute minimum under all alternatives. Herbicides are known carcinogens. Many herbicides migrate in soils and infiltrate water supplies. USRD's own disastrous experience with the herbicide Oust demonstrates the dangers of herbicide use in wild land settings, and how despite reassurances in EAs, things can go very wrong. Here, Oust blew on soil particles into neighboring fields, and inhibited crop germination. We have seen wild settings where application of Oust has likewise had disastrous results - including in the "dad zone" it created in Rice Canyon and in the Jarbidge WSA. For several years prior to the Oust drift disaster, the corporation that manufactured Oust aggressively marketed its use at seminars attended by federal agencies. We are quite suspicious of the role of chemical corporations in pushing the use of herbicides.

10a-33

At the best, herbicide use is only a temporary measure or intermediate step to be used, and it does not address the basic causes of weed problems. Sulfonylurea and acetolactate synthase-inhibiting herbicides should not be used due to their demonstrated ability to damage off-site plant species.

We often encounter areas on public lands - such as leafy sprurge spraying in the Lost River Area - where all native veg. has been killed by herbicides, and leafy spurge continues to thrive. The role of continued livestock grazing post-treatment in continuing weed invasion must be addressed - and the EIS does not do this.

MECHANICAL TREATMENTS

BLM should use mechanical methods of weed control that have been identified as effective in current scientific literature (mowing, spot fire (flamer), weed eaters, mulching).

10a-34

Any mechanical removal of woody vegetation must be carefully conducted. Any removal of trees must be based on individual tree marking.

All off-road travel should be minimized.

All fuels reduction projects must be based on comprehensive restoration assessments before any reduction takes place.

MIGRATORY BIRDS/CRITICAL PERIODS/SAGE GROUSE

10a-35 No treatments of any kind should be allowed during nesting periods for migratory birds, or in important or critical wildlife habitats during sensitive times of year. The role of all past and proposed treatments on habitat fragmentation must be assessed. See Knick et al. 2003, Connelly et al. 2004 to understand the tremendous fragmentation that exists.

BIOMASS

10a-36 Use of material for biomass fuels should not be allowed. Biomass projects export nutrients from often nutrient-deficient sites, and is an extractive, commercial use of public lands with widespread harmful ecological impacts.

USE OF CONSULTANTS

10a-37 We are very concerned that BLM is in such a rush to spend federal fire funds that it is turning far too much environmental analysis over to consulting firms, and removing local agency specialists who are most familiar with land conditions from the data acquisition and analysis loops. What protocols will BLM use to ensure sound decisionmaking, adequate knowledge of local conditions and necessary site specific analysis?

PREVENTION

10a-38 BLM's vegetation efforts can not be limited to disturbance-style treatments alone. Plant communities which are still healthy should be managed in a way to effectively: 1) prevent their conversion to weed-dominated communities; 2) prevent loss of biodiversity; 3) prevent changes in their fire frequencies and intensities; 4) prevent the conversion of shrub lands to woody thickets.

ASSESSMENT

An independent assessment by qualified ecologists not tied to Western Land Grant universities of the "need" for the proposed actions, and the risks of undertaking new disturbance must be conducted as part of this process. We would like to be involved with this effort, and would be happy to provide you with a list of names of scientists that could be involved in this. Since BLM's scoping
10a-39 notice discusses "collaboration", this is an important part of the collaborative process to us – i.e. BLM working with us to ensure its EIS is based on current ecological science and the science of arid lands restoration.

A component of this should be an assessment of risks of new, additive or cumulative disturbances associated with the projects on top of existing disturbances. For example, if an area unrelentingly subjected to livestock grazing has previously been "thinned" by old herbiciding, or fire, what will the impact of a new treatment disturbance be on soils, vegetation, watersheds, water quality, native wildlife, etc.?

We urge you to focus on actual Interfaces with habitation, and not the large-scale wild land disturbance you propose.

ADDITIONAL SPECIAL STATUS, T&E SPECIES

The actions of the EIS will have large-scale effects - ranging from increased sedimentation of bull trout and redband trout streams to major fragmentation of sage grouse, Brewer's sparrow and
10a-40 other declining species habitats. The EIS fails to address this fragmentation, on top of the fragmentation that already exists – see, for example, the analysis of fragmentation on the Sage Grouse Conservation Assessment (Connelly et al. 2004). The EIS is lacking in basic information on soil stability, erosion hazard, wind and water erosion risks, etc. related to lands in the EIS area. This is critical for understanding likely sedimentation into streams, site soil stability post-treatment, likelihood of increased gullying, and other factors. Special status species habitats are faced with a broad array of escalating synergistic and cumulative impacts to habitats and

populations – ranging from development of new livestock infrastructure and expanded water-hauling to energy developments such as wind or geothermal and associated roading and disturbance across public and private lands of southern Idaho.

MONITORING AND MITIGATION

10a-41 We are extremely concerned that monitoring and mitigation in the DEIS are not adequate and do not even begin to address the large-scale disturbance of plant and animal community composition, function and structure that undertaking the large-sale treatments will affect.

Monitoring. The EIS fails to provide necessary monitoring, and decisive actions that will occur post-treatment if treatment protocols, livestock rest, etc. is violated. BLM should establish weekly post-treatment monitoring for livestock trespass, sound studies of soil health and stability, vegetation community recovery and health, etc. post-treatment.

Mitigation. Large blocks of land (> 10,000 acres) should be established within watersheds where no fuels treatments are conducted, as reference areas for the outcomes/effectiveness/damage of the treatments that are proposed. These lands should be identified in the EIS. Other mitigation includes termination of grazing post-treatment, termination of grazing on reference areas,etc.

POST-TREATMENT ACTIONS

BLM current enforcement of grazing closure restrictions is incredibly lax – we have documented burn trespass after burn trespass where BLM has failed to administer more than a handslap - or simply ignored – permittee trespass of burns. For example – Rice Canyon – Burley BLM; Diamond A – Simplot livestock – Jarbidge BLM. Thus, we have no assurances that any livestock-related post-treatment measures will be followed, and these can not be used as "mitigation" for treatments.

MITIGATION AND MONITORING

10a-41 BLM must develop adequate mitigation for activities carried out under this EIS. For example, if BLM wants to burn 10,000 acres of sage grouse habitat, it should be removing livestock use from a nearby 10,000 acres of land to provide better quality nesting and wintering habitat.

BLM must develop a comprehensive monitoring plan, with all monitoring to be funded as part of the original "treatment" cost. Otherwise, timely and necessary monitoring will never occur.

USE OF NATIVE PLANTS AND LOCAL ECOTYPES

10a-42 BLM must commit to using all native species in all post-treatment plantings. BLM cannot rely on the old excuse of seed being unavailable or too expensive for use. Use of all native seed with commitments to reseed repeatedly must be part of the planning and funding for all projects. Planned development of reliable supplies of native seed sources is essential.

WILDLANDS-URBAN INTERFACE

Any habitation interface projects must focus on projects at the actual interface with inhabited lands. This is an area of 1/8 mile or less. Any interface projects must be tied to private landowners taking strict efforts to control any fire danger on their own private lands. Intensive wildland-urban interface treatments include thinning, pruning, mowing, roof cleaning, replacement of flammable landscape and building materials). These actions should be limited to the interface, and the private property, and be use to create 1/8 mile of defensible space.

10a-43

In reality, the interface is to be the area where most federal fire funds are being spent. Instead, USRD BLM and BLM across-the-board is roaming far from any real interfaces in projects being conducted.

As part of this EIS, BLM should provide detailed maps of all interfaces, and a list and report of all criteria used to determine the existence of an interface.

COST:BENEFIT ANALYSIS

BLM must provide an adequate cost:benefit analysis of all actions. For example, what are the costs vs. the benefits of spending $100 an acre to treat/restore lands where livestock grazing will again soon resume?

10a-44

What are the costs to recreational uses of public lands of large-scale treatments? We have been repeatedly contacted by hunters, hikers and birdwatchers who have had recreational outings – or favorite recreational sites - ruined by BLM "treatments". What impact do such losses have on the local and regional economy?

For example, in BLM's recent flawed and soon-to-be-withdrawn Jim Sage EA, BLM planned to spend 6 million dollars to kill junipers across an entire mountain range, despite widespread weed problems throughout the lower and middle elevations – BLM grazing proposals would have increased grazing on the "treated" lands. Thus, taxpayers would have been funding increased livestock forage under the guise of fuels projects, while receiving only tiny amounts of grazing fee dollars in return.

BLM must adequately analyze a full range of alternatives based on sound economics. All alternatives should include use of federal fire funds to purchase grazing permits and permanently remove livestock from degraded lands, as this is a very foreseeable action during the life of this plan. We support an alternative that uses preventive measures and passive restoration techniques, addresses causal agents of fire/fuels/vegetation problems such as livestock and ORV use, and which minimizes risks of invasive species spread stemming from any treatment that is applied.

WIND AND WATER EROSION

10a-45

Actions under the Alternatives will bring about widespread soil erosion and relocation in wind and water. In order to understand the impacts of the actions, the current condition of all lands (soils, veg, microbiotic crusts, etc.) must be thoroughly assessed. The EIS fails to assess how multiple or overlapping treatments, for example, how will herbicide runoff be accelerated in burned landscapes? This also relates to air quality problems, and possible increased air or water pollution. Recently discovered mercury contamination of Idaho waters and lands from gold roasting in Nevada must be

considered in this analysis, also.

RELATED ACTIONS

10a-46 The USRD BLM is embarking on many other fire-related projects in USRD lands. The interrelationships of all ongoing or planned activities in this region, including across ownership boundaries, must be fully explored.

COMMITMENT TO OPEN NEPA PROCESS

10a-47 The USRD BLM must ensure that all future projects that are tiered or related to this EIS undergo, further environmental review at the level of an EA or EIS with and full and open public comment and participation process.

POST-TREATMENT, EFR

10a-48 BLM's recent ESR updates were big disappointments. BLM should use this EIS process to redo the flawed USRD EFR document.

10a-21 Use of Native Species: BLM must commit to use native species in all restoration seedings in all instances. In the past, BLM has used exotic, soil depleting crested and Siberian wheatgrasses, and aggressive, invasive, weedy forage kochia and intermediate wheatgrass. Instead of focusing on larger exotic plants (primarily because they produce livestock forage, no matter how limited its palatability), BLM must use natives, especially species like Poa sandbergii, bottlebrush squirreltail and bluebunch in lower elevation sites. In the past, BLM has failed to rest lands for sufficient periods of time to allow successful establishment of seeded native species.

10a-41 As part of this EIS, please provide a science-based (not livestock-forage-based, but ecological science-based) assessment of predicted establishment times for seedings of native vegetation under the various environmental settings in the USRD, and include in this predictions of "success" with and without livestock grazing. Please also thoroughly describe and assess the ecological impacts of the
10a-49 exiting seedings – impacts on soils, waters, vegetation, weeds, native biota, recreational and cultural concerns.

BLM must closely study the lessons provided by the bluebunch wheatgrass seeding in an ungrazed
10a-50 area near Kuna Butte in the LSRD – and any examples the agency may have in the Upper Snake or throughout the West, where, due to no grazing for a decade, seeded bluebunch wheatgrass was surviving and thriving at low elevations. In addition, please use existing exclosures as reference areas for comparison of effects of no grazing for several years following a fire, vs. BLM's typical woefully inadequate 2 growing season's rest. There are also exclosures in the Jarbidge FO that can serve as reference sites and comparative examples. One is located north of Winter Camp Butte, others are near Roseworth. Please visit these sites, and quantify the differences between vegetation inside and outside these exclosures, and use this information in developing a realistic time frame for livestock exclusion from seeded lands.

Sagebrush and other appropriate native shrubs (winterfat, shadscale, rabbitbrush) must be included

in all seedings, and repeated efforts must be made to establish native shrub cover, due to its importance to many native wildlife species.

BLM must use some of its burgeoning fire funding to set up a reliable network and system for supply and storage of native seed, including locally adapted ecotypes, so that this native seed is readily available in the wake of fire. BLM will then no longer have the time-worn excuse that "we couldn't get native seeds, so had to plant cwg". It is time to act responsibly, and apply federal fire funds to setting up a reliable system of seed supply.

10a-57

BLM must also commit to re-seeding in subsequent years, if initial seeding attempts are not successful due to drought or other factors. This must be factored into any

No Need to Seed Herbaceous Species in Many Higher Elevation Sites: Many higher elevation sites require NO seeding of herbaceous species at all. Only sagebrush or other native shrubs should be seeded in these lands. It is essential, however, that these sites receive adequate rest from livestock grazing so that understory components, including microbiotic crusts, can recover - this is essential to prevent new weed invasion. The two graing seasons'rest -maybe - is not sufficient.

10a-26

Livestock Trespass, Other Post-Fire Non-Compliance: As part of this NEPA process, BLM must review all records of livestock trespass (including warning letters, not only decision-level action - and assess its frequency and detail the lands where it has occurred. What are the impacts of trespass on outcome of rehab efforts? BLM must also provide strict penalties for post-fire trespass by livestock on burned areas. As taxpayers often have spent hundreds of thousands of dollars on post-fire rehab and other ESR activities, accountability and effectiveness of rehab is essential. Please describe how trespass may harm any site recovery. Trespass has been a tremendous problem in Burley BLM lands, and documented by Miriam Austin of WWP and others over the years. The destroyed public lands at Rice Canyon and in the Goose Creek watershed provide a perfect example of BLM Post-fire failures to control livestock.

10a-52

Livestock Facilities: The EFR must sharply limit the use of federal fire funds in construction of post-fire livestock facilities. BLM's typical response to fire is to place a fence, often permanent, as around the perimeter of a fire, and often to develop additional water facilities. These actions (permanent fence, new water facilities) are NOT part of post-fire rehab, they are part of livestock management on surrounding lands. Such projects inflict, in an unplanned and unnecessary manner, a new array of disturbances to wildlife habitats already impacted by fire disturbance.

There are many harmful impacts of barbed wire fences and other livestock facilities - posts serve as perches for predators, observation points for brown-headed cowbirds. Plus, fences cause avian mortality from collisions. New water sources lead to rapid disturbance and depletion of lands in the areas surrounding them, placing additional stress on native ecosystems and dependent species.

WWP strongly supports using existing unburned pasture or allotment boundary fences as the structures that restrict livestock from burned or treated lands. By closing these somewhat larger land areas to livestock grazing, BLM will also provide some better grass cover and habitat for species like sage grouse, who face habitat loss and fragmentation as lands burn. A 4-5 year closure of the pasture or allotment will result in ungrazed areas that help to provide grasses of sufficient

height, or other necessary habitat components, for sage grouse and other native wildlife. Only temporary facilities should be allowed, if any are used at all - primarily electric fences. All post-fire rehab plans must specify removal dates for any livestock facilities that result from fire rehab activities. However, temporary electric fences have a long track record of failure - please review informaiton in Burley and Challis BLM files concerning woeful trespass of burned areas or sensitive riparian areas that resulted from the use of temporary fences, rather than removing livestock to exisiting pasture or allotment boundary fences .

10a-52 AUMs Should Not Be Shifted Elsewhere: BLM should not shift AUMs from treated lands to other areas. All AUMs from burned lands should be placed in temporary suspension until rehab, or restoration, success occurs.

Regrettably, in recent JFO post-fire documents, BLM has merely been shifting livestock use elsewhere, and thus impacts of livestock on watersheds, wildlife, habitat, etc. are magnified and amplified to the detriment of native species and the ecosystems upon which they depend. BLM has never assessed the impacts of these shifted AUMs.

Area of Rested Lands Must Provide Habitat for Native Wildlife: BLM must protect land areas sufficient to provide habitat for sustaining viable and healthy populations of native wildlife as part of all treatment or ESR activities and decisions. This is particularly important for declining shrub-steppe species that are facing accelerated habitat loss and fragmentation (Knick et al. 2003, 10a-53 Connelly et al. 2004). BLM must assess the status of populations and habitats within the larger landscape area, and determine the likely effect of a fire on special status species and other important biota. BLM must also act to take protective measures - not only on the fire-affected allotments, but also on surrounding lands, and to buffer habitat loss until the habitat that has been lost can be restored.

Watersheds/Water Quality: Resting sufficient areas - burned and unburned, treated and untreated - is essential for watershed protection.

10a-31 Risk Assessments: BLM must conduct assessments of the risks of seeding failure/loss, increased depletion, weed invasions, under various post-treatment grazing strategies and across a broad range 10a-34 of alternatives. What are the risks of seeding weakening and depletion if grazing is allowed to resume too soon?

Minimal Use of Chemicals: BLM must strive to minimize use of chemicals in wild land settings. An increasing segment of the public has health problems related to chemical sensitivities. Chemicals may leach into water, blow on eroding soils into other sites. Wind erosion is far more significant in post-fire environments, as dark bare soil surfaces heat up, with the result of funnel-cloud erosion/dustdevils blowing soils away. Cancer, respiratory problems and many other human health 10a-54 effects of herbicides and other treatment chemicals are well-known.

If BLM chooses to use chemicals, the treated lands, and surrounding areas, must be posted with signs that warns the recreational public of chemical use and possible exposure. BLM's disastrous use of Oust demonstrates the uncertainty associated with use o chemical sin wild land settings, where wind erosion or water runoff may transport chemicals to unintended areas with unintended

consequences.

10a-26 Periods of Rest: BLM must require adequate periods of rest from all livestock grazing to ensure that full recovery, or establishment of seeded vegetation, occurs. This time period is much longer than BLM ever requires, and is often dependent on the condition and health of vegetation communities pre-fire. Eddleman et al. (1994) described 4-5 year periods of rest as necessary for degraded western juniper communities.

10a-55 Low elevation sagebrush-steppe communities may require a decade or more, and repeated seeding efforts during periods of favorable weather, to allow re-establishment of native vegetation. The EIS plan must address these necessary periods of rest, and not base its actions on the convenience of the livestock industry.

10a-56 Commitment to Rehab: BLM's scoping letter states that "rehab" occurs up to three years after a fire. This must be expanded, to the time period sufficient to achieve adequate and healthy native vegetation communities, and no upper time limit put in place. A reasonable time period would be 10 years, given the vagaries of weather and drought cycles in depleted arid low elevation lands.

What About Restoration? "Rehabbing" in the BLM sense, is vastly different from restoration to a full component of native vegetation and ecological processes. Under what circumstances will BLM undertake Restoration? Is this NEPA document intended to cover that? How will BLM's ESR activities relate to restoration?

Analysis of Past EFR/Rehab/Restoration Actions. As part of this NEPA process, BLM must assess all its post-fire rehab efforts in the past 30-40 years, or however long records have been kept. For example, which cwg seedings in the Jarbidge were planted, when? With what species?

Following this, BLM must collect site-specific data on the current condition, health, wildlife, recreational and other values of these areas seeded post-fire. How many new fences, pipelines, troughs, etc. have been built using ESR funds? What impacts have they had? A complete analysis must be presented in this NEPA document.

10a-44 Economics: A complete analysis of the costs and benefits of ESR seedings/rehab efforts must be provide. What is the per-acre dollar cost of all actions under all alternatives? What are the ecological costs/benefits of these actions?

10a-56 BLM must also assess impacts of poor pre-fire land conditions and management on the outcomes of any post-fire recovery, and of the likelihood of success of any post-fire rehab.

10a-57 We believe you must provide extensive analysis of the impacts of post-fire "salvage" logging or thinning. What are its impacts to soils, vegetation, weed invasion risks, wildlife habitats, fisheries, recreational and other uses of the affected lands? What have been the impacts to, and what is the condition of, lands where this has occurred in the past?

Please keep us closely informed of all steps in this process.

Sincerely,

Katie Fite
Western Watersheds Project
PO Box 2863
Boise, ID 83701
208-4291-1679

Additional Comments Submitted
Relevant Lit. Submitted as Separate Document
CD of Juniper-Bird Study Submitted

Western Watersheds Project
tel: (208) 788-2290
fax: (208) 788-2298
email: wwp@westernwatersheds.org
web site: www.westernwatersheds.org

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Working to protect and restore Western watersheds

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Terry Smith
FMDA Project Manager
BLM
1111 N. 8th Avenue
Pocatello, ID 83201

Here are additional comments of Western Watersheds Project on the Upper Snake River District Fire, Fuels and Related Vegetation Management Plan Amendment. Discussions below of desertification and watersheds, livestock grazing impacts, loss and fragmentation of habitats and populations of wildlife species are critical to BLM understanding, studying within the project area, and ultimately including in all analyses of impacts of the various EIS alternatives.

Desertification and Watersheds

10b-1 There is an extensive body of scientific literature on desertification of watersheds, including in the western United States. Desertification is defined as: "a change in the character of the land to a more desertic condition", involving "**The impoverishment of ecosystems as evidenced in reduced biological productivity and accelerated deterioriation of soils** and in an associated impoverishment of dependent human livelihood systems". See Sheridan 1981, CEQ Report 1981 at iii. Major symptoms of desertification in the U. S. include: declining groundwater tables; salinization of topsoil or water; reduction of surface waters; unnaturally high soil erosion; desolation of native vegetation (Sheridan CEQ at 1). The existence of any one can be evidence of desertification. As lands become desertified, they become **less productive**, and activities such as livestock grazing become **less sustainable**. Continuing activities like livestock grazing may result in grazing becoming permanently unsustainable across the landscape. In many areas of these allotments, ecological conditions because of desertification and degradation processes that has already occurred and which is still underway, have already crossed the threshold between sustainability and, essentially, "mining" of increasingly **non-renewable** natural resources. Desertification can be both a patchy destruction, often exacerbated by drought, as well as as **the impoverishment of ecosystems within deserts**.

TheEIS must assess the levels and degree of desertification that have occurred across the EIS area. This is necessary to understand the suitability of these lands for livestock grazing, the productivity and carrying capacity of these lands for grazing, the current or likely future extent of cheatgrass and other hazardous fuels, the likely success of any treatments undertaken under the EIS, the effects of alternatives developed here, the ability to meet any objectives, and the ability of actions under the EIS to maintain, enhance or restore habitats and populations of special status and other important species

? political pressures from ranchers results in strong political opposition to reduced grazing. Political pressures have hamstrung implementation of the Taylor grazing Act.

10b-2 This EIS process provides BLM an opportunity to gain a better understanding of the actual capability and productivity of the vegetation and soils that meets the desires and needs of the public on these lands.

10b-3 Sagebrush, pinyon-juniper and salt desert shrub vegetation communities are now showing signs of "extensive changes" and significant stresses, with livestock grazing and aggressive non-native weeds recognized as among important causal factors. Grazing disturbance, degradation and weed invasion will cause native plant communities to cross thresholds from which recovery is very difficult, if not impossible. The decline in sage grouse populations and other species dependent on arid land shrub habitats is a landscape-scale biological indicator that the loss of functions and values of sagebrush ecosystems are serious and widespread. These are also signs of desertification processes across the landscape.

Imperilment of the Sagebrush Biome

10b-4 A recent analysis, Dobkin and Sauder 2004,"Shrubsteppe Landscapes in Jeopardy: Distribution, abundances, and the uncertain future of birds and small mammals in the Intermountain West", examined bird and small mammal species in the sagebrush biome. The authors found that "very little of the sagebrush biome remains undisturbed", the **inherent resilience of the ecosystem has been lost and the ability to resist invasion and respond to disturbance has been compromised** (Dobkin and Sauder at 5). At least 60% of sagebrush steppe now has exotic annual grasses in the understory or has been converted completely to non-native annual grasslands (citing West 2000). More than 90% of riparian habitats have been compromised by livestock or agriculture.

The authors distilled a list of 61 species of birds and small mammals that are completely or extensively dependent on shrubsteppe ecosystems, and conducted an analysis of their distributions, abundances, and sensitivity to habitat disturbance to assess current state of knowledge and conservation needs of these species, with focus on Great Basin, Interior Columbia Basin and Wyoming Basin, based on BBS data and other studies.

The Columbia Plateau, Great Basin and Wyoming Basin are among the **least sampled** of all physiographic provinces covered by the Breeding Bird Survey. **Remarkably little** is known about the actual distributions or population trends of small mammals. "Range maps created by connecting the dots among sites where a species has been captured do not paint a realistic picture, especially in the highly altered and fragmented shrubsteppe landscapes of today. For small terrestrial mammals … our results support the view that many of these species now exist only as **small, disconnected populations isolated from each other … it is completely untenable to assume species' presence based on simply on presence of appropriate habitat in shrubsteppe landscapes of the Intermountain West**". Also, the authors "**find no reason for optimism about the prospects in the Intermountain West of any of the 61 species" (at 3). "The results of our analyses**

present an overall picture of an ecosystem teetering on the edge of collapse (citing Knick et al. 2003)".

This highlights the need for BLM to conduct a systematic and comprehensive on-the-ground survey and assessment of species presence and habitat presence and quality on
10b-4 these allotments and surrounding lands. BLM has a unique opportunity in this EIS process to act to identify important components of native biodiversity on these lands – and, armed with this knowledge, take management action to enhance and restore these species habitats and populations before it is too late.

Sagebrush Mammal Summaries (based on Dobkin and Sauder 2004)

11 of 24 mammals in the report by Dobkin and Sauder (2004) are endemic to the IM West, representing a high degree of endemism. Many of the small mammal species whose status is reviewed in the report are important prey for raptors and some other special status species. In addition, the high degree of endemism is likely even greater than species-level ranges would indicate, and genetic analyses of upland and riparian small mammals may provide more examples of "cryptic" species like has now been found in endemic ground squirrels in Idaho.

10b-4 Only one of the 19 species of small mammals for which adequate trapping data was available was found in more than 62% of potentially suitable localities. This analysis of field studies is the first comprehensive attempt to quantify presence or absence across a region. The report found that **21 of the 24 small mammal species respond negatively to the effects of livestock grazing. Eleven of 18 small mammal species responded negatively to the presence of exotic plants**, with riparian mammal species exhibiting neutral responses if vegetation was thick enough.

Geographic patterns of species richness and community stability raise concern. Despite range maps showing occurrence over broad areas, many species of small mammals now exist only as small, disconnected populations isolated from each other by unsuitable habitats." Thus, **it is completely untenable to assume species' presence based simply on presence of appropriate habitat in shrubsteppe landscapes of the IM West**." This demonstrates why BLM must systematically conduct non-lethal site-specific surveys for small mammals in representative habitat types, and assess habitat conditions, across the allotments.

The report authors conclude: We find **no reason for optimism** about the prospects in the Intermountain West for any of the 61 species identified. Sagebrush distribution is highly fragmented, and much less extensive than large-scale maps suggest. Extraordinary fragmentation and degradation of sagebrush-steppe landscapes has been caused by livestock grazing practices, purposeful removal of sagebrush and/or seedings through prescribed fire, mechanical treatment, biological agents and herbicides, invariably done to provide forage for livestock, especially as native vegetation communities have become increasingly depleted, as well as ag-conversion, roads, mining and mining exploration fragmentation, powerline and pipeline corridors.

An untold number of livestock facilities (fences, spring projects, pipelines, trough systems salting sites, corrals, wells, windmills, water haul sites, etc.) have been constructed or placed on public lands – including across these allotments and surrounding lands. Roads almost inevitably grow up either as a direct result of facility construction/placement, or of continued facility use and maintenance. Then, roads become travel corridors for predators (Braun 1998, Federal Register 2003, Federal Register 2004, Connelly et al. 2004, Freilich et al. 2003, Connelly et al. 2004, Dobkin and Sauder 2004), and conduits for weed invasion (Gelbard and Belnap 2003). Many of
10b-4 these facilities have unforeseen effects, and exert influence over much larger areas than anticipated. For example, water developments may attract sage grouse predators and be "sinks" (Connelly et al. 2004).

Ecological changes have pushed many sagebrush landscapes beyond ecological thresholds for recovery. Cumulative effects of land use and habitat degradation are moving sagebrush habitats toward ecological collapse and dysfunction (Knick et al. 2003, Dobkin and Sauder 2004).

Although sage grouse have been the flagship species for this ecosystem, and publicity over concerns have focused mainly on grouse, it is not just sage grouse that are in trouble. Sage grouse have become a surrogate for numerous species of animals and plants that depend on sagebrush communities, and many of these species may also use salt desert shrub communities.

Shrubland and grassland birds, representing an important component of the biodiversity of the western United States, are declining faster than any other group of species in North America (Saab and Rich 1997, Paige and Ritter 1999, USGS Great Basin Mojave-Desert Region, Dobkin and Sauder 2004). Species dependent on sagebrush ecosystems (Brewer's sparrow, Sage Sparrow, Sage Thrasher), may be important predictors of ecological collapse.

A review of field studies of small mammal response to livestock grazing (compared moderately to heavily grazed upland or riparian areas with exclosures), found **overwhelmingly negative responses** (decreased abundance or productivity) to the effects of livestock grazing for 12 species (Table 8): Upland: Paiute ground squirrel, Washington ground squirrel, little pocket mouse, Great Basin pocket mouse, Chisel-toothed kangaroo rat, desert woodrat, sagebrush vole, Riparian: Water shrew, Western harvest mouse, long-tailed vole, montane vole, western jumping mouse. 9 species have an extremely high likelihood for negative responses to livestock grazing (Table 8) are: Upland: Merriam's shrew, Preble's shrew, pygmy rabbit Idaho ground squirrel, Merriam's ground squirrel, Townsend's ground squirrel, Townsend's pocket gopher. Riparian: Townsend's pocket gopher. Plus, negative responses to presence of exotic species have been demonstrated for eight upland species, and can be inferred with high likelihood for three others.

Virtually no areas in the IM West exhibited much riparian species diversity. For riparian birds, areas of highest species diversity were areas of highest community stability.

Patterns of high mammal species richness were concentrated within the three primary shrubsteppe ecoregions. Species richness was high in much of the Great Basin. Remarkably little is known about the actual distribution or conservation status of small-mammal species – there is no standardized survey. Alarmingly, there was **a high frequency in which species were missing from studies focused on suitable habitat.** This should raise concern about the current actual extent of populations. It must be understood in the context of the high degree of fragmentation and altered disturbance regimes (Knick et al. 2003), the "overwhelmingly negative response to livestock grazing", and the limited dispersal capabilities of small mammals (Dobkin and Sauder 2004). **"Our results support the view that many of these species now exist as small, disconnected populations isolated from each other by unsuitable habitats across which they cannot disperse".** Catastrophic decline of the largest population of northern Idaho ground squirrels illustrates this. The **combined effects of altered fire cycles**, (loss of fire here - as this species occurred in meadows in forest), **livestock grazing and exotic species introduction is the reality faced by many small mammal populations**.

10b-4

Many species of small mammals exist as scattered, disconnected populations. One cannot assume species presence based simply on presence of appropriate habitat in shrubsteppe landscapes of the IM West.

Vole populations isolated from each other and tied to the riparian habitats among isolated mountain ranges are likely candidates for endemism to be found if genetic analyses are conducted. Several isolated subspecies of montane vole occur along the southernmost portion of the species range - likely isolated from conspecifics for millenia. Endemism among small mammals of the IM West, already high, is likely even greater. Many of the species have two or more described subspecies, and much of the described subspecific variation is based on morphological variations. Where thorough genetic analysis is conducted, there may be sufficient evidence to warrant elevation to full species.

A pattern of high species richness is much more concentrated for small mammals, and the number of endemics may represent more habitat specificity. The authors note that very little attention is paid to conservation needs of small mammals. Conservation efforts should integrate areas of high species richness for birds and mammals.

Across the IM West, **altered fire frequencies combined with ubiquitous grazing drives the loss of native plant community structure and composition on which birds and small mammals depend.** Grazing reduces competition from native grasses, and cheatgrass and other weeds flourish, with each successive fire promoting invader expansion, resulting in self-perpetuating monocultures of exotic plant species with very short fire return intervals (Whisenant 1991, Anthony and Vitousek 1992, Billings 1994, Knick et al. 2003). Exotic plant dominated landscapes are uninhabitable for nearly all native bird and small mammal species (Dobkin and Sauder 2004). Shrub-steppe habitat has diminished greatly - at least 44% of potential habitat for Greater Sage-Grouse has

disappeared (Schroeder et al 2004) - and this study did not evaluate fragmentation of the rest!

10b-4 Biome-wide, accelerated Oil and Gas development is occurring in Wyoming. This places landscape-scale fragmentation and soil disturbance on an even faster trajectory. Also, an astonishing number of fences and other livestock projects that serve to fragment habitats are found across the sagebrush biome (see Connelly et al. 2004).

Sagebrush Bird Species Summaries (Dobkin and Sauder 2004)

There are significant declining trends for 16 of 25 upland bird species (64%) in the regions of the Intermountain West (Dobkin and Sauder 2004). Only 3 species showed a significant increasing population trend. 5 of 12 riparian species declined significantly over both the short and long term. "Birds that depend on native vegetation for their nests clearly are jeopardized by the loss or degradation of vegetation. Nearly all 25 upland species are obligate ground/shrub nesters, with 18 of the 25 species dependent on native shrubs for nesting and foraging.

Species richness for upland birds was concentrated in the three primary shrubsteppe ecoregions, with areas of highest species richness extending across the Columbia Plateau from southeastern Oregon to easternmost Idaho, the eastern two-thirds of the Great Basin, and southwestern Wyoming Basin. There was constancy in bird species composition in upland bird communities between 1968-1983 and 1984-2001. However, the community \composition of riparian bird communities varied substantially between periods, with a decrease in species composition of riparian communities. Plus, ecologically unsuitable habitats are now embedded in matrices of suitable habitats.

All of the upland bird species, and all the riparian species listed in Dobkin and Sauder (2004), Table 1 at 9 are likely to occur in the EIS Project area, likewise, nearly all of the small mammal species found in Table 2 at 10 are likely to occur in the Project area. For some species, such as loggerhead shrike, declines were especially severe in the three primary shrubsteppe ecoregions – with population losses across large geographic areas.

Geographic patterns of species richness for birds found that areas of highest upland avian species richness correspond with areas of lowest shrubsteppe fragmentation. Bird species "Entirely" dependent on sagebrush: Greater Sage-Grouse, Sage Thrasher, Brewer'sSparrow, and Sage Sparrow. Birds "Nearly" dependent: Gray Flycatcher, Gray Vireo, Green-tailed Towhee, Black-throated Sparrow.

Riparian birds have distributions that extend beyond the IM West, as do riparian mammals. Given the relative rarity and ecological importance of riparian habitats within shrub-steppe landscapes, the high degree of instability in riparian bird community structure found in the report, reflects **the poor condition of riparian habitats** across the Great Basin, Columbia Plateau and Wyoming Basin ecoregions (Dobkin and Sauder 2004, citing Saab et al. 1995, Dobkin et al. 1998, Tewksbury et al. 2002, Krueper et al.

2003, Earnst et al. 2004) **and the dewatering of riparian zones** (Dobkin and Sauder 2004, citing Rood et al. 2003), causing damage to avifauna and habitats.

Upland Species (summarized from Dobkin and Sauder (2004):

10b-4

* Greater Sage-Grouse. Owyhee allotment lies in part of one of the two zones of greater abundance in the ICB, and this abuts the states of Idaho and Oregon (see Dobkin and Sauder at 31). The Sheep Allotment Complex lies at the periphery of a large eastern gap in SG distribution (at 32). Causes of Declines: Habitat destruction, degradation and fragmentation, altered fire frequency (both lower and higher), livestock grazing converting shrubsteppe to annual monocultures are Threats, range "improvements", and West Nile virus are threats. (Note: Also, muddy cow tracks, such as at the margins of stock ponds or other livestock trampled areas may provide necessary breeding sites for mosquitoes in arid landscapes. Plus, large numbers of livestock may provide an unnaturally large blood food supply for mosquito populations.
* Ferruginous Hawk. Open areas, isolated trees, and edges of pinyon-juniper woodlands are used for hunting perches and nesting. "Prey abundance, particularly jackrabbits and ground squirrels, is correlated significantly with the number of breeding pairs in an area and with reproductive success. (Dobkin and Sauder 2004, citing Jasikoff 1982 and Deschant 2001 b) (at 36). Habitat destruction and degradation are greatest threats, and directly influence prey abundance, important to reproductive success. Ferruginous hawks can be particularly sensitive to human disturbance (at 37).
* Prairie Falcon. Open habitats with moderate grass cover and low-growing sparse shrubs. Nest-site availability and ground squirrel populations are important factors in habitat
selection. Activities affecting ground squirrel abundance, include livestock grazing, frequent fires, ag conversion, poisoning. Disturbance near nest sites (cliffs) can reduce breeding success.
* Long-Billed Curlew. Livestock grazing can be negative if cows trample nests, or disturb birds and cause nest abandonment.
* Burrowing Owl. Requires low vegetation and a suitable nest burrow. BOs may expand other species burrows, but do not dig their own. Excavation by ground squirrels, marmots and badgers is important in nest burrow availability. Threats are habitat degradation and destruction, and shrub-steppe degradation by livestock or ag conversion. Pesticides can reduce populations of insect prey and fossorial mammals. Badgers, coyotes, birds of prey and vehicle collisions may also be problems.
* Gray Flycatcher. Shrub-steppe, mountain mahogany and pj. In shrubsteppe, gray flycatchers are associated with tall, dense sagebrush. Chaining or burning of sagebrush and pinyon/juniper areas is known to eliminate gray flycatchers (at 46). It is parasitized by the brown-headed cowbird. Habitat fragmentation likely increases nest parasitism and predation rates.
* Loggerhead Shrike. Shrubsteppe, open woodland, field edges, and occasionally riparian areas. Presence and abundance in shrubsteppe is positively correlated with the diversity, density and height of shrubs. Population declines in Columbia Plateau and Great Basin.

* Horned Lark. May be susceptible to trampling, and affected by invasion of annual grasses.
* Sage Thrasher. Habitat destruction, degradation and fragmentation are threats, including activities that destroy shrub cover (fire, chaining, herbicide) eliminate local populations. Although authors note that livestock grazing may increase shrubs, livestock grazing also alters shrub structure, especially that of taller sagebrush or other shrubs which are areas where sage thrashers nest.
10b-4 * Virginia's Warbler. P-j, mountain mahogany, mixed deciduous shrublands. Habitat destruction, livestock grazing.
* Green-tailed Towhee. Shrublands and disturbed coniferous zones. In shrubsteppe, its presence and abundance are positively correlated with increased shrub species diversity, shrub cover, and taller shrubs. Threats are habitat destruction and degradation – livestock grazing and frequent fire have impacted shrubs. Simplification of shrub cover results in population reduction or elimination.
* Brewer's Sparrow. Its presence is positively correlated with total shrub cover, bare ground, taller shrubs, patch size, and habitat heterogeneity – and negatively correlated with grass and salt shrub cover. Large population declines have occurred the in Columbia Plateau and Great Basin. Cowbird host. Threats are habitat destruction and degradation. Activities that destroy shrub cover (fire chaining herbicide, etc). A cowbird host. Positive (increased shrubs – see previous comments about shrub structure) and negative responses to grazing.
* Vesper Sparrow. Inhabits short, patchy herbaceous vegetation, low shrub cover bare ground, forbs. Habitat destruction and degradation – frequent fires, in conjunction with invasive grasses, heavy livestock grazing (which increases shrub cover), and poor range conditions created by livestock grazing during drought increase rates of nest abandonment and failure. Cowbird host.
* Lark Sparrow. Threats are fire and livestock grazing converting lands to annual grass monocultures are threats.
* Black-throated Sparrow. Desert shrub, shrub-steppe, open pinyon-juniper. Correlated with moderate shrub cover, tall vegetation, shrub species richness, and dead woody vegetation. Drought reduces the number breeding attempts and clutch size.
* Sage Sparrow. Particularly associated with big sagebrush, or may be found in mixed shrub communities with greater shrub cover, abundant bare ground, sparse grass cover. Shows high site fidelity. Habitat destruction, degradation and fragmentation are chief threats, and are caused by frequent fire, livestock grazing, range "improvements" (shrub treatments, exotic grass plantings) – and these promote other impacts – predation and nest parasitism.
* Savannah Sparrow. It has been assumed that Savannah Sparrow populations benefit from conversion to annual monocultures. However, converted habitats may not be equivalent to native grassland habitats and may serve as population sinks.
* Grasshopper Sparrow. Livestock grazing degrades habitats. While benefits from natural fire, annual grass conversion resulting from fire is negative.
* Western Meadowlark. May be affected by fire.

Other summaries of species trends support Dobkin and Sauder (2004). Many species with downward trends in population size are associated primarily or exclusively with shrub-

steppe or riparian habitats. In shrub-steppe, this includes northern harrier, mourning dove, horned lark, loggerhead shrike, green-tailed towhee, vesper sparrow, sage sparrow (USGS Mojave-Great Basin at 33-51). Populations up in one area, down in another: rock wren, sage thrasher, Brewer's sparrow, black-throated sparrow, western meadowlark. Population sizes of mourning dove and loggerhead shrike, whose abundances are declining widely in western North America are also declining in the Great Basin. The
10b-4 preponderance of downward trends in shrub-steppe indicates continuing problems with the health of this community. In pinyon-juniper with a sagebrush and bunchgrass understory, species include common nighthawk, northern flicker, gray flycatcher, mockingbird, chipping sparrow, and Scott's oriole (USGS Mojave-Great Basin at 33). Riparian species with downward trends: killdeer, violet-green swallow, warbling vireo, yellow warbler, lazuli bunting, savannah sparrow, song sparrow, yellow-headed blackbird, Brewer's blackbird. Downward trends in riparian species – are indicative of continuing deterioration of riparian habitats of the Great Basin (USGS Mojave-Great Basin at 34).

Conservation Strategies, and Exotic Species/Degradation of Native Communities

Landscape-scale conservation is also a critical component of ICBEMP assessments (see Wisdom et al. 2000 – much discussion in accompanying ACEC Nominations). In the project area, large browsers disappeared about 12,000 years ago. The largest ungulate was the pronghorn. Jackrabbits, cottontails, and rodents may have been the largest herbivores (Mack and Thompson 1982, Connelly et al. 2004). Microbiotic crust occurs in
10b-5 areas that are not, or lightly, grazed. As a result, livestock grazing and trampling impacts cause extensive, chronic and often irreversible harm to soils, vegetation and habitats of native species. This results in an alteration of composition, function and structure of plant and native animal communities (Fleischner 2004)

Salt desert communities: Invasive species have impacted shadscale and greasewood communities, and have altered their composition and function. Livestock grazing the most common disturbance that leads to weed invasions and altered fuels and fire regimes at these lower elevations. Cheatgrass and halogeton invades dry sites, exacerbated by livestock grazing. These communities are increasingly threatened by the proliferation of non-native annual grasses. Historically, they did not burn.

BLM's Standards and Guides and other recent Assessments and documents across the Project area are replete with descriptions of cheatgrass being a growing problem. However, BLM nearly always grossly under-estimates the extent of cheatgrass or other weed infestations in the understory, and fails to undertake more than token cuts, if even that, in livestock use. In fact, BLM often allows extra grazing on degraded lands (under the Temporary Non-Renewable Use) that may lead to further degradation, fuels problems, and introduction of even more aggressive exotic species.

Sagebrush semidesert is highlighted for conservation because of decline of sagebrush-
10b-4 obligate species. Species dependent include: sage sparrow, Brewer's sparrow, sage

thrasher, sage grouse, pygmy rabbit, sagebrush vole, sagebrush lizard, pronghorn (Paige and Ritter 2000).

10b-5 Fire regulates the density of fire-intolerant shrubs. Invasion of exotic annual grasses has increased fire frequency in stands causing a decline in abundance of sagebrush and other non-sprouting shrubs. In some areas, knapweed or other noxious weed species may be invading annual grass-dominated sites. Grazing decreases the importance of tall bunchgrasses and increases rabbitbrush, forbs and non-native grasses. Grazed sagebrush usually lacks altogether, or has no good condition microbiotic crusts. Large tracts of sagebrush semidesert and sagebrush-steppe are needed to adequately protect these systems.

Pinyon-juniper: Lower montane ecological systems – middle elevations, including pinyon-juniper, low montane shrubland, mountain mahogany. Half of the species inhabiting these sites are endemic to the region. Pinyon jay and juniper titmouse are "restricted specialists". More than half global population of gray flycatcher breeds in lower montane systems in the Great Basin. The very small areas of Utah juniper and Utah juniper and pinyon pine in SE Idaho are the only places in Idaho where several species of birds occur. Yet, under current management, and the aggressive proposed action, these habitats are greatly threatened. Please see accompanying report (on CD: Pinyon-juniper and Juniper Birds", prepared by Red Willow Research for the Idaho Department of Fish and Game).

10b-5 PJ and juniperhabitats are threatened by grazing and fire, and many are in degraded condition, and are even being chained to create rangeland for livestock. Larger tracts of lower montane systems with connectivity to lower elevation sagebrush semidesert or basin and desert scrub systems are more likely to harbor larger populations of bighorn sheep. PJ woodlands – adjacent veg. is sagebrush steppe at lower and upper elevation margins.

Montane forest and woodlands. Montane islands in the Great Basin (and areas in eastern Idaho) may be important for resilience of natural communities and species responses to climate change. GBCB at 113, citing Wharton et al. 1990.

The Partners in Flight North American Landbird Conservation Plan (Rich et al. 2004) identifies a critical need for strategic approaches to landbird conservation, and describes overarching threats faced by landbirds, including: significant direct loss of major bird habitats (including loss of western riparian, pinyon-juniper and sagebrush habitats);
10b-4 fragmentation and degradation of remaining habitats due to intensified agricultural practices, inappropriate grazing, spread of exotic vegetation and other factors; failure to identify and properly protect or manage habitat used during spring migration, fall migration, and winter. Birds stressed during migration require quality habitats for food and cover; a steady, widespread increase in dispersed mortality factors. These factors collectively contribute to a **high proportion of population declines and anticipated future threats.**

The Plan describes the growing recreational importance of birds, and the economic importance of bird-associated recreational activities. Birds also contribute to the maintenance of ecosystems – from dispersing native plant seeds to consuming insect pests. Conserving habitat for birds will contribute to meeting needs of other wildlife.

10b-4 The Plan stressed it does not advocate conservation based on single species only, and encourages planners to identify common issues or habitats among suites of high priority species. It assesses conservation vulnerability based on biological criteria. PIF Assessment Factors include: Population size, breeding distribution, non-breeding distribution, threats to breeding, threats to non-breeding, and population trend.

Species of Continental Importance: Includes Watch List and Stewardship Species. Watch List: Greater Sage-Grouse, Swainson's Hawk, Short-eared Owl, White-throated Swift, Pinyon Jay, Brewer's Sparrow, Mountain Quail, Calliope Hummingbird, Black-capped Gnatcatcher, Virginia's Warbler. Stewardship Species: Gray Flycatcher, Western Scrub Jay ???, Sage Thrasher, Black-throated Gray Warbler, Green-tailed Towhee, Black-throated Sparrow, Sage Sparrow, Grasshopper Sparrow (?), Yellow-headed Blackbird, Rough-legged Hawk (winter?). Rosy Finch species (winter?).

Conservation of Stewardship Species will be a step towards maintaining broader suites of species within all biomes. LCP at 31 states: "**habitat loss remains the paramount factor for most species", and "habitats in danger of significant loss in the near future include western pinyon-juniper, sagebrush, and wetlands**. It describes the impacts of habitat fragmentation, and the growth in dispersed recreation such as OHV use.

Sadly, the series of Alternatives (Proposed and Preferred Actions) cast aside reasonable analysis of the impacts of the massive intervention and disturbance put forth in the EIS on these species, and the viability of habitats that will be drastically fragmented under the EIS actions.

Sage grouse are threatened by "extensive degradation of its sagebrush habitat by overgrazing and invasive plants" (LCP at 31). Livestock grazing "has had enormous effects on native vegetation – a century of selective removal of palatable plant species, soil compaction, water developments and livestock management activities" (LCP 2004, citing Saab et al. 2004. Habitat loss and fragmentation are also occurring on migration routes and in wintering areas.

It promotes landscape-level natural resource planning. One example of "measurable criteria" is number of agency plans into which landbird objectives have been incorporated. This EIS provides just such an opportunity!

Issues are identified that transcend biomes, including:

- Habitat loss, degradation and fragmentation
- Forestry management
- Fire management strategies

- Wetland Issues
- Exotic or invasive species
- Resource extraction/energy
- Livestock grazing management
- Climate change
- Contaminants and pesticides
- Lack of information.

The allotments lie within the Intermountain West Avifaunal Biome, which is composed of 3 Bird Conservation Regions (BCRs). "Extensive mountain ranges and broad basins produce large elevational gradients that create a complex and variable environment - including coniferous forest, pinyon-juniper woodland, and cold semidesert shrubsteppe, and important wetland complexes. The IM West is center of distribution for many birds, and over half the Biome's SCSI have 75 percent or more of their population here. **"Threats and/or declining trends face Species of Continental Importance that use coniferous forest, pinyon-juniper woodland, shrubsteppe, and riparian habitats".** For example:

10b-4

* Coniferous forest: flammulated owl, Cassin's finch, others.
* Deciduous forest: Aspen forest is a declining habitat type SIC: Red-naped Sapsuckers, Mountain Bluebird.
* Woodland: Pinyon-juniper woodlands are especially characteristic of the southern portion of the IM West. This habitat type supports the largest nesting-bird species list of any upland vegetation type in the West (Beidleman 2000), cited in LCP at 53. SCI are Pinyon Jay, Gray Vireo and Gray Flycatcher. "Degradation of pj has been widespread and continuous since European settlement".

Shrub-steppe species comprise the largest number of Species of Continental Importance in this biome. Conversion for ag. invasion of non-native grasses and forbs, development, sagebrush eradication and changes in fire frequency. This has caused extensive loss and degradation of habitat, with subsequent population declines. Cheatgrass has invaded over half of the existing sagebrush habitat. It is the highest conservation priority in the Interior Columbia Basin (Saab and Rich 1997, Paige and Ritter 1999), and species include: Greater Sage-Grouse, Sage Sparrow, Sage Thrasher, Brewer's Sparrow, Green-tailed Towhee. "Montane shrublands embedded in the forests provide many species with valuable food and cover – and may be critical to hummingbirds during migration. Montane Shrubland SCI include: Ducky Flycatcher, Virginia's Warbler, Calliope Hummingbird, Green-tailed Towhee, Rufous Hummingbird, and Mountain Bluebird.

10b-5

Riparian Habitats. Characteristics of riparian habitats vary widely depending on matrix and elevation, from cottonwood gallery forests to willow thickets. Nearly all riparian areas have been substantially degraded by development or alteration of many types – including de-watering, and alteration of flows, road construction, invasion of non-native species, logging, severe overgrazing, recreation.

Conservation issues include: Inappropriate livestock grazing, invasion of exotic plants change in fire intensity and frequency, logging practices affecting forest structure, and composition – especially mature, continued degradation of riparian habitat, conversion of sagebrush and pinyon-juniper habitats, including through land management practices, water diversion, alteration of flows, and spring development, recreational OHV use. 10b-5

Recommended actions: Retain large tracts of pinyon-juniper; ensure seed supply of seed-producing pinyon pine; Maintain/promote growth of native grasses and forbs in shrub-steppe, prevent large scale wildfire, restore with native plants following disturbance. Maintain water quality and quantity and vegetation in embedded springs, seeps and riparian areas. Restore degraded habitats and habitats that have been converted to non-native grasslands. Protect high quality riparian habitat. Restore natural flows and flooding regimes.

Interfacing Communities/Natural Diversity and Inherent Complexity of Plant Communities. The ferruginous hawk illustrates the importance of understanding interfacing habitats. Ferruginous hawks typically nest in junipers at the edge of, or interfacing with sagebrush habitats. It is critical that BLM examine the already complex interspersion of plant communities across the landscape. Sagebrush communities often exist as complex mosaics with inherent natural diversity (Montana Department of Fish, Wildlife and Parks 1995, Welch and Criddle 2003).

Native Vegetation: The ecological integrity of native plant communities is the foundation of healthy habitats for special status species, raptor prey species, and healthy watersheds and watershed processes that replenish aquifers for scarce desert springs.

Species to Be Covered

BLM must conduct on-the-ground inventories of species, and habitat conditions and populations across the EIS area. BLM must use its current special status species list, Partner in Flight species lists, information from the Conservation Data Center, and other important recent summaries, such as Connelly et al. 2004 and Dobkin and Sauder 2004, and Wisdom et al. 2000, to examine species of concern and their habitat needs. It must conduct on-the-ground surveys for species of concern, and collect thorough and up-to-date information on the quality and quantity of habitats across these allotments and surrounding lands.

BLM must carefully review these lists, and updated information, and assess habitat conditions for these species. BLM must conduct systematic baseline surveys for breeding birds, migrants, wintering species. BLM should work with experts to assess populations, genetic uniqueness, etc.).BLM must also fully consider the changing dynamics in wildlife populations – such as elk, and the high priority segments of the public place on this species, as well as antelope and mule deer. 10b-4

Juniper and/or pinyon-juniper birds are of high conservation concern (USFWS 2002, Rich et al. 2004). Yet, pinyon-juniper habitats are among the **most consistently under-**

represented habitat types in biological and ecological survey efforts (Red Willow Research 2004).

In the Great Basin Bird Conservation Region, high-priority Pinyon-Juniper species include: Pinyon Jay, Ferruginous Hawk, Plumbeous Vireo, Virginia's Warbler, and Black-throated Gray warbler. Pinyon-juniper and juniper woodlands/pygmy forest provide important breeding habitat for many wildlife species. Pinyon-juniper provides provides important food for birds and other wildlife. Avian species known to consume pinyon seeds include: Pinyon Jay, Steller's Jay, Black-capped Chickadee, Northern Flicker, Gray-eyed Junco, Black-billed Magpie, Clark's Nutcracker, Red-breasted Nuthatch, Pine Siskin, Juniper Titmouse, and Lewis Woodpecker (Martin and others 1951, cited in Red Willow 2004). Both pinyon nuts and juniper berries provide a vital food resource for birds. Juniper berries remain on trees in winter, and are important for Cedar Waxwing, Townsend's Solitaire, Pinyon Jay, Clark's Nutcracker, Western Scrub Jay, Grosbeak sp., American Robin (Martin and others 1951; Johnson 1998; PIF 2000). Townsend's Solitaires establish winter territories based on juniper berry presence and abundance.

Extensive alteration has occurred to pinyon-juniper and juniper in many areas – chaining, spraying, and prescribed fire have been used to remove pinyon-juniper and juniper to plant livestock forage, especially at lower elevations on upper portions of alluvial fans and toeslopes of ranges. Often, exotic crested wheatgrass was planted. Wildfires have consumed large acreages, including across southern Idaho, northern Nevada and northern Utah. Plus, large-scale die-offs of sagebrush have occurred. BLM must assess the integrity and continuity of communities, identify higher quality communities, and protect them from new disturbance, and act to ameliorate ongoing, chronic disturbance of livestock grazing or other land use practices. These areas will also provide reference areas for unfragmented habitats.

Wisdom et al. (2000) provide additional information on understanding animal species
10b-4 habitat needs. See Summaries for Groups 30-35., for example – two specific examples provided below. Please apply information in this document to species and habitat needs analyses in the EIS area. Examples:

Group 30. Ash-throated flycatcher and bushtit depend on a mix of source habitats. Retain contiguous blocks of mature juniper/sagebrush, especially old juniper with nest cavities. Consider site-specific ecological potential and response to management before removing juniper trees. Retain old growth, cavities, restrict pesticides, restore native understories, minimize likelihood of exotic invasion.

Group 31. Ferruginous hawk, burrowing owl, vesper sparrow, lark sparrow, western meadowlark, shirt-eared owl and pronghorn. Ferruginous hawk populations fluctuate in response to prey populations. Breeding populations of short-eared owls are nomadic, and may occur when rodent densities are high. Burrowing owls rely on burrows provided by burrowing mammals (ground squirrels, marmots, coyotes, badgers) and may be closely tied to these mammals. Broad-sale changes in source habitats – have dramatic

"decreasing" and "strongly decreasing trends". Source habitat remains in northern Great Basin and Owyhee Uplands. Source habitat loss – tied to loss of big sagebrush. Ag. conversion, conversion to exotics. BO populations have declined as the result of pest control programs. Meadowlark and lark sparrow success, correlated with grass. Removal of grass cover may have detrimental effects, presence of livestock may attract brown-headed cowbirds and increase brood parasitism.

10b-4

Juniper expansion may have benefited ferruginous hawks. Microbiotic crusts have been widely destroyed by livestock. Roads, human activities and domestic dogs. Recreational shooting of marmots or ground squirrels impacts burrowing owls, and pesticide use may lead to direct mortality.

Management implications. Most of habitat clusters 5 (Owyhee Uplands ERU) and 6 (northern Great Basin, Owyhee Uplands, Upper Snake ERU), with the potential risks to ecological integrity are: continued declines in herbland and shrubland habitats. Primary issues: Permanent and continued loss of shrubsteppe due to ag coversion, brush control, cheatgrass invasion; Soil compaction and loss of micrbiotic crust; Adverse human disturbance.

10b-5

Strategy: **Identify and conserve large remaining areas (contiguous habitat) of shrubsteppe vegetation where ecological integrity is still relatively high, and to provide long-term habitat stability for populations and provide anchor points for restoration, corridors, and other landscape-level management. Restore grass and forb components. Restore microbiotic crusts, maintain burrows. Minimize adverse effects of human intrusion**.

In support of conserving shrub-steppe, identify large areas of high ecological integrity to be managed for sustainability, on large areas of federal land. Criteria for protect and enhance include: maintaining or increasing the size of smaller patches, preventing further habitat disassociation, protecting or increasing the size and integrity of corridors, all in connection with the location of core areas. Use fire suppression and prevention to retard the spread of cheatgrass. Restore cheatgrass monocultures. Restore native vegetation. Design livestock grazing to promote abundance of forbs and grasses in understory, encourage development of microbiotic crusts. Allow burrows to persist or expand (Wisdom et al. 2000).

BLM "Range"/Vegetation Data

At present, BLM has very little current information on ecological conditions and the health of native plant communities across the landscape. When BLM (especially in the USRD) conducts its limited and narrow FRH assessments and allotment evaluations, it relies on old data, data in databases, and never re-visits the sites where ESI data had been collected. Key Area sites are located in only the most accessible areas, and are clustered in particular areas of the allotments, leaving vast land areas with no monitoring information at all collected. BLM also fails to collect necessary data on degradation caused by livestock facilities and management activities. Such informaitonis ciritcal to

understanding sources of flammable cheatgrass or other weed invasion, causes of roading, the inter-relationship and cumulative impacts of grazing facilities and roading. Current, comprehensive data on condition of soils vegetation, and habitats must be systematically collected.

Plus, BLM can not ignore evidence that its limited old data does show - i. e, only a small fraction of larger size grasses present are present in most sites that should be dominated by these species. Thus, "production" is greatly less than that of good or better condition sites, and this is typical of nearly all sites. BLM must also tie water developments, water hauling or other livestock management practices to site depletion and alteration of species structure, composition and fuels and fire problems. As part of this process, BLM must revisit its limited monitoring sites, and must also establish a series of new ESI and monitoring sites across the allotments, in all vegetation types, and that represent levels of livestock use that occurs across these lands.
BLM must also conduct comprehensive new FRH assessments, in representative sites grazed by livestock across all areas of the allotments. BLM seldom, if ever, addresses the role of livestock in causing hazardous fuels or exotic species problems in its FRH analyses.

BLM Treatments Pose Grave Dangers to Native Species

BLM's EIS for these lands involves large-scale vegetation manipulation proposals – ranging from massive burning and "treatment" of conifers and aspen communities to extensive fragmentation (aka burning "mosaics") across some of the most intact remaining big sagebrush habitats in Interior Columbia Basin. All of these proposals have serious risks for the perpetuation of native species – and pose great threats of escalated weed invasion and permanent loss of plants, animals and biodiversity.

10b-5 BLM must conduct a comprehensive analysis of pre-existing projects and disturbance across the landscape, and include analyses of treatments and disturbance factors across land ownership boundaries. BLM must also assess significant ecological problems that may have arisen in the wake of treatments.

Plus, in our past experience with BLM, the agency has much exaggerated the needed scale of any fire prevention treatment projects that may be necessary to protect plant communities from large-scale fires. For example, in the Ely-Mount Wilson Urban interface near Ely, NV – only around 13% of the land area proposed by the Ely FO was actually found necessary to be treated when BLM's own national-level fire experts, having assessed the situation, developed a sane and reasonable approach.

Grazing Suitability and Capability Analysis

10b-6 BLM must conduct a current livestock grazing suitability analysis. BLM is aware that it has based livestock use areas and stocking rates on old adjudication processes – where AUMs claimed and then assigned in the adjudication process were often greatly inflated

by ranchers. These "adjudicated" AUMs were not based on the ability of the land to sustain such high numbers of livestock and levels of use.

In the EIS suitability analysis, BLM must examine:
Slope, distance to natural water, dispersion of "forage" across the landscape – i.e. many lands have been so depleted that it takes dozens of acres to support an AUM – so the costs (including in weight gain/loss of livestock) are often so great that grazing is a
10b-6 resoundingly losing proposition, areas inaccessible due to winter snow, summer desiccation, etc. Directly relevant to the Fuels EIS is an assessment of the Risk that continued livestock grazing may push habitats over ecological thresholds from which they can not recover. Examples: Continued heavy stocking and degradation of mountain big sagebrush opening the door to cheatgrass invasion of understory; continued heavy stocking and degradation of juniper leading to cheatgrass invasion of understory; continued heavy stocking and degradation of sagebrush leading to both juniper and cheatgrass invasion of sagebrush.

Sagebrush and Other Habitat Assessments

Assessments of the quality of sagebrush, salt desert shrub, juniper, montane conifer, aspen and other important habitats are necessary because: habitats and populations of species continue to decline across vast areas; there are many sagebrush species of concern; threats to sagebrush are regional in scale; regional knowledge facilitates development of consistent, efficient and credible management strategies for a comprehensive set of species. Federal land managers have legal responsibilities for effective management of habitats for sagebrush-associated species of conservation concern.

Analysis procedures include: Ecoregion and spatial extent, identify species of conservation concern, delineate ranges, estimate habitat requirements, identify regional Threats and Effects, estimate and map the Risks posed by each threat, Calculate Species-
10b-4 Habitat effects from all risks and other steps. Other Analyses include: Fragmentation, connectivity and patch size analyses, Consideration of non-vegetative factors affecting species of concern, change detection studies. Regional knowledge provides essential context for land use planning.

We have reviewed the local sage grouse plans, and they fail to provide information/conduct several necessary analyses at the appropriate scale, and fails to present necessary information to the public, and do not integrate necessary information to understand scale and extent of Threats (such as livestock grazing, cheatgrass presence in understory or domination, livestock facility fragmentation, etc.) and other habitat degradation or fragmentation effects – especially for mammals, reptiles and many migratory birds. They also completely fails to describe or map attributes necessary to understand the **quality of habitats** that do exist. For example, there is no mapping or other information that shows sagebrush habitats dominated by cheatgrass; no mapping or other information to show where large understory grasses have been largely eliminated ad weakened, and replaced by small *Poas*, or squirreltail, etc.

Threats to Sagebrush and Other Shrub-Dependent Species and Habitats that must be Assessed in the EIS

BLM must assess the following threats to native vegetation and special status species and other important wildlife:

Wells and windmills
Pipelines
Troughs
Pipelines
Roads (often linked to facilities)
Salting Sites
Weed Infestations
Powerlines
Fences
Aquifer depletion

10b-4 Cheatgrass-dominated understories
Cheatgrass, few shrubs

Altered understory species composition
Altered understory species structure
Altered overstory species composition
Altered overstory species structure (see, for example, Katzner and Parker 1997, and Federal Register 68 (43): 10389-10409) describing impacts of livestock-altered or thinned sagebrush to pygmy rabbit)

Vegetation Treatments (chainings, seedings, railings, herbicidings, mechanical such as mowing) lacking key habitat components and associated roading

Grazing season/disturbance conflicts with nesting, birthing, wintering or other critical period in species life cycle
Grazing use levels fail to provide necessary habitat components (cover or food) based on nest available science
Livestock structural alteration of shrubs

Energy project siting (wind, geothermal, other) and associated roading
Mines and mining exploration and associated roading

OHV races
Areas of high OHV use
Unregulated motorized use
Road densities
Communication towers. Powerlines, other facilities or vertical structures

Often overlooked threats from livestock facilities and structures include:

- Physical harm to species - obstacles such as fences that can cause injury or mortality;
- Structures cause species avoidance of areas, i.e. sage grouse avoid vertical structures.
- Providing elevated predator perches and nest predator perches (in the case of songbirds – brood parasite perches).
- Attract predators and act as sinks
- Attract brood parasites

All of these impacts may act directly, indirectly, cumulatively or synergistically with the effects livestock degradation associated with lands over broad areas surrounding these facilities may have to vegetation, soils and other habitat components. The end result is degradation and fragmentation of habitats for important and special status species. This must be determined before BLM can evaluate impacts of the large-scale disturbance that it seeks to impose under the Fuels EIS to many areas of still relatively intact native vegetation and species habitats.

10b-4

The impacts of grazing during sensitive periods of the year for native wildlife must be assessed. For example, inundating sage grouse nesting or brood rearing habitats with large numbers of cattle or sheep during nesting season may cause: Removal of cover necessary to protect nesting birds and to hide and provide essential insect food for chicks; cause flushing of birds from nests – thus revealing nests to predators; cause separation of broods and increased vulnerability to predation; strip essential cover to hide hens and nests and conceal chicks from aerial vision-oriented predators and screen scent from ground-based predators..

Altered Fire Cycles

BLM must study the extent of cheatgrass in understories, and areas already dominated by cheatgrass. BLM must assess the risk of cheatgrass invasion of understories with continued or extended livestock use or disturbance. BLM cannot gloss over the role of ongoing livestock grazing in continuing disturbance that spreads cheatgrass, retarding recovery and weakening of native vegetation in plant communities that still have a significant component of native species present, etc.

10b-5

BLM must assess how the presence of cheatgrass may affect special status species. For example, how do cheatgrass-dominated understories and interspaces affect reptile species occurrence and abundance - (lizards may be prey species for small mammals)? How does cheatgrass affect the pygmy rabbit?

Plus, in any discussion of plant communities where BLM claims the fuels/fuel loading is too heavy, BLM must examine causes heavy fuels related to livestock degradation, topsoil loss and change in site potential, climate change, etc.

Altered Composition and Structure/Lost Productivity

Over large areas of the EIS lands, larger sized native bunchgrasses and forbs have been eliminated, or significantly weakened. Only smaller stature native grasses and weeds remain. How do these smaller stature grasses affect fire behavior, outvomes of various treatments, etc.? Appropriate stocking levels for any areas grazed must be based on the amount of forage present on a sustainable level, and Risk of exotic species invasions must be minimized. In addition, with extensive depletion over large areas, BLM must assess the diminishing returns – and increased ecological damage done by livestock having to roam over dozens if not hundreds of acres to sustain themselves/harvest an AUM. This leads to more trampling impacts, more weeds, etc. BLM must identify areas where grazing is unsustainable, or where it will cause harm to still-intact communities, as part of the Suitability analysis conducted under the EIS.

10b-5 Grazing systems, grazing intensity and season of use: Financial returns from livestock production, trend in ecological condition, forage production, watershed status and soil stability are all closely associated with grazing intensity (Holechek et al. 1998). Short-term rest or deferment can not overcome periodic heavy use. The conflicts with wildlife habitat needs, including food, cover, nutritional composition, space, lack of disturbance and other factors, must be studied.

Health of Vegetation Communities and Soils across the Landscape Drives Health of Habitats and Populations

Plant Communities - Dispersion across the Landscape –the DEIS does not adequately mpa or assess this dispersion. BLM must inventory and assess (including using accurate mapping) the full range and diversity of native plant communities that exist across the landscape. BLM must assess the condition of these communities, including soil stability, erosion, presence of microbiotic crusts, possible loss of soil horizons, susceptibility to wind and water erosion, and their ecological integrity.

Range of Alternatives

10b-7 Instead of structuring this process to develop a range of alternatives centered around the need to intensively alter and treat still relatively intact native vegetation, BLM must consider a range of alternatives that focus on restoring cheatgrass-infested lands, and protecting native vegetation as much as possible. Expansion of cheatgrass pushes communities across thresholds from which natural recovery is difficult - if even possible .livestock grazing as only one of many competing uses on these fragile and much-abused arid lands which are already undergoing accelerated habitat fragmentation.

Drought

10b-5 All impacts of livestock grazing on all elements of the SSSS EIS must be assessed during drought. How does drought affect productivity of vegetation? What are the additive,

synergistic and cumulative impacts of grazing depletion and drought on loss of plant vigor, weakening, or death?

10b-5 How much are plants of good vs. poor vigor affects by drought? What utilization levels are appropriate on drought-stressed vegetation? What stocking rates are necessary to prevent depletion during drought? How does drought affect fuels and fire danger in plant communities weakened by the combined effects of grazing and drought. Do they become vulnerable to cheatgrass and other weeds that increase fire dangers and cause fuels problems?

The Snake River Birds of Prey Area: Case Study in How NOT to Manage Lands

BLM must closely examine the woeful management failures of BLM in the Snake River Birds of Prey National Conservation Area to understand the consequences of continuing near status quo forage allocations, livestock project construction/water hauling, roading, etc. The 1995 USDI BLM/IDANG report details the ongoing destruction of habitat caused by fire, grazing and other human activity (including military training). The loss of
10b-8 sagebrush in the SRBOPA is clear to even the most casual observer driving through the area. A proliferation of exotic species – cheatgrass, medusahead, bur buttercup, and now white top, rush skeletonweed, and other noxious weeds - have occurred in the wake of the excessive livestock seasons of use and numbers that have been authorized here in the past. The grazing levels in the SRBOPA (high allowable utilization of 50%, and many harmful grazing practices similar to those across the EIS area, including construction of new livestock projects or providing water in arid uplands through facilities and water hauling.

Over the years since the BOP has designated, we have watched as BLM has continued to allow grazing during periods of the year that are known to be harmful to native bunchgrasses and forbs, to allow use at high levels, including during drought years, and generally continue management in a manner biased towards the livestock industry.

Need for Measures to Provide Increased Herbaceous Cover to Benefit Sage Grouse And Other Special Status Species

Sage grouse depend on a variety of shrub-steppe habitats, and populations may move over large areas of land in the course of a year. Overhead cover of sagebrush and tall residual native grass cover are critical to successful sage grouse nesting (DeLong et al. 1995; Connelly et al. 2000; Hockett 2003; 69 Federal Register (77) 21489; Connelly et al. 2004). The sage grouse is reliant on sage-steppe communities, and its populations
10b-4 have plummeted westwide. Excessive livestock grazing strips required nesting cover that screens nests of ground- and shrub-nesting birds from ground and aerial predators, and alters long-term diversity of native forbs that produce insects essential to the diet of sage grouse chicks. Sage grouse eat only sagebrush in winter, and require intact stands for winter survival. Physical breakage of sagebrush and nipping by livestock also alter and decrease sagebrush cover essential for sage grouse and other sagebrush species.

The "Guidelines to Manage Sage Grouse Populations and their Habitats" (Connelly et al. 2000), have been adopted by the Western Association of Fish and Wildlife Agencies (WAFWA) guidelines, and present well-established information on essential habitat components and management based on sage grouse needs. The WAFWA guidelines are now buttressed by the recent WAFWA Conservation Assessment of Greater Sage-Grouse and Sagebrush Habitats (Connelly et al. 2004). A link to this voluminous CA document is found at the NDOW Website: www.ndow.org/wild/sg/resources/assessment.shtm .

The WAFWA Guidelines and the recent WAFWA Conservation Assessment (Connelly et al. 2004) underscore the following points with respect to sage grouse biological and habitat needs:

- The great importance of herbaceous cover in nesting habitats (WAFWA at 968; CA at 4-4 to 4-8). Grass height and cover are important to nest success. Herbaceous cover provides scent, visual and physical barriers to predators. (WAFWA at 971; CA at 4-4 to 4-8);
- Successful sage grouse nesting occurs under larger bushes. Nesting habitat has greater canopy cover, taller live and residual grasses, more live and residual grass cover, and less bare ground (WAFWA at 970-971; CA at 4-4 to 4-8);

10b-4

- Successful nests occur in stands with greater canopy cover (WAFWA at 971; CA at 4-4 to 4-8);
- Early brood rearing habitats should have greater than 15% canopy cover of grasses and forbs. After chicks hatch, these grasses and forbs produce insects for chicks to eat and canopy cover to screen them from predators. Later, forbs are eaten by maturing chicks. Forbs are also important in providing adequate pre-laying nutrients to hens (WAFWA at 971; CA at 4-8 to 4-9);
- As upland vegetation desiccates, hens with broods seek out late brood rearing habitats comprised of areas with succulent green forb vegetation, such as wet meadows and riparian areas (WAFWA at 971; CA at 4-9 to 4-11);
- Winter habitats have relatively dense sagebrush canopy cover, with sagebrush exposed above the snow (WAFWA at 972; CA at 4-14).

105. Habitat protection management actions for sage grouse are summarized in the WAFWA Guidelines, and include:

- Manage breeding habitats to support 15-25% canopy cover of sagebrush, 18 cm. or greater perennial herbaceous cover height (grasses and forbs) (WAFWA at 977);
- In late summer brood rearing habitats, "avoid land use practices that reduce soil moisture effectiveness, increase erosion, cause invasion of exotic plants, and reduce abundance and diversity of forbs" (WAFWA at 980);
- "Avoid developing springs for livestock water." If this must occur, "design project to maintain free water and wet meadows at the spring," as "capturing water from springs using pipelines and troughs may adversely affect wet meadows used by grouse for foraging" (WAFWA at 980).

In addition, US Fish and Wildlife Service (69 Federal Register (77) at 21491) describes studies showing that losses of hens and nests are related to herbaceous cover surrounding

10b-4 nests. "Enhancing Sage Grouse Habitat, a Nevada Landowner's Guide" (Northwest Nevada Sage Grouse Working Group) also cites studies showing that sage grouse nests were least preyed upon when a residual cover of 7 inches or more of herbaceous vegetation was present.

Thus, there is strong scientific support for application of grazing use standards that provide for 7-9 inches of residual stubble height left uneaten on native grasses.
10b-6 Unfortunately, the livestock utilization levels now being applied across the USRD and adjacent Forest and other lands do not adhere to these requirements, and **will not provide for necessary residual stubble heights and cover for sage grouse nesting**, even under normal circumstances – let alone under drought, or weakened or low vigor conditions.

A recent EA from the BLM's Jarbidge Field Office (BLM Jarbidge EA, Ch. IV, pg. 88-89). The public lands of the BLM's Jarbidge Field Office are contiguous with the USRD area, and are sagebrush-steppe and other communities, with species of native bunchgrasses that are the same as the allotments here.

BLM has found that with 50% utilization levels, as allowed across the EIS lands, bluebunch wheatgrass is grazed to 4.5 inches, Idaho fescue is grazed to 2.0 inches,
10b-6 Thurber's needlegrass is grazed to 2.8 inches, bottlebrush squirreltail is grazed to 1.5 inches, and the exotic crested wheatgrass is grazed to 3.5 inches. All of these residual stubble heights are thus far less than the 7-9 inch stubble heights called for under the best scientific information available, such as the WAFWA guidelines discussed above; and demonstrate that grazing under BLM's current management will result in far more utilization and seriously inadequate cover for sage grouse on the allotments in question. Plus, BLM's woefully inadequate upland utilization levels and hand full of riparian stubble heights are not required Terms and Conditions on grazing permits, so there is no assurance that compliance will occur.

In many areas across the EIS area, livestock grazing has caused depletion of larger-sized native bunchgrasses capable of providing grass heights sufficient to mask sage grouse nests and to protect nests and chicks from predation. These larger "decreaser" grass species have been replaced with smaller "increaser" grasses like small *Poas* (bluegrasses) or unpalatable weeds. The direct, indirect, synergistic and cumulative impacts of the any treatments under the various EIS alternatives must be assessed in relation to such livestock impacts to sage grouse and other species habitat components.

Harmful Impacts of Livestock Facilities: Habitat Degradation and Fragmentation

A growing body of scientific evidence demonstrates the negative impacts of fences and other vertical objects, as well as the increased fragmentation of sagebrush-steppe and other wild land habitats that result from placing vertical objects in sage grouse habitats. (Connelly et al. 2004).

BLM must conduct a full inventory and assessment of all existing livestock facilities and developments on the allotments, all water haul and salting sites, and all vegetation

treatments that have been conducted on these lands. The full array of direct, indirect, cumulative and synergistic impacts of these projects and activities must be assessed.

A substantial body of scientific information demonstrates the harmful impacts of fences and other range developments on sage grouse. Sage grouse evolved in an open landscape without vertical structures, and they naturally avoid using areas near these structures - which include fences and fence posts. Sage grouse habitats are fragmented by fences and other facilities associated with grazing (USFWS 69 Federal Register (77) at 21490). Fences and other facilities (as associated with wells, pipelines, troughs and water developments in the three allotments) provide perching locations for raptors, and associated roading that grows up along fences or in association with other livestock facilities provides both travel corridors for predators and conduits for weeds (69 Federal Register (77): 21490). Mechanical treatments and seeding with exotics degrades sage grouse habitat by altering structure and composition of vegetative community (69 Federal Register (77): 21488). Development of springs and other water sources to support livestock in upland shrub-steppe habitats can artificially concentrate domestic and wild ungulates in sage grouse habitats, and worsen grazing impacts (69 Federal Register (77) at 21489). Direct mortality of sage grouse from collisions with fences is described in the WAFWA guidelines at 977, and USFWS in 69 Federal Register (77) at 21492.

10b-6

Sage grouse are a landscape-scale species, inhabiting large, interconnected expanses of sagebrush. A mosaic of fragmentation now exists across many parts of the landscape, including portions of these allotments, and BLM's Proposed Action would extend and worsen fragmentation effects across the landscape. Causes of habitat fragmentation include vegetation treatments and removal of sagebrush, wild and prescribed fire, livestock facilities and zones of livestock concentration. There is mounting evidence of long-term negative effects of fire on sage grouse populations (WAFWA Conservation Assessment at 4-16, 7-28), 80% of the land area in the Great Basin is susceptible to displacement by cheatgrass (WAFWA CA. at 7-17 and Fig. 7.10). Wyoming and basin big sagebrush shrub cover types occupy large areas in the EIS lands and are the cover types most susceptible to displacement by cheatgrass (these areas comprise large portions of the three allotments). The ecological effects of livestock grazing grazing may alter vegetation communities, water and nutrient availability and soils so that **lands cross thresholds from which the system can not recover** (WAFWA CA. at 7-29 to 32). Habitat treatments have consequences for the habitat dynamics and wildlife use of habitats – and "each potentially decreases the suitability of sagebrush for wildlife" that depend on large, unfragmented sagebrush habitats" (WAFWA CA at 7-32). Evaluation of sagebrush communities primarily based on their ability to produce livestock forage (as in the case of these lands), may result in extensive alterations that are unsuitable for sage grouse and other species dependent on sagebrush habitats (WAFWA CA at 1-3). Fences influence livestock and predator movement, facilitate spread of exotic plants, provide travel and additional access for human disturbances, increase mortality due to direct collisions, and increase predation rates by providing perches for raptors (WAFWA CA at 7-34 to 35).

10b-4

10b-6

Fences used to control grazing (or in the aftermath of the treatments that may result under

various EIS alternatives) modify the landscape by creating an artificial mosaic (WAFWA CA at 7-35), and allow more intensive grazing and loss of necessary habitat components such as residual grass cover for nesting. Intensified or more uniform use inside fenced areas results in patterns of unusable habitat across the landscape. Water developments influence the composition and relative abundance of plants (WAFWA CA at 7-35). Thus, infrastructure to support grazing programs including fences and water developments have both direct and indirect effects on the landscape (WAFWA CA at 13-9). Grouse may not commonly use water developments, and "water developments tend to attract other animals, and may serve as a predator "sink" for sage grouse, i.e. grouse fall victim to the many predators attracted to water developments (WAFWA CA at 4-12).

10b-6

The Conservation Assessment describes impacts of disturbance of sagebrush habitats by vegetation treatments (at 13-6); depletion of native vegetation facilitating cheatgrass invasion (at 13-7); problems associated with blocks of crested wheatgrass and exotic seedings (at 13-7 to 8); landscape-level concerns – including that areas with larger patches of sagebrush remaining receive lower precipitation and are the least resilient to disturbance (such lower precipitation areas characterize much of the Owyhee, Big Springs and Sheep Complex allotments, and this highlights why careful management of these lands is crucial) (at 13-8 to 9).

10b-4

An unknown array of livestock facilities has already been constructed throughout the three allotments (on both BLM and private lands) to facilitate, extend and concentrate livestock grazing. These facilities include wells, windmills, spring developments and water diversions, pipelines, troughs, stock ponds – at times dug into and destroying springs, fences and corrals. Some have fallen into abject disrepair – windmills lie crumpled on the ground, junk tanks and troughs are strewn across the landscape. Fences have improper spacing. Not only do these facilities concentrate large numbers of livestock with deleterious impacts to soils, vegetation and wildlife habitats in their vicinity and radiating outward over broad areas, unplanned roading is often directly related to construction or maintenance of these facilities. Plus, there are innumerable livestock salting or mineral supplement sites, too, which also result in zones of intensive livestock disturbance and incidental roading. All of these areas of livestock concentration, where heavy and severe livestock use has compacted soils and destroyed cover and food for wildlife, exhibit harmful impacts to vegetation and native wildlife habitats. These developments and zones of intensive disturbance fragment habitats, and cover and food, for native species including sage grouse (Braun 1998; Freilich 2003; Connelly et al. 2004). Such projects have been constructed throughout habitats critical for sage grouse and other shrub-steppe species. New pipeline spurs incrementally constructed would extend and shift livestock use to new and less grazed areas, as the vegetation has been depleted by livestock around existing artificial or natural water sources (Sada et al. 2001).

10b-6

BLM's EIS lands that are not close to livestock water sources often comprise the best remaining healthy native vegetation communities and are thus very important habitats for native sagebrush-steppe species – precisely because they have been far less altered by livestock impacts. On top of the existing network of facilities BLM treatments may result

in plans to construct dozens of new projects, thus greatly expanding the zones of disturbance and intense livestock concentration.

Networks of roads associated with livestock facilities (and which will likley grow dramatically as vegetation is burned or otherwise treated and thus cleared under the EIS serve as conduits for exotic plant invasions (Gelbard and Belnap 2003), and travel corridors for predators (Braun 1998, Connelly et al. 2004). The development of a maze of roads fragmenting the landscape has resulted from the proliferation of livestock facilities across the landscape. Roads grow up as projects are constructed and maintained.

10b-6 Instead of attempting to rest to enhance habitats or jump start recovery, or place strict use limits on degraded riparian areas, BLM relies overwhelmingly on the construction of a series of band-aid fenced exclosures, with accompanying development and de-watering of wetland areas through piping water to troughs. Large areas outside exclosures then become a wasteland. An increasing body of science demonstrates that fences are harmful to sage grouse and many other species of native wildlife, and that sage grouse may avoid use of areas near fences. BLM's post-treatment actions may in fact further fragment habitats beyond removal of vegetation, and rendering patches of remaining untreated or native vegetation unusable by grouse, while creating extended wasteland areas in their surroundings, causing expanded environmental harm.

Instead of taking strong and decisive action to restore and enhance habitats and populations, BLM pursues a path of new and extended habitat alteration and fragmentation across the allotments under the guise of hazardous fuels, and restoring a "natural" fire interval that can no longer be considered natural under the chronic disturbance caused by livestock and in the face of exotic species invasions. .

10b-4 Degradation, fragmentation and loss of sagebrush across landscapes has imperiled the sagebrush-steppe avifauna. Besides the many effects described for sage grouse, these habitat changes and fragmentation have been shown to affect abundance of shrub-steppe birds Paige and Ritter 1999, Knick et al. 2003, Connelly et al. 2004 at 1-3.

The habitat for many native wildlife species across the EIS lands is already fragmented. Fragmentation would continue and escalate with new livestock developments, livestock management practices that result in zones of livestock concentration, and other disturbances under the EIS actions as laid out in the DEIS. Disturbance and depletion associated with livestock grazing and associated rangeland developments serve to break up and fragment the continuous cover of native sagebrush-steppe vegetation necessary for many sagebrush-dependent wildlife species survival (Knick and Rotenberry 1995; Knick et al. 2003; Freilich et al. 2003; 69 Federal Register (77), Connelly et al. 2004).

10b-7 This all demonstrates why BLM must abandon its alternatives that would radically alter large areas of the USRD that still contain largely native vegetation, and instead develop a range of new alternatives to enhance and restore public lands, native vegetation and important and special status species habitats.

Sincerely,

Katie Fite
Biodiversity Director
Western Watersheds Project
PO Box 2863
Boise, ID 83701
208-429-1679
Sincerely,

Goss WWP Comments

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

TAKE PRIDE IN AMERICA

EASTERN IDAHO FIELD OFFICE - ES
4425 BURLEY DR., SUITE A
CHUBBUCK, IDAHO 83202
Telephone (208) 237-6975 Fax Number (208) 237-8213

FEB 11 2005

Memorandum

To: Upper Snake River District Bureau of Land Management, FMDA Project Manager (Attn: Eric Limbach), Pocatello, Idaho

From: Supervisor, Eastern Idaho Field Office, Fish and Wildlife Service, Chubbuck, Idaho

Subject: Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and Draft Environmental Impact Statement, November 2004 – 90 day public review and comment period; 9211 (ID-300)
File # 1004.1000 FWS # 1-4-05-I-0041

The U.S. Fish and Wildlife Service (Service) has reviewed the Bureau of Land Management's (BLM) Fire, Fuels, and Related Vegetation Management Direction Plan Amendment (FMDA) and Draft Environmental Impact Statement (DEIS) for the Upper Snake River District (USRD), Idaho. The USRD includes the Idaho Falls, Pocatello, Burley, and Shoshone Field Offices (FOs) and administers almost 5.4 million acres of lands encompassing all or part of 23 counties in south-central and eastern Idaho.

The Service is pleased to participate in the development of the FMDA and commends the BLM USRD for committing to the development of a comprehensive fire and rehabilitation/restoration management plan on a landscape scale. Our comments are provided in accordance with section 7 of the Endangered Species Act of 1973 as amended (Act) and to assist the BLM in meeting its responsibilities under the National Environmental Policy Act.

Purpose, Need, Goals, and Objectives

At present, many of the 12 cover types identified within the USRD have been subjected to wildland fire that is outside the historical range of variability. Since approximately 1996, wildland fires have occurred on the USRD at an overall accelerated rate, mostly due to vegetation changes and altered conditions including cheatgrass invasion into sagebrush steppe cover types.

As we understand, FMDA goals and objectives include reducing risks to public and firefighter safety, dealing with impacts of invasive species on fire intervals and wildlife species, reducing hazardous fuel loads at the wildland-urban interface, and decreasing the potential for repeated fires in the same areas. These goals and objectives provide direction for making progress toward Desired Future Conditions for areas within the USRD, in which wildland fire should remain within the historical range of variability. The FMDA is also needed for the BLM to comply with the Federal Wildland Management Policy (1995; reviewed and updated in 2001), because existing Land Use Plans in the USRD do not address fire management issues in a comprehensive manner.

During the scoping period, two issues were identified that suggested a need for alternatives to the Proposed Action:

Issue 1. Under the Proposed Action fewer acres were identified for treatment than are recommended in Protecting People and Sustaining Resources in Fire-Adapted Ecosystems: A Cohesive Strategy (USDA 2000).

Issue 2. Under the Proposed Action, sage grouse could be negatively affected.

The DEIS describes management objectives and treatments for four FMDA alternatives:

Alternative A – The No Action Alternative (current plan direction);
Alternative B – The Proposed Action;
Alternative C – (designed to address Issue 1);
Alternative D – The Preferred Alternative (designed to address Issue 2).

All comments provided by the Service in this memo pertain to Alternative D – the Preferred Alternative. Under this alternative, up to approximately 1,552,300 footprint-acres would be treated in the USRD over a 10-year period (approximately six times the acreage in Alternative A).

Threatened and Endangered Species

11-1 The Service recommends that the FMDA direct the USRD BLM, in cooperation with the Service, to create and regularly update maps identifying important populations and sensitive habitat areas (occupied, nesting, denning, etc.) for each listed, proposed, and candidate species that necessitate high fire suppression priority. Fire Management Officers should then use these maps to help prioritize fire suppression activities on the ground, when fire suppression resources are limited. Further, such maps would be useful in analyzing potential impacts to listed species when designing other fuels, vegetation management, and restoration/rehabilitation projects.

Inclusion of the following conservation measures for federally-listed species in the FMDA would provide clarification needed to move forward with section 7 processes for the Preferred Alternative in a timely manner. The FMDA should direct site-specific project analyses to

reference the Species Effects Determination Criteria presented in the National Fire Plan Project Design and Consultation Process (USDA Forest Service et al. 2004) to help avoid or minimize adverse impacts to listed species. FOs should monitor cumulative effects of FMDA activities on federally-listed species together with effects of other activities conducted or permitted by the BLM. And, ***in addition*** to guidelines and conservation plans currently outlined in the FMDA (page 2-12, 13), the Service recommends that the following items be incorporated into the FMDA:

Bald Eagle

1. The Recovery Plan for the Pacific Bald Eagle (U.S. Fish and Wildlife Service 1986) should guide FMDA direction for those activities with the potential to affect bald eagles in portions of the USRD located west of the Greater Yellowstone Bald Eagle Management Plan (Greater Yellowstone Bald Eagle Working Group 1996) units in Idaho.

2. Bald eagle nesting territories, known foraging areas, and communal roost sites (which may not be in riparian areas) should be given high fire suppression priority by FMOs.

Bull Trout and Snake River Mollusks

1. FMDA should also rely on INFISH (USDA Forest Service 1995), the Snake River Aquatic Species Recovery Plan (U.S. Fish and Wildlife Service 1995), and Best Management Practices (Almas et al. 1996) for direction and guidance for those activities with the potential to impact bull trout, listed Snake River mollusks, or their habitats.

2. Riparian areas of waterways containing bull trout and listed Snake River mollusks should be given high fire suppression priority by FMOs.

3. Chemical treatments and sediment loading should be avoided near riparian areas in bull trout and Snake River mollusk habitat, and 300 foot buffer strips are recommended for these sensitive areas.

Canada Lynx

1. FMDA should provide programmatic direction to FOs to coordinate treatment activities, including rehabilitation/restoration activities, with the Forest Service to assist the BLM in complying with the Canada Lynx Conservation Assessment Strategy (USDA Forest Service et al. 2000) cumulative effects standards and guidelines.

2. Known lynx denning habitat and high quality snowshoe hare habitat should be given high fire suppression priority by FMOs.

Gray Wolf

1. The Northern Rocky Mountain Wolf Recovery Plan (U.S. Fish and Wildlife Service 1987) and Final Environmental Impact Statement: Reintroduction of Gray Wolves to Yellowstone National Park and Central Idaho (U.S. Fish and Wildlife Service 1994) provides standards and guidelines for recovery of the gray wolf, including delineation of nonessential experimental populations.

2. Known gray wolf denning sites and rendezvous areas should be given high fire suppression priority by FMOs.

Grizzly Bear

1. Programmatic direction advocating communication and coordination between FOs and Forest Service counterparts regarding cumulative impacts of individual projects and management activities within Bear Management Units will be critical.

2. The development of fire suppression priorities should consider management objectives for identified grizzly bear habitat.

Ute Ladies'-tresses

1. The development of fire suppression priorities should consider management objectives for Ute ladies'-tress habitat.

Yellow-billed Cuckoo

1. If yellow-billed cuckoos, a candidate species, are discovered during surveys, and management activities may affect this species or their habitat, we recommend that the BLM discuss with the Service opportunities to avoid or minimize impacts to the species. (Candidate species are those for which the Service has enough information to warrant proposing them for listing as endangered or threatened).

2. Yellow-billed cuckoo nesting territories and known foraging areas should be given high fire suppression priority by FMOs.

Sensitive Species and Other Resources

The Service agrees with the BLM's proposal in the FMDA to use sage grouse as "the premier representative wildlife species for sage steppe ecosystems." However, we emphasize that
11-2 conserving sage grouse habitat as a surrogate for other sagebrush obligates, including the pygmy rabbit, sage sparrow, Brewer's sparrow, and sage thrasher, may not be sufficient to capture and conserve necessary habitat characteristics. The Service expects that careful evaluation of important habitat characteristics for other sagebrush obligates and the potential impacts to those habitats from fire, hazardous fuel, and restoration/rehabilitation management will be made on a project-specific basis.

We believe that any treatments reducing, even temporarily, the amount of low elevation sagebrush, particularly var. *wyomingensis*, should be critically evaluated. Currently, there is low
11-3 availability of high-quality sagebrush habitat on the landscape and a certainty that some sagebrush habitat will be lost each year to wildland fire, exotic plant species, and human development. Due to these factors, coupled with the limited success of reestablishing these shrubs, especially via aerial seeding (Lysne and Pellant 2004), the Service suggests the FMDA emphasize maximizing net gains of available sagebrush habitat over the short and long term.

We recommend that the FMDA programmatic direction allocate more restoration and
11-4 rehabilitation treatments in additional vegetation types, particularly aspen/conifer habitats. Such treatments are currently needed for improving wildlife habitat and fire regimes.

In all treatment areas, we recommend the BLM sincerely evaluate regeneration methods on a project-specific basis, allowing the probability for successful regeneration to guide treatment
11-5 implementations, not the reverse. Native seeds and plantings should be utilized during restoration and rehabilitation treatments, whenever possible. Additionally, during such activities, the recruitment goals for all important habitat components should be carefully considered (e.g., grasses, forbs, shrubs, trees).

The Service commends the BLM for providing adaptive management direction for treatment
11-6 areas within the USRD. However, we advocate the FMDA programmatic direction to include identification of interdisciplinary and interagency planning and evaluation teams, implementation and monitoring timelines, and criteria for measuring success of objectives and management actions, whenever plausible.

11-7 We recommend the FMDA, in accordance with habitat management objectives, direct FMOs to allocate fire suppression activities for sensitive fish, wildlife, and plant habitats and populations.

Other Specific Recommendations (listed by page)

11-8 Page 2-9 (under *"Riparian Areas"*). Add statement to "Avoid the location of incident bases, camps, helibases, staging areas, fueling areas, helispots, and other centers for incident

activities within riparian habitats unless the only suitable location for such activities is determined and documented by the line officer or designee to be within riparian areas."

11-9 Page 2-11 (under "Livestock Grazing"): Replace "...two growing seasons or until vegetation establishment..." with "...two growing seasons and until vegetation establishment..." Essentially, the status and trajectory of the vegetation should drive rangeland management actions, not time since treatment.

11-8 Page 2-12 (under *"Riparian Areas"*). Add statement to "Avoid the location of helibases, staging areas, fueling areas, helispots, and other centers for vegetation treatment activities within riparian habitats unless the only suitable location for such activities is determined and documented by the line officer or designee to be within riparian areas."

11-10 Pages 2-12, 13 (under "Threatened, Endangered, and Sensitive [TES] Species," 1st, 8th, and 9th bullet): Replace "in areas supporting" with "activities that may affect."

11-11 Page 2-12 (under "Threatened, Endangered, and Sensitive [TES] Species," 3rd bullet): How would presence/absence be "determined," perhaps, surveys and Level 1 interagency meetings, etc?

11-12 Page 2-31 (under "Monitoring and Evaluation"). The Service recommends that monitoring associated with the proposed action would also examine both the implementation and effectiveness of conservation measures developed to avoid or minimize impacts to special status species.

11-13 Page 4-50 (Table 4-23). The numbers displayed in Table 4-23 should be rectified within the Annual Grass row as the total footprint acres of Annual Grass proposed for treatment under Alternative D (281,600 acres) is greater than the Total Acres of Annual Grass within the Shoshone Field Office area (281,362).

11-14 Page 4-93 (Table 4-37). The numbers displayed in Table 4-37 should be rectified within the Annual Grass row as the total footprint acres of Annual Grass proposed for treatment under Alternative D (281,600 acres) is greater than the Total Acres of Annual Grass within the Shoshone Field Office area (281,362).

11-15 Page 4-102 (under "Riparian Habitat"). Replace "The western yellow-billed cuckoo is presently the only species in the District proposed by the USFWS to be listed under the ESA as threatened" with "The western yellow-billed cuckoo is presently the only candidate species in the District. Candidate species are those for which the USFWS has enough information to warrant proposing them for listing as endangered or threatened, but the listing proposal is precluded by other species or listing actions that have higher priority."

11-16 Page 4-107 (Riparian Areas Row in Table 4-38). Add "bull trout and listed Snake River snails" to "Type 1: Bald eagle, Western yellow-billed cuckoo" in column 2, "Sensitive Species List". (Appendix pages K-1 and K-2 indicate that bull trout and listed Snake River snails are documented as occurring in the Upper Snake River District area.)

11-17 Page 4-108 (under "Unavoidable Adverse Impacts"). Add "Short-term adverse impacts to ESA candidate, proposed, or listed species or to proposed or designated critical habitat will be avoided or minimized to the greatest extent possible."

11-18 Page K-1 (Table 1): Bliss Rapids snail should not be listed in Pocatello and Idaho Falls FOs.

11-19 Page K-2 (Table 1): Utah valvata snail should also be listed in the Idaho Falls FO.

11-20 Page K-2 (Table 2): Gray wolf should also be listed in the Pocatello and Burley FOs.

11-21 Page K-5 (Table 3): "Riparian" should also be checked for the grizzly bear and Canada lynx.

If you have any questions or would like to discuss this further, please contact Barb Heslin at the Snake River Fish and Wildlife Office in Boise (208) 378-5259 or Troy Smith at the Eastern Idaho Field Office in Chubbuck at (208) 237-6975x36. Thank you for your continued interest in fish, wildlife, and plant conservation, and particularly endangered species conservation.

cc: USFWS, Boise
Idaho Fish and Game, Pocatello
Idaho Fish and Game, Jerome

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Eric Limbach
FMDA Project Manager
4350 Cliffs Drive
Pocatello, Idaho 83204

February 10, 2005

Dear Mr. Limbach,

12-7 The Idaho Bureau of Land Management Twin Falls District Resource Advisory Council has recently reviewed the Fire, Fuels and Related Vegetation Management Direction Plan Amendment. The Council does not herein collectively support any one Alternative, though we do offer the following recommendations.

D 12-1 Monitoring is frequently cut from the budget, resulting in one of the primary downfalls of some projects. Monitoring after a project has been completed is important, helping to better manage when, how often and how much livestock can use the treated area. The BLM Twin Falls District Resource Advisory Council (RAC) recommends that monitoring be supported through the future.

A 12-2 B The use of native grasses has greatly increased in recent years. This is a good practice but can be extremely expensive. Some native or hybrid native plants grow and do well, but frequently take much longer to get established. Grazing usage on some of this native seeding should be managed differently than some of the introduced grass species, while stabilization should be valued as more important in critical condition areas.

As an example, in some parts of the Bennett Hills area, King Hill Creek and other tributaries, there are heavy clay loam soils that make it extremely difficult to get seeding established. These areas also have an established and spreading medusa rye grass problem, as well as being a heavily used mule deer wintering area in need of rehab work with grasses and shrubs that can establish quickly.

E 12-3 The BLM Twin Falls District RAC recommends that individual case areas are going to differ and non-native grasses or place holder species referred to in Chapter 2, page 11 need to be used in areas of importance and great concern. Also of concern is the lack of low precipitation grasses, other than crested wheat, for rehab purposes. Until such a time as more low precipitation natives are developed, we recommend a need to use exotics to promote watershed stability and limit soil erosion.

12-4 Alternative D focuses on sage brush communities and sage grouse. We suggest this Alternative needs also to integrate some of Alternative B and C, which better address diverse plant communities, from juniper control to Douglas Fir tree stands in the Wood River Valley that have heavy mistletoe infestations. Douglas Fir encroachment on sage brush plant communities, as well as Aspen regeneration, are issues that will need addressed, with some general guidelines to follow.

C

Regarding livestock grazing, the Twin Falls District RAC recommends that the term "minimum of two years," found in Chapter 2, page 11, should be changed to reflect no specified
12-5 time, but instead a site specific evaluation. The following sentence should also be added:
12-8 "Treatments in grazing allotments should be designed to minimize impacts to grazing users in any specified allotment." The socio-economic effect on small rural communities can be dramatic
12-6 if protection for local ranchers is not a priority. Along this line, the RAC recommends involvement and consideration of all multiple users on proposed treatments.

Of concern are cuts in grazing preference while fuels management is occurring. Unless
12-6 all the feed in an allotment is currently being used to the prescribed level of utilization, it would be un-necessary to cut grazing preference in that allotment.

The Idaho BLM Twin Falls District Resource Advisory Council appreciates the opportunity to review and comment on this planning effort.

Sincerely,

Kelly B. Adams

Kelly Adams,
Chair
on behalf of
Twin Falls District Resource Advisory Council

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

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February 3, 2005

Reply To
Attn Of: ETPA-088

Ref: 02-014-BLM

Joe Kraayenbrink
Bureau of Land Managment
4350 Cliffs Drive
Pocatello, ID 83204

Dear Mr. Kraayenbrink:

The U.S. Environmental Protection Agency (EPA) has reviewed the draft Environmental Impact Statement (EIS) for the proposed **Fire, Fuels and Related Vegetation Management Direction Plan Amendment** (CEQ No. 040512) in accordance with our responsibilities under the National Environmental Policy Act and Section 309 of the Clean Air Act. The draft EIS proposes activities that would amend 12 existing land use plans in the Upper Snake River District in Idaho to incorporate fire, fuels and vegetation management consistent with the Federal Wildland Fire Management Policy. The EIS identifies Alternative B as the proposed action and Alternative D as the preferred alternative.

The three action alternatives would incorporate new policy, guidance and changes in the National Fire Plan that would emphasize the use of prescribed fires, wildland fire management, and mechanical and chemical treatments to more closely approximate historic disturbance and succession patterns. The proposed alternative (Alternative B) would emphasize increased vegetation treatments and restoration to increase the use of fire in all plant communities except Wet/Cold Conifer, Riparian, Salt Desert Shrub and Vegetated Rock/Lava. Alternative C would implement fire treatment levels to meet the goals of BLMs strategies to restore and maintain ecosystem health within fire-prone areas, based on restoring ecosystems to their historic fire regime. Alternative D, BLM's preferred alternative, would also meet the goals of BLM's ecosystem and fire regime strategies and in addition, would maintain, protect and expand sage grouse habitats in the Upper Snake River Plain.

We have assigned a rating of EC-2 (Environmental Objections - Insufficient Information) to the draft EIS based on the proposed action alternatives. This rating and a summary of our comments will be published in the *Federal Register*. A copy of the rating system used in conducting our review is enclosed for your reference. Our concerns and recommendations are highlighted below and in detail in the enclosure to this letter.

Our concerns with the action alternatives focus on air quality impacts associated with fire treatments, impacts from grazing activities, and chemical treatment impacts on wildlife in the project area. We support the Bureau of Land Management's (BLM) efforts to develop

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management plans that restore plant communities to their historical range of variability and fire regimes that better reflect historic frequency and intensity. We believe that these goals can be met and impacts reduced with grazing restrictions and a more developed monitoring and adaptive management plan.

Thank you for the opportunity to review this draft EIS. If you would like to discuss these issues or need additional information regarding these comments, please contact Mike Letourneau at (206) 553-6382.

Sincerely,

for Christine Reichgott, Manager
NEPA Review Unit

Enclosures

EPA's Detailed Comments
Fire, Fuels and Related Vegetation Management Direction Plan Amendment
Draft Environmental Impact Statement

Air Quality Impacts from Wildfire and Prescribed Fire Treatments

13-1 Wildfire and prescribed fire treatments would result in increased particulate concentrations that would negatively affect air quality. The EIS states that management practices to control air quality impacts would include limiting prescribed fire treatments to times when existing air conditions are favorable. Part of this program would include checking existing monitoring stations prior to the commencement of burns and postponing burn activities if data from these stations indicates that National Ambient Air Quality Standards (NAAQS) would be exceeded. Currently, there are only two particulate ambient air monitoring stations in the project area, both of which are located in the Pocatello, Idaho area.

While the EIS provides estimates of the total tons of particulate matter from prescribed fire treatments for each alternative, it does not identify where those prescribed fires will be located. The EIS should provide information on the location of potential prescribed fires and provide assurances that the existing ambient air monitoring stations will provide representative data for all proposed prescribed burns. If the two existing monitoring stations will not be representative of the ambient air quality under each prescribed burn scenario (including predominant wind directions) then additional measures should be take to assure that a representative monitoring program is in place prior to initiating prescribed burn treatments. The EIS should include information that demonstrates monitors are approved for measuring NAAQS compliance, can measure particulate matter in real time and that sufficient background monitoring is performed to accurately predict if a prescribed burn would exceed the NAAQS.

Grazing Impacts

The EIS states that an alternative that would alter or eliminate grazing practices was considered but eliminated from further environmental analysis because it did not meet the purpose and need of the proposed project. However, the EIS states that part of the purpose of the proposed action includes updating Forest Management Plans (FMP) to integrate them with guidelines for livestock grazing. In addition, the Need section of the EIS states that sage grouse habitat is being replaced by invasive species and there is a need to protect and improve degraded sagebrush steppe communities, which is important sage grouse habitat. Grazing activities are
13-2 known to provide a means by which invasive species may be introduced and propagate in various habitats.

The EIS discuses the potential impacts that pre- and post-treatments such as prescribed fire will have on grazing activities. However, the EIS does not address the impacts grazing activities in the proposed project area may have on the introduction and propagation of invasive species. As the purpose and need of the proposed project includes meeting livestock grazing guidelines

and reducing invasive species, the EIS should analyze the potential grazing activities may have on the introduction and propagation of invasive species in the proposed project area and the proposed plan's ability to meet grazing guidelines. In particular, the EIS should discuss the impacts grazing activities would have on sagebrush steppe communities and sage grouse habitat. If analyses demonstrate that gazing activities would continue to contribute to invasive species introduction and propagation after treatment and not meet grazing guidelines, the EIS should include an alternative that restricts or eliminates grazing activities in sensitive areas. Restrictions could include the construction of fencing around sensitive areas, reducing the number of livestock authorized to graze or the total removal of livestock from an area. In addition, EPA recommends that the EIS include monitoring and adaptive management measures to assure that
13-3 grazing restrictions are effective at preventing reintroduction and propagation of invasive species
D and support protection, restoration and rehabilitation of sage grouse habitat.

Species Status

The Affected Environment section of the EIS describes the current status of some of the
13-4 species that will be impacted by the proposed action. However, there are a number of representative guild species for which the status is not described. The EIS should include information on the status (stable, increasing, declining) of the following guild representative species so that the reader can better assess the significance of the described impacts on these species.

Habitat	Species
Perennial Grass	Western meadowlark Montane vole Short-eared owl Bighorn sheep
Annual Grass	Long-billed curlew Western burrowing owl
Dry Conifer, Aspen/Conifer, and Wet/Cold Conifer Habitats	Three-toed woodpecker Ruffed grouse Red-naped sapsucker Snowshoe hare Elk Moose
Riparian Habitat	White-tailed deer Northern leopard frog

Chemical Treatment Impacts on Wildlife

13-5 Chemical treatments will be performed according to manufacturer's instructions and guidance will be followed to limit the area of impact to prescribed treatment areas. Despite these precautions, there will be negative impacts on wildlife. In particular, the EIS states that chemical

treatments have the potential to increase short-eared owl mortality. While the EIS discusses some of the short-term (acute) impacts chemical treatments may have on some wildlife, it does not discuss the potential short term impacts on all species nor does it discuss the long-term (chronic) impacts chemical treatments may have. The EIS should discuss which chemicals are being considered for use as treatments and discuss in detail the potential acute and chronic impacts these chemicals may have on all wildlife species in the treatment areas. In particular, the EIS should discuss impacts on survival, reproduction, and over impacts on species populations. Also, the EIS should include requirements for the development of monitoring plans to assess the acute and chronic chemical treatment impacts for individual project plans.

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements Definitions and Follow-Up Action*

Environmental Impact of the Action

LO – Lack of Objections

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC – Environmental Concerns

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO – Environmental Objections

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU – Environmentally Unsatisfactory

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 – Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 – Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 – Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

14

IDAHO FISH & GAME
600 South Walnut
P.O. Box 25
Boise, Idaho 83707-0025

Dirk Kempthorne / Governor
Steven M. Huffaker / Director

February 11, 2005

RECEIVED
2005 FEB 16 PM 1:34
POCATELLO ID

Eric Limbach
FMDA Project Manager
Bureau of Land Management
4350 Cliffs Drive
Pocatello, ID 83204

RE: Draft Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and Environmental Impact Statement

Dear Mr. Limbach:

Idaho Department of Fish and Game (IDFG) personnel have reviewed the Upper Snake River District's Draft Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and Environmental Impact Statement (DEIS). It is our understanding the DEIS will amend 12 existing land use plans within the Upper Snake River District (District) to incorporate fire, fuels, and related vegetation management direction consistent with the Federal Wildland Fire Management Policy. The DEIS includes four alternatives; Alternative A No Action, Alternative B which incorporates new policy, guidance, and changes brought about by the National Fire Program, Alternative C which addresses treatment levels outlined in the Cohesive Strategy and 10-year Comprehensive Strategy, and Alternative D, the Preferred Alternative, which was developed to determine the appropriate level and kind of treatments needed within the sagebrush steppe ecosystem to benefit sagebrush habitat, sage grouse, and other sagebrush obligate species.

14-1 IDFG supports Alternative D, the Preferred Alternative. The landscape scale loss, fragmentation, and degradation of the sagebrush steppe ecosystem throughout the District have impacted a wide variety of native wildlife species. Linking protection and treatment priorities to source, key, and restoration sage grouse habitats should, over the course of the 30-year planning period, produce improvements in the abundance and distribution of productive sagebrush habitats throughout the District. Potential wildlife benefits extend beyond sagebrush obligate species. The vast majority of critical mule deer and elk winter habitats in the District occur within the low- and mid-elevation shrub and mountain shrub vegetation cover types. Protecting and restoring these cover types has important long-term implications for mule deer and elk populations throughout the District.

We offer the following recommendations for inclusion in the final EIS that will serve to improve its utility as an overall wildlife and habitat enhancement alternative.

Aspen is an important deciduous component within forested and sagebrush steppe habitats. Over 30 bird species breed in aspen forests in Idaho including a number of high priority species like Ruffed Grouse and Northern Goshawk. Aspen habitats also
14-2 provide valuable forage resources and cover for mule deer and elk. Aspen habitats are particularly important calving and fawning areas. To strengthen the overall effectiveness of for wildlife on a landscape scale we recommend Alternative D include treatments in Aspen/Conifer cover types. Specifically, we recommend addition of the following Aspen/Conifer objectives within Alternative D:

- Forestall/stop conifer encroachment into stands historically comprised of aspen using treatments like mechanical manipulations, soil and aspen root scarification, and/or controlled fire. Seek consultation with IDFG to prioritize areas for treatment.
- Promote the cataloguing of aspen communities in GIS layers, both the current status and estimates of aspen range at a point between 20 and 50 years ago.
- Focus aspen regeneration efforts throughout the District by using a multi-agency/NGO guiding task force including BLM, USFS, IDL, IDFG, IDPR, RMEF, ISDA and others. A group under leadership of ISDA and IDFG has already formed for this purpose and could provide assistance. Please contact our Upper Snake Regional office (Gary Vecellio or Steve Schmidt) for additional information about these ongoing efforts.
- Focus aspen regeneration efforts for the benefit of a variety of wildlife, particularly mule deer, in the Idaho Falls Field Office (Birch Creek, Medicine Lodge, Beaver Creek, Camas Creek drainages), Shoshone Field Office (Big Wood River drainage and Bennett Hills), and Burley Field Office (Sublett area). These areas are of primary interest to IDFG as part the Mule Deer Initiative, a statewide mule deer population and habitat enhancement effort.
- Aspen rejuvenation treatments could be targeted to enhance elk habitat as part of IDFG and ISDA efforts to address brucellosis issues in eastern Idaho. Improving these habitat components could aid in seasonally segregating elk from cattle, particularly in late winter and early spring during elk migration. These prescriptions would be particularly valuable along the Idaho-Wyoming border from Teton Valley southward to Utah. Please consult with the IDFG and IDA on current brucellosis surveillance efforts and related habitat enhancement opportunities within the aspen cover type.

None of the alternatives include treatments in existing crested wheatgrass seedings
14-3 over the life of the plan. We recognize, under certain conditions, the need to maintain seedings in areas that are ecologically compromised. While seedings are effective in stabilizing soils and alleviating the spread of undesirable plants, they offer little benefit for most native wildlife species. This issue is of particular concern in the Burley and Shoshone Field Offices where seedings now dominate vast acreages of former mule deer winter range and sage grouse breeding and brood rearing habitat. We recommend the Preferred Alternative include opportunities to improve wildlife habitat values in

crested wheatgrass seedings following wildfire. Treatments should focus on improving plant diversity and structure and should be prioritized similar to the criteria outlined in 2.4.7.3 (DEIS page 2-28) with an added emphasis on designated mule deer winter range. We offer our assistance in prioritizing potential crested wheatgrass rehabilitation areas for wildlife benefit throughout the District. IDFG also has some funding available to cost share on habitat improvements in crested wheatgrass seedings.

14-4 The maps depicting pronghorn, mule deer, elk, and moose habitats in the District do not include important seasonal habitats in the Burley and Shoshone Field Offices. Please coordinate these revisions with IDFG staff in our Magic Valley Regional Office in Jerome.

We question the analysis of effects on pronghorn in low- and mid-elevation shrub habitats (DEIS, 4.5.3, pages 4-100 and 4-101). Paragraph 2 of section 4.5.3 states: "A reduction of cover in the low- and mid-elevation shrub types have also been shown to allow pronghorn better visibility, decreasing predation and allowing them to expand their area of use." This statement fails to address other important attributes of pronghorn habitat and uses literature citations that are not appropriate for pronghorn occupying sagebrush steppe habitats. Sagebrush is a critical dietary and seasonal cover
14-5 component of pronghorn habitat throughout the District. The lack of productive sagebrush habitat, particularly in the low-elevation shrub cover type, has directly impacted the abundance and distribution of pronghorn in the District. We suggest the analysis focus on how the Preferred Alternative will help protect and restore healthy sagebrush communities and subsequent pronghorn habitat over the life of the plan.

Effective monitoring will be a crucial component of the proposed effort. Given the
D Preferred Alternative was designed to address specific wildlife and vegetation issues in the sagebrush steppe ecosystem, it will be imperative that BLM tie the monitoring of fire,
14-6 fuels, and vegetation management actions to wildlife habitat and population responses. We suggest the BLM and IDFG work cooperatively to design an effective monitoring program to address this essential component of the proposed amendment.

Thank you for the opportunity to participate in the planning process and to provide comment on the DEIS.

Sincerely,

Tracey Trent, Chief
Natural Resources Policy Bureau

c: IDFG - Region 4 (McDonald)
IDFG - Region 5 (Mende)
IDFG - Region 6 (Vecellio)

15

Lava Lake Land & Livestock, L.L.C.

P.O. Box 2249
Hailey, Idaho 83333
Tel : 208-788-1710
Fax : 208-788-1264

3485 Sacramento Street
San Francisco, California 94118
Tel : 415-292-1764
Fax : 415-292-1766

RECEIVED
U.S. DEPT OF INTERIOR
2005 FEB 15 11:06
BUREAU OF LAND MGMT
IDAHO FALLS FIELD OFFICE
POCATELLO ID

February 10th, 2005

Eric Limbach
Bureau of Land Management
FMDA Project Manager
4350 Cliffs Drive
Pocatello, ID 83204

Dear Eric:

I am writing to respond to the Draft Fire, Fuels, and Related Vegetation Management Direction Plan Amendment and E.I.S. We support many of the components of Alternative D – the preferred alternative.

We support your recognition that:

15-1 • sage grouse need protection from wildfire and the fire suppression is an appropriate policy in low elevation sagebrush steppe habitat

15-2 • fire is needed in other areas to promote aspen regeneration and prevent further conifer encroachment

15-3 • noxious weeds are a serious issue that need to be addressed when planning for prescribed fire and restoration, or following naturally ignited fires

15-4 • restoration of vegetation to more native conditions will prevent and/or reduce the destructive nature of wildfire in low elevation sagebrush habitat and will improve habitat for wildlife

15-5 • management within Wilderness Study Areas should ensure that these areas remain roadless

15-6 • restoration seed mixes should be as close to native as possible and should include forbs

15-7 We hope to work cooperatively with the BLM in implementing these fire management and restoration efforts in southern Idaho. The success of these efforts rides, in part, on good coordination amongst agencies, landowners, and grazing permittees in setting schedules for burns and restoration. We urge the BLM to proactively coordinate potential changes to our permitted allotment uses so that we can plan our grazing accordingly.

Sincerely,

Tess O'Sullivan

Tess O'Sullivan
Program Manager for Science and Conservation

Linda Jones

From: Eric_Limbach@blm.gov
Sent: Tuesday, March 15, 2005 12:58 PM
To: ljones@swca.com
Subject: Fw: FMDA Public Comment No. 16

16

More coming ...
----- Forwarded by Eric Limbach/USRD/ID/BLM/DOI on 03/15/2005 12:56 PM -----

jean public <jeanpublic@yahoo.com>
11/20/2004 10:39 AM

To: ID_USRD_FMDA@blm.gov
cc: Eric_Limbach@blm.gov
Subject: public comment on fed reg of 11/5/04 vol 69 no 214 page 64583

usdoi blm id 070 2824 ds pj 04
fire mgt deis for upper snake river

the management "direction" is always to cut it down, burn it up--the lumber barons need to get richer.

16-1 I object and oppose to that same old management approach. This is a national area and the national taxpayers are entitled to more than that.

comment on page 2 - just how "broad" was the alleged public participation. I bet all the local lumber barons, mining kings were invited and sent notices to comment. The true public who enjoys and appreciates
16-2 open space and knows the healthful benefits such spaces brings to their families health were probably left out. i would appreciate more information being sent from you on how you "reached Out to the true american public. Especially for a nationally supported area like this one.

BLM Is the agency best known for throwing wild mustangs off our public lands so that the lands can be
16-3 leased for $5. an acre to rich mining entrepreneurs. A very dirty, disgustin gbusiness since the wild horses end up in slaughterhouses being sold for horsemeat. It is slimy, and makes one want to vomit at the record of this agency.

I also oppose prescribed burning, since it kills human

16-4

beings. the dirty air particulates settle in lungs and cause lung cancer, asthma, heart attacks and strokes. Again a policy that is foisted upon an unwitting public not knowing how they are being killed by our allegedly esteemed blm employees.

All in all we need a sea change at this agency, one
16-1 focused on saving our land not letting our national land simply be used for enriching cattle barons, mining entrepreneurs and environmental cads.

blms record is deplorable.

b. sachau
15 elm st
florham park nj 07932

Do you Yahoo!?
Meet the all-new My Yahoo! - Try it today!
http://my.yahoo.com

Linda Jones

17

From: Terry_Lee_Smith@blm.gov
Sent: Tuesday, March 15, 2005 4:00 PM
To: ljones@swca.com
Subject: FMDA DEIS Fw Comment - sagehen plan

Here's one more e-mail comment. This should be Number 17.

Terry Lee Smith
RMP/FMDA Project Manager
Pocatello Field Office
4350 Cliffs Drive
Pocatello, ID 83204
(208) 478-6347
Terry_Lee_Smith@BLM.GOV
----- Forwarded by Terry Lee Smith/USRD/ID/BLM/DOI on 03/15/2005 03:59 PM -----

"Bob and Vikie" <vibo@filertel.com>
12/10/2004 08:07 AM

To <ID_USRD_FMDA@blm.gov>
cc
Subject sagehen plan

Dear BLM Managers,
I'm writing regarding the sagehen management plan. It is time our public lands are managed for ecosystems and habitat and not cows. Do NOT fall for the argument that grazing reduces fired danger. All you have to do is drive out west of balanced rock to the road south to clover crossing. There are thousands of acres of wheatgrass that cows have not eaten. This is due to very poor management. Those lands are covered with old, grey, dry wheatgrass that has not been eaten because the cowboys have not managed grazing to have cows eat all that is there. Instead the animals leave the old stuff which is a fire hazard. Then it burns and you replant nothing but wheatgrass for the stupid cows. It is a vicious cycle that is of no benefit. 17-1 17-2

I am in favor of all you can do to restor native grasses, reduce grazing, and manage our public lands for habitat, ecosytems, recreation, and yes, even some grazing. But the era of ranchers telling BLM what to do with our public lands has got to stop. This plan may be a small but important first step. 17-3 17-4

Bob Stoltz
1150E 3400N

Buhl, ID 83316

18

BUREAU OF LAND MANAGEMENT
TWIN FALLS DISTRICT OFFICE
RECEIVED
2007 NOV 7 PM 2

November 7, 2007

Tribal Comments to:

BLM's Fire Management Direction Amendment, October 3, 2007

Cultural Resource Issues in Fire Suppression Priorities.

1.2.2 Need (P. 1-4)

18-1 Action is needed to for the BLM to comply with the Federal Wildland Fire Management Policy and to work toward resource conditions on BLM administered lands that allow productive use of these lands and enhance the social, ***cultural,*** and economic stability of the communities that depend on them.

- The tribal communities depend on the sites and resources on their homelands as well. Cultural stability must be included.

1.3 The Proposed Action (P. 1-5)

18-2 Fourth bullet; Restrictions on fire management practices, if any, are needed to protect natural or cultural values.

- What's the difference? The tribes do not separate natural and cultural resources, I don't understand what natural resource values are, please explain.
- This document continually refers to natural and cultural resources values.

1.3.2.3 Non-fire Vegetation Treatments (P.1-7)

18-3 **Chemical**:

- The timing of chemical treatment is very important. The tribes do not recommend the use chemical treatment in the spring when the birds have their young. The chemicals will more than likely have a negative impact on their survival rate.

Mechanical: Mechanical treatments include mowing, chaining, chopping, drill seeding, and cutting vegetation.

- The Shoshone-Paiute Tribes and other tribes oppose chaining as treatment. Chaining is a very destructive method, chaining destroys cultural sites both on the surface and subsurface, it is also destructive to the habitat of various wildlife.. We recommend chaining not be used.

1.4 IDENTIFICATION OF RELEVANT ISSUES (P. 1-9)

18-4 Comments regarding issues surrounding this project were solicited from tribal governments, the public, and federal, state, and local agencies.

- Were the comments from the tribes through formal consultation? The process in which agencies are mandated to interact with federally recognized tribes is through govt-to-govt consultation, not through solicitation.

18-5 **1.4.2 Issues driving the Analysis** (P. 1-10)
This section summarizes the general issues that helped determine the pertinent resources and scope to be analyzed during the planning process.
1. Water Quality, Watershed, Soils and Riparian Resources
2. Vegetation
3. Wildlife
4. TES Species "Terrestrial and aquatic TES species
5. Cultural Resources

- What is a cultural resource? Everything that is mentioned above is a cultural resource from the tribal perspective.

18-6 **1.5 PLANNING CRITERIA AND LEGISLATIVE CONSTRAINTS** (P. 1-11)
The criteria were based on standards prescribed by applicable law and regulations; agency guidance; analysis of information pertinent to the planning area; results of ~~coordination~~ ***consultation*** with tribal governments, the public, and government agencies; and professional judgement.
(Second bullet) Consult and coordinate with applicable, federal, state, local agencies, and tribal governments.

- Affiliated federally recognized tribes should be one of the first to be consulted; additional studies and consultation may be required.

(Third bullet) Recognize the Fort Bridger Treaty (1868) and preserve values significant to tribal governments.

- The Fort Bridger Treaty is only relevant to the Shoshone-Bannock Tribes. The unextinguished rights of the Shoshone-Paiute Tribes under the Boise and Bruneau Valley treaties must also be addressed.

(Last bullet) Manage resources/uses for multiple use and sustained yield.

- The BLM must protect sacred sites and sensitive areas for traditional use.

18-7 **1.8.5 Tribal Trust Responsibilities** (P.1-13)
(P. 1-14 top of page) The relationship between the federal government and the tribal governments focuses on ensuring that the ***legal*** rights and interests of the tribal governments are ~~considered~~ ***upheld*** and protected.

18-8 **3.113 Cultural Resources** (P 3-80)

3.13.1 (P. 3-80) **Current conditions and trends**
The BLM is responsible for identifying, protecting, ***preserving,*** managing, and enhancing archaeological, historical, architectural, and traditional lifeway values.

- Traditional lifeway values, what does that mean? It's a foreign term to me, one that I don't recall ever being used in previous documents. Where did it come from? Who suggested that the phrase should be used?

18-9 **3.13.1.1** (P. 3-81) **Cultural Resource Inventories**
Cultural resources are generally identified through field inventories conducted by qualified professionals to comply with Section 106 of the NHPA of 1966. Informant information and historical records are also used to identify known or potential archaeological, historical, and traditional lifeway values.

- Consultation with tribes and Ethnographic studies must be included on the list.
- Ethnographic studies by an ethnographer that the tribes are comfortable with, tribal elders will not share sensitive information with someone they're not familiar with.
- What does "Informant information"? Is that old information? Or is the BLM out currently seeking "Informants?"

18-10 **3.13.1.3** (P. 3-81) **Cultural Resources Conditions and Trends**
Cultural resources conditions and trends within the planning area vary considerably due to the variability of terrain and geomorphology, access and visibility, and past and current land use. Exposed artifacts and features on the ground surface can be disturbed by elements such as wind, and water erosion, animal and human intrusion, and development and maintenance activities. Based on limited site visitation and site form documentation, the trend of site condition is considered stable in most areas. Vandalism and unauthorized collection at sites constitutes the main source of cultural resource degradation.

- Has the BLM conducted surveys of the entire area? What kind of documentation do you have of the area covered in this document?
- Wind and water erosion, is a natural process.
- The BLM must increase patrols on BLM administered lands, or provide funding for the tribes to monitor the sites.
- It is the BLM's trust obligation to protect the sites and provide for contemporary and ongoing use of the sites by tribal members.

18-11 **3.13.3** (P. 3-82) **Opportunities**
(Last sentence) Other types of treatments could reveal previously unknown cultural sites, providing important historical information to the public and/or the tribal governments.

- This only says "historical information," but when it refers to "previously unknown cultural sites," please explain.
- Site specific information on any Native American sites must be kept confidential. That information is not for the public.

3.14 (P. 3-82) **NATIVE AMERICAN TRIBAL CONCERNS *(LEGAL RIGHTS)***

18-12 **3.14.1 Current Conditions and Trends**
The planning area now occupies traditional lands of the Shoshone-Bannock Tribal Governments, as well as <u>some lands of the Shoshone-Paiute Tribal Government.</u>

- Explain what this paragraph means, what is meant by "some lands of the Shoshone-Paiute Tribal Government? Where are those lands?
- The tribes are basically one people. Drawing lines is a European concept, tribes never drew lines, boundaries of our traditional lands exceeds the ICC lines considerably.

Federally recognized tribal governments have rights to and/or ***legal*** interests in public lands administered by the BLM. Both tribal governments depend upon the lands for a myriad of uses. The lands retain social, ~~and~~ economic ***and traditional*** value for the tribal people, as well as ***contemporary and ongoing*** spiritual and cultural uses.
Through ~~past discussions~~ ***consultation*** with the tribal governments, the BLM is aware of ***their treaty/trust obligations and the tribes'*** ~~their~~ desire to capitalize on opportunities that maintain or enhance resources critical to the exercise of treaty rights, traditional customs, subsistence, and cultural uses ~~purposes~~ ***of the land.***

The ***Shoshone-Bannock Tribes*** ~~tribal governments~~ have treaty under the Fort Bridger Treaty of 1868 that extend to unoccupied federal lands off-reservation.

- There are several places in this paragraph that refers to "tribal governments." This paragraph is specifically in reference to the Shoshone-Bannock Tribes.
- I recommend removing the phrase, "tribal governments" from this paragraph. This is very misleading to someone who doesn't know the difference between the tribes.

18-13 (P.3-83)
The ***Duck ValleyIndian Reservation is the Shoshone-Paiute Tribes'*** ~~tribal government's~~ current reservation includes 294,242 acres in Idaho and Nevada. The reservation is headquartered in Owyhee, Nevada, and the Tribal Government is housed there. The principle revenue sources of the Tribal Governments are farming and ranching. Business and lands leases in the planning and grazing permits also provide income to the Tribal Governments.

- Most all business' are owned and managed by tribal members.
- Land leases are very limited.
- The Shoshone-Paiute Tribes is one tribal government.

18-14 Like most reservation communities, the area is geographically isolated and economically depressed. The people are tied ***traditionally***, culturally, and spiritually to the land, and they are very interested and involved in helping to shape how the lands ***and the resources*** ~~is~~ ***are*** administered by the BLM. The Shoshone-Paiute Tribal Governments are particularly concerned about cultural resources on public land, as well as subsistence, spiritual, and traditional use areas.

18-15
- **The Boise Valley Treaty;** On October 10, 1864
- **The Bruneau Valley Treaty;** on April 10, 1866
- After more than a century, the Untied States Senate has not gotten around to ratifying these treaties.
- The United States of America still has not obtained title to the Boise and Bruneau lands of southwestern Idaho, although Caleb Lyons of Lyonsdale, governor and superintendent of Indian affairs for Idaho, solemnly promised us

that this matter would be attended to. The Aboriginal Title remains with the tribes.

- The Shoshone-Paiute Tribes have not relinquished any rights to southwestern Idaho, we still maintain aboriginal land title and all hunting, fishing, gathering and other traditional uses on our homelands.

18-16 The BLM is ~~responsible~~ ***obligated*** for maintaining a formal government-to-government relationship with federally recognized Tribal Governments. The Shoshone-Bannock Tribal Governments and the Shoshone-Paiute Tribal Governments both have rights to and cultural/historical affiliation with the lands in the planning area. The relationship between the federal government and these Tribal Governments focuses on ensuring the ***legal*** rights and/or interests of the Tribal Governments are ~~considered and~~ protected, ***preserved*** in accordance with relevant treaties, executive orders, legislation, ***the U.S. Constitution*** and federal policies. This includes consulting with tribal representatives; identifying and protecting important archaeological, religious, and/or sacred sites; and providing tribal members with appropriate access to these sties. The Tribal Governments are also interested in the BLM acquiring lands that contain traditional cultural resources and are part of their aboriginal territory, as well as ensuring that lands that go out of federal ownership do not diminish their rights of traditional uses.

18-17
- Any lands leaving federal ownership must undergo an intensive cultural resource survey to assure that they will remain protected and access to the sites will continue for tribal members.

18-18 **Figure 3-14.** (P. 3-84) **Areas of interest to the local tribal governments**
The BLM is required under ***the Native American Graves Protection and Repatriation Act,(NAGPRA)*** ~~federal cultural resource~~ law to ensure the protection and proper treatment of human remains of Native American ***origin*** ~~patrimony~~ known to be present or discovered on lands under their jurisdiction.
NAGPRA mandates that land managers assign cultural patrimony of affiliation to human remains found as part of a federal undertaking and consult with the affiliated ***Tribes*** ~~group~~ to determine the appropriate repatriation of the human remains.

- The agency must consult with the affiliated tribes and attempt to establish cultural affiliation.
- Once cultural affiliation is determined, they must continue consultation with the affiliated tribe(s) to arrange for repatriation of the remains, associated funerary objects and other objects.

NAGPRA also applies to ~~grave goods~~ ***Associated Funerary Objects*** or objects of cultural patrimony associated with burial sites.

18-19 **3.14.2 Risks**
Consultation has been undertaken between the BLM the tribal ***governments*** ~~groups~~ regarding concerns over implementing the proposed plan amendments that would result as a process of this EIS.

4.13. ANALYSIS OF EFFECTS ON CULTURAL RESOURCES

18-20 **4.13.1 Analysis Assumptions and Methods**

4.13.2.1 Direct and indirect impacts of prescribed burn P. 4-65 (Top of the page)
Most looting is undertaken by people who are unaware that their activities are illegal and can often be controlled by educating the public about the various laws.

- Most looting on the small scale could be people who are unaware.
- Professional looters know what their going after, and sometimes return to a site if it paid off before.
- We do agree that education is an important tool, in turn they too could help discourage looting and report violators.
- Tribes must be a participant in the education process.

18-21 Same page (second paragraph from the bottom)
Archaeological sites consist of a collection of culturally modified material.

- What does that mean? That's what a cultural site is, a site of culturally modified material, and materials from different quarries and other sources.

18-22 **4.13.2.4 Direct and indirect impacts of Mechanical Treatment**
Mechanical activities can include, mowing, chaining, chopping, and cutting of surface vegetation, and applying seeds via rangeland drill.

- The Shoshone-Paiute Tribes and other tribes are opposed to chaining because of the destruction to cultural sites, habitat and the environment.
- Chaining destroys subsurface material and displaces them from it's original location.

18-23 **4.13.8 Mitigation as Monitoring** (P.4-168)
The BLM has formulated management restrictions to protect cultural resources during fire management activities. In addition to these guidelines, the BLM as a federal agency is required under Section 106 of the NHPA to identify archaeological and historical properties eligible for or listed on the National Register of Historic Places (NHRP) and to determine if these properties would be affected by a specific action.

- The BLM is mandated to comply with all relevant laws not just Section 106 of NHPA.
- BLM cannot be selective when it comes to compliance.
- Whether a site is eligible for the NRHP is irrelevant to tribes. A site could have very little left on the surface and still be a very significant site to the tribes.

Conclusion:

Fire is a part of the natural process when it occurs naturally, but with the increase in human activities, a large number of the fires are human caused. Tribes have historically used fire to enhance areas when needed. Fire can be used as a tool when used properly.

This document can be confusing to someone who does not understand the legal standing of sovereign tribal governments. The language flip flops from "tribal governments" to "tribal groups." The language needs to be consistent and less confusing for all readers.

Treaty Rights and trust obligations is not something that should only be considered, it must be upheld by the government and it's agencies. It's what the US Government agreed to when they negotiated with tribal leaders and the Indians agreed to move onto reservations. Those rights was not given to the tribes by the government, those were rights the tribes reserved for themselves.

Treatments can be more destructive than the fire itself.
Chemical treatment can cause a rippling affect when used carelessly. If used in the spring it could be kill sage grouse chicks and other birds. When sprayed onto plants that are inhabited by insects that the chicks feed on, or grass that they use for shelter, it can kill the natural inhabitants. It can also make big game sick that feed on the grasses that were treated, and when it gets into their milk, it can affect their off spring too.
The timing of chemical treatment should be coordinated with the tribes. Some areas are gathering areas, and may impact the health of tribal members if they consume treated plants.

Mechanical treatments: The tribes are opposed to chaining. The burned trees are better of left standing rather than using the chaining technique. Chaining is very destructive, to the environment, cultural resources, and habitat.

Thank you, for allowing the Shoshone-Paiute Tribes an opportunity to comment on this important document. Our comments are not conclusive, there could be additional comments in the future.

Sincerely

Ted Howard,
Director, Cultural Resources

P.4 IDENTIFIED COMMENTS AND RESPONSES

Comments identified in the letters, facsimiles, and emails to the BLM during the comment period are grouped by subject, primarily into resource or discipline categories. Similar comments were combined. The comment letter Source Code numbers are displayed following each comment. References to more than one comment letter are the result of combining similar comments. Responses addressing each individual comment follow the Source Code numbers. Not all of the following comments are considered substantive; instead of asking for clarification or expressing concerns regarding the EIS analysis, they express an opinion. However, they are included as part of this comment summary to indicate public opinion regarding the project.

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
Alternative Development	AT1	3-2, 6-1	Lack of specificity regarding alternatives. It is hard to quantify the impacts that Alt. D or other alternatives would have on recreation.	As stated in Section 2.1, the nature of this EIS as a programmatic document is to provide the BLM direction to amend planning area wide LUPs to include Federal Wildland Fire Management Policy in their management strategy. LUP-level planning is at a landscape level; once the LUPs are amended, alternative actions provided within this document would enable managers to use a broad range of management tools at their disposal to best address local situations within a given field office. More specific actions regarding fire management decisions would be at the field office level, through the use of site specific Fire Management Plans, using appropriate tools/treatments, to best meet the goals and objectives of the Federal Wildland Fire Management Policy.
	AT2	3-20	We are concerned that the analysis conducted and conclusions drawn from these specific issues unnecessarily set the two alternatives (Alt. C and Alt. D) as contrary to one another. That is, the analysis leads to the conclusion that the FMDA can *either* fulfill the objectives outlined in the Cohesive Strategy *or* it can address Sage Grouse habitat restoration but not both. This dichotomy fragments rather than promotes the plan amendment's purpose and need of promoting comprehensive fire management.	The range of alternatives evaluated in the Draft EIS do not preclude the combination of elements of different alternatives to formulate an alternative that best meets the BLM's policy objectives. These alternatives presented in the Draft EIS were formulated precisely to provide a view of how different elements of fire management can be achieved with different treatment levels. The Final EIS was revised to include a new Proposed Plan Amendment that includes elements from the alternatives evaluated in the Draft EIS to best meet the comprehensive fire management goals in the project area.

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Category	Specifics	Comment Letter and Number	Comment	Response
	AT3	3-21	Alt. D would unnecessarily restrict the discretion of local land managers to use the process of fire- either through prescribed fire or as Wildland Fire Use- to achieve land management goals in the short and long term. What provisions within the Alternative would allow managers the discretion to use fire in future years when and where the landscape has been sufficiently restored to a degree where the use of fire does not pose undue risk to habitat components?	Although there will always be areas that are considered inappropriate for WFU for resource benefit or Rx Fire due to social, economic, political, or resource constraints, Alternative D does allow for WFU and RxFire treatments as appropriate to achieve DFC after site-specific project level planning. Monitoring would help evaluate success regardless of treatment type and adaptive management provides a mechanism for managers to use their discretion in how and when they use WFU and Rx Fire treatments. Please note that Alternative D is no longer the Preferred Alternative. Alternative E, which is a combination of elements of Alternatives C and D, is the new Preferred Alternative (also referred to as the Proposed Plan Amendment).
	AT4	3-22	In Alt D., by overruling the possibility of the use of fire as a management tool on so broad a landscape unnecessarily commits BLM to using a non-fire vegetation management approach on an unrealistic scale.	In some areas within the planning area, there are social, economic, political, or resource constraints that prevent the use of WFU or RxFire as a treatment option. In these areas, other treatment options are available to implement in order to achieve DFCs. See Section 2.4.7.4 for further discussion of WFU areas under Alt. D.
	AT5	3-23	Alt C describes unrealistic / unachievable treatment targets.	As stated in Section 2.4.6, it is assumed that Alternative C would not be limited by existing operational capabilities and resources. This alternative is included to present a scenario of the amount of resources needed to meet goals of the Cohesive Strategy and 10-year

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
				Comprehensive Strategy within the 30-year planning window.
	AT6	6-5, 7-1, 14-1	We support Alt. D, will improve recreational opportunities by restoring sagebrush.	Comment noted. See Section 2.4.7 for a more detailed description of Alt. D.
	AT7	8-2	Support writing general guidance, leaving details to site-specific plans.	Comment noted. See also response to comment AT1.
	AT8	8-3	I support Alt B because it seems more realistic in terms of what can be accomplished, given the time frame, manpower, and budget available.	Comment noted. See Section 2.4.5 for a more detailed description of Alt. B.
	AT9	8-4	Alt D is based on false assumptions on what it will do for sage grouse, and to identify it as the preferred alternative only sets you up for protests/litigation.	Alternative D was developed with input from wildlife resource experts at the federal, state, and local level. This alternative seeks to maintain existing, high-quality sagebrush steppe habitat and to increase the quantity of resilient sagebrush steppe via post-wildland fire rehabilitation and proactive restoration. See Section 2.4.7 for a more detailed description of Alt. D, included alternative objectives. Also, please note that Alternative D is no longer the Preferred Alternative. Alternative E, which is a combination of elements from Alternatives D and C is the new Preferred Alternative (also referred to as the Proposed Plan Amendment). This choice was based on comments on the Draft EIS that expressed concern that Alternative D did not provide adequate fire and vegetation management for non-sagebrush vegetation types or Wildland Urban Interface.

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Category	Specifics	Comment Letter and Number	Comment	Response
		8-8	Alt A is unacceptable b/c it hasn't worked in stopping the spread of invasive weeds or reducing the frequency of wildfires.	Alternative A is considered the No Action Alternative. It serves as the basis of comparison for the other alternatives. Alternative A represents no change from current levels of treatment, but still allows the LUPs to be amended. Additionally, an analysis of the impacts of the No Action Alternative is required as stated in CEQ regulations (40 CFR § 1502.14(d)). See Section 2.4.4 for a more detailed description of Alt. A.
	AT10	9-1	Alt B doesn't provide for 'comprehensive fire management direction'. Does not address purpose and need in a comprehensive manner by not treating all cover types to a level that returns the fire regime to the range of historic variability, and it would be limited by existing economic and personnel resources. It also does not incorporate the recommended level of treatment in the national scale program option, or directly address the goals and priorities of the Cohesive Strategy and 10-year Comprehensive Strategy.	As stated in Section 2.4.5.1, it is assumed that Alternative B would be limited by existing operations capabilities and resources. This alternative is included to present a scenario of what could be accomplished towards meeting the goals of the Cohesive Strategy and 10-year Comprehensive Strategy within the 30-year planning period given existing operational capabilities and resources. Under this assumption, not all cover types are treated adequately since there are limited operational resources.
	AT11	9-2	Alt D doesn't address purpose and need adequately; this is not a habitat conservation directive. The BLM would miss the opportunity to return fire regimes to the range of historical variability, and provide a complete and healthy range ecosystem. Limits range of management options, removes flexibility for future management	As stated in Section 1.2.2, the proposed fire management direction plan amendments respond to several identified needs, one of which is the increased demand for the protection of sagebrush steppe communities. All treatment options are available for implementation, though there are some restrictions placed on WFU and RxFire due to social, economic,

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			objectives.	political, or resource constraints. The nature of this document as programmatic EIS and the use of monitoring and adaptive management help provide mechanisms for land managers to be flexible in meeting goals and objectives for future management decisions.
	AT12	9-6	Alt C does the best job meeting objectives of P/N, Issue 1.	Comment noted. See Section 2.4.6 for a more detailed description of Alt. C.
	AT13	9-7	Combining Alt C with sagebrush restoration components of Alt D would meet both issues.	Comment noted. See also the response to AT2.
	AT14	10a-8, 10b-7	The BLM had no sound basis for estimates of acres proposed to be treated in the information that was provided to the public. No protocol was followed as a basis for these estimates, and no scientific methodology was followed. BLM did not use systematic approach for assessing treatments need. Analysis must be based on science. DFCs are not obtainable, especially considering disturbance	The BLM acknowledges the desire to have better vegetation data across the planning area. This is one reason that monitoring and adaptive management components are critical to the success of implementing the Federal Wildland Fire Management Policy (see Sections 2.5.2 and 2.5.3). Treatment needs were developed based on the best vegetation data available, as well the professional expertise of field office resource personnel who are familiar

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			factors. Need range of alternatives that focus on restoring cheatgrass infestations, and restore native vegetation.	with current resource conditions and needs. DFCs are based on landscape-level fire management goals and objectives for the 30-year planning period of this EIS. Depending on the alternative, the DFC may not be attainable within the planning period. The BLM recognizes the importance of decreasing cheatgrass infestations since this is one of the reasons that fire frequency and intensity are more severe than in the past. By restoring native vegetation, fire resiliency is increased, and ecosystem integrity is restored. All action alternatives attempt to accomplish this, though at different levels.
	AT15	12-7	We do not collectively support any one Alternative.	Comment noted.
Process	PR1	3-1	'Analysis incomplete and lacking'.	Comment noted. Please see Chapter 4 for impacts analysis.
	PR2	3-3	Treatment-acres vs. footprint-acres difficult to understand.	The BLM wanted the reader to understand that a given piece of land (the footprint-acre) could receive one or multiple treatments (the treatment-acre). Thus, a single acre of land could be treated several times (e.g., One acre of land could be mechanically disced, then chemical treated, then seeded. Under this scenario, there is one footprint-acre, and three treatment-acres). This aspect of treatment-areas is important to consider when planning budgets, personnel needs, and other management issues. Please see Section 2.4.1 for further explanation.

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Category	Specifics	Comment Letter and Number	Comment	Response
Resource Issue: Livestock Grazing Management	LG1	1-4, 2-2, 5-6, 10a-26, 10a-50	Rest AUMs until recovered, not just 2 seasons. Page 2.11, Section 2.4.3.3.2, under subheading "Livestock Grazing". The first sentence is not appropriate for Alternative D, the preferred alternative. To adequately address Issue 2, the first sentence needs to read; "All RxFire treatment areas would be rested from livestock grazing until vegetation establishment and resource objectives are achieved." This does not disallow grazing, it simply requires a healthy system exists before resuming grazing. Use comparison of exclusion areas to quantify differences between vegetation in and out, and use this info to develop a realistic time frame for livestock exclusion from seeded lands.	All treatment areas would be rested from livestock grazing until project-specific monitoring identified in site-specific project plans and/or NEPA documents show that resource objectives have been met. Resumption of grazing would be determined on a case-by-case basis.
	LG2	1-5, 10a-55	Use environmental/landscape health to determine suitable grazing conditions.	The Draft EIS analysis is based on landscape level disclosure of vegetation condition and health. See Section 3.2 for a description of how existing vegetation condition was determined.
	LG3	1-7	No cows on cheatgrass monocultures.	Decisions affecting grazing management are beyond the scope of this EIS.
	LG4	2-3, 10a-4, 10a-25	Grazing increases cheatgrass, cheatgrass increases fire, decrease grazing, eliminate grazing, buyout grazing permits, cows are bad for the ecosystem, and economics.	As stated in Section 2.6, an alternative of altering or eliminating grazing practices was suggested in the scoping process. While this is closely tied to vegetation conditions and treatments, it does not, in itself, meet the purpose and need of the

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
				proposed project. An additional alternative was suggested to passively treat areas by utilizing livestock grazing to reduce invasive species, reducing livestock usage in areas with known exotic infestations, removal of livestock facilities, and the closing of roads and off-road vehicle trails. This alternative was eliminated from detailed analysis because it involves decisions beyond the scope of the EIS. Such decisions would be addressed in the RMP/LUP process. The purpose of this EIS is to address fire management issues within the planning area. While it is acknowledged that grazing would be impacted by implementing any of the alternatives presented in this EIS (see Section 4.9), it is not the purpose of this EIS to address the impacts that livestock grazing has on the ecosystem and landscape, the appropriateness of grazing on public lands, or livestock economics within the planning area. LUPs analyze the benefits and consequences of grazing on BLM-administered lands. The Federal Land Policy and Management Act of 1976 states that the BLM is required to manage for multiple uses of administered land, one of which is livestock grazing. The Taylor Grazing Act of 1934 and Public Rangelands Improvement Act of 1978 further guide BLM's management of livestock grazing on public lands. In 1997,

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
				the BLM adopted the Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management, which provides guidance for grazing in Idaho. The cumulative impacts section of this EIS has also been revised to include additional information regarding livestock grazing as it relates to the FMDA.
	LG5	3-19	The Draft EIS specifically estimates the loss of revenue to the BLM in the form of grazing fees associated with the impacted AUMs, and estimates the cost of leasing private land and purchasing hay to replace lost AUMs. There is no estimate or attempt to quantify in any monetary way the funds saved by BLM in administering these AUMs and associated resource impacts.	The Final EIS will be revised to include information regarding the resources expended to manage the grazing program. However, the resource impacts of this management will not be disclosed as part of this EIS process. As stated previously, analysis to support decisions regarding grazing are outside the scope of this EIS and are best addressed through the LUP/RMP planning process.
	LG6	4-1, 10a-1, 10a-14, 10a-15, 10b-6	No alternative addresses livestock grazing in other than cursory manner. Vegetation communities are shaped by climate, soils and disturbance regimes; and live stock grazing is a disturbance that is responsible for changes that: predispose landscapes to fire, create impoverished soils and the presence of cheat grass without returning a meaningful economic benefit to the American public. The FMDA is extremely flawed because it does not address the ubiquitous disturbance of livestock. Meaningful, cost effective management will not occur without examining the entire disturbance	More specific analysis of grazing and grazing impacts is addressed in the LUPs, some of which are currently undergoing revision. Because this EIS aims to update existing LUPs with the National Fire Plan and the Federal Wildland Fire Management Policy, grazing management has not been directly incorporated in alternative development, but is instead addressed in Section 4.9. See response comments to LG4. Additional analysis of grazing issues as they relate to fire are presented in Section 4.16 Non-Fire, Fuels and Related Vegetation Management Cumulative Effects of the Final EIS.

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Category	Specifics	Comment Letter and Number	Comment	Response
			regime and being willing to make changes. The EIS fails to address the role of livestock, utilization, and BLM management of livestock on ecological health, livestock facilities, and fire regime within project area. It does not present scientific information and analysis necessary to understand the role of livestock in causing fuels problems. No alternative addresses livestock grazing, passive livestock treatments, disturbance from livestock and the subsequent effects on vegetation communities.	
	LG7	7-3	Grazing encouraged to manipulate fuels and reduce undesirable species. May help prevent having to reduce AUMs temporarily following fire / treatment.	In some instances grazing can be used to manipulate fuels and reduce undesirable species. However, the main herbaceous invasive species with regard to fuel loading include cheatgrass and medusahead. Neither of these species provide good forage value for livestock. Additionally, in order to take advantage of the early-season short-term nutritional value of cheatgrass, livestock operators would have to move their livestock over long distances at frequent intervals. It is highly unlikely that permittees would have the resources or financial ability to do this.
	LG8	8-6	I question that BLM guidance "dictates" no grazing for two growing seasons following a fire. It may be advantageous to timely graze the first spring after the	The BLM has recently changed this policy to prescribe rest in accordance with objectives set prior to treatment. Treated sites will be monitored to determine when

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			fire to prevent cheatgrass from going to seed. It appears questionable that grazing after seed ripe the first year is necessarily detrimental to the perennial grasses, and in some cases, may be beneficial. See paper "How long should rangelands be rested from livestock grazing following a fire," found at www.cnr.uidaho.edu/range.	objectives are met, at which point, grazing will resume. The Final EIS has been updated to reflect this change in policy.
	LG9	10a-2, 10a-13, 10a-27, 10b-6	BLM's false premise that it can bring about changes is not based on the fact that grazing occurs, creating unnatural conditions. All direct, indirect, and cumulative impacts of past and ongoing livestock use on rangelands health problems associated with fire must be assessed. Thus BLM is not using current ecological science in models and setting goals. Must determine current conditions. Stocking rates and/or removing cows from lands at risk from cheatgrass invasion, or where restoration actions may be undertaken, should be considered, otherwise it's a waste of taxpayers money. Conversion of sheep AUMs to cattle AUMs not looked at. Suitability and capability of grazing not analyzed. Need to do this. All alternatives must include 25% or less allowable utilization of upland vegetation, no grazing during critical periods of growth for native species, no grazing during nesting seasons, management of trampling on native veg	See response to comments LG4 and LG6.

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Category	Specifics	Comment Letter and Number	Comment	Response
			and cryptic crust, no movement of livestock form infested lands to more intact communities.	
	LG10	10a-4, 10a-24, 10a-32, 10b-8, 13-2	Grazing can introduce/propagate invasive species. This impacts fuels/fire cycles. How livestock influences outcome/effectiveness /success of treatments needs to be analyzed. BLM is using weeded areas as sacrifice zones (increased levels of livestock). Native species do not recover. The BLM has a poor track record with Snake River Birds of Prey National Conservation Area as is relates to habitat destruction caused by drought, livestock management, and invasive species.	See response to comments LG4 and LG6.
	LG11	10a-5, 10b-4, 10b-6, 10b-8	Collect/analyze impacts from current stocking rates, utilization levels, grazing seasons, grazing facility, physical environmental conditions as they relate to grazing. Conduct additional modeling to determine impact of grazing on wildlife habitats and populations.	See response to comments LG4 and LG6.
	LG12	10a-10	Use better and more current data, and develop assessments on needs and risks of various treatments, as it related to continued livestock grazing under the old LUP paradigms, and under updated paradigms under the alternative actions that the BLM needs to develop for this process.	See response to comments AT14, LG4 and LG6.
	LG13	10a-31	Concerned that the BLM may initiate a	As stated in Section 1.7.1, field offices will

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			program of widespread prescribed burns on land previously disturbed by grazing and are vulnerable to invasives.	prepare site-specific fire management plans, and consider those areas for WFU or RxFire where such treatments would be appropriate.
	LG14	10a-32, 17-1, 17-2	Grazing doesn't reduce fire danger. Livestock shouldn't be used a fire reduction tool, b/c they actually increase fire potential. Cows don't eat the old wheatgrass, which creates a fire hazard.	See response to comments LG4 and LG6.
	LG15		Livestock mitigation can't be monitored sufficiently, do not use these types of mitigation.	See response to comments LG4 and LG6.
	LG16	10a-52	Assess trespass impacts, don't use fire fund to construct post fire livestock facilities (fences are bad, water attracts livestock and causes degradation), restrict livestock access on treated parcels, don't shift AUMS after treatment, allow to rest.	See response to comments LG4 and LG6.
	LG17	12-5	Regarding livestock grazing, the term minimum of two yeas should be changed to reflect no specified time, but instead a site-specific evaluation.	As stated in Section 4.9.1, this two-growing season time limit may be extended if the BLM determines that the vegetation has not adequately recovered from the treatment.
	LG18	12-8	'Treatments in grazing allotments should be designed to minimize impacts to grazing users in any specified allotment' should be added to Chapter 2.	As discussed in Chapter 2.4.5, public safety and the protection of property will be a top priority in fire suppression. This would help decrease impacts to grazing permittees from wildland fire. Additionally, post-treatment monitoring would be completed at the site-specific level to determine the effectiveness of treatments

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
				and to allow grazing to recommence as soon as possible. Note that Section 4.9.1 discloses the long-term beneficial impacts of vegetation management to livestock grazing including, reduction in the number of long-term allotment closures and animal unit months (AUMs) temporarily unavailable and improving overall forage production.
	LG19	13-2	The EIS doesn't address the impacts grazing activities in the proposed project area may have on the introduction and propagation of invasive species, nor the proposed plan's ability to meet grazing guidelines.	See response to comments LG4 and LG6.
	LG20	10b-4, 13-3	How will grazing affect sagebrush steppe communities and sage grouse habitat, including introduction/propagation of invasive species as it relates to grazing. If analysis demonstrates that grazing activities would continue to contribute to invasive species introduction and propagation after treatment and not meet grazing guidelines, the EIS should include and alternative that restricts or eliminated grazing activities in sensitive areas. Include monitoring / adaptive management to assure grazing restrictions are effective to curb invasive species and support protection, restoration, and rehabilitation of sage grouse habitat.	See response to comments LG4 and LG6.

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Category	Specifics	Comment Letter and Number	Comment	Response
Vegetation	VR1	1-1, 10a-41	Monitor sites as long as necessary based on site-specific conditions. Establish criteria.	Section 2.5 discusses the critical role of monitoring and adaptive management as it relates to implementing new management actions or maintaining present activities. The constant feedback nature of adaptive management facilitates management flexibility and reduces the chances of missed opportunities.
	VR2	1-2, 1-8, 10a-41, 11-6	Fund monitoring adequately, outsource monitoring if needed. Plan criteria of implementation, timing, and success.	Any one of the alternatives that would be selected for implementation would have a monitoring component. This is critical to the success of implementing the FMDA. This monitoring would likely be conducted by BLM resource specialists. Using field office personnel enables the resource specialists to gain comprehensive knowledge of the resources, and provide their expertise to decision making. This aspect helps ensure that BLM establishes representative criteria for success.
	VR3	1-3, 2-1, 10a-21, 10a-42, 10a-51, 11-5, 15-6, 17-3	Use native seeds for restoration, include forbs. Use local seeds. Establish seed bank. Establish timeline for restoration of all seeded exotic areas to be restored with natives. Commit to reseeding when necessary. Don't reseed high elevation sites.	The BLM understands that numerous vegetation species and cover types in the planning area have developed various responses that have enabled them to resist, tolerate, or take advantage of fire. Ideally, it makes sense to reseed native species in areas that are suited for a given areas, and the BLM would prefer to do this wherever possible. However, there are situations were soil stability is important since wind and water erosion can have cumulative effects on additional resources such as air quality or water quality. Under these conditions, a place holder species is

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
				needed until such time when land managers can reseed an area with native species and work towards meeting DFC for a given cover type.
	VR5	1-6, 10a-24, 10a-33, 15-3	Better weed control on treated or burned sites. Grazing, grazing facilities, and/or road access can introduce/propagate invasive species. Must analyze.	Noxious weeds and invasive species are undesirable to have for many reasons, and site-specific treatment plans will factor in consideration for minimizing propagation of these types of plants. Part of the adaptive management process is to evaluate sites that have been treated, and make management decisions to improve conditions. See response to comments LG4 and LG6 for relationship to grazing.
	VR6	3-4, 10a-9, 10a-27, 10b-2, 10b-5	Despite repeated attempts to incorporate the goals behind Issue 2 (sagebrush), the analysis lacks sufficient integration and examination of sagebrush steppe restoration and rehabilitation. The complexities of sagebrush steppe restoration seem almost non-exist in the analysis. There is no discussion of past rehabilitation or restoration efforts in the area and their success or problems. Ignores livestock grazing impacts (water developments, fences, etc.), composition, function, and structure, past disturbances, past treatments, relationship to invasive species, and human impacts (e.g., logging) to the various vegetation communities and relationship to proposed treatments as	The analysis that was conducted for Alternative D, which focuses on the sagebrush steppe ecosystem, used the best data available at the landscape level. Appendix C presents the assumptions and methodology for developing FRCCs. Site-specific fire management plans will be developed that will incorporate livestock grazing, invasive weeds, and other resource issues into treatment scenarios for a given area. Under Alternative D, wildland fire suppression efforts would emphasize protection of sagebrush steppe habitats. Also, please note that Alternative D is no longer the Preferred Alternative. Alternative E, which is a combination of elements from Alternatives D and C is the new Preferred Alternative (also referred to

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			well as past treatments. Use suppression until grazing consequences and problems (altered understories, weakened native grasses/forbs, soil surface changes) understood more clearly. This EIS provides the BLM an opportunity to gain better understanding of the actual capability and productivity of the vegetation and soils that meets the desires and needs of the public on these lands.	as the Proposed Plan Amendment). This choice was based on comments on the Draft EIS that expressed concern that Alternative D did not provide adequate fire and vegetation management for non-sagebrush vegetation types or Wildland Urban Interface. The cumulative impacts analysis in the Final EIS has been revised to provide additional information regarding the cumulative impacts of past, present, and reasonably foreseeable livestock grazing on vegetation resources in the project area. See also response to comments VR18, LG4, and LG6 for relationship to grazing.
	VR7	3-5	There is no real analysis of mechanical and chemical treatments. Appendix H is a very short description of some other broad (regional and national) agency guidance documents on these treatments. There is no specificity as to how these treatments will be used or prioritized in the Upper Snake River District.	This programmatic document provides general direction for fire management within the planning area. A range of treatments available to the land managers is presented and analyzed to allow them to use those that are best suited for a given site. Site-specific fire management plans will be created at the field office level to enable land managers to prioritization those areas that need addressing sooner. See Section 1.7.1. More information on the treatment themselves can be obtained by reviewing the Programmatic Environmental Impact Statement (PEIS) and ROD to address vegetation treatments using herbicides on BLM lands in 17 western states (BLM 2007) This

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Category	Specifics	Comment Letter and Number	Comment	Response
				Programmatic EIS will provide a comprehensive NEPA document that can be used by BLM field-level staffs for local land-use planning with regards to vegetation treatment methodologies and strategies.
	VR8	3-6, 10a-41, 10a-50	The criteria for establishing vegetation treatments (p 2-28) all have to do with location, not vegetation type, class, condition, likelihood of restoration and other key factors. There is no discussion of how to prioritize what treatment(s) will be used and in what circumstances. What constitutes successful restoration? How will prioritization be given to an area depending on the likelihood of it responding to a type of treatment? Provide science-based assessment of predicted establishment times for seedings of native vegetation under various environmental settings, include with and without livestock influences. Establish control areas for comparison.	See response to comments VR1, VR3, and VR7.
	VR9	3-7, 10a-19, 10a-33, 10a-34, 10a-54	Chemical and mechanical treatments should only be considered if it can be assured that they would minimize damage to soil, watershed, vegetation, air, or other resources of the public lands, and to prevent impairment of wilderness suitability; minimize harassment of wildlife or significant disruption of wildlife habitats, and	Treatments will be selected based on the current conditions and objectives for a given site in site-specific plans prepared at the field office level. Some areas will not suitable for fire treatments, and will only be able to receive mechanical and/or chemical treatments. Precautions will be followed to reduce the likelihood of impacting T&E species (e.g., timing of

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			especially for protection of endangered or threatened species and their habitats; minimize impacts to recreational and other multiple uses of the same or neighboring public lands; and outside officially designated wilderness, primitive or wilderness study areas, and in natural areas only if the agency determines that will not adversely affect their natural, aesthetic, scenic, or other values for which such areas are valued. Experimentation with (new) chemical treatments should be limited to cheatgrass and wheatgrass areas. Keep chemical use to bare minimum. Use signage as appropriate. Use passive treatments instead where appropriate.	treatment, pre treatment surveys). Future chemical treatments will be carefully evaluated prior to broad application. Manufacturer's instructions will be followed. See also response to comments LG4 and VR7.
	VR10	3-12	Analysis of the condition class approach shows that the data needed to assess the condition of vegetated landscapes are not available and that they cannot be applied to existing data. Lack of data for FRCC assessment (don't know enough about historical and current conditions, results not accurate and meaningful). We believe that until the data "required by the methodology" are compiled, any results from applying that methodology should be viewed with skepticism. Discuss more clearly data used, data gaps, and assumptions	Appendix C discusses the methodology, assumptions, and data that were used to calculate FRCC. The BLM believes the data is sufficient for the programmatic level analysis presented in the EIS.

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Category	Specifics	Comment Letter and Number	Comment	Response
			(back up with literature/analysis).	
	VR11	5-2, 8-7, 10b-5, 15-4	No loss of sagebrush habitat should be goal. Areas where sagebrush has already been removed should be restored to a self-sustaining sagebrush community before areas containing even marginal sagebrush communities are "treated." To do otherwise, results in losing more sagebrush habitat without ensuring habitat is being restored in the short term (i.e. less than 20 years). Restoration of vegetation will help reduce destructive fires in low elevation shrub and will improve habitat for wildlife. Varying age-classes important to establish and maintain.	Alternative D recognizes that the sagebrush steppe ecosystem and its associated wildlife species, including sage grouse, are at risk from increased wildland fire and other disturbances. As stated in Section 2.4.7, the emphasis of this alternative is to maintain existing, high-quality sagebrush steppe habitat and to increase the quantity of resilient sagebrush steppe via post-wildland fire rehabilitation and proactive restoration. Treatments would aim to create mosaics for the improvement or enhancement of sagebrush steppe habitats. Restoration priorities would be identified to enlarge and reconnect sagebrush steppe habitat. Also, please note that Alternative D is no longer the Preferred Alternative. Alternative E, which is a combination of elements from Alternatives D and C is the new Preferred Alternative (also referred to as the Proposed Plan Amendment). This choice was based on comments on the Draft EIS that expressed concern that Alternative D did not provide adequate fire and vegetation management for non-sagebrush vegetation types or Wildland Urban Interface.
	VR12	5-3	A condition should be included in the EIS for all alternatives that stipulates, "No treatments should occur in sagebrush communities dominated by	Treatments, including restoration and rehabilitation, of Wyoming big sage, which is associated with the Low-elevation Shrub cover type, will be prioritized and

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			Wyoming big sagebrush unless a there is a funded plan to aggressively re-establish with seedlings." Those communities do not appear to re-establish very well by simply reseeding or natural processes. Do not manage Wyoming big sagebrush communities like mountain sagebrush communities that appear to re-establish more readily after treatments.	implemented in site-specific fire management plans prepared at the field office level. See also response to comment VR11.
	VR13	7-2, 14-3,	Placeholder species are suitable where needed. While place holders are needed under certain conditions, work towards improving plant diversity and structure on these sites, which would benefit wildlife. Prioritize similar to that in Section 2.4.7.3.	See Response to Comment VR3. It is not predicted that species composition will change dramatically on these sites until additional management action is taken.
	VR14	8-5	I do not believe the low success that has been achieved in seeding natives justifies the expense. The primary objectives in reseeding following a fire should be 1) preventing soils erosion 2) establishment of perennial vegetation.	The ideal restoration scenario involves restoration and rehabilitation with native species. Returning cover types to historic conditions will also improve wildlife habitat and water quality, decrease fire intensity in most cases, and create resilient vegetation communities. However, in cases where restoration with native species is unlikely to be successful, placeholder species will be used.

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Category	Specifics	Comment Letter and Number	Comment	Response
	VR15	8-7	I was initially concerned that the document did not recognize the thousands of acres in the planning area where sagebrush density is greater than it should be. I was pleased to see that BFO and SFO indicated that they have such areas that need to be treated.	Comment noted. See Sections 3.1.3, 3.1.4, and 3.2 for additional discussion.
	VR16	9-4, 14-2, 15-2	Alt D doesn't sufficiently address Aspen Conifer or Dry Conifer vegetation types. Must include aspen to properly manage watersheds, and habitat, and sustain forage (see comment letter 14 for specific recommendations). Fire is needed to promote aspen regeneration and prevent conifer encroachment.	The Final EIS has been modified to address these issues. See Response to Comment AT2.
	VR17	9-5	Juniper woodlands are not returned to historical fire regime (under Alt D). Encroachment can increase runoff, deplete water resource Incorporate management into alternative. Juniper management should be sensitive to disturbance and restoration.	The Final EIS has been modified to address these issues. See Response to Comment AT2.
	VR18	10a-6, 10a-11, 10a-29, 10a-39, 10a-56, 10b-3, 10b-4, 10b-5, 10b-8	More baseline vegetation data needed to adequately assess alternatives / treatments needed for successful restoration / rehabilitation (see text for list of data). Include consideration of roads, soils, species composition/diversity, weed distribution, wildlife, past treatments, drought, livestock management, money spent,	The BLM acknowledges the desire to have better vegetation data across the planning area. This is one reason that monitoring and adaptive management components are critical to the success of implementing the Federal Wildland Fire Management Policy (see Sections 2.5.2 and 2.5.3). Treatment needs were developed based on the best vegetation data available, as

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			and other disturbances on vegetation communities. Use this information to determine current ecological condition of resources, what needs to be restored and treated, and why. Tie information to ICBEMP's ecological integrity rating for the area, and assess the role of past treatments and currently livestock management; develop new goals, objectives, allocation that better address pressing habitat needs of many species, and address root causes of hazardous fuels problem, and thus provide better and more cost effective protection from fuel problems. Commit longer than 3 years to rehabilitation. Under what circumstances will the BLM undertake restoration.	well the professional expertise of field office resource personnel who are familiar with current resource conditions and needs. More specific actions regarding fire management decisions would be implemented at the field office level, through the use of site-specific fire management plans, using appropriate tools/treatments, to best meet the goals and objectives of the Federal Wildland Fire Management Policy. This way, additional management considerations specific to a given site will be able to guide treatment scenarios. While ICBEMP provides valuable regional information, better direction for managing vegetation cover types within a given areas can be found at the field office level. See also response to comment LG7.
	VR19	10a-7, 10a-20	Crested wheatgrass seedings have altered landscape, fragmented landscape, destroyed wildlife habitat, and promoted fine fuels. Analyze impacts of past seedings on current proposals to predict future outcomes.	See response to comment VR3.
	VR20	10a-17	The word 'hazardous fuel' is unclear in its use. We think it is applicable to cheatgrass than it is for most other vegetation situations. BLM needs to develop methodology to prioritize treatment of 'hazardous fuels'. This is necessary to most effectively spend taxpayer money, best protect	As defined in the National Fire Plan (August 2000), hazardous fuels can be considered "dry brush and trees that have accumulated and increase the likelihood of unusually large fires…" as a "…result of decades of fire suppression activities, sustained drought, and increasing insect, disease, and invasive plant infestations."

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			habitations that are truly at risk.	Prioritization of sites will be conducted at the field office level since field office resource personnel are most knowledgeable of local conditions. The glossary in the Final EIS will be revised to incorporate this definition.
	VR18	10a-18	Restoration must be goal of all treatments, targeting invasive species that have wildlife habitat needs consideration. Revisit crested wheatgrass areas, and return to native communities.	Restoration of historical cover types is the goal of all treatments, except in the WUI, where public safety is paramount. See also responses to comment VR3 and VR14.
	VR19	10a-23, 10b-1, 10b-3, 10b-5	Arid lands that have crossed the transition threshold cannot recover. Must try to prevent vegetation communities from doing this. Use passive techniques. Desertification in uplands and destruction of wetlands must be assessed and prevented, and/or restored to native systems. This is necessary to understand the suitability of these lands for livestock grazing, invasive species issues, and whether proposed treatments will work and restore habitats.	The conditions of various vegetation communities have changed for various reasons, one of which has been the continual long-term suppression of fire. This EIS attempts to restore healthy ecosystems within the planning area to benefit the many resources contained within. See Section 1.2.2 for additional information needs addressed in the document. See response to comment LG4 also.
	VR21	10a-28, 10a-34	Juniper and other woody vegetation have been fragmented by fire. No additional acreage should be removed until prescribed fire lands are fully restored with native species. Any removal should be highly selective. Fire or other disturbance allows invasives to come in, grazing expands juniper by	As discussed in Section 3.2.1.2 and Table 3.2, approximately 83 percent of the juniper communities are considered encroachment into sagebrush steppe habitat. The lack of fire has allowed juniper to expand. Where feasible, juniper encroachment areas will be treated to encourage sagebrush recolonization.

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Category	Specifics	Comment Letter and Number	Comment	Response
			weakening native understories.	
	VR22	10a-31, 10a-34	Proposed treatments (prescribed burning, seeding) must be fully analyzed under NEPA, with comprehensive restoration assessment conducted prior to treatment. Include road access to treatments	See response to comments VR6, VR7, and VR18.
	VR23	10a-36	Biomass fuel exportation shouldn't be allowed.	Biomass fuel exportation would be considered based on site-specific NEPA analysis on a case-by-case basis.
	VR24	10a-38	Areas that are healthy need to be managed so they stay healthy.	This is an objective of all the action alternatives. Sites that need treatment will be considered and prioritized at the field office level.
	VR25	10a-49	Describe impacts of exiting seedings on all resources.	Impacts of past seedings and/or perennial grass treatments are a characteristic of the existing environment as described in Chapter 3 of the Draft EIS. Impacts of treatment in perennial grass on other resources are described in Chapter 4 of the Draft EIS.
	VR26	10a-53	Rest areas for wildlife, watershed protection. Analyze.	Impacts to wildlife and watershed resources are disclosed in Sections 3.5 and 3.8 of the Draft EIS.
	VR27	10a-57	Post fire salvage operations on resources must be analyzed. Include past areas where this has occurred.	Post-fire salvage operations would be considered on a case-by-case basis and analyzed with site-specific NEPA.
	VR28	11-5	The BLM should evaluate regeneration methods on project-specific basis, allowing the probability for successful regeneration guide treatment implementations, not the reverse.	See response to comments VR6, VR7, and VR18.

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Category	Specifics	Comment Letter and Number	Comment	Response
			Recommend that monitoring be supported through the future.	
	VR29	12-1	Monitoring helps to better manage when, how often, and how much livestock can use treated areas.	See response to comment LG1.
	VR30	12-2	The use of native species good, but can be expensive. Some native or hybrids do well, but take longer to be established. Grazing on some of this native seeding should be managed differently than some introduced species, while stabilization should be valued as more important in critical condition areas.	See response to comments LG1 and VR1.
	VR31	12-3	Individual case areas are going to differ and placeholder species should be used in areas of importance and great concern. Also of concern, is the lack of low precipitation grasses other than crested wheat for rehab purposes. We recommend a need to use exotics to promote watershed stability and limit soil erosion until more low precipitation natives are developed.	See response to comments VR3 and VR13.
	VR32	12-4	We suggest that Alt D integrate some of Alt B and C, which better address diverse plant communities, from juniper control to Douglas fir tree stands in the Wood River Valley that have heavy mistletoe infestations. Douglas fir encroachment on sagebrush plant communities, as well as Aspen regeneration need to be addressed.	The Final EIS had been modified to address this comment. Please see the description of Alternative E in Chapter 2 of the Final EIS.

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Category	Specifics	Comment Letter and Number	Comment	Response
	VR33	17-3	BLM replants with wheatgrass, which starts the fire cycle again.	See response to comments VR3 and VR13.
Wildland Urban Interface	WUI1	3-8	In reviewing the Analysis of Effects on WUI, we do not understand why the Alternatives would prescribe varying levels of treatment to reduce risk to at-risk communities. For example, as detailed in Table 4-31, Alternative B proposed treatment acres are less than half that of Alternative D and less than a fifth of the proposed treatments of Alternative C. As noted in section 4.3, Alternatives C and D propose the highest amount of treatment acres and "therefore would make the most progress towards creating fire safe communities." Yet, Alternative D, given its bias to maintaining or improving sage grouse habitat, would focus only on Low and Mid-elevation Shrub, Mountain Shrub, and Perennial and Annual Grass cover types. Please discuss how the final preferred alternative will maximize proposed treatments to reduce risk to communities-at-risk.	The major federal documents addressing fire management all indicate that protection of lives and property is the number one priority for fire management. See the Federal Wildland Fire Management Policy, National Fire Plan, 10-Year Comprehensive Strategy, and 10-Year Implementation Plan for additional details. Also, the National Wildfire Coordination Group has been created with the purpose of establishing an operation group designed to coordinate programs of participating wildfire management agencies. The difference in treatment levels in the WUI between alternatives is meant to disclose the changes in conditions that would be expected for a given alternative. Please note that Alternative D is no longer the Preferred Alternative. Alternative E, which is a combination of elements from Alternatives D and C is the new Preferred Alternative (also referred to as the Proposed Plan Amendment). This choice was based on comments on the Draft EIS that expressed concern that Alternative D did not provide adequate fire and vegetation management for non-sagebrush vegetation types or Wildland Urban Interface.
	WUI2	3-9	Should narrow the 145-community list.	A specific process for refining the Wildland

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Category	Specifics	Comment Letter and Number	Comment	Response
			Consider those communities with mitigation plans already vs. without.	Urban Interface communities list has been developed by the USFS, the Department of the Interior, and the National Association of State Foresters (e.g., Field Guidance: Identifying and Prioritizing Communities at Risk. Prepared by: National Association of State Foresters June 27, 2003). Recently the National Wildfire Coordination Group was also formed. These teams will work collectively to serve the long-term goals of identifying, prioritizing, and implementing wildland risk and hazard assessment and fuels treatment projects, to ensure that the long-term needs of communities vulnerable to wildland fire are addressed.
	WUI3	3-10	The term 'Community Fire Planning Zone' (CFPZ) better describes WUI. It is worth noting that where communities at the highest risk in the Burley and Shoshone Field Offices have largely completed or are completing mitigation plans, none of the highest risk communities in the Idaho Falls or Pocatello Field Offices have completed mitigation plans. Develop appropriate treatments within CFPZ.	At this time, the BLM is using the definition in the Federal Register (66:751, 2001). The collaborative effort to identify the WUI is completed or currently underway for most communities within the planning area. See response to comment WUI1.
	WUI4	3-11, 10a-43	Work to create defensible space, homes, CFPZ, communities, educate citizens, and pull stakeholders together to develop wildfire protection plans. Activities should be limited to the interface and private property, and be used to create 1/8 mile of defensible	The 10-year Comprehensive Strategy establishes a strategy for federal, state, and private land managers/owners to plan and prioritize fuels reduction projects in and around WUI areas, improve fire prevention and suppression, restore fire-adapted ecosystems, and promote

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			space.	community assistance. The BLM is participating in interagency awareness campaigns, to encourage private landowners to proactively reduce the risk of wildland fire to their property and improve their safety in relation to wildland fire, as well as prevention programs. However, it should be noted that actual landowner implementation of the measures you describe is outside of the BLM's jurisdiction because it would occur on private land.
	WUI5	10a-43	Focus on actual interface, provide detailed maps of interfaces, and list all criteria to determine interface area.	More specific information will be provided via site-specific fire management plans. Criteria for determining the WUI are related to a combination of factors, including the composition and density of vegetative fuels, extreme weather conditions, topography, density of structures, and response capability.
WSA / WSR / Special Management Areas	WI1	3-13, 3-14, 10a-12	Although we recognize that there may be circumstances, which would require treating WSAs, we do place a high burden of proof on those proposals and actions. We suggest that two threshold questions must be answered before intervention/treatment/restoration should be undertaken in WSAs, WC, or WSR. 1. Is intervention/treatment/restoration appropriate in this case? If this is answered affirmatively, then the "minimum requirement question	See response to comment AT1 and Section 2.4.3.3.2. In the case of proactive restoration, the Field Office Manager would have to approve any use of mechanized equipment in WSAs contingent upon the findings of implementation-level NEPA analyses. In the case of emergency stabilization during or after a wildfire, the BLM resource advisor would ensure communication between the Incident Commander and the Field Office Manager.

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Category	Specifics	Comment Letter and Number	Comment	Response
			2. What intervention is appropriate in this case? Would treatments affect suitability, integrity, features of special areas? We recommend that before acting in WSAs, WCs, or WSR, treatments should be done in adjacent areas of appropriate size and with similar vegetation type using minimal tool techniques and methods. The area then needs to be closely monitored over a period of time that would allow for verification of success and effectiveness of treatment. Although use of earth-moving equipment may be used in WSAs, per approval of field office manager, what is the line of communication established to assure that those uses would not be done before approval from FO manager?	
	WI2	3-15	What additional data (besides FRCC model) were used to determine that plant communities outside vegetation lava would receive more treatment? What data shows that treatments would restore enhance wilderness value / are successful? Should do an adjacent test plot.	The best available resource data, along with professional expertise, were used to determine proposed treatments. See response to comments VR18.

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Category	Specifics	Comment Letter and Number	Comment	Response
	WI3	3-16, 3-17, 3-18	CMNMP needs a fire plan, management plan. Protect and restore native vegetation. Use local native seeds. Rest from livestock. No crested wheatgrass. Timeline needed for unauthorized OHV trail restoration.	Craters of the Moon National Monument and Preserve has a Fire Management Plan already prepared (2000). In addition, the National Park Service and the BLM have prepared a joint general management plan and resource management plan that have incorporated fire management. OHV trail restoration is outside the scope of this EIS.
	WI4	15-5	Management within WSA should ensure areas remain roadless.	WSA wilderness values are protected in accordance with the Interim Management Policy for Lands Under Wilderness Review (BLM Handbook 8550.1). Fires will be allowed to burn in WSAs, though risks of wildfire escaping from WSAs would be managed. Under this scenario, certain types of treatments (e.g., earth-moving equipment) may be required contingent upon approval by the Field Office Manager.
INL	IN1	5-1, 5-4, 5-5	Replace text (see letter).	The Final EIS had been modified to address these comments.
Recreation	RR1	6-1	It is hard to quantify the impacts that Alt. D or other alternatives would have on recreation. Recreation activities can be temporarily displaced following wildfire or treatments.	Site-specific fire management plans will be used to incorporate all existing information regarding resources in a given area to avoid or minimize impacts to resources, including recreation. See Section 2.4.3.3.2 for more information.
	RR2	6-2	Use more recent data, and be more specific to planning area (see data	The Final EIS had been modified to

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			submitted with letter).	address this comment.
	RR3	6-3	Must manage (post, educate, enforce) recreational use so that previously hidden recreation resources remain hidden following treatment.	See response to comment RR1.
Wildlife	WL1	10a-30, 11-7	Direct FMOs to allocate fire suppression in sensitive animal and plant habitats/populations.	Implementation level fire management will be determined by Field Office Managers contingent upon site-specific NEPA analysis. This analysis will consider all pertinent resource issues, including sensitive animal and plant populations.
	WL2	10a-35, 10a-40	No treatments during nesting seasons or within critical seasonal habitats. Role of past fragmentation and disturbances to habitats must be assessed, including to TES species.	The BLM will work with IDFG and USFWS to develop site-specific project plans with careful consideration given to T&E and BLM-sensitive species in the planning area. Fire management restrictions (Section 2.4.3.3 of the Draft EIS) provide protection to seasonal habitat and nesting seasons. The Draft EIS analyzes both positive and negative impacts to wildlife resources as a result of fire management. Fragmentation and disturbances are considered in the Draft EIS impacts analysis.
	WL3	10a-53, 10b-4	BLM need to conduct systematic and comprehensive survey and assessment of all vegetation communities, and relate to habitat and wildlife, species diversity and richness, and restore where appropriate. Consider that many species (see text for list) respond negatively to increased fire frequencies, grazing, and associated	See response to comment WL2 and VR18.

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Category	Specifics	Comment Letter and Number	Comment	Response
			issues/problems (grazing facilities, drought, invasive species, fragmentation, resource extraction, loss of riparian, etc.). Conservation efforts should seek opportunities to integrate important habitats. Look at Partners in Flight NA Landbird Conservation Plan.	
	WL4	11-1	Create and update maps of populations and habitats regularly for listed, proposed, and candidate species in areas of fire suppression priority. Include conservation measures given for bald eagle, bull trout, snake river mollusks, Canada lynx, gray wolf, grizzly bear, Ute ladies'-tresses, and yellow-billed cuckoo (see letter).	Data on specific habitats and populations for listed, proposed, and candidate species will be developed and disclosed through implementation level NEPA analyses as specific projects are proposed. The identification of potential planning area-wide impacts to these species are disclosed in Section 4.5 of the Draft EIS and are based on the general vegetation cover types typically used by these species throughout the planning area. Conservation measures for the aforementioned species are provided in Chapter 2 of the Final EIS, as well as the Final Biological Assessment and Biological Opinion found in Appendix O of the Final EIS.
	WL5	11-2	Evaluation of other sagebrush steppe obligates and potential impacts to those habitats as a result of fire management and restoration/rehabilitation expected on project-specific basis.	Site-specific fire management plans will be prepared at the field office for all treatments.
	WL6	11-3	Any treatments reducing amount of low-elevations sagebrush, especially Wyoming sagebrush, should be critically evaluated. Maximize net gain	The BLM recognized the importance that low-elevation shrub sagebrush has for wildlife, and that it is also at risk from habitat degradation as a result of a variety

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			of available sagebrush habitat over short and long term.	of factors. Alternative E – Proposed Plan Amendment and Alternative D specifically emphasizes protection of key sagebrush steppe habitats via wildland fire suppression. The goal is also to increase the quantity of resilient sagebrush steppe via post-wildland fire rehabilitation and proactive restoration. For Alternatives A, B, and C,, WFU would not be used where there are critical wildlife habitats.
	WL7	11-4	Allocate more restoration treatments in additional vegetation types, particularly aspen/confer to benefit wildlife and fire regimes.	The Final EIS has been modified to address this comment. See description of Alternative E in Chapter 2 of the Final EIS.
	WL8	11-8 through 11-10, 11-13 though 11-21	Add/replace/delete text (see letter).	The Final EIS had been modified to address this comment. Appendix Q and the Biological Opinion have incorporated the suggested management restrictions.
	WL9	11-11	Discuss how would presence absence of TES species be determined?	The presence or absence of T&E species would be determined at the project-implementation level through site-specific NEPA.
	WL10	11-12	Monitoring should also examine implementation and effectiveness of conservation measures for special status species.	See Chapter 2 and Chapter 4 of the Draft EIS and Final EIS for descriptions of monitoring commitments and adaptive management.
	WL11	13-4	Better discursion on guild species representatives and effect of proposed action needed for: western meadowlark, montane vole, short-eared owl, bighorn sheep (perennial grass); long-billed curlew, western burrowing owl (annual grass); three-toed woodpecker, ruffed	The Draft EIS provides adequate analysis to assess the relative level of impacts to the habitat types used by these species. It is impossible to predict actual impacts until specific projects are proposed. At this time, the specific impacts on pertinent species, including those you have listed,

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			grouse, red-naped sapsucker, snowshoe hare, wild, moose (dry conifer, aspen./conifer, wet/cold conifer); white tailed deer, and northern leopard frog (riparian).	will be disclosed through corresponding site-specific NEPA processes.
	WL12	13-5	Discuss short-term, long-term impacts of chemical application on the above-mentioned species, species discussed in EIS, and include chronic and acute impacts. What chemicals are being considered for use and impacts on survival, reproduction, and population viability of chemicals used? Include requirements of developing monitoring plans for individual projects to assess chemical treatment impacts on wildlife.	The Draft EIS includes a programmatic discussion of potential chemical impacts on wildlife species habitats. Detailed analysis of these impacts will be conducted at the implementation level through site-specific NEPA. See also response to WL11.
	WL13	14-3	Alternative D should include opportunities to improve winter mule deer range in wheatgrass areas.	Proposed vegetation treatments in Alternative D provide for potential long-term impacts to mule-deer habitat. See Section 4.5 of the Draft EIS. Also please note that Alternative D is no longer the Preferred Alternative. Alternative E, which is a combination of elements from Alternatives D and C is the new Preferred Alternative (also referred to as the Proposed Plan Amendment). This choice was based on comments on the Draft EIS that expressed concern that Alternative D did not provide adequate fire and vegetation management for non-sagebrush vegetation types or Wildland Urban Interface.
	WL14	14-4	Revise mule deer, elk, pronghorn,	The Final EIS had been modified to

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Category	Specifics	Comment Letter and Number	Comment	Response
			moose maps. Coordinate this with IDFG	address this comment (See Chapter 3).
	WL15	14-5, 15-4	Section 4.5.3 doesn't address other important attributes of pronghorn habitat and uses literature citations that are not appropriate for pronghorn occupying sagebrush habitats. We suggest the analysis focus on how Alt. D will help protect and restore healthy sagebrush communities and subsequent pronghorn habitat in the future. Vegetation restoration (sagebrush steppe) will reduce wildfire destruction of habitat and will benefit habitat and wildlife, including mule deer, pronghorn, and elk populations. Include how habitat improvements will benefit pronghorn.	Section 4.5 of the Draft EIS discloses potential impacts to pronghorn. More detailed impacts analysis will be conducted at the implementation level through site-specific NEPA.
	WL16	14-6	Effective monitoring of management actions must be tied to wildlife habitat and population responses. Work with IDFG to address issue.	Section 2.5 discuses the importance of monitoring and adaptive management to the success of ecosystem restoration. The BLM will work IDFG and USFWS to address concerns regarding management actions upon wildlife habitat and populations.

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Category	Specifics	Comment Letter and Number	Comment	Response
	WL17	15-1	Sage grouse / habitat need protection from wildfire, and using fire suppression is an appropriate policy in low elevation sagebrush steppe habitat.	Alternative D specifically emphasizes protection of sagebrush steppe habitats via wildland fire suppression. The goal is also to increase the quantity of resilient sagebrush steppe via post-wildland fire rehabilitation and proactive restoration. For the remaining alternatives, WFU would not be used where there are critical wildlife habitats. Also please note that Alternative D is no longer the Preferred Alternative. Alternative E, which is a combination of elements from Alternatives D and C is the new Preferred Alternative (also referred to as the Proposed Plan Amendment). This choice was based on comments on the Draft EIS that expressed concern that Alternative D did not provide adequate fire and vegetation management for non-sagebrush vegetation types or Wildland Urban Interface. Alternative E also emphasizes protection of sagebrush steppe habitat.
	WL18	16-3	The BLM throws wild horses that end up in the slaughterhouse so the mining industry can lease cheap public land.	Wild horse management is beyond the scope of this document.
Air Quality	AQ1	13-1	The EIS should provide information on the location of potential prescribed burns and provide assurances that existing monitoring stations will provide representative data for all prescribed burns. If they don't, a representative monitoring programs needs to be in place to meet NAAQS compliance issues (e.g., monitors are approved for	All proposed treatments will be analyzed on a site-specific basis, prepared at the field office level. Careful consideration will be given to ensure NAAQS standards will not be exceeded under proposed fire management plans. See response to comment AT1.

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			measuring NAAQS compliance, can measure particulate matter in real time, sufficient background monitoring is performed to accurately predict if a prescribed burn would exceed the NAAQS).	
	AQ2	16-4	Prescribed burning kills people via particulates.	The air quality analysis is presented in Section 4.6. It presents particulate estimations for each of the alternatives. It is important to consider that RxFire and WFU are smaller, planned burns that reduce fuel load so that larger catastrophic fires that release much more particulates are avoided.
Socioeconomic	SE1	10a-44	A cost benefit analysis of all actions on resources needed. BLM treatments can ruin the recreational experience of users. What impact does this have on economy? Consider economics of removing grazing, invasives, and passive restoration techniques. Include ESR seedings and rehabilitation efforts.	The costs of the various treatments and suppression are presented in Section 4.15 of the Draft EIS.
	SE2	12-6	Effect of reducing grazing allotments can be severe for rural communities. Be sure to include in decision-making. If all of allotment not being used, is it necessary to cut grazing preferences in that allotment?	The BLM recognizes the economic importance that grazing has for rural communities. The BLM has been directed to incorporate fire management into LUPs, which will ultimately benefit all resource users, including grazing permittees. While the BLM will make every effort to coordinate with stakeholder to minimize impacts associated with implementing the FMDA, it is anticipated that some gazing allotments will be impacted. See Section

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
				4.9 for a detailed discussion of these impacts.
Soils Resources	SR1	10a-45	Current conditions of all lands must be assessed to understand impacts to resources, (e.g., wind/water erosion, herbicide runoff, soil crusts).	Chapter 3 of the Draft EIS provides a detailed description of the current conditions of the affected environment.
General/Miscellaneous	GM1	6-4	Check to see that references are updates and current, e.g., the Sawtooth National Forest has already amended their Forest Plan.	The Final EIS had been modified to address this comment.
	GM2	8-1	While I found many statements in the details of the plan that I question from a scientific standpoint and personal experience, I support amending the LUPs.	Comment noted.
	GM3	9-3	Funding to fulfill goals / objectives is inadequate and inconsistent. This creates situations that may allow for litigation by unsatisfied user groups b/c the BLM is unable to fulfill objectives of this EIS and LUPs, as well as dissatisfied cooperators who are less likely to participate in collaborative programs that appear ineffective and wasteful.	BLM funding is outside the scope of this analysis. This Draft EIS discloses the costs and benefits of several alternatives so the public, stakeholders, and cooperators can evaluate both the cost and effectiveness of each alternative.
	GM4	10a-3	Need to update vegetation and livestock grazing components of LUPs in conjunction with this process. Can't rely upon older versions for this planning effort since info is outdated and doesn't take into account current science. Thus, cannot tier to these	Several LUPs are in the process of being updated, and will incorporate this information. For those not scheduled to be updated in the foreseeable future, additional updates to these resource components are outside the scope of this document since they do not meet the

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			documents in this planning effort.	purpose and need identified in Section 1.2.
	GM5	10a-16	Road closures coupled with grazing reductions need to be considered in terms of weed invasion, attaining natural fire cycles. Allowing natural successional processes and healing processes to occur in plant communities that are still relatively intact is the most cost effective method.	Historical fire cycles have been disrupted through years of fire suppression activities, sustained drought, and increasing insect, disease, and invasive plant infestations. While invasive plants can be carried via vehicular modes, it is out of scope of this document to consider closing roads, reducing grazing (other than resting allotments following treatments) as ways to reduce noxious weeds and invasive species from colonizing sites. Refer to the Vegetation EIS and LUPs to obtain additional information regarding these issues.
	GM6	10a-22	Why is the BLM going to prepare 2 EAs for ESR activities?	The BLM generally does not prepare EAs for ESR activities for each fire. Instead, the BLM relies on the Normal Fire Rehab EA, which is programmatic in nature and analyzes the effects of the most common treatments applied post-wildfire.
	GM7	10a-37	What protocols did the BLM use to ensure decision making, adequate site specific analysis? Were local agency specialists involved in data acquisition and analysis loops?	Site-specific analyses were not conducted for this document since it is a programmatic EIS that will amend 12 existing LUPs. When site-specific decisions are made, the BLM will use the best available data along with professional expertise of local BLM resource specialists to ensure site-appropriate management decisions are made.
	GM8	10a-39	An independent vegetation assessment should be done. WWP would like to participate. A component of this should	Existing vegetation data was considered sufficient for this programmatic-level EIS. Should a new vegetation assessment be

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			be assessment of risks of new, additive, or cumulative disturbances associated with the projects on top of existing disturbances.	undertaken, BLM would welcome partners. Risks and cumulative effects to planning area resources are analyzed in Chapter 4 of the Draft EIS.
	GM9	10a-41	Adequate mitigation should be developed for activities carried out, e.g., burn 10 acres of sagebrush, remove cows from 10 acres of sagebrush to provide habitat in the interim.	Fire management restrictions and mitigation are presented in Chapter 2, Section 2.4.3.3 of the Draft EIS.
	GM10	10a-46	All other fire related projected in USRD planning area must be explored.	Section 1.8 discusses the relationship of other planning efforts in the planning area. Chapter 4 includes a cumulative impacts analysis disclosing the cumulative impacts of implementation of these projects.
	GM11	10a-47	BLM must ensure that all tiered /related projects undergo NEPA process.	All site-specific Fire Management Plans and Project Plan would be required to undergo additional NEPA analysis.
	GM12	10a-48	The BLM's ESR updates should be redone.	The update of BLM's ESR is outside the scope of this EIS process.
	GM13	11-6, 15-7	The BLM should proactively coordinate amongst stakeholders, include grazing permittees, landowners, agencies to allow for appropriate planning. Identify interdisciplinary/ interagency teams, and evaluation teams.	The BLM is required to involve the public during the development of LUPs, and other NEPA documents. The BLM will make every attempt (e.g., internet, newspaper, radio, TV announcements, etc.) to notify stakeholders and the public of opportunities to participate in decision making. More site-specific information will be determined on the field office level as FMPs are updated.
	GM14	16-1, 17-4	Public taxpayers are entitled to better management. Land shouldn't be just for lumber barons, mining	The Federal Land Policy and Management Act of 1976 states that the BLM is required to manage for multiple uses of

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			kings/entrepreneurs, cattle barons, and environmental CADS! The era of ranchers telling the BLM what to do with our public lands has got to stop.	administered land. In many cases, resource uses can exist side-by-side, allowing for the public to reap the benefits of resource extraction, grazing, and recreational enjoyment, among others.
	GM15	16-2	Want to know how BLM actually reached out to the true American public. Especially for a nationally supported area like this one.	The 'Response To Comments' portion of the Final EIS provides a discussion/summary of public involvement as it relates to this EIS.
Native American Interests	NAI	18-1	1.2.2 Need (P. 1-4) Action is needed to for the BLM to comply with the Federal Wildland Fire Management Policy and to work toward resource conditions on BLM administered lands that allow productive use of these lands and enhance the social, ***cultural*** and economic stability of the communities that depend on them. The tribal communities depend on the sites and resources on their homelands as well. Cultural stability must be included.	The word *cultural* will be inserted into the text in the FEIS as indicated in the comment to insure that cultural stability is reflected in the text of the FEIS in recognition of Tribal dependence on the sites and resources of these lands.
	NAI	18-2	1.3 The Proposed Action (P. 1-5), Fourth bullet; Restrictions on fire management practices, if any, are needed to protect natural or cultural values. • What's the difference? The tribes do not separate natural and cultural resources, I don't understand what natural resource values are, please explain. • This document continually refers to	The BLM recognizes that the Shoshone-Paiute Tribes do not separate natural and cultural resources. For the purpose of program management, however, the BLM defines natural resources as soil, water, air, wildlife, vegetation, etc. Cultural resources are defined by the BLM as archeological sites, historic sites and traditional cultural properties.

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Category	Specifics	Comment Letter and Number	Comment	Response
			natural and cultural resources values.	
	NAI	18-3	1.3.2.3 Non-fire Vegetation Treatments (P.1-7) Chemical: • The timing of chemical treatment is very important. The tribes do not recommend the use chemical treatment in the spring when the birds have their young. The chemicals will more than likely have a negative impact on their survival rate. Mechanical: Mechanical treatments include mowing, chaining, chopping, drill seeding, and cutting vegetation. • The Shoshone-Paiute Tribes and other tribes oppose chaining as treatment. Chaining is a very destructive method, chaining destroys cultural sites both on the surface and subsurface, it is also destructive to the habitat of various wildlife. We recommend chaining not be used.	The Proposed Plan Amendment proposes to mitigate potential negative effects of chemical treatment and mechanical treatment as described in Appendix Q, section Q.1.2 Fire and Non-Fire Vegetation Treatment Restrictions. Specifically see the restrictions under Vegetation Management, page Q-3, and Cultural Resources and Historic Trails, pages Q-4 and 5. These restrictions call for the use of archeologists and biologists during site specific project planning and NEPA analysis. This is a programmatic EIS and as such does not analyze individual site specific projects however; mitigation or restrictions are generally applied during site specific project planning and NEPA analysis as described below. The BLM recognizes that chaining can be destructive if used improperly. Chaining is but one of the tools the BLM can use during restoration efforts to prepare a seed bed. During site specific project planning and NEPA analysis, wildlife biologists and archeologists would consider project design features, mitigation measures and/or restrictions that could exclude the use of chemical treatments during spring when birds have their young. Similarly, project design features could be developed for chaining that would avoid

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
				known and or potential surface/subsurface cultural sites or key wildlife habitat features to minimize adverse impacts. The specialists could conclude that chaining is not the appropriate tool to use in some cases. The impacts of chemical and mechanical treatments are presented in Chapter 4 of the FEIS.
	NAI	18-4	1.4 Identification of Relevant Issues (P. 1-9) Comments regarding issues surrounding this project were solicited from tribal governments, the public, and federal, state, and local agencies. • Were the comments from the tribes through formal consultation? The process in which agencies are mandated to interact with federally recognized tribes is through government-to-government consultation, not through solicitation.	Throughout this planning process comments from the Tribes has been sought and received through formal government to government consultation.
	NAI	18-5	1.4.2 Issues driving the Analysis (P. 1-10) This section summarizes the general issues that helped determine the pertinent resources and scope to be analyzed during the planning process. 1. Water Quality, Watershed, Soils and Riparian Resources 2. Vegetation	Cultural resources are defined by the BLM as archeological sites, historic sites and traditional cultural properties. The BLM defines natural resources as water, watershed, soils, riparian areas, vegetation wildlife and so on.

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Category	Specifics	Comment Letter and Number	Comment	Response
			3. Wildlife 4. TES Species "Terrestrial and aquatic TES species 5. Cultural Resources • What is a cultural resource? Everything that is mentioned above is a cultural resource from the tribal perspective.	
	NAI	18-6	1.5 Planning Criteria and Legislative Constraints (P. 1-11) The criteria were based on standards prescribed by applicable law and regulations; agency guidance; analysis of information pertinent to the planning area; results of ~~coordination~~ ***consultation*** with tribal governments, the public, and government agencies; and professional judgment. (Second bullet) Consult and coordinate with applicable, federal, state, local agencies, and tribal governments. • Affiliated federally recognized tribes should be one of the first to be consulted; additional studies and consultation may be required. (Third bullet) Recognize the Fort Bridger Treaty (1868) and preserve values significant to tribal governments. • The Fort Bridger Treaty is only relevant to the Shoshone-Bannock Tribes. The unextinguished rights of the Shoshone-Paiute Tribes under	The text in the FEIS will be changed to *consultation* as suggested in the comment. Reference to the Fort Bridger Treaty will be dropped from the third bullet on page 1-11. The revised third bullet will be revised to read, “Recognize traditional tribal uses associated with these lands and preserve values important to tribal members”. The unextinguished rights of the Shoshone-Paiute Tribes and the Boise and Bruneau Valley treaties will be discussed in Chapter 3 of the FEIS in conjunction with discussion of the Fort Bridger Treaty. Also see the response to Comment 18-15. Under Executive Order 13007 American Indian Sacred Sites the BLM will ensure the protection of sacred sites and sensitive areas for traditional uses.

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Category	Specifics	Comment Letter and Number	Comment	Response
			the Boise and Bruneau Valley treaties must also be addressed. (Last bullet) Manage resources/uses for multiple use and sustained yield. • The BLM must protect sacred sites and sensitive areas for traditional use.	
	NAI	18-7	1.8.5 Tribal Trust Responsibilities (P.1-13) (P. 1-14 top of page) The relationship between the federal government and the tribal governments focuses on ensuring that the ***legal*** rights and interests of the tribal governments are ~~considered~~ ***upheld*** and protected.	The text in the FEIS will be changed to incorporate the edits suggested in the comment.
	NAI	18-8	3.13 Cultural Resources (P 3-80) 3.13.1 (P. 3-80) Current conditions and trends The BLM is responsible for identifying, protecting, ***preserving***, managing, and enhancing archaeological, historical , architectural, and traditional lifeway values. • Traditional lifeway values, what does that mean? It's a foreign term to me, one that I don't recall ever being used in previous documents. Where did it come from? Who suggested that the phrase should be used?	The text in the FEIS will be changed to insert the word *preserving* and delete the word *lifeway* as suggested in the comment.
	NAI	18-9	3.13.1.1 (P. 3-81) Cultural Resource Inventories Cultural resources are generally identified through field inventories conducted by qualified	The text in the FEIS will be changed by deleting the word *lifeway* as suggested in the previous comment.

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Category	Specifics	Comment Letter and Number	Comment	Response
			professionals to comply with Section 106 of the NHPA of 1966. Informant information and historical records are also used to identify known or potential archaeological, historical, and traditional lifeway values. • Consultation with tribes and Ethnographic studies must be included on the list. • Ethnographic studies by an ethnographer that the tribes are comfortable with, tribal elders will not share sensitive information with someone they're not familiar with. • What does "Informant information"? Is that old information? Or is the BLM out currently seeking "Informants?"	The last sentence in the paragraph will be rewritten as follows in the FEIS: “Historical records, ethnographic studies and consultation with tribes are also used to identify known or potential archeological, historical, and traditional values.” The phrase *informant information* will be removed from the document.
	NAI	18-10	3.13.1.3 (P. 3-81) Cultural Resources Conditions and Trends Cultural resources conditions and trends within the planning area vary considerably due to the variability of terrain and geomorphology, access and visibility, and past and current land use. Exposed artifacts and features on the ground surface can be disturbed by elements such as wind, and water erosion, animal and human intrusion, and development and maintenance activities. Based on limited site visitation and site form documentation, the trend of site condition is considered stable in most areas. Vandalism and	The BLM has not conducted a survey of the entire area. However the BLM has conducted numerous surveys in the area over the years in conjunction with ongoing project level work. Project level surveys have been documented and are on file in the respective BLM offices. BLM patrols to monitor sites, or funding for such patrols, is outside the scope of this EIS. See Chapter 1, Purpose and Need for Action. Agreed, the protection of sites and provision for tribal use is a BLM trust obligation. See the restrictions in Appendix Q regarding protection of sites to provide

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			unauthorized collection at sites constitutes the main source of cultural resource degradation. • Has the BLM conducted surveys of the entire area? What kind of documentation do you have of the area covered in this document? • Wind and water erosion, is a natural process. • The BLM must increase patrols on BLM administered lands, or provide funding for the tribes to monitor the sites. • It is the BLM's trust obligation to protect the sites and provide for contemporary and ongoing use of the sites by tribal members.	for on-going use by tribal members.
	NAI	18-11	3.13.3 (P. 3-82) Opportunities (Last sentence) Other types of treatments could reveal previously unknown cultural sites, providing important historical information to the public and/or the tribal governments. • This only says "historical information," but when it refers to "previously unknown cultural sites," please explain. • Site specific information on any Native American sites must be kept confidential. That information is not for the public.	The phrase *previously unknown cultural sites* refers to those recently discovered sites that had not yet been inventoried and documented. New sites that are encountered during site specific project planning will be documented and recorded upon discovery. The site will then be properly managed in accordance with cultural resource laws. It is BLM policy to keep site specific information on any Native American site confidential.
	NAI	18-12	3.14 (P. 3-82) Native American Tribal Concerns *(Legal Rights)*	The first sentence following the heading **3**.14 (P 3-82) Current Conditions and Trends, will be rewritten as follows in the

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			3.14.1 Current Conditions and Trends The planning area now occupies traditional lands of the Shoshone-Bannock Tribal Government, as well as some lands of the Shoshone-Paiute Tribal Government. • Explain what this paragraph means, what is meant by "some lands of the Shoshone-Paiute Tribal Government? Where are those lands? • The tribes are basically one people. Drawing lines is a European concept, tribes never drew lines, boundaries of our traditional lands exceeds the ICC lines considerably. Federally recognized tribal governments have rights to and/or ***legal*** interests in public lands administered by the BLM. Both tribal governments depend upon the lands for a myriad of uses. The lands retain social, ~~and~~ economic ***and traditional*** value for the tribal people, as well as ***contemporary and ongoing*** spiritual and cultural uses. Through ~~past discussions~~ ***consultation*** with the tribal governments, the BLM is aware of ***their treaty/trust obligations and the tribes'*** ~~their~~ desire to capitalize on opportunities that maintain or enhance resources critical to the exercise of treaty rights, traditional customs, subsistence, and cultural uses	FEIS: "The planning area now includes portions of the traditional lands of the Shoshone-Bannock and Shoshone-Paiute Tribes. The phrase, "some lands of the Shoshone-Paiute Tribal Government" was an awkward attempt to refer to the lands traditionally used by the Shoshone-Paiute Tribes. The phrase has been rewritten as presented above. The text in the FEIS will also be changed to reflect the edits suggested in the remaining portion of this comment. The phrase, "tribal government" will be removed from the paragraph.

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Category	Specifics	Comment Letter and Number	Comment	Response
			~~purposes~~ ***of the land.*** The ***Shoshone-Bannock Tribes*** ~~tribal governments~~ have treaty under the Fort Bridger Treaty of 1868 that extend to unoccupied federal lands off-reservation. • There are several places in this paragraph that refers to "tribal governments." This paragraph is specifically in reference to the Shoshone-Bannock Tribes. • I recommend removing the phrase, "tribal governments" from this paragraph. This is very misleading to someone who doesn't know the difference between the tribes.	
	NAI	18-13	(P.3-83) The ***Duck Valley Indian Reservation is the Shoshone-Paiute Tribes'*** ~~tribal government's~~ current reservation includes 294,242 acres in Idaho and Nevada. The reservation is headquartered in Owyhee, Nevada, and the Tribal Government is housed there. The principle revenue sources of the Tribal Governments are farming and ranching. Business and lands leases in the planning and grazing permits also provide income to the Tribal Governments. • Most all business' are owned and managed by tribal members. Land leases are very limited. • The Shoshone-Paiute Tribes is one	The text in the FEIS will be changed to incorporate the edits suggested in the comment. The last sentence in the paragraph will be rewritten in the FEIS to read as follows: “Businesses owned by and managed by Tribal members, and grazing permits also provide income to the Tribes.”

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Category	Specifics	Comment Letter and Number	Comment	Response
			tribal government.	
	NAI	18-14	(Same page.) Like most reservation communities, the area is geographically isolated and economically depressed. The people are tied ***traditionally,*** culturally, and spiritually to the land, and they are very interested and involved in helping to shape how the lands ***and the resources*** ~~is~~ ***are*** administered by the BLM. The Shoshone-Paiute Tribal Government~~s are~~ ***is*** particularly concerned about cultural resources on public land, as well as subsistence, spiritual, and traditional use areas.	The text in the FEIS will be changed to incorporate the edits suggested in the comment.
	NAI	18-15	(Same page.) • The Boise Valley Treaty; On October 10, 1864 • The Bruneau Valley Treaty; on April 10, 1866 • After more than a century, the Untied States Senate has not gotten around to ratifying these treaties. • The United States of America still has not obtained title to the Boise and Bruneau lands of southwestern Idaho, although Caleb Lyons of Lyonsdale, governor and superintendent of Indian affairs for Idaho, solemnly promised us that this matter would be attended to. The Aboriginal Title remains with the tribes.	The following text will be added to the Chapter 3 of the FEIS to acknowledge the Boise and Bruneau Valley Treaties on page 3-83 at the top of the first full paragraph. “Regarding Shoshone-Paiute Tribal interest in these lands, the Boise Valley Treaty and the Bruneau Valley Treaty were never ratified. The Tribes believe that the title was not relinquished and they continue to claim title, rights and interests associated with these lands. The BLM recognizes the traditional use associated with the lands as well as the requirements of cultural resource laws.”

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Category	Specifics	Comment Letter and Number	Comment	Response
			(Same page.) • The Shoshone-Paiute Tribes have not relinquished any rights to southwestern Idaho, we still maintain aboriginal land title and all hunting, fishing , gathering and other traditional uses on our homelands	
	NAI	18-16	(Same page.) The BLM is ~~responsible~~ ***obligated*** for maintaining a formal government-to-government relationship with federally recognized Tribal Governments. The Shoshone-Bannock Tribal Governments and the Shoshone-Paiute Tribal Governments both have rights to and cultural/historical affiliation with the lands in the planning area. The relationship between the federal government and these Tribal Governments focuses on ensuring the ***legal*** rights and/or interests of the Tribal Governments are ~~considered and~~ protected, ***preserved*** in accordance with relevant treaties, executive orders, legislation, ***the U.S. Constitution*** and federal policies. This includes consulting with tribal representatives; identifying and protecting important archaeological, religious, and/or sacred sites; and providing tribal members with appropriate access to these sties. The Tribal Governments are also interested in the BLM acquiring lands that contain	The text in the FEIS will be changed to incorporate the edits suggested in the comment. The discussion of acquisitions of or lands that go out of Federal ownership is outside of the scope of this EIS. This sentence (last sentence p. 3-81, Section 3.14.1, paragraph 4) will be deleted from the FEIS. See Chapter 1, Purpose and Need for Action.

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Category	Specifics	Comment Letter and Number	Comment	Response
			traditional cultural resources and are part of their aboriginal territory, as well as ensuring that lands that go out of federal ownership do not diminish their rights of traditional uses.	
	NAI	18-17	(Same page.) • Any lands leaving federal ownership must undergo an intensive cultural resource survey to assure that they will remain protected and access to the sites will continue for tribal members.	The discussion of acquisitions of or lands that go out of Federal ownership is outside of the scope of this EIS. See Chapter 1, Purpose and Need for Action. The last sentence p. 3-81, Section 3.14.1, paragraph 4 of the FEIS will be deleted.
	NAI	18-18	Figure 3-14. (P. 3-84) Areas of interest to the local tribal governments The BLM is required under ***the Native American Graves Protection and Repatriation Act,(NAGPRA)*** ~~federal cultural resource~~ law to ensure the protection and proper treatment of human remains of Native American ***origin*** ~~patrimony~~ known to be present or discovered on lands under their jurisdiction. NAGPRA mandates that land managers assign cultural patrimony of affiliation to human remains found as part of a federal undertaking and consult with the affiliated ***Tribes*** ~~groups~~ to determine the appropriate repatriation of the human remains. • The agency must consult with the affiliated tribes and attempt to establish cultural affiliation. • Once cultural affiliation is determined, they must continue	The text in the FEIS will be changed to incorporate the edits suggested in the comments. To incorporate the comments at the two bullets, the second sentence of the paragraph will be rewritten in the FEIS to read as follows. “NAGPRA mandates that land managers consult with affiliated tribes to assign cultural patrimony of affiliation to human remains found as part of a federal undertaking and consult with the affiliated Tribes to arrange for repatriation of the remains, associated funerary objects and other objects.”

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			consultation with the affiliated tribe(s) to arrange for repatriation of the remains, associated funerary objects and other objects. NAGPRA also applies to ~~grave goods~~ ***Associated Funerary Objects*** or objects of cultural patrimony associated with burial sites.	
	NAI	18-19	3.14.2 Risks Consultation has been undertaken between the BLM the tribal ***governments*** ~~groups~~ regarding concerns over implementing the proposed plan amendments that would result as a process of this EIS.	The text in the FEIS will be changed to incorporate the edits suggested in the comment.
	NAI	18-20	4.13.1 Analysis Assumptions and Methods 4.13.2.1 Direct and indirect impacts of prescribed burn P. 4-165 (Top of the page) Most looting is undertaken by people who are unaware that their activities are illegal and can often be controlled by educating the public about the various laws. • Most looting on the small scale could be people who are unaware. • Professional looters know what their going after, and sometimes return to a site if it paid off before. • We do agree that education is an important tool, in turn they too could help discourage looting and report violators.	The text in the FEIS will be changed to incorporate the ideas that most looting on the small scale could be people who are unaware and that professional looters know what their going after, and sometimes return to a site if it paid off before. Tribal participation in the education process would be welcomed by the BLM.

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Category	Specifics	Comment Letter and Number	Comment	Response
			• Tribes must be a participant in the education process.	
	NAI	18-21	Same page (second paragraph from the bottom) Archaeological sites consist of a collection of culturally modified material. • What does that mean? That's what a cultural site is, a site of culturally modified material, and materials from different quarries and other sources.	The text in the FEIS will be edited to clarify. The words *culturally modified materials* will be replaced with the word *artifacts*. This change will be made in section 4.13 of the FEIS.
	NAI	18-22	4.13.2.4 Direct and indirect impacts of Mechanical Treatment Mechanical activities can include, mowing, chaining, chopping, and cutting of surface vegetation, and applying seeds via rangeland drill. • The Shoshone-Paiute Tribes and other tribes are opposed to chaining because of the destruction to cultural sites, habitat and the environment. Chaining destroys subsurface material and displaces them from its original location.	See the response to Comment 18-3 above.
	NAI	18-23	4.13.8 Mitigation as Monitoring *(PA-168)* The BLM has formulated management restrictions to protect cultural resources during fire management activities. In addition to these guidelines, the BLM as a federal agency is required under	The text in the FEIS will be edited to incorporate the notion that the BLM is required to comply with all other relevant cultural resource laws in addition to Section 106 of NHPA. A last sentence will be added this paragraph in the FEIS as follows: “Similarly, whether a site is eligible for the NRHP is irrelevant to tribes. A site

TABLE 2. SUMMARY OF COMMENTS ON THE FMDA DRAFT EIS

Category	Specifics	Comment Letter and Number	Comment	Response
			Section 106 of the NHPA to identify archaeological and historical properties eligible for or listed on the National Register of Historic Places (NHRP) and to determine if these properties would be affected by a specific action. • The BLM is mandated to comply with all relevant laws not just Section 106 of NHPA. • BLM cannot be selective when it comes to compliance. • Whether a site is eligible for the NRHP is irrelevant to tribes. A site could have very little left on the surface and still be a very significant site to the tribes.	could have very little left on the surface and still be a very significant site to the tribes and the BLM must also determine if these properties would be affected by a specific action.”

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APPENDIX Q - MANAGEMENT RESTRICTIONS

Q.1 MANAGEMENT RESTRICTIONS COMMON TO ALL ALTERNATIVES

Q.1.1 WILDLAND FIRE SUPPRESSION RESTRICTIONS

The following suppression restrictions will be applied to all suppression actions occurring throughout the Planning Area, consistent with NFP policy and LUP direction:

Fire Management

- A Wildland Fire Situation Analysis will be initiated as per the Redbook (Interagency Standards for Fire and Aviation Operations).
- Interagency cooperation will be maintained to facilitate coordinated fire management activities across administrative boundaries.
- Wildland fire suppression activities will continue to exercise Tribal trust responsibilities.
- In the event a wildland fire escapes initial attack, a BLM resource advisor will be assigned to ensure that resource management concerns are adequately addressed and that necessary mitigation occurs. If one of the following is being threatened or has the potential to be threatened, the appropriate manager will be notified with the following information and a resource advisor will be dispatched: 1) Public health and safety, 2) WUI, 3) Sage grouse habitat and, 4) Any ACEC, Resource Natural Area (RNA), congressionally delegated watershed or any other area of significant concern.
- Prior to wildland fire season potential areas of conflict between archeological resources and wildland fire suppression activities should be identified.

Cultural Resources and Historic Trails

- Dozer blading should not occur within 300 feet of playas or dry lakebeds to protect cultural resources. Buffer zones greater than 300 feet from playas and dry lake beds are preferable.
- Dozer blading should not occur within 300 feet of known historic trails, cultural sites, National Register of Historic Places Districts, Landmarks, and ACECs designated for cultural resources.
- Through the Field Office Manager (FOM) or Resource Advisor, an archaeologist will be notified to: 1) provide technical expertise, 2) identify cultural resources that may be encountered, and 3) identify best cultural protection practices to be used during suppression activities. Examples of cultural protection practices may include but are not limited to:
    - Manual reduction of fuels from vulnerable sites/features; disposal of debris away from cultural features.

- Creation of fire breaks near or around sites.
- Wrapping of structures in fire proof materials or use of retardant/foam to protect structures.
- Flush-cutting and covering of stumps with dirt, foam, or retardant where subsurface cultural resources could be affected.
- Identification of and reduction of hazard trees next to structures.
- Use of low intensity, backing fire in areas near historic features.
- Saturation of ground/grass adjacent to vulnerable structures with water, foam, or gel before burning.
- Covering of rock art or wrapping of carved trees, dendroglyphs, and other such features in fire retardant fabric.
- Limbing of carved trees to reduce ladder fuels.
- Reduction of fuels and smoke near rock art.
- Covering of fuels near rock art with foam, water, or retardant, avoiding the rock art.

Noxious Weeds

- To minimize spread of noxious weeds, equipment used for extended attack or Type I/II incidents should be cleaned before arriving on-site and prior to leaving the incident. Staging areas and fire camps should avoid sites with noxious weed infestations.

Recreation

- Developed recreation sites and structures on public lands will be protected.
- Minimum Impact Suppression Techniques (MIST) guidelines will be followed where appropriate as identified in the Interagency Standards for Fire and Fire Aviation Operations (USDA and USDI 2006).

Note: NPS are converting to the term Minimum Impact Techniques (MIT)

Riparian Areas

- Dozer blading should not occur within 300 feet of perennial streams unless approved by the authorized officer. Buffer zones greater than 300 feet from riparian areas are preferable.
- Application of retardant or foam, adjuvant/surfactant should be avoided within riparian areas and 300 feet adjacent to riparian areas and waterways.

Special Designations (WSAs, ACECs)[1]

- Within Wilderness Study Areas (WSAs), wildland fire management activities would follow BLM Manual H-8550-1, Interim Policy for Lands under Wilderness

[1] These restrictions do not apply to the Craters of the Moon National Monument and Preserve. Refer to the Craters of the Moon National Monument and Preserve General Management Plan and Record of Decision (September 2006) for specific management restrictions.

Review. The use of earth-moving equipment within these areas requires approval of the authorized officer.

- Fire camps and staging areas should be placed outside of special management areas.
- Use of natural firebreaks and existing roads and trails to contain a wildland fire would be encouraged.
- The resource values, hazards present, and management prescriptions within specific areas would be evaluated when applying guidelines to ACECs.

Vegetation

- Blading should occur on existing roads where possible. Blading through undisturbed areas, especially those supporting native cover types, should be avoided unless necessary to protect life, property, or resource values.

Wildlife

- When conducting fire suppression actions, species with recovery plans, conservation agreements, Partners in Flight species, and Birds of Conservation Concern will be protected as specified in their respective plans/agreements.
- Establishment of control lines, base camps, and support facilities in known SSS habitat will be avoided unless life and property are threatened.

Q.1.2 FIRE AND NON-FIRE VEGETATION TREATMENT RESTRICTIONS

The following fire and non-fire vegetation treatment restrictions will be applied to site-specific restoration and hazardous fuels reduction treatment actions occurring throughout the Planning Area, consistent with NFP policy and LUP direction.

Vegetation Management

- No chemical treatment would conflict with existing or future national vegetative treatment guidance. To reduce potential resource impacts from chemical treatments, herbicide use would conform to application criteria described in the 1991 document, Environmental Impact Statement for Vegetation Treatment on BLM Lands in Thirteen Western States or in subsequent revisions and/or replacements of this document. Use would conform to instructions from BLM Manual 9011 Chemical Pest Control, as well as label restrictions and current policies and state statutes. In addition, the prescription for herbicide application (desired, optimum environmental conditions) would evaluate off-site migration and non-target species by assessing wind speed and direction, temperature, precipitation forecast, soil infiltration potential, constraints on overland water transport due to precipitation or flooding, establishment of riparian buffer strips, and risk to special status species. Fishery and/or wildlife biologists would assist project planners in selecting appropriate herbicides for use among or near terrestrial and aquatic flora and fauna sensitive to herbicides.

- The economic effects of alternative fuels management practices would be considered. Local involvement and economic benefits from fuels reduction projects would be promoted.
- Collaboration with local partners to assess WUI areas would be continued, and existing mitigation plans would be updated to implement fuels treatments.
- There would be no Healthy Forest Restoration Act treatments in old-growth forests.
- Vegetation treatment activities would continue to exercise Native American Tribal trust responsibilities.
- Fuels treatments would be utilized to reduce the overall threat of the establishment and spread of noxious/invasive plant species.
- The economic effects of alternative fuels management practices would be considered. Local involvement and economic benefits from fuels reduction projects would be promoted.
- Collaboration with local partners to assess WUI areas and to update existing County Wildfire Protection Plans (CWPPs) would continue.

Air Quality

- All fire activities on BLM-administered lands would be coordinated with the Montana/Idaho Airshed Group Smoke Management Program. Under this program, RxFire and WFU could be restricted when regional or local air quality is compromised, or if the project would negatively affect visual quality in Class 1 Airsheds (Yellowstone and Grand Teton National Parks, Bridger Wilderness, Sawtooth Wilderness, and Craters of the Moon Wilderness), Non-attainment Areas, and sensitive receptors.

Cultural Resources and Historic Trails

- The FO will ensure that required and appropriate cultural resource inventories/surveys are completed prior to implementing site-specific fuels projects to meet BLM policy.
- A Class II or Class III inventory will be conducted for all proposed RxFire areas unless previous inventory has been deemed adequate in consultation with the SHPO and Native American Tribes.
- All Rxfires and fuels projects will be subject to further site-specific analyses and Section 106 of the National Historic Preservation Act compliance and consultation.
- All proposed fire and non-fire (mechanical, chemical, and seeding) vegetation treatment actions will be assessed in consultation with the SHPO and Native American Tribes for their potential to affect cultural resources. Where previous inventory has been sufficient to identify vulnerable cultural resources, no inventory should be needed. However, where adequate inventory is lacking, appropriate and required inventory of the area as determined in consultation with the SHPO will be conducted.

- Fire project planners should coordinate with the archeologist to incorporate, as necessary, best cultural protection practices in burn plans. Examples of cultural protection practices to be considered may include but are not limited to:
  - Manual reduction of fuels on vulnerable sites/features; disposal of debris away from cultural features.
  - Use of low-intensity backing fire in areas near historic features.
  - Saturation of ground/grass adjacent to vulnerable structures with water, foam, or gel before burning.
  - Pre-burning of site(s) at lower intensity than planned for surrounding areas.
  - Limiting fire intensity and duration over vulnerable sites.
  - Use of a fast-moving, higher intensity fire over lithic scatters, where rock materials are vulnerable to longer-duration heating.
  - Creation of fire breaks near or around sites.
  - Wrapping of structures in fire-proof materials or use of retardant/foam to protect structures.
  - Flush-cutting and covering of stumps with dirt, foam, or retardant where subsurface cultural resources could be affected.
  - Identification of and reduction of hazard trees next to structures.
  - Covering of rock art or wrapping of carved trees, dendroglyphs, and other such features in fire retardant fabric.
  - Limbing of carved trees to reduce ladder fuels.
  - Reduction of fuels and smoke near rock art.
  - Covering of fuels near rock art with foam, water, or retardant, avoiding the rock art.
- Dozer blading should not occur within 300 feet of known historic trails and cultural sites.

Hazardous Materials and Abandoned Mine Sites

- Hazardous materials and abandoned mine sites identified within any specific fuels management or vegetation treatment area would be avoided.

Livestock Grazing

- All treatment areas would be rested from livestock grazing until project-specific monitoring identified in site-specific project plans and/or NEPA documents show that resource objectives have been met. Resumption of grazing would be determined on a case-by-case basis.

Placeholder Species

- Plant materials used in re-vegetation actions would be native when appropriate and practical. However, desirable non-native species may be used in re-vegetation actions on harsh or degraded sites, when native seed is not available, or where

they would structurally mimic the natural plant community and prevent soil loss and invasion by exotic annual grasses and noxious weeds. The species used would be those that have the highest probability of establishment on these sites. These "placeholders" would maintain the area for potential future native restoration. Native seed would be used more frequently and at larger scales as species adapted to local areas become more available.

Recreation

- Treatments in developed or high-use recreation areas would be designed to minimize impacts to the recreational resource or users.

Riparian Areas

- No dozer blading should occur within 300 feet of perennial streams. Buffer zones greater than 300 feet are preferable.

Special Designations (WSAs, ACECs)[2]

- Within WSAs, fuels and vegetation treatments and WFU should follow BLM Manual H-8550-1, *Interim Policy for Lands under Wilderness Review*. The use of earth-moving equipment within these areas requires approval of the authorized officer; however, minimizing use of tools is the preferred practice.

Visual Resources

- Treatments occurring in areas classified or inventoried as Visual Resource Management (VRM) Class I and II would consider visual qualities to preserve the landscape character. Wherever possible, landscape modifications would replicate the natural line, form, color, and texture found in the surrounding area. Treatments that result in long-term disruption of natural visual qualities (e.g., drill seeding that establishes vegetation rows) should be avoided or hidden by design.

Wildlife

- Seasonal guidelines may be applied if needed to mitigate the impacts to big game species from planned fuels management and vegetation treatments as specified in the LUPs identified in Table 1.2.
- Restrictions may be imposed on fuels management and vegetation treatment projects in areas supporting nesting raptors as per amended LUPs (Table 1.2). Treatment proposals would be coordinated with IDFG.
- Species with recovery plans, conservation agreements, Partners in Flight species, and Birds of Conservation Concern will be protected as specified in their respective plans/agreements.
- Habitat Conservation Assessment and Conservation Strategies have been prepared and are currently being implemented for the following BLM sensitive species:

[2] These restrictions do not apply to the Craters of the Moon National Monument and Preserve. Refer to the Craters of the Moon National Monument and Preserve General Management Plan and Record of Decision (September 2006) for specific management restrictions.

Townsend's big-eared bat, wolverine, spotted bat, white headed woodpecker, trumpeter swan, northern goshawk, Columbian sharp-tailed grouse, greater sage grouse (Idaho plan pending), mountain quail, Idaho dunes tiger beetle, Bonneville cutthroat trout, bull trout, Yellowstone cutthroat trout, red band trout and leather sided chub.

- Vegetation treatments proposed in areas supporting sage grouse and sharp-tailed grouse would be coordinated with IDFG and would be implemented under LUP guidance or restrictions.
- Seasonal guidelines may be applied to mitigate the impacts to big game species from planned vegetation treatments as specified in LUPs.

Q.1.3 EMERGENCY STABILIZATION AND REHABILITATION (ESR) RESTRICTIONS

- The Field Office Normal Fire Rehabilitation Plan contains ESR restrictions that would be applied to all site-specific ESR actions.

Q.2 MANAGEMENT RESTRICTIONS COMMON TO ACTION ALTERNATIVES

Q.2.1 WILDLAND FIRE SUPPRESSION RESTRICTIONS

The following suppression restrictions will be applied to all suppression actions occurring throughout the Planning Area, consistent with NFP policy and LUP direction.

Threatened, Endangered, and Candidate Species

The following restrictions apply to proposed T&E and Candidate species and to designated critical habitat.

- Fire fighter safety and public safety are top priorities in response to fire suppression. At no time will the activities described in this EIS compromise fire fighter safety and public safety.
- The BLM will coordinate annually with the USFWS to update species status in the planning area.
- Field Managers will ensure resource staff initiates emergency consultation with the USFWS whenever suppression activities may impact listed species habitat and, more specifically, during emergency suppression actions to protect life and property.
- Control lines, base camps, support facilities, and other suppression-related facilities should not be established within:
    - 1/2 mile of known bald eagle or yellow-billed cuckoo nests (February 1-August 15)
    - 1 mile of occupied gray wolf den sites (April 15 - June 30)
    - 300 feet of occupied Ute ladies'-tresses habitat

  - 300 feet of all water bodies and springs occupied by T & E and Candidate species
  - Secure habitat within designated grizzly bear management unit (BMU).
- Minimum Impact Suppression Techniques (MIST) guidelines will be followed in occupied T&E and Candidate species habitat where appropriate (Appendix T in Interagency Standards for Fire and Aviation Operations, 2005). MIST guidelines direct suppression techniques, procedures, tools, and equipment that least impact the environment. Wet-lining (using water to soak/saturate fuels) is the preferred fireline construction tactic.
- Field Managers will assign a Resource Advisor or other designated representative as per the current Red Book guidance.
  - BLM will notify USFWS when appropriate to discuss T&E species mitigation within the suppression area to assure conservation practices are being followed to avoid adverse effects.
  - When Incident Management Teams (IMTs) are required, the Resource Advisor will brief the IC about conservation measures needed to avoid adverse effects.
- Where grizzly bears may reasonably occur:
  - The BLM Resource Advisor will brief all fire crews on general operating procedures including proper bear safety, sanitation, and food storage.
  - Incident Commanders, Fire Management Officers, and Scouts should be equipped with and trained to use bear deterrent spray.
  - Garbage should be disposed of in bear-proof containers when possible and removed from camps daily, preferably in the evening.
- No water-dipping by helicopters will occur within 1/2 mile of any occupied bald eagle nest.
- Fuel storage, fuel trucks, and refueling activities will not occur within 300 feet of live waters containing T&E and Candidate species. The current Planning Area Hazardous Material plan will be followed to ensure T&E and Candidate species and habitat will not be adversely affected in the event of a spill.
- Dozer blading should not occur within 300 feet of perennial streams or their tributaries occupied by T&E and Candidate species.
- Drafting equipment for pumps will be properly screened to prevent entrapment of T&E fish species. Maximum screen mesh size shall be 3/32-inch diameter.
- Any sump created by blocking flow in any occupied T&E habitat will be performed in coordination with a natural resource specialist to prevent dewatering.
- If chemical products will be injected into the system, water will not be pumped directly from the streams. If chemicals are needed, water will be pumped from a portable tank, or a backflow check valve will be used.

- Application of retardant or foam (aerial or ground) will be avoided within 300 feet of perennial streams or their tributaries occupied by T&E and Candidate species pursuant to the current Red Book guidance.
- To minimize spread of noxious weeds, equipment used for extended attack or Type I/II incidents should be cleaned before arriving on-site and prior to leaving the incident. Staging areas and fire camps will avoid sites with noxious weed infestations.

TES Reporting Requirements

Because of the programmatic nature of this EIS process, the exact timing, site-specific suppression methods, location, and size of fires are currently unknown. In order to monitor the impacts of wildland fire-suppression activities as part of the FMDA, the Level I team will meet immediately after the fire season to review a summary of activities (fire suppression) that may have occurred in or adjacent to T&E and Candidate habitat. If the Level I team identifies fire-suppression activities for which more information is needed to ascertain potential effects to the environmental baseline for a particular listed or candidate species, BLM will provide a report providing the necessary information identified by the Level I team to the USFWS Snake River Fish and Wildlife Office or the Eastern Idaho Field Office no later than December 31 for the preceding 12-month period. The types of information that may be needed include:

- The location, timing, size, intensity, and suppression activities used for each fire.
- Any mitigations used during fire-suppression activities to avoid effects to T&E and Candidate species and habitat, any T&E and Candidate species or habitat affected, and the estimated extent of effects.
- Results of post-fire reviews and monitoring.

Q.2.2 FIRE AND NON-FIRE VEGETATION TREATMENT RESTRICTIONS

Threatened, Endangered, and Candidate Species

The following restrictions apply to proposed habitats occupied by T&E and Candidate species and designated critical habitat.

- Treatment activities may occur near or adjacent to T&E and Candidate species habitat and will be designed to minimize or mitigate impacts to habitat occupied by T&E and Candidate species and designated critical habitat so that the species or their habitats will not be adversely affected. All FMDA related fire and non-fire vegetation treatment activities in areas that may affect T&E and Candidate species would be conducted in consultation with USFWS. Further, all such activities would be designed and implemented in such a manner that potential impacts to T&E and Candidate species from disturbance or habitat modification would be extremely unlikely to occur or would be so small as to not be meaningfully measured, detected, or analyzed.
- T&E and Candidate species with recovery plans, conservation agreements, and conservation strategies will be protected as specified in their respective

plans/agreements/strategies. These protections include such measures as adequate habitat and range for a given species, including mitigation measures for multiple land use activities authorized by the BLM.

- Herbicide applicators will obtain a weather forecast for the area prior to initiating a spraying project to ensure no extreme precipitation or wind events could occur during or immediately after spraying. Aerial application of herbicides will not occur during periods of inversion. Spraying will follow label instructions.
- Fuels management and vegetation treatment activities would be conducted according to standards and guidelines in The Pacific Bald Eagle Recovery Plan, 1986. The planning area within the Greater Yellowstone Ecosystem would conduct fuels management and vegetative treatments according to standards and guidelines in the Greater Yellowstone Bald Eagle Management Plan (Greater Yellowstone Bald Eagle Working Group 1996). No vegetation treatment activities associated with the FMDA EIS would occur within a one-half-mile radius of bald eagle nesting zones from February 1 to July 31. No activities associated with the FMDA EIS would occur within one half mile (direct line of site) or one quarter mile of winter bald eagle concentration sites from November 1 to March 1.
- Riparian cottonwood forests with willow understories that may be impacted by fuels management and vegetation treatments would be surveyed for yellow-billed cuckoos prior to initiating project activities. When developing vegetation treatment projects, no ground-based application of herbicides would occur from May 1 to August 31 within 200 feet of occupied yellow-billed cuckoo habitat.
- Aerial application of chemicals would not occur from May 1 to August 31 within one-half mile of occupied yellow-billed cuckoo habitat.
- Fuels management and vegetation treatment areas within the BMUs would be coordinated with U.S. Forest Service activities to comply with road density restrictions and number and juxtaposition of management activities with BMUs, as provided for in the Grizzly Bear Recovery Plan (USFWS 1993) or the Final Conservation Strategy for the Grizzly Bear in the Yellowstone Area (USFWS 2003).
- When developing vegetation treatment projects, open and total motorized access routes or trail density within BMUs would not increase. When developing vegetation treatment projects within BMUs, the Bureau will coordinate with the Interagency Grizzly Bear Committee to develop/implement sanitation guidelines.
- Gray wolf *(Canis lupus)* populations in the area, which includes portions of the Planning Area, have been designated as experimental/nonessential. Presence or absence of gray wolf dens or rendezvous sites in fuels management or vegetation treatment areas would be determined prior to initiating projects. In the event active den or rendezvous sites are established within the planning area, vegetation treatments would be designed and implemented to minimize noise disturbance or habitat modifications within one mile of the den or rendezvous sites from April 15 to June 30.
- Fuels management and vegetation treatments that may occur within the Little Lost River drainage would be conducted according to standards and guidelines

developed for bull trout *(Salvelinus confluentus)* Riparian Habitat Conservation Areas on BLM lands within the geographic range of bull trout (U.S. Fish and Wildlife Service 1999a, 2002).

- No aerial application of herbicides would occur within one half mile of all water bodies and springs containing listed snails, Columbia spotted frog, and bull trout.
- No ground-based applications of herbicides, surfactants, or adjuvants would occur within 100 feet of perennial streams or their live water tributaries occupied by listed snails, Columbia spotted frog, and bull trout.
- Dozer blading would not occur within 300 feet of streams that have habitat occupied by T&E or Candidate Species.
- Ground-disturbing activities other than tree and shrub planting will not occur within 300 feet of all water bodies and springs containing listed snails, Columbia spotted frog and bull trout.
- No aerial application of herbicides would occur within one-half mile of all water bodies and springs containing listed snail, Columbia spotted frog and bull trout species.
- Treatments will follow PACFISH/INFISH guidelines in bull trout habitat.
- For those portions of the Snake River drainages where fuels management and vegetation treatments have the potential to effect populations of T&E Snake River mollusks, the Bureau will consult with the Service to ensure mitigation measures are adequate to avoid adverse effects to Snake River mollusks.

Cultural Resources and Historic Trails

- Cultural resources will be given full consideration during subsequent site-specific NEPA processes. This consideration provides for review of existing literature on previous inventories, field inventory of unsurveyed areas, documentation and evaluation of identified sites, analysis of site-specific effects, application of appropriate management actions to reduce anticipated adverse effects, and consultation with the SHPO.
- The FO will ensure that existing cultural and paleontological data and information will be reviewed and that required appropriate cultural resource inventories/surveys will be complete prior to implementing site-specific fuels projects to meet BLM policy.
- Dozer blading should not occur within 300 feet of known historic trails, cultural sites, Register of Historic Places Districts, Landmarks and ACECs designated for cultural resources.
- All proposed fire and non-fire (mechanical, chemical and seeding) vegetation treatment actions will be assessed in consultation with the SHPO for their potential to affect cultural resources. Where previous inventory has been sufficient to identify vulnerable cultural resources, no inventory should be needed. However, where adequate inventory is lacking, appropriate and required inventory of the area, as determined in consultation with the SHPO, will be conducted.

- All RxFires and fuels projects will be subject to further site-specific analyses and Section 106 of the National Historic Preservation Act compliance and consultation.
- A Class II or Class III inventory will be conducted of all proposed RxFire areas unless previous inventory has been deemed adequate in consultation with the SHPO.

Recreation

- Treatments would be designed to minimize impacts to character of the managed recreation setting and to the recreation experiences and benefits desired by the recreation participant. In areas where the character of the setting and/or the desired benefit outcomes are not defined, treatments would be designed to minimize impacts to the recreational resource or users.

Wildlife

- During implementation, the Proposed Plan Amendment directs collaboration with the appropriate local, state, and federal agencies to promote public education on species at risk, including their importance to the human and biological community and the rationale behind the protective measures that would be applied to their habitats.

Hazardous Materials

The use of hazardous substances (e.g., retardant, foam, gasoline in riparian zones, and explosives) for fire control would be avoided whenever practical.

APPENDIX R - SELECTED CONSERVATION MEASURES[1] TO BE CONSIDERED IN DEVELOPING VEGETATION TREATMENTS POTENTIALLY AFFECTING GREATER SAGE-GROUSE

R.1 PRESCRIBED FIRE

- Prior to planning prescribed burns or other vegetation management treatments in sagebrush communities, ensure that sage-grouse seasonal habitats have been mapped (see 5.3.2 for additional discussion of mapping).
- Once seasonal habitats have been mapped, ensure that proposed project areas have been evaluated on the ground in the context of the appropriate seasonal habitat characteristics (see 5.3.2).
- Avoid the use of prescribed fire and other sagebrush-reduction projects in areas where sagebrush is limiting on the landscape or in habitats that currently meet, or are trending toward meeting, breeding or winter habitat characteristics.
- If the analysis shows that a vegetation treatment may still be advisable, design habitat-manipulation projects to achieve the desired objectives, considering the following:
  - Where prescribed burning, or other treatments, in sage-grouse habitats may be warranted (e.g., sagebrush cover exceeds desired breeding or winter habitat characteristics; understory does not meet seasonal habitat characteristics and restoration is desired; there is a need to restore ecological processes; or a proposed treatment site is in an exotic seeding being managed for overall sage-grouse benefits on the surrounding landscape).
  - Project design should be done with interdisciplinary input and in cooperation with IDFG.
  - Ensure that any proposed sagebrush treatment acreage is conservative in the context of surrounding seasonal habitats and landscape.
  - Where appropriate, ensure that treatments are configured in a manner that promotes use by sage-grouse (see Connelly 2000 for additional discussion).
  - Leave adequate untreated sagebrush areas for loafing/hiding cover near leks for sage-grouse.
- Evaluate and monitor prescribed burns, and other treatments, as soon as possible after treatment and periodically thereafter to determine whether the project was successful and is meeting or trending toward desired objectives.
- Avoid the use of prescribed fire or other sagebrush treatments in habitats prone to the expansion or invasion of cheatgrass or other invasive species unless adequate measures are taken to control the invasive species and ensure subsequent dominance by desirable perennial species. In many—if not most—cases, this will likely require chemical treatments and reseeding.

[1] Idaho Sage-grouse Advisory Committee. 2006. Conservation Plan for the Greater Sage-grouse in Idaho

- Plan, execute, and monitor prescribed fires in a manner that provides for adequate control and provision for contingency resources.
- Ensure that burn plans address the importance of preventing escaped fires when prescription fires are planned in the vicinity of stronghold and key habitat.

R.2 ANNUAL GRASSLANDS

- Local working groups (LWG), land management agencies, IDFG, and other partners should work closely together to identify and prioritize annual grassland areas for restoration. Work cooperatively to identify options, schedules, and funding opportunities for specific projects.
- In general, the priority for implementation of specific sage-grouse habitat restoration projects in annual grasslands should be given first to:
  - Sites adjacent to or surrounded by sage-grouse stronghold habitats, then
  - Sites outside stronghold habitats but adjacent to or within approximately two miles of key habitat, and
  - Sites beyond two miles of key habitat. The intent here is to focus restoration outward from existing, intact habitat.
- All seeding project designs should include measures for noxious weed control and monitoring for at least 3 years following implementation.
- Seed used in sage-grouse habitat restoration seedings, burned area rehabilitation projects, and hazardous fuels/wildland urban interface projects will be tested and certified as weed-free, based on prevailing agency policy and protocol. Private landowners are encouraged to use only certified seed, as well.
- In designing rehabilitation and restoration projects, use the best available science relative to seeding technology and plant materials. Use of NRCS's "VegSpec" website may be helpful. VegSpec is a web-based decision support system that assists land managers in the planning and design of vegetation establishment practices. VegSpec uses soil, plant, and climate data to select plant species that are site-specifically adapted, suitable for the selected practice, and appropriate for the purposes and objectives for which the planting is intended. (See http://plants.usda.gov).
- Design vegetation treatments in areas of high fire frequency to facilitate firefighter safety; reduce the risk of extreme fire behavior; reduce the risk and rate of fire spread to stronghold, key, and restoration habitats; reduce fire frequencies; and shorten the fire season.
- Where rangelands are dominated by annuals (such as cheatgrass) or where they border farmlands or railroad right-of-ways, convert cheatgrass areas to perennials, or establish buffers of perennial species to reduce the risk of fire spread from railroad or agriculture-related activities (e.g., sparks from trains, field burns, burn barrels), where appropriate and feasible.
- To discourage the spread of invasive annuals and noxious weed seed, require the washing of fire vehicles (including undercarriage) prior to deployments and prior to demobilization from wildfire incidents.

- Human activities such as fence and pipeline maintenance or construction, facility maintenance, utility maintenance, or any project or related work at or within 1 km (0.6 miles) of occupied leks that results in or will likely result in disturbance to lekking birds should be avoided from approximately 6:00 PM to 9:00 AM. In general, this guideline should be applied from March 15 through May 1 in lower elevation habitats and March 25 through May 15 in higher elevation habitats.

R.3 PERENNIAL GRASSLANDS

- LWGs, land management agencies, IDFG, and other partners should work closely together to identify and prioritize perennial grasslands (exotic versus native) where plant species diversity or sagebrush is limiting on the landscape. Further, they should work cooperatively to identify options, schedules, and funding opportunities for reestablishing sagebrush in higher priority areas.
- When seeding sagebrush, source-identified, tested seed adapted to local conditions should be used.
- One or more of the following approaches for restoring sagebrush should be considered to improve likelihood of success (see Dalzell 2004 and Monsen et al. 2004):
  - Use of the "Oyer" compact row seeder, which compacts soil and presses seed into the surface.
  - Use of the Brillion cultipacker seeder, where seed is broadcast over the surface followed by cultipacking.
  - Transplant bare-root or containerized stock in small critical areas to establish a seed source.
  - Use the "mother plant" technique, and transplant bare-root or containerized stock in select locations throughout the area to establish a seed source.
  - For large areas (e.g., large wildland fires), aerial seed onto a rough seedbed (Monsen et al. 2004) coupled with one or more of the above options.
- In established stands of introduced perennial grasses, transplant sagebrush into strategic patches or strips in critical sites or throughout the area. Scalp spots or strips to reduce grass competition prior to planting. Or, as an alternative to scalps, consider the use of herbicides (see Monsen et al. 2004, Volume 3).
- Where the diversification of crested wheatgrass or similar seedings with native species of grasses, forbs, and/or shrubs is desired, Pellant and Lysne (2005) recommend a three-step process:
  - Reduce competition of crested wheatgrass to facilitate the establishment and persistence of the desired species. Possibilities include use of livestock, capitalizing on drought episodes that reduce grass vigor, herbicides such as glyphosate, and mechanical treatments.
  - Introduce desired, site-adapted species through drill seeding; aerial seeding followed by harrow, cultipacker or chaining; livestock trampling; or transplanting container stock, bareroot stock, or individual plants from native sources ("wildings"). Lambert (2005) provides descriptions, recommended seeding rates, and other useful

information for nearly 250 species of native and non-native grasses, forbs, and shrubs.

- As part of post-treatment management, ensure that livestock grazing and rest intervals are matched with the phenology and life history characteristics of the desired/seeded/transplanted species. Implement monitoring to clearly document how, what, when, and where treatments were implemented. Follow up with suitable effectiveness monitoring to document success of the treatments relative to project objectives.

R.4 CONIFER ENCROACHMENT

- LWGs, land management agencies, IDFG, and other partners should work closely together to identify and prioritize conifer encroachment areas for further management action. Work cooperatively to identify options, schedules, and funding opportunities for specific projects. For western juniper, Miller et al. (2005) provide *Guidelines for Selecting the Most Appropriate Management Actions*, pages 54–57.
- IDFG, land management agencies, LWGs, and other partners should work closely together to identify leks where conifer encroachment may be affecting lek attendance or nearby habitat quality.
- Remove Douglas fir or other conifers where they are encroaching on wet meadows, riparian areas, or sagebrush stands that provide potential sage-grouse habitat.
- Remove juniper, Douglas fir, pinyon pine, or other trees within at least 100 m (330 ft) or an 8-acre area of occupied sage-grouse leks. The purpose of this procedure is to reduce perching opportunity for raptors or other avian predators within view of leks. Techniques could include chainsaw, chipper, or other suitable mechanical means. Ensure cutting and slash disposal is completed between approximately July 15 and January 30 to minimize disturbance to grouse that may be in the vicinity (e.g., males at leks, nesting females, and young broods). This practice serves to reduce raptor predation on sage-grouse by eliminating potential perches, thereby improving survival, recruitment, and productivity. It may be particularly valuable where avian predation may be of greater concern such as in areas with fragmented habitat, nearby infrastructure features, and/or in the case of small, isolated sage-grouse populations.
- Where juniper or other conifer species have encroached upon sagebrush communities at larger scales, employ prescribed fire, chemical, mechanical (e.g., chaining, chipper, chainsaw, or commercial sale), or other suitable methods to reduce or eliminate juniper. Priority should be given to areas where there is a strong likelihood for recovery of perennial herbaceous vegetation or where preparatory and follow-up actions (e.g., control of invasive species and seeding) are likely to be successful. Whenever possible, but especially if sagebrush habitat is limited locally, use juniper-control techniques that are least disruptive to the affected stand of sagebrush. For example, if junipers are only scattered, and the associated sagebrush community is otherwise relatively healthy, cutting junipers with chainsaws will remove the encroachment threat while allowing for immediate use of the sagebrush by sage-grouse. In all cases, control efforts should be planned using interdisciplinary expertise.

- Where juniper control around leks is planned, monitor leks for at least three consecutive years post-treatment to document effects on lek attendance. Ideally, two to three years of pre-treatment monitoring is also recommended, but this may not always be feasible.

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APPENDIX S - SUPPLEMENTAL INFORMATION REPORT

S.1 INTRODUCTION

A draft of the Fire, Fuels, and Related Vegetation Management Direction Plan Amendment (FMDA) was published in November of 2004 (USDI 2004a). During preparation of the Proposed Plan Amendment and Final Environmental Impact Statement (EIS) several steps have been completed: public comments received during the comment period associated with the draft have been considered and incorporated; Endangered Species Act (ESA) consultation has been completed and the results have also been incorporated into the Final EIS. Extended timeframes associated with completing the consultation process, coupled with shifting office and personnel priorities away from the FMDA effort have extended the original timeframe for completion of the amendment. During this period of delay several developments and new information regarding the planning area and the draft EIS have occurred. The new developments and information are noted below, in section S.2.1. As explained more fully herein, a supplement to the Draft FMDA/EIS was determined to be unnecessary. *See* Coucil of Environmental Quality (CEQ) regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA), codified at 40 CFR §1502.9(c)(1). This supplemental information report (SIR) contains the rationale for this determination.

S.2 ANALYSIS OF NEW INFORMATION AND CHANGED CIRCUMSTANCES RELEVANT TO ENVIRONMENTAL CONCERNS

S.2.1 SCOPE OF SUPPLEMENTAL INFORMATION REPORT (SIR)

As noted above, this SIR was prepared to consider the significance of the new information and to inform the State Director of the adequacy of the existing analysis prior to the issuance of a Final EIS and Proposed Plan Amendment. The developments and new information pertinent to the FMDA since the draft EIS was released are:

1. **Applicability of the Data**

   Specific on-the-ground conditions have changed since 2004 and there are additional datasets the have been developed since 2004.

2. **Additional BLM Policy and Direction for Management Activities**

   A National Sage-Grouse Habitat Conservation Strategy was completed in 2004 (USDI-BLM 2004b), which was supplemented by a Conservation Plan for the Greater Sage-Grouse in Idaho in 2006 (USDI-BLM 2006).

   A National EIS and Record of Decision (ROD) pertaining to vegetation treatments and chemical usage was completed in 2007 (USDI-BLM 2007).

   A Land Use Plan Amendment and ROD for the implementation of a wind energy development program was completed in 2005 (USDI BLM 2005b).

   A programmatic EIS was prepared to evaluate issues associated with the designation of energy corridors on federal lands in eleven western states (USDOE and USDI BLM 2006).

3. **Changes in Administrative Boundaries and Designations**
   The Idaho BLM redefined District Boundaries after the release of the Draft EIS. Public Law and Presidential Proclamation also changed land management designations in the area with the expansion of the Craters of the Moon National Monument.

Based on the evaluation and analysis documented in this SIR, the new information and developments that have occurred since the issuance of the Draft EIS do not represent significant new circumstances or information that is relevant to the environmental concerns and bearing on the Draft FMDA that would trigger a supplement. *See* 40 CFR §1502.9(c)(1). The FMDA analysis is sufficient for the purpose of complete disclosure contemplated under the requirements of NEPA.

S.3 APPLICABILITY OF THE DATA UTILIZED IN THE DRAFT EIS

ISSUE: Do vegetative conditions that have changed since 2004 or the advent of new datasets that have been developed since 2004 result in significant new circumstances or information relevant to the environmental concerns, or have bearing on the proposed action or its impacts that would trigger a supplement as required by the Council on Environmental Quality (CEQ) Section 1502.9?

RELEVANT SECTIONS IN FINAL EIS: Proposed management for vegetation is described in Chapter 2 of the DEIS. Affected environment discussions are found in section 3.2 of Chapter 3, and impacts to vegetation resources are described in Chapter 4 by alternative. Additional information is also found in Appendix C.

ANALYSIS: New information regarding current vegetative conditions provides additional information on site-specific vegetation characteristics; however, the information does not identify or address new impacts beyond those analyzed in the broad range of alternatives considered in the Draft EIS. The conditions and analysis described in the Draft EIS was based on 32 years of accumulated vegetation and fire conditions, the additional site specific data does not effect the objectives or need for action nor does the data alter the broad range of effects identified and addressed in the FEIS. This information will be applicable in the preparation of site-specific analyses for authorizing future management actions as part of implementing the FMDA.

The availability of additional datasets also provides information regarding the vegetation characteristics within the planning area. The utility of a common dataset in a regional assessment of this nature is to approximate vegetation conditions across a wide area which allows for consistent comparison between alternatives. While each unique dataset has inherent advantages and disadvantages when compared to others, the new datasets do not provide a substantial difference in comparison to the dataset used in the Draft EIS.

Fire Regime Condition Class (FRCC) depicts how much the current (the period after European settlement) fire regime and vegetation conditions departs or deviates from the historic (the period prior to European settlement of North America) fire regime and historic vegetation conditions. FRCC is determined by using current fire regime data and vegetation conditions and calculating the difference from the estimated historic fire regime (HFR) and vegetation conditions. Changes in vegetation conditions are described in terms of species composition, structure, age, and canopy closure. Changes in fire regime characteristics are described in terms of wildland fire frequency and severity. The end product is the degree of departure from the HFR and the historic vegetation

conditions. An FRCC rating is expressed as a percentage between 0 and 100 and is indexed into three categories, 1, 2, and 3.

As required by national BLM planning policy (USDI-BLM 2005a), landscape-level fire management goals and objectives should be determined using FRCC methodology to identify desired wildland fire conditions.

For the purpose of FMDA, FRCC analysis was used to:

- Develop landscape-scale goals introduced in Chapter 1 - *Purpose and Need*
- Prioritize fuels treatment criteria in Chapter 2 - *Descriptions of Alternatives*
- Develop fuels management goals and objectives common to all alternatives in Chapter 2 – *Descriptions of Alternatives*.
- Describe existing vegetation conditions and to define fire's natural role in the ecosystem in the vegetation and fire management sections of Chapter 3 - *Affected Environment*.
- Analyze the affects of the alternative treatments in Chapter 4 - *Environmental Consequences*, in the wildland fire management section.

When FRCC analysis began for the FMDA in 2002, standard methodologies for determining FRCC were not finalized nor published, and not available for use in land use planning analysis. Consequently, in order to use FRCC and follow BLM policy, a method for calculating FRCC for use in the FMDA was developed and used in the FRCC analysis 2002-2004. The method developed was influenced by draft FRCC guidance and literature that existed during this period (McNicoll and Hann 2002, Hann 2002).

The methodology used to determine HFR/FRCC is summarized below:

1. **Determine current dominant over-story Vegetation**. For the purposes of FMDA, Idaho Regional GAP (gap analysis program) data (1992) was used to determine current dominant over-story vegetation. Field Office staffs reviewed the satellite derived vegetation maps and, based on fire history, field experience, and professional judgment, modified/revised the maps to better reflect local conditions.
2. **Assign an "Idaho Vegetation Cover Type" to one or more GAP vegetation type(s).** GAP vegetation types were grouped, based on similarities in fire frequency and severity and assigned an Idaho Vegetation Cover Type name (e.g. low elevation shrub). Most of the Idaho Vegetation Cover Types can readily be related or 'cross-walked' with the LANDFIRE Potential Natural Vegetation Group (PNVG)/ Biophysical Setting (BpS).
3. **Determine Historic Fire Regime and convert to Natural Fire Rotation (NFR).** A Historic Fire Regime (historic fire frequency and severity) was assigned to each Idaho Vegetation Cover Type by consulting scientific literature and studies regarding fire history/fire ecology within the local region. After HFR was assigned, the reported fire frequency in literature was used and converted to a natural fire rotation (NFR). The NFR for each vegetation cover type becomes the baseline or historical reference condition that both current and future fire frequency is compared to (one of two departure scores that make up the final FRCC rating for a vegetation cover type).

TABLE 1. DESCRIPTION OF IDAHO COVER TYPES

Idaho Cover Type	Most Common Historic Fire Regime	Description
Annual Grass	IV	Potential sagebrush steppe; Principally, cheatgrass and noxious weeds like medusahead wildrye, yellow starthistle, knapweed, etc.
Perennial Grass	IV, II	Principally, potential sagebrush steppe or mountain shrub that has either been recently burned or seeded (native or exotic). Some areas, mainly in southwest and central Idaho may be native grasslands, principally dominated by grass species such as bluebunch wheatgrass, Idaho fescue.
Low Elevation Shrub	IV	Sagebrush steppe dominated by Wyoming big sagebrush, basin big sagebrush, etc, with native grass and for understory. Biological crust in interspaces.
Mid Elevation Shrub	II	Sagebrush steppe dominated by Mountain big sagebrush, low sagebrush, bitterbrush. With native grass and forb understory. Biological crust may be present in interspaces.
Juniper	II, V	Predominately potential sagebrush steppe that has been encroached by rocky mountain juniper and Utah juniper. Also represents natural juniper and pinyon/juniper areas mainly found in rocky soils and ridgetops.
Mountain Shrub	II, III	Areas dominated by serviceberry, buckbrush (Ceonothus), snowberry, ninebark, bigtooth maple, chokecherry, antelope bitterbrush, etc. with native grass and forbs in understory.
Aspen Conifer Mix	III	Includes healthy stands of pure aspen and stands of aspen with invading conifers.
Dry Conifer	I, III	Areas dominated by ponderosa pine, Douglas fir, western larch, grand fir, limber pine, and other species.
Wet/Cold Conifer	IV or V	Areas dominated by lodgepole pine, subalpine fir, western hemlock, mountain hemlock, Engelmann spruce, etc.
Salt Desert Shrub	V	Atriplex spp. (four-wing, shadscale), spiny hopsage, winterfat, greasewood, etc. with native grass and forb understory. Biological crust in interspaces.
Vegetated Rock/Lava	V	Lava, sand dunes, and barren areas with >5% vegetation.
Other (Barren, Rock, Water)	Not Rated	Areas with <5% vegetation, water bodies, and urban/agricultural areas.
Riparian Areas	Not Rated	Streamside and wetland areas of cottonwood and willow.

4. **Determine "reference" vegetation conditions (structure and composition)" and set Desired Future Conditions (DFC).** DFC (expressed as a percentage) for each vegetation type and successional stage is determined by multiplying the natural fire rotation (percentage of vegetation cover type that would need to burn each year to entirely burn the vegetation cover type within the replacement time period), the percentage of characteristic vegetation within the cover type and the longevity of the successional stage in years together.

   The DFC determined for each vegetation cover type reflects the overall mixture of succession stages expected over time across a field office given a rate (or range of rates) of disturbance similar to that of historical times (pre-European settlement). The underlying assumption being that, through time, plants and animals have evolved and adapted to a similar rate of disturbance and should therefore be less likely to be at risk of loss of key ecosystem components in the face of large and/or severe disturbance.

5. **Determine current vegetation/fuel conditions and current Natural Fire Rotation.** FMDA uses 32 years of large wildland fire perimeter data in conjunction with local information and expertise to determine current proportions of successional stages and uncharacteristic vegetation by general vegetation cover type across each Field Office area. This information was used to determine current vegetation/fuel conditions expressed in terms of proportion of the vegetation type existing within each vegetation type. For the FMDA effort, Idaho Regional GAP data (1992) was used to determine current vegetation characteristics. GAP data was corrected to include large fires, past treatment areas, and large patches of noxious weeds and/or annual grasses. Existing proportion of successional stages was compared to "reference condition" proportions to ultimately determine current FRCC. To determine the current Natural Fire Rotation 32 years of wildland fire perimeter and history data was used. (While several years of additional fire perimeter and vegetation conditions field data have been collected the data utilized in the development of the DEIS is amply sufficient to identify fire trends. Changes in vegetative conditions as a result of fire were expected and were factored into the analysis in the DEIS. The data collected since 2000 does not indicate significant departures from expected trend or condition over that which was assessed in the DEIS.)

6. **Calculate FRCC.** To determine FRCC in FMDA, current vegetation conditions were compared to the reference conditions developed by the interdisciplinary team (IDT), and a similarity index value was calculated. In the same way, current NFR was compared to the historic NFR and a similarity index value was calculated. These two similarity index values were then used together to determine an overall current FRCC rating. For each, a similarity of 0 to 33 percent represents FRCC1, from 34 to 66 percent represents FRCC2, and from 67 to 100 percent represents FRCC3. In addition to determining current FRCC, for FMDA alternative comparison and analysis, successional pathway diagrams were used to estimate FRCC for each alternative after 10 years and 30 years. Model assumptions were developed using expert opinions provided by the IDT. These successional pathway diagrams were used to estimate changes in vegetation structure given alternative treatment levels, predicted amounts of wildland fire, and successional rates inherent to each vegetation cover type (see FMDA DEIS, Appendix C).

In 2005, an interagency methodology for determining FRCC was developed as documented in *Interagency Fire Regime Condition Class Guidebook* (USDA and USDI 2005). The methodology used to determine HFR/FRCC is summarized below:

1. **Determine Biophysical Setting (BpS)/PNVG and Dominant Overstory Vegetation**. The BpS/PNVG models represent reference conditions for each vegetation strata. The most recent and accurate data is used to determine in the geographic area of analysis the physical setting and vegetation that can occupy a site. Physical characteristics include climate, geology, geomorphology, and soils. Vegetation includes the area's native species and associated successional stages. In addition to these attributes, each BpS/PNVG also features characteristic ecological processes of fire frequency and severity and there provides a foundation for determining fire regime and fire regime condition class.
2. **Determine Historic Fire Regime (HFR).** Once a BpS/PNVG is assigned, the HFR is determined as a part of the reference condition model.
3. **Determine Historical Vegetation Characteristics or "Reference Conditions".** Once a BpS/PNVG is assigned, the "reference conditions" for each vegetation type are determined as a part of the reference condition model. Reference conditions for each BpS/PNVG are determined by experts through synthesis of expert knowledge, published literature, and historical information using standardized computer modeling tools and processes (Vegetation Dynamics Development Tool, VDDT).
4. **Determine Current Vegetation/Fuel Conditions and Fire Frequency/Severity.** Gather local information to determine current vegetation/fuel conditions expressed in terms of proportion of the vegetation type existing within each vegetation type. The guidebook suggests using local data, aerial photography, maps and field checks to determine current vegetation/fuel conditions. It suggests using field data and local knowledge to determine current fire frequencies and severities.
5. **Calculate FRCC.** To determine FRCC, current vegetation conditions are compared to the reference conditions provided in the BpS, and a similarity index value was calculated. In the same way, current NFR was compared to the historic NFR and a similarity index value was calculated. These two similarity index values were then used together to determine an overall current FRCC rating. For each, a similarity of 0 to 33 percent represents FRCC1, from 34 to 66 percent represents FRCC2, and from 67 to 100 percent represents FRCC3

S.3.1 DIFFERENCES BETWEEN THE FMDA AND THE INTERAGENCY METHODOLOGY FOR DETERMINING FRCC

REFERENCE CONDITIONS: The guidebook suggests the use of LANDFIRE Biophysical Setting (BpS) successional pathway models and associated descriptions for the historic/reference conditions used in FRCC calculations. These models were developed in several regional workshops where experts in vegetation research and management provided input. A Biophysical Setting is a delineation of land based on the geographic area, physical setting, and vegetation community that can occupy the setting. These BpS models provide historic/reference fire frequencies and severities, the expected number of successional stages of vegetation and how they are proportioned across the landscape given a historic fire regime, and the amount of time it takes for a given successional stage to move to the next successional stage in the absence of disturbance.

FMDA uses natural fire rotation, considers uncharacteristic vegetation and uses successional stage longevity to develop a reference condition, also used as the Desired Future Condition (DFC). DFC for each of the 12 general Idaho Vegetation Cover Types was used as the basis of comparison with current vegetation conditions in the FRCC analysis. The DFC determined for each vegetation cover type reflects the overall mixture of successional stages expected over time across a Field Office area given a rate of disturbance similar to that of historical times. Historical rates of disturbance were estimated using scientific literature and local expert opinion. Some DFCs (e.g. low-elevation shrub) include a percentage of uncharacteristic vegetation in the mix (e.g. cheatgrass monoculture) reflecting the reality that complete eradication of these kinds of vegetation is not possible with current knowledge and technology.

CURRENT CONDITIONS: FMDA uses the natural fire rotation concept, 32 years of large wildland fire perimeter data, and local expert opinion to determine current fire frequencies and severities by general vegetation cover type. The guidebook suggests using fire atlas data, field collected data (e.g. fire scarred trees, stand ages), and local expert opinion to determine current fire frequencies and severities.

The guidebook suggests the use of local data such as aerial photography, maps, monitoring data, and walkthroughs to determine the current proportion of successional stages by BpS across a landscape. FMDA uses 32 years of large wildland fire perimeter data in conjunction with local expertise to determine current proportions of successional stages and uncharacteristic vegetation by general vegetation cover type across each Field Office area.

PREDICTING FUTURE FRCC FOR ALTERNATIVE COMPARISON: The FMDA needed a method to determine what the effects to vegetation would be in 10 years given the 5 different alternative levels of proactive treatment proposed (a futuring exercise). Using scientific literature, local and expert knowledge, and successional pathway models developed during the Interior Columbia River Basin Ecosystem Project, a set of successional pathway models were developed for the general vegetation cover types in FMDA. Assumptions were made about how much wildland fire would occur over the next 10 years given proactive treatment, how much time would elapse as vegetation moved from one successional stage to another in the absence of disturbance, and how the various types of treatments analyzed in the document would move vegetation from one successional stage to another. By modeling the outcome of 10 years of proactive treatment, succession, and wildland fire (by alternative) a comparison of future vegetation conditions with DFC was possible. The guidebook does not provide guidance for determining future vegetation conditions.

S.3.2 DATA USE IN FMDA

When FRCC analysis began for the FMDA in 2002, standard methodologies for determining FRCC were not finalized nor published, and not available for use in RMP analysis. Consequently, in order to use FRCC consistent with BLM policy and quantitatively analyzing alternatives using FRCC, a method for calculating FRCC for use in the FMDA was developed and utilized.

In addition to the fact that LANDFIRE data was not available at the time that the FMDA FRCC analysis was completed, LANDFIRE FRCC data is not intended to be used at the land use plan (LUP) , mid-scale or project level. LANDFIRE FRCC data is intended to be used at the statewide

scale, with the primary intent of assisting in national determination of funding/staffing priorities. Local data is to be used to determine FRCC at the LUP, mid-scale and project level.

S.3.3 IMPACT OF ANALYSIS RESULTS OR CONCLUSIONS

FRCC was used as a general management goal common to all alternatives: "All vegetation types would be moved towards DFC and from FRCC2 and/or FRCC3 towards FRCC 1." (FMDA DEIS, Chapter 2, Section 2.4.1.1) This goal of improving the health of public lands is central to the BLM's mission and would not change if a different methodology was used.

FMDA FRCC methodology provided the DFC percentages for the purpose of quantitative comparison of alternatives in a relative manner. Although DFC and current condition percentages may differ when different methodologies are employed, the trend of increasing or decreasing percentages of a vegetation cover type's successional stage/age class across the landscape would not change. Because the attributes used to determine DFC were modeled and estimated using scientific literature and local expertise, the successional stage/age class distribution for a given DFC is not viewed as a target. The DFC successional stage/age class percentage, when compared to the current successional stage/age class percentage, indicates a desired trend. For example, if it is identified that approximately 20 percent of a vegetation cover type is dominated by shrub/grass: greater than 30 years old, and the DFC indicates 50 percent, the desired trend is to create more shrub/grass: greater than 30 years old over time with the proposed management actions. FMDA's primary objective is to meet the landscape-level fire and fuels management goals.

S.4 ADDITIONAL DIRECTION FOR MANAGEMENT ACTIVITIES

ISSUE: Does the addition of new guidance including the Cohesive Strategy *Protecting People and Natural Resources-A Cohesive Strategy* (USDA USDI 2006), vegetation treatments or sage grouse and sage grouse habitat result in significant new circumstances or information relevant to the environmental concerns and bearing on the proposed action or its impacts that would trigger a supplement as required by the Council on Environmental Quality (CEQ) Section 1502.9?

RELEVANT SECTIONS IN DRAFT EIS: BLM issued policy statements (Instruction Memoranda) and program guidance (BLM Handbooks) after publication of the Final EIS in the areas of Wind Energy, Energy Mineral Management, Wildlife, and Land Use Planning. Proposed management for vegetation is described in Chapter 2 of the DEIS for the range of alternatives. Impacts to vegetation resources are described in Chapter 4 by alternative. Additional information is also found in various appendices.

ANALYSIS: The Draft EIS released in 2004, utilized and was designed based on the most current guidance and strategies provided by the Cohesive Strategy and sage grouse strategies. Since the document release the Cohesive Strategy (UDSA 2000) has been updated and the BLM has released a national (USDI BLM 2004) and state wide (USDI BLM 2006) strategy regarding sage grouse. There is also a new Conservation Assessment (Connelly et al. 2004), and Comprehensive Conservation Strategy that has been released by the Western Association of Fish and Wildlife Agencies (Stiver et al. 2006). The BLM also prepared: 1) an EIS and issued a decision regarding herbicide use on public lands in 2007 (USDI BLM 2007); 2) a Land Use Plan Amendment and ROD for the implementation

of a wind energy development program in (USDI BLM 2005b); 3) a programmatic EIS was prepared to evaluate issues associated with the designation of energy corridors on federal lands in eleven western states (USDOE and USDI BLM 2006); 4) several Instruction Memoranda relevant to the FMDA.

S.4.1 COHESIVE STRATEGY

In February 2006, USDA and USDI finalized a strategy entitled *Protecting People and Natural Resources-A Cohesive Fuels Treatment Strategy*. The Cohesive Strategy developed in 2000 by USDA was updated and expanded in 2006 to include the USDI agencies.

The intent of the Cohesive Strategy is to provide a strategic and realistic approach for reducing fuels on Federal lands by focusing on specific goals that address the multiple factors that influence fuels treatments.

In a given year, Federal dollars can support a finite number of fuels treatments covering a fraction of the acres at high risk from unusually severe fires. The strategy points the way to picking which acres to treat and treatment methods to use, and does so in ways that address multiple concerns voiced by various segments of society.

The mission of the strategy is to lessen risks from catastrophic wildfires by reducing fuels build-up in forests and woodlands and by reducing threats from flammable invasive species on rangelands in the most efficient and cost effective manner possible.

By providing a succinct and integrated presentation of policy and management objectives and methods, the strategy is intended to help relevant parties achieve risk reduction and resource management goals.

The strategy outlines a common fuels treatment mission for the federal agencies, addresses priority setting and collaboration, and sets goals to measure effectiveness and efficiency in reducing hazardous fuels and restoring fire-adapted ecosystems.

S.4.2 SAGE-GROUSE STRATEGIES

Several broader-scale sage-grouse strategies and plans currently exist, including the WAFWA Greater Sage-grouse Comprehensive Conservation Strategy; BLM's National Sage-grouse Habitat Conservation Strategy; the 2006 Conservation Plan for the Greater Sage-grouse in Idaho, and several Local Working Group Plans.

In 2004 the BLM issued a National Strategy regarding the management of sage grouse habitat on public lands. In 2006, Idaho BLM, in cooperation with the Idaho Department of Fish and Game and other federal, state, and NGO partners completed the Conservation Plan for the Greater Sage-grouse in Idaho (USDI-BLM 2006). A Memorandum of Understanding (MOU) implementing the Plan was signed by state-level directors, and endorsed by then Governor James Risch, on July 10, 2006. The National Strategy and Idaho Plan for sage grouse provide considerable background information on sagebrush/sage-grouse ecology, direction for Local Working Groups, prioritization of statewide threats, recommended conservation measures, reference documents and other information.

During the development of the DEIS representatives from both Idaho Fish and Game (IDFG) and US Fish and Wildlife Service (USFWS) participated on the interdisciplinary team to develop goals, objectives and management actions identified in the DEIS. While sage grouse is not currently listed as a threatened or endangered species and endangered species act consultation is not required, sage grouse was considered throughout the development process. An appendix describing the conservation measures to be considered in developing vegetation management treatments described in the FMDA is included with the Final EIS.

S.4.3 BLM POLICY / HERBICIDE USE / WIND ENERGY / ENERGY CORRIDORS

The policy and guidance listed below is not a complete listing of all instruction and information memoranda issued by the BLM since completion of the FEIS analysis. However, the list contains the most comprehensive and inclusive policy changes or modifications that could possibly affect the impact analyses, management actions, mitigation, and potential decisions in the Proposed JMH CAP/EIS. Other policy and guidance were reviewed but were determined to have minimal or no potential to result in significant new circumstances or information relevant to the environmental concerns and bearing on the proposed plan implementation or impacts that would trigger the need for a supplement at this time. All existing/current information and policies will be considered during the NEPA process for future plan implementation actions.

Based on review of the policies and program guidance issued since November 2004, the following documents were determined to have the potential for policy changes or modifications that could possibly affect the impact analyses, management actions, mitigation, and/or potential decisions in the Draft FMDA.

The Wind Energy Development Program and Associated Land Use Plan Amendments Record of Decision (ROD) (USDI 2005b). This ROD was issued in December of 2005. Decisions in the programmatic EIS establish standard practices for evaluating and approving wind energy projects on public lands. 52 BLM land use plans were amended.

The Energy Policy Act of 2005 (Public Law 109-58, U.S. Code 2005). This act was passed by Congress in August 2005. This act encourages energy efficiency and conservation, promoting alternative and renewable energy sources, reducing our dependence on foreign sources of energy, increasing domestic production, modernizing the electricity grid, and encouraging the expansion of nuclear energy. This act has led to recent management direction for enhancing domestic energy development such as the preparation of a West-Wide Corridor Programmatic EIS (USDOE and UDSI BLM 2006) and the establishment of pilot offices and methods for streamlining the processing of energy applications.

The Energy Policy Act of 2005, Section 369 (d)(1), requires BLM to complete a programmatic environmental impact statement for a commercial leasing program for oil shale and tar sands resources on public lands, with an emphasis on the most geologically prospective lands within each of the states of Colorado, Utah, and Wyoming.

IM 2006-083, Implementation of Section 368 of the Energy Policy Act of 2005 (EPA). This Instruction Memorandum provides Bureau of Land Management State Directors:

1. An explanation of the Interagency West-wide Energy Corridor Programmatic Environmental Impact Statement (PEIS);
2. Status of the PEIS progress made to date;
3. Planned interagency strategy to prepare the PEIS;
4. Anticipated future role for the affected State Offices (SO) and Field Offices (FO);
5. Subsequent workload impacts the PEIS may have on affected SO and FO; and
6. Direction for mandatory attendance by SO/FO personnel at a series of multi-agency joint workshops for identifying draft alternative energy corridor routes.

The Federal Register Notice of Intent for this Programmatic EIS was published in the Federal Register on September 28, 2005. The scoping report was completed in February 2006. A map of potential corridors was recently released and is available on the website http://www.corridoreis.anl.gov/documents/index.cfm.

IM 2005-024, National Sage Grouse Habitat Conservation Strategy. This IM containing the Bureau's strategy for management of greater sage-grouse habitat provides (1) guidance for addressing sagebrush habitat conservation in land use plans under action item 1.3.1 in the National Sage-grouse Strategy, and (2) guidance for the management of sagebrush plant communities for greater sage-grouse conservation under action item 1.4.1 in the National Sage-grouse Strategy.

Since publication of the Draft EIS in November 2004, the National Sage-Grouse Habitat Conservation Strategy was released (November 2004); and the USFWS released their findings regarding listing of the greater sage-grouse as a T&E species and found that listing was not warranted (Federal Register publication, January 12, 2005).

IM 2006-114, State Wildlife Action Plans. The purpose of this Instruction Memorandum is to direct the Bureau of Land Management State Directors, District and Field Managers to consider State Wildlife Action Plans (also known as Comprehensive Wildlife Conservation Strategies) in land use and conservation planning on BLM-administered lands.

BLM Handbook H-1601-1, Land Use Planning. This handbook was released in March 2005 (USDI 2005a). This handbook provides the direction for preparing land use plans, and implementing the land use planning requirements established by FLPMA.

Record of Decision. The Assistant Secretary, Land and Minerals Management, signed and approved a Record of Decision (ROD) on September 28, 2007 regarding herbicide use on public lands (USDI BLM 2007). The Federal Register Notice of Availability was published on October 5, 2007.

The ROD included the following decisions:

- Allow the new use of four EPA approved herbicide active ingredients on public lands including imazapic (commercially known as Plateau). See discussion below regarding use of imazapic for controlling cheatgrass.
- Allow a total of 14 EPA approved active ingredients for continued use on BLM lands; the use of six active ingredients will discontinue on BLM lands.

- A protocol to be used in adding new EPA-registered active ingredients to the BLM list of approved herbicides through future supplemental NEPA analysis.
- A list of standard operating procedures and mitigating measures to be used when applying herbicides.

The ROD did not include decisions regarding non-herbicide treatments.

DOES THIS INFORMATION ALTER THE ANALYSIS RESULTS OR CONCLUSIONS IN THE DRAFT EIS? These policies, strategies, plans and decisions apply, in a broad manner, to the planning area. They address consistency with cross jurisdictional planning and implementation of actions on the ground.

The FMDA addresses these concerns, and at the land use planning scale, is consistent with these additional management direction documents. The implementation, monitoring, and evaluation process of the proposed plan amendment anticipates the receipt of new information. New information such as that cited above improves our understanding about the nature and extent of management actions on sage grouse habitats. However, the new information does not identify any new potentially significant impacts, circumstances, information, or impacts beyond the range and scope already considered and analyzed in the Draft FMDA. The FMDA proposed actions and analysis is consistent with this new information, but does not alter the conclusions or land use allocation decisions described in the proposed plan amendment. The DEIS analysis is sufficient for the purpose of complete disclosure contemplated under the requirements of NEPA and the FEIS will disclose the new information. Therefore, this new information does not support the need to prepare a supplemental analysis. However, the additional knowledge provided by monitoring activities and these and future studies will be considered in evaluating the continued effectiveness of existing mitigation and implementing changes through plan maintenance actions.

The Draft FMDA complied with all BLM policies in existence upon its publication and the Final EIS will comply with all existing BLM policies upon its publication. The Programmatic Wind Energy EIS, the Energy Policy Act of 2005, state wildlife action plans, the greater sage-grouse and sagebrush national policy, and the Revised Planning Handbook are the policies that contain some substantive changes that could have affected the impact analyses, management actions, mitigation, and potential decisions of FMDA. These policies are addressed in this section of the SIR. All of the other policy changes were determined to be procedural in nature and have no effect on the analysis or conclusions in the FMDA. These policies are summarized in Attachment 1.

Wind Energy EIS. The Wind Energy EIS Record of Decision was signed in December of 2005 (USDI 2005b). This ROD provides an amendment to all twelve of the plans to be amended by the FMDA. Wind energy proposals will be analyzed on a case-by-case basis and the policies provided in the ROD for the programmatic EIS will be applied.

The Energy Policy Act of 2005. A Programmatic Environmental Impact Statement (PEIS) evaluating the designation of energy corridors on federal lands in eleven Western states is currently underway in conformance with section 368 of the Energy Policy Act of 2005. The FMDA planning area contains areas identified for potential corridor designation in the Corridor PEIS. All anticipated, potential direct, indirect and cumulative impacts will be assessed and disclosed for all areas as part of the Corridor PEIS analyses.

IM 2006-114, State Wildlife Acton Plans, and the Idaho Fish and Game Comprehensive Wildlife Conservation Strategy. Idaho Fish and Game Department biologists were directly involved with the FMDA planning process and were satisfied with the approach to sage grouse as described in the Draft FMDA. The BLM biologists have worked with the IDFG to remain apprised of ongoing efforts. The FMDA provides for application of site-specific mitigation for potential environmental impacts to meet resource management goals. These guidelines are not contrary to the direction and management for the area and will be considered in site-specific analyses conducted for activities in the FMDA area.

IM 2005-024, National Strategy for Greater Sage-Grouse. The national strategy for greater sage-grouse provides additional guidance with respect to managing important habitats, working with partners, and applying best management practices. Idaho staffs were actively engaged during the process of developing the requirements of this policy. Requirements for the protection of greater sage-grouse habitat developed in conjunction with state and local cooperating agencies are incorporated into the FMDA. Any plan modifications that are necessary because of research results, monitoring, etc., will be incorporated through the plan implementation, monitoring, and evaluation process.

The FMDA recognizes the importance of managing greater sage-grouse habitat to maintain, enhance, and restore these habitats while providing for other appropriate uses of BLM-administered public lands. The FMDA identifies alternative management actions and analysis of the affects to greater sage-grouse for each alternative, in conformance with the guidance provided in the national conservation strategy.

BLM Handbook H-1601-1, Land Use Planning. BLM Handbook H-1601-1 guides preparation of land use plans and thus affects the process for preparation of the FMDA. The FMDA conforms to all substantive requirements in the revised handbook.

Based on a thorough review of the policy changes from November 2004, through the timing of this review, there are no changes that result in significant new circumstances or information relevant to the environmental concerns and bearing on the proposed action or its impacts that would trigger a supplement as required by the Council on Environmental Quality (CEQ) Section 1502.9. Any necessary changes in the FMDA will be reflected in the Final EIS for the FMDA or through the preparation of the RMP implementation plan, site-specific actions and the implementation, monitoring, and evaluation process.

S.5 CHANGES IN ADMINISTRATIVE BOUNDARIES AND DESIGNATIONS

ISSUE: Does the alteration of District and Field Office boundaries, including the expansion of the Craters of the Moon National Monument result in significant new circumstances or information relevant to the environmental concerns and bearing on the proposed action or its impacts that would trigger a supplement as required by the Council on Environmental Quality (CEQ) Section 1502.9?

RELEVANT SECTIONS IN FINAL EIS: The planning area has been described in Chapter 1 of the Draft FMDA. Chapter 2 addresses potential acreages that could be treated within a ten-year implementation period and Chapter 4 addresses impacts of these treatments by alternative.

ANALYSIS: After publication of the Draft FMDA EIS the Idaho BLM re-designated District Office Boundaries. Field Office boundaries were retained largely intact. The planning area for the FMDA has remained the same even though portions originally identified within the Idaho Falls District will be identified within the Twin Falls District in the Final EIS. The change in administrative boundaries does not change the purpose or need for the plan amendment, nor does it affect the proposed action or alternatives described in the Draft FMDA.

A Presidential Proclamation prior to the release of the Draft FMDA changed the administrative designation of over 400,000 acres of BLM managed land to be included with the existing Craters of the Moon National Monument. The Monument is now partially managed by BLM and the National Park Service. As a result of this proclamation the Monument has prepared and completed a management plan (MMP) (USDI BLM and NPS 2006). The MMP addressed fire and fuels treatments similar to the FMDA. Since the FMDA was already underway when the MMP started, the MMP planning team used the approach described in the FMDA as a starting point and refined the proposal based on the additional information for the National Park Service managed portion of the monument. The approach to vegetation treatments on the areas described in the FMDA that are now within the monument remain consistent with those described in the Draft FMDA. For this reason the analysis described in Chapter 4 of the Final FMDA will describe these acres as direct effects rather than a future foreseeable effect. The analysis is essentially the same and the only change would be in the formatting of how information in the document is displayed – not a change in the analysis. The FMDA will not amend the MMP – all decisions within the monument will be based on the MMP.

DOES THIS INFORMATION ALTER THE ANALYSIS RESULTS OR CONCLUSIONS IN THE FINAL EIS? The administrative boundary changes do not change the analysis in the FMDA nor modify the management actions/prescriptions identified. Further analysis is not needed because the FMDA already analyzes the effects of the proposed actions – the actions described are consistent whether those actions are based on the Final FMDA or the FEIS for the MMP. Cumulative impacts have not changed. The administrative boundary changes do not changes the analysis and offer no significant new circumstances or conditions that would alter any decisions proposed in the FMDA - therefore, no supplemental analysis is required.

S.6 STATEMENT OF FINDINGS

The BLM has considered this information and has taken a hard look to determine the need for a supplemental EIS. Based on the evaluation and analysis presented in this document the new information and developments that have occurred since the issuance of the Draft EIS do not represent significant new circumstances or information relevant to environmental concerns or bearing on the proposed actions or its impacts.

The Idaho Falls and Twin Falls District Office Staff have thoroughly investigated policy changes and new information provided since the release of the FMDA in November 2004. Policy changes and new information were evaluated in terms of context and intensity as defined in Section 1508.27 of the CEQ regulations to establish whether they are significant.

Based on a thorough review of the policy changes from November 2004, through the timing of this review, the FMDA complies with all substantive changes in BLM policies that could impact the NEPA analysis and/or potential mitigation and proposed decisions. Any necessary modifications in the FMDA resulting from non-substantive policy changes will be reflected in the Final FMDA or during the preparation of the implementation plan, site-specific actions/authorizations, and the implementation, monitoring, and evaluation process.

Based on this thorough review, the new information evaluated does not identify any new potentially significant impacts, circumstances, information, or impacts beyond the range and scope already considered and analyzed in the FMDA. This new information would add to the FMDA analysis, but would not alter the conclusions or proposed decisions. The implementation, monitoring, and evaluation process of the FMDA anticipates the receipt of new information. New information such as that evaluated during this review improves our understanding. We will continue to acquire information and will accept credible information during the implementation phase of the FMDA. We will consider new information and data relating to resources and activities as the information becomes available. The proposed implementation, monitoring, and evaluation described in the Draft FMDA (Section 2.5) provides for the adjustment of management actions necessary to ensure continuation of resources such as suitable wildlife habitats and provides for uses in the area. Additional knowledge provided through monitoring activities and current and future studies will be considered in evaluating the continued effectiveness of existing mitigation, implementing changes through plan maintenance actions, and application of conditions of approval for permitted activities, as necessary.

In summary, there is no new information, policy change, or proposed project since completion of the Draft FMDA in November 2004, that results in significant new circumstances or information that is relevant to the environmental concerns and bearing on the Draft FMDA that would trigger a supplement. *See* 40 CFR §1502.9(c)(1). The FMDA analysis is sufficient for the purpose of complete disclosure contemplated under the requirements of NEPA.

S.7 ATTACHMENT 1

QUICK REFERENCE TO INSTRUCTION MEMORANDA

The following BLM instruction memoranda were issued after the FMDA DEIS/Plan Amendment was published (November 2004). The instruction memoranda that could have affected the impact analyses, management actions, mitigation, and potential decisions of the FMDA Final EIS/Plan Amendment are discussed in detail in the SIR and included here for easy reference.

WO Instruction Memoranda

2005

2005-024 **National Sage-Grouse Habitat Conservation Strategy**

Purposes: Issuance of Bureau of Land Management's (BLM) National Sage-grouse Habitat Conservation Strategy (National Sage-grouse Strategy) and required action items: (1) guidance for addressing sagebrush habitat conservation in land use plans under action item 1.3.1 in the National Sage-grouse Strategy, and (2) guidance for the management of sagebrush plant communities for sage-grouse conservation under action item 1.4.1 in the National Sage-grouse Strategy.

2006

2006-004 **Interim Guidance for Implementation of the Energy Policy Act of 2005 [P.L. 109-58] for Federal Coal Leasing**

Purpose: Provide interim guidance for implementation of Section 432 of the Energy Policy Act of 2005 [P.L. 109-58] which increases the limitation for lease modifications from 160 acres to 960 acres.

2006-073 **Weed-Free Seed Use on Lands Administered by the Bureau of Land Management**

Purpose: This Instruction Memorandum (IM) describes Bureau of Land Management (BLM) policy for the quality of seed purchased by BLM for use on public lands.

2006-083 **Implementation of Section 368 of the Energy Policy Act of 2005 (EPA) DD: 02/10/2006**

Issue: This Instruction Memorandum (IM) provides Bureau of Land Management (BLM) State Directors:

1. An explanation of the Interagency West-wide Energy Corridor Programmatic Environmental Impact Statement (PEIS);
2. Status of the PEIS progress made to date;
3. Planned interagency strategy to prepare the PEIS;
4. Anticipated future role for the affected State Offices (SO) and Field Offices (FO);

5. Subsequent workload impacts the PEIS may have on affected SO and FO; and
6. Direction for mandatory attendance by SO/FO personnel at a series of multi-agency joint workshops for identifying draft alternative energy corridor routes.

2006-114 **State Wildlife Action Plans**

Purposes: The purpose of this Instruction Memorandum (IM) is to direct the Bureau of Land Management (BLM) State Directors, District and Field Managers to consider State Wildlife Action Plans (also known as Comprehensive Wildlife Conservation Strategies) in land use and conservation planning on BLM-administered lands.

S.8 LITERATURE CITED

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Hann, Wendel J. 2002. Mapping fire regime condition class: a method for watershed and project scale analysis. Pages 000-000 *in* Proceedings of the 22nd Tall Timbers Fire Ecology Conference: Fire in Temperate, Boreal, and Montane Ecosystems. Tall Timbers Research Station, Tallahassee, FL.

McNicoll, Cecilia H.; Wendel J. Hann. 2002. Multi-scale planning and implementation to restore fire adapted ecosystems, and reduce risk to the urban/wildland interface in the Box Creek watershed. Pages 000-000 *in* Proceedings of the 22nd Tall Timbers Fire Ecology Conference: Fire in Temperate, Boreal, and Montane Ecosystems. Tall Timbers Research Station, Tallahassee, FL.

Stiver, S.J., A.D. Apa, J.R. Bohne, S.D. Bunnell, P.A. Deibert, S.C. Gardner, M.A. Hilliard, C.W. McCarthy, and M.A. Schroeder. 2006. Greater Sage-grouse Comprehensive Conservation Strategy. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, Wyoming.

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USDI BLM. 2006. Conservation Plan for the Greater Sage-Grouse in Idaho. Idaho State BLM. Boise, Idaho. July 2006.

USDI BLM. 2007. BLM Vegetation Treatments Using Herbicides Final Programmatic EIS Record of Decision. Washington, D.C. September 2007.

USDI BLM and National Park Service (NPS). 2006. Record of Decision, Craters of the Moon National Monument Management Plan. Idaho. 2006.

USDOE and USDI BLM. 2006. West-wide Energy Corridor Programmatic Environmental Impact Statement (Energy Corridor PEIS) Information Center for public information and involvement on Programmatic Environmental Impact Statement (PEIS) to evaluate issues associated with the designation of energy corridors on federal lands in eleven Western states.

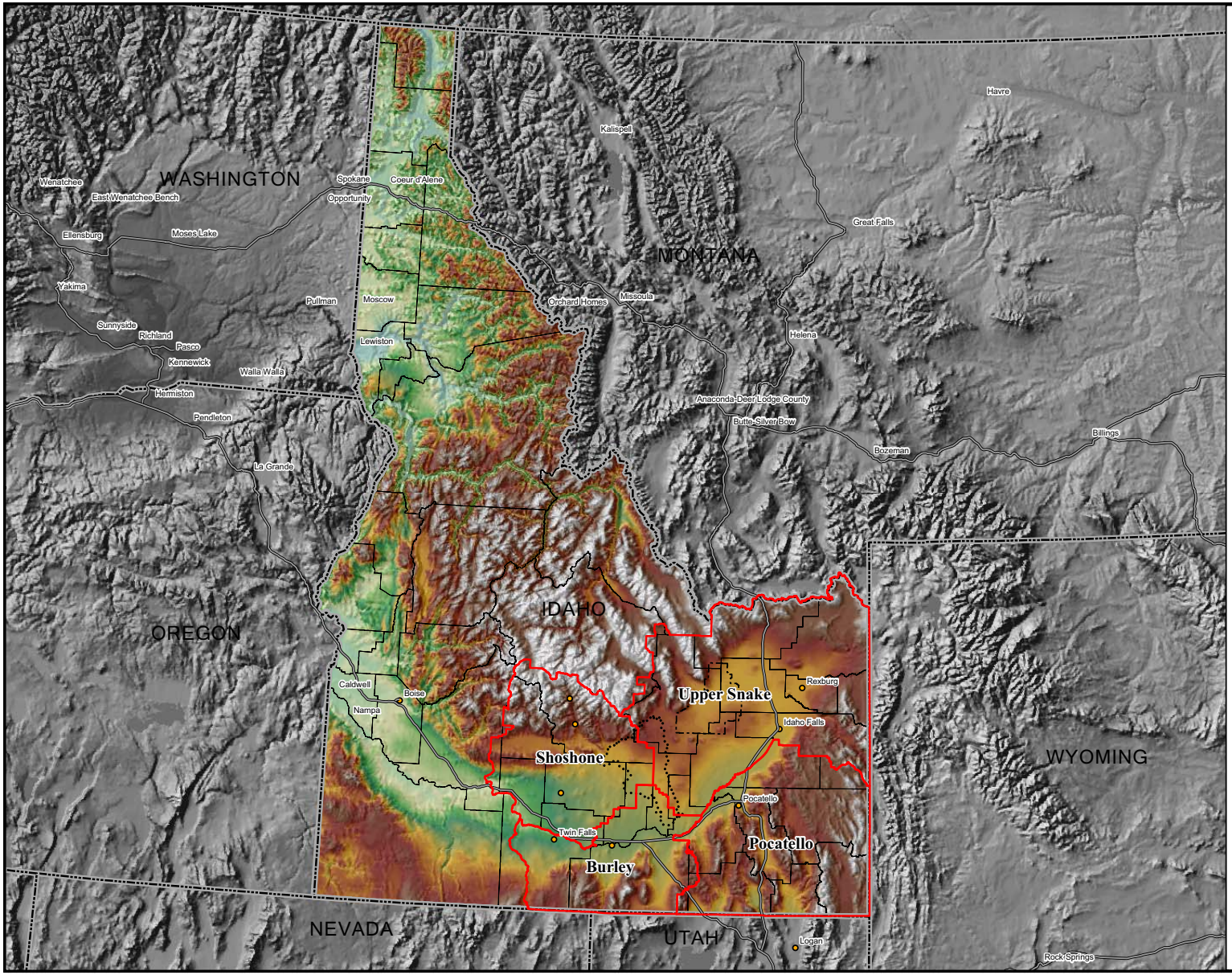


Figure 1-1
Planning Area and Field Office Locations.

Field Office Boundaries/ Planning Area

Craters of the Moon National Monument & Preserve (CRMO)

Idaho National Laboratory (INL)

City

Interstate Highways

County Boundary

High : 3717

Low : 221

All data is projected in UTM Zone 12, the datum is NAD27 and the units are meters.

0 30 60 120 Miles

N

No Warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

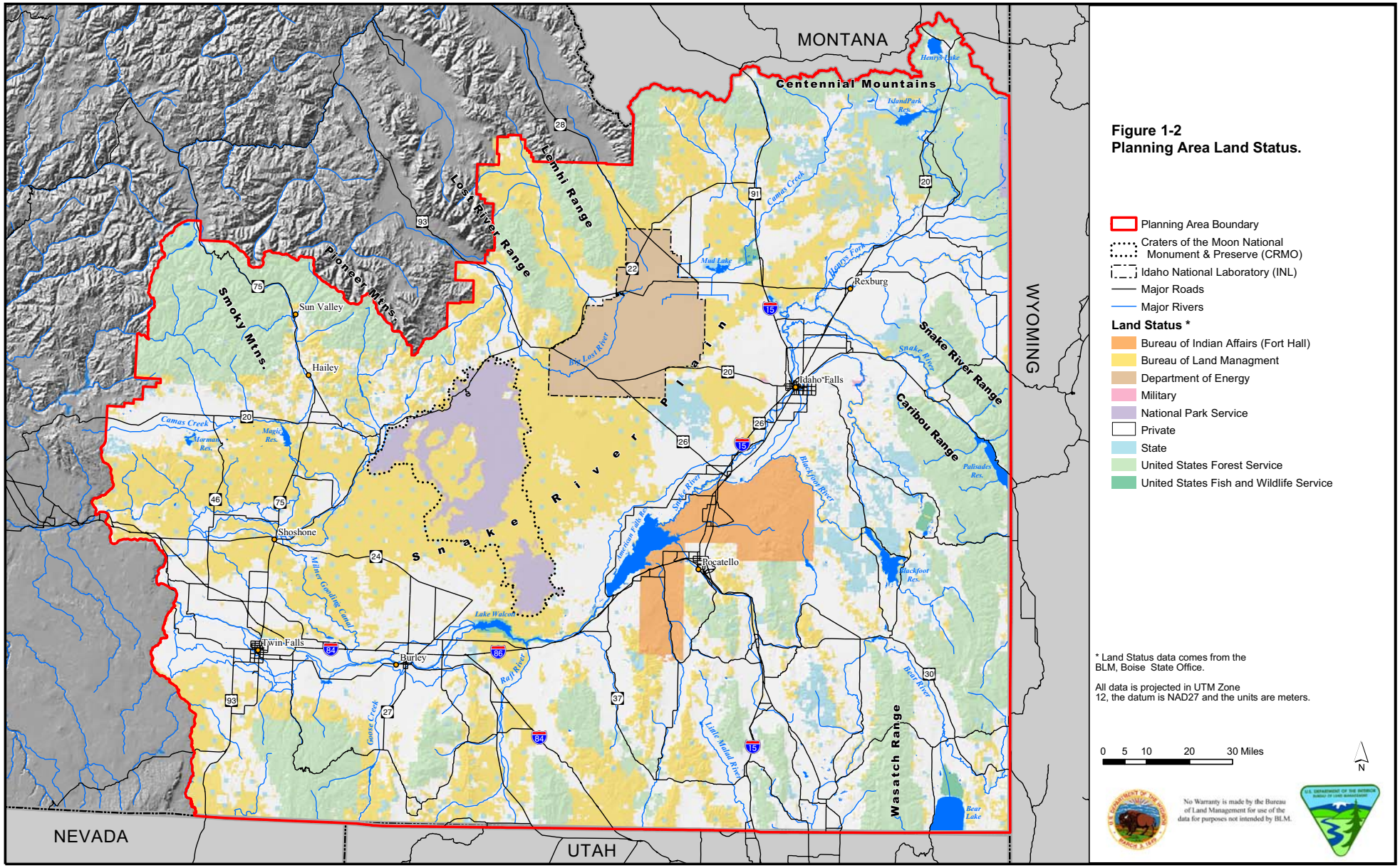


Figure 1-2
Planning Area Land Status.

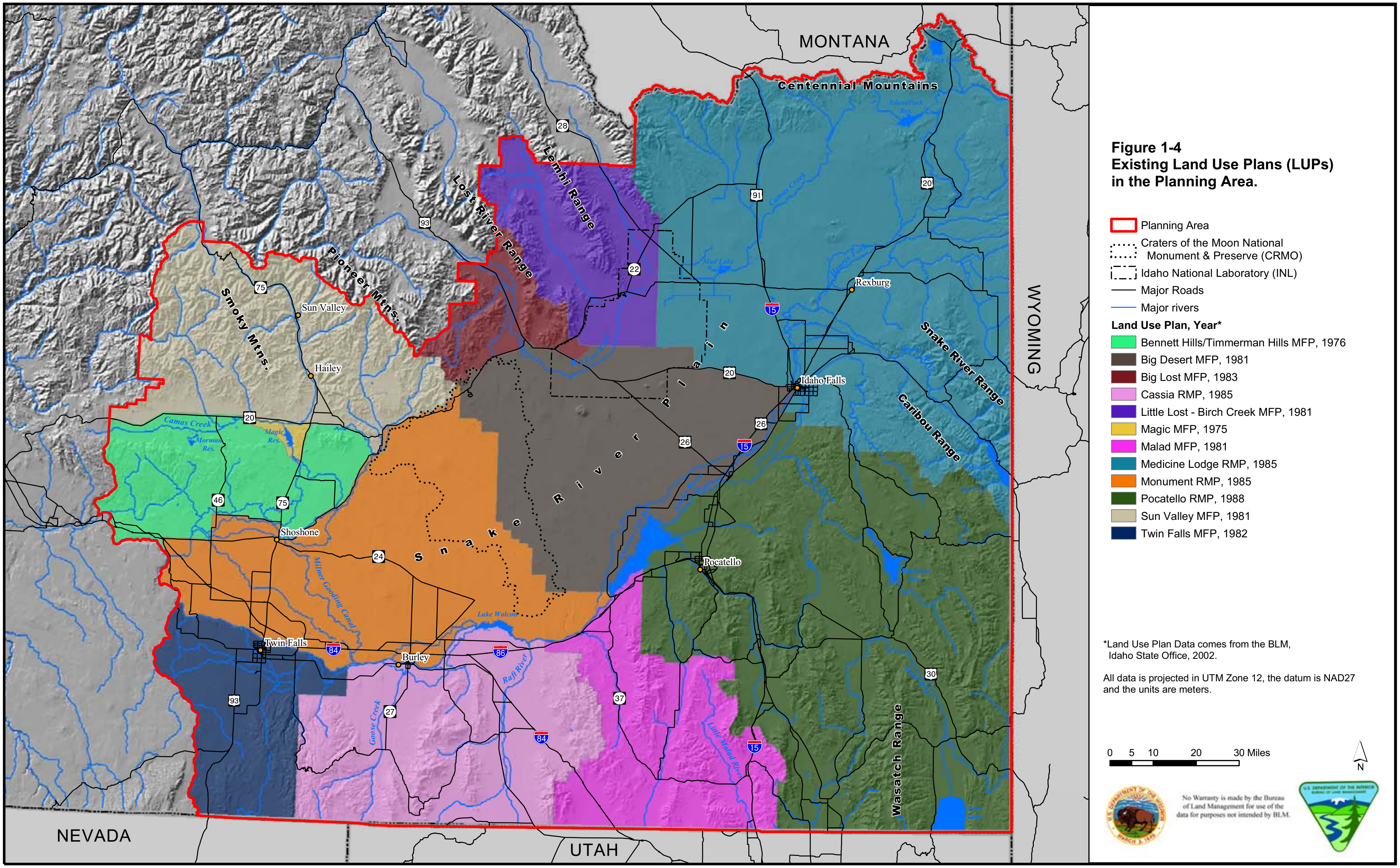
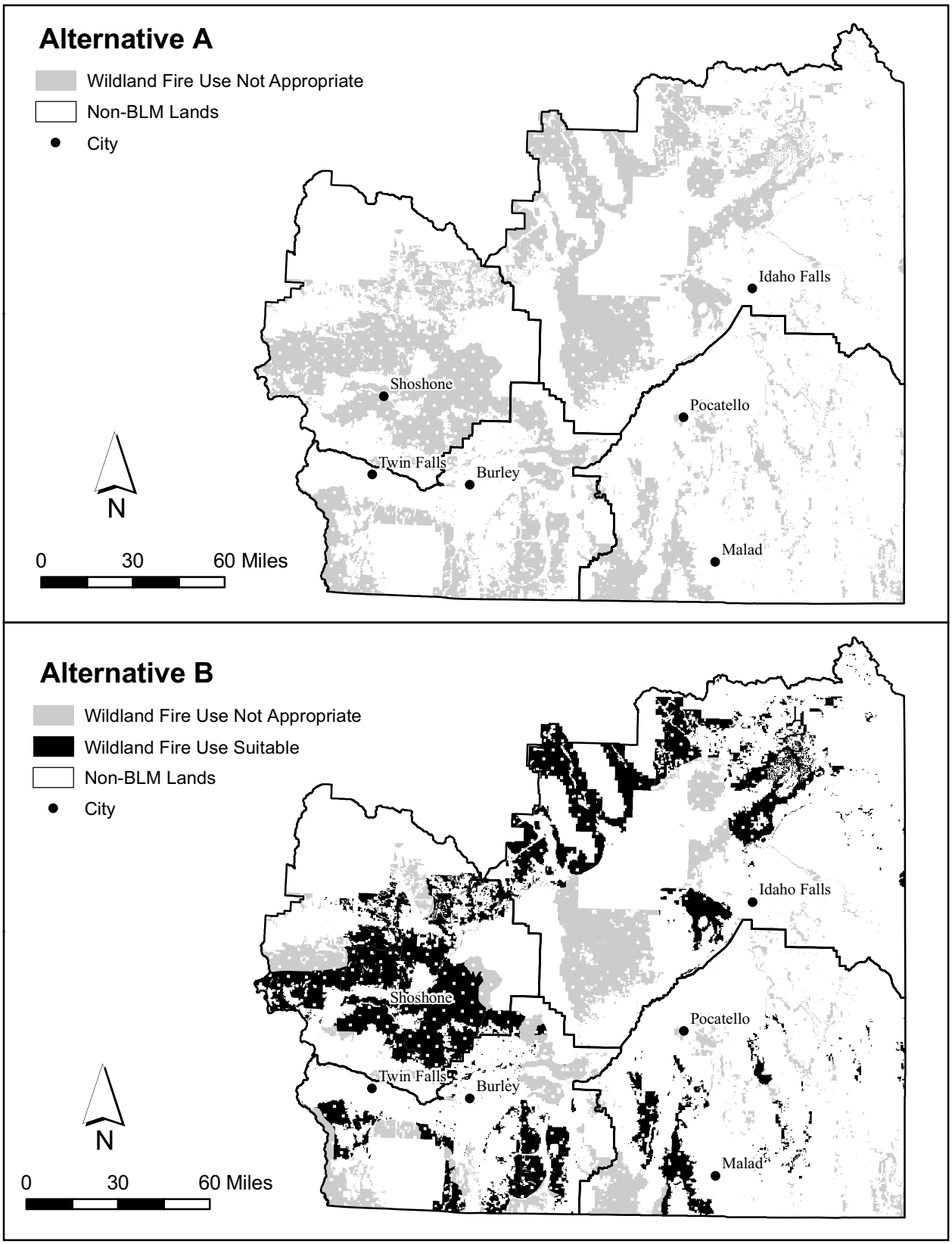


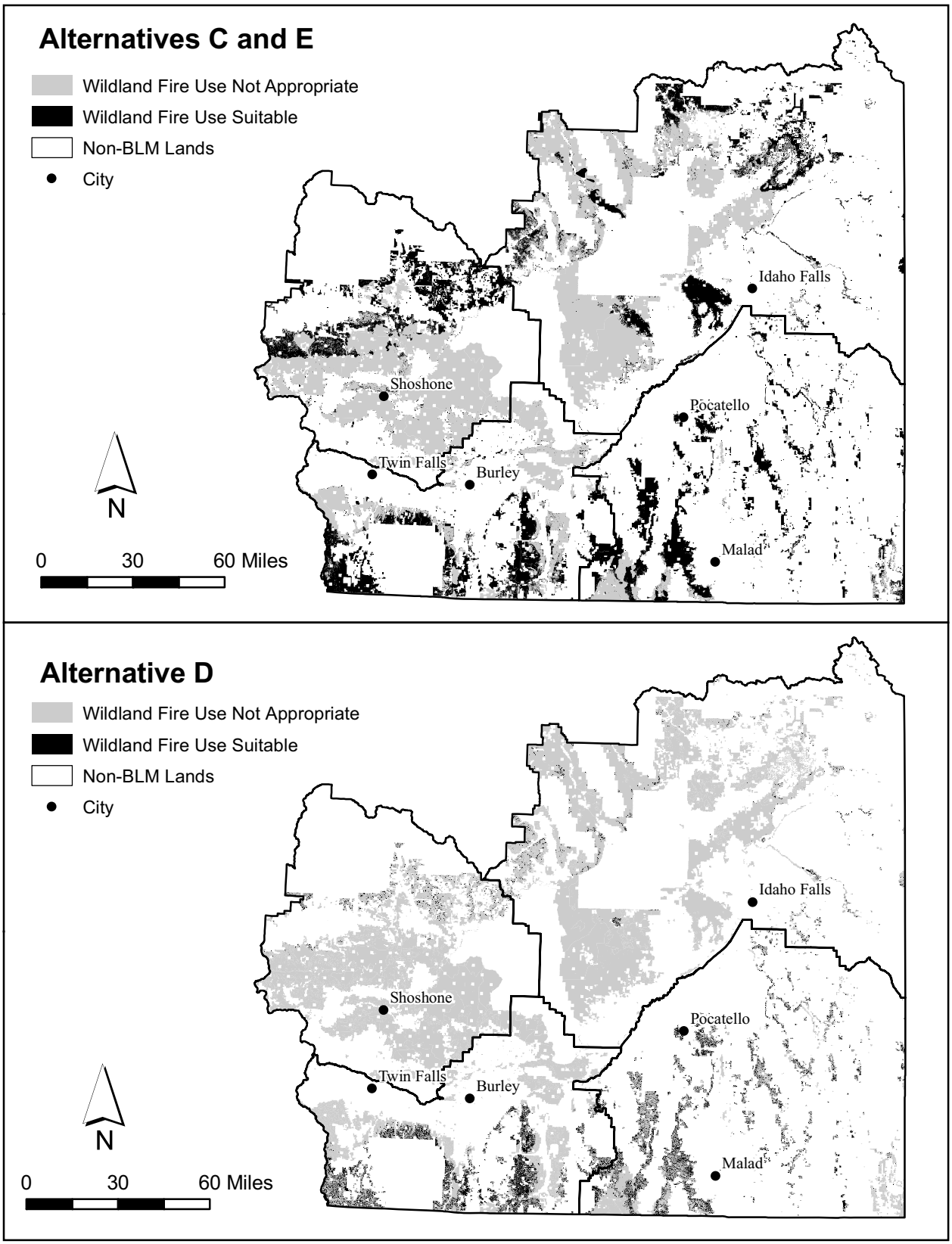
Figure 1-4
Existing Land Use Plans (LUPs) in the Planning Area.



All data is projected in UTM Zone 12, the datum is NAD27 and the units are meters.

No Warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

Figure 2-1. Areas suitable and not suitable for Wildland Fire Use (WFU) within the Planning Area under Alternatives A and B.



All data is projected in UTM Zone 12, the datum is NAD27 and the units are meters.

No Warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

Figure 2-2. Areas suitable and not appropriate for Wildland Fire Use (WFU), under Alternatives C, D, and E.

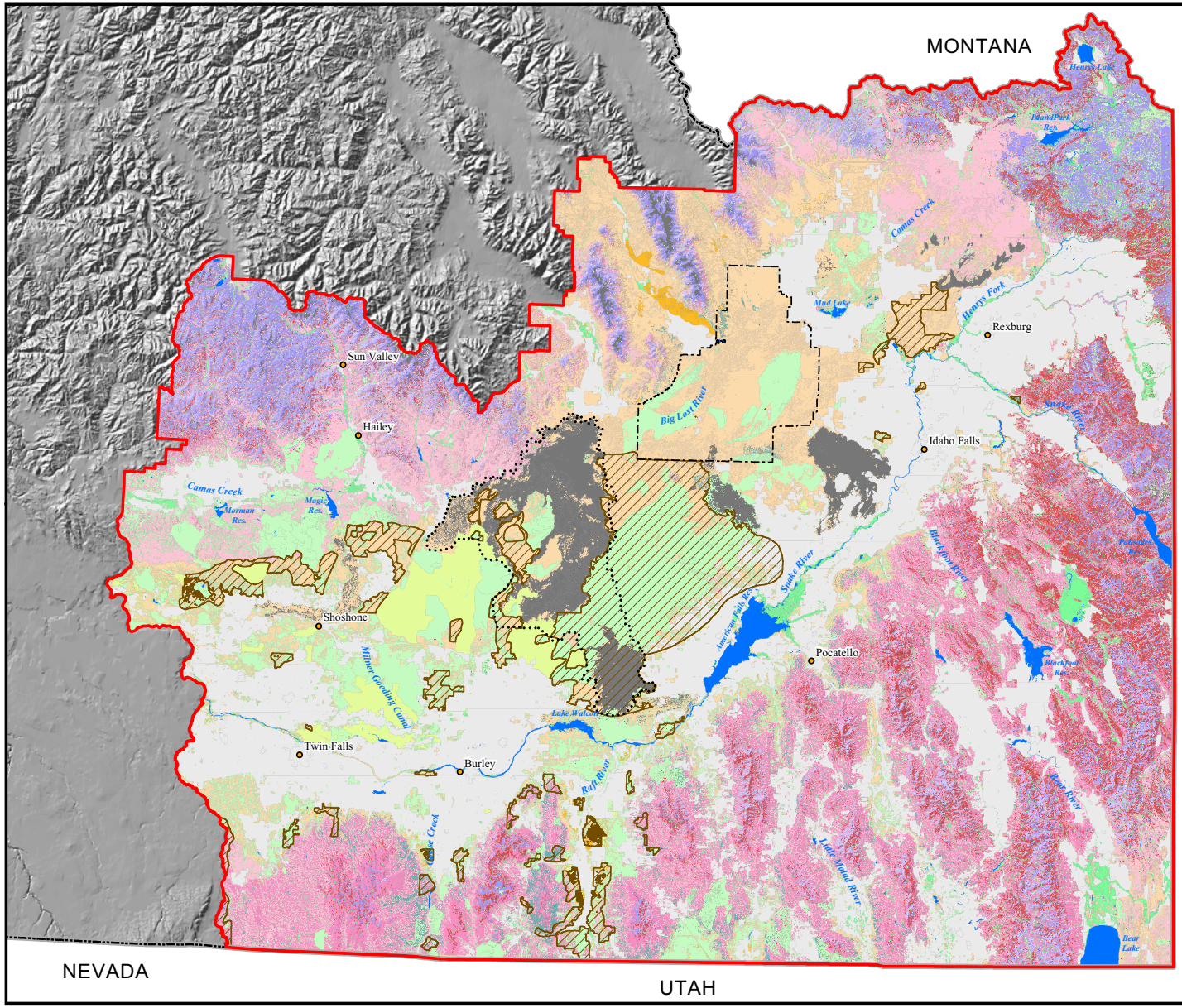


Figure 3-1
Vegetation Cover Types and Areas with High Cover of Cheatgrass.

- Planning Area
- Craters of the Moon National Monument & Preserve (CRMO)
- Idaho National Laboratory (INL)
- Major Rivers

Vegetation Cover Type*

- Aspen/Conifer Mix
- Dry Conifer
- Wet/Cold Conifer
- Juniper, Pinyon/Juniper Mix
- Riparian
- Perennial Grass
- Annual Grass
- Low Elevation Shrub Steppe
- Mid Elevation Shrub Steppe
- Mountain Shrub
- Salt Desert Shrub
- Lava, Rock, Barren
- Other

Cheatgrass Invasion

- Understory

Note: The vegetation classification method used in this plan amendment and that for the completed Craters of the Moon National Monument and Preserve Management PLan (Record of Decision, September 2006) show respective vegetation types differently due to the scale and timing of these planning efforts.

*Vegetation data comes from the BLM, Burley, Idaho, 2001.

All data is projected in UTM, the datum is NAD27 and the units are meters.

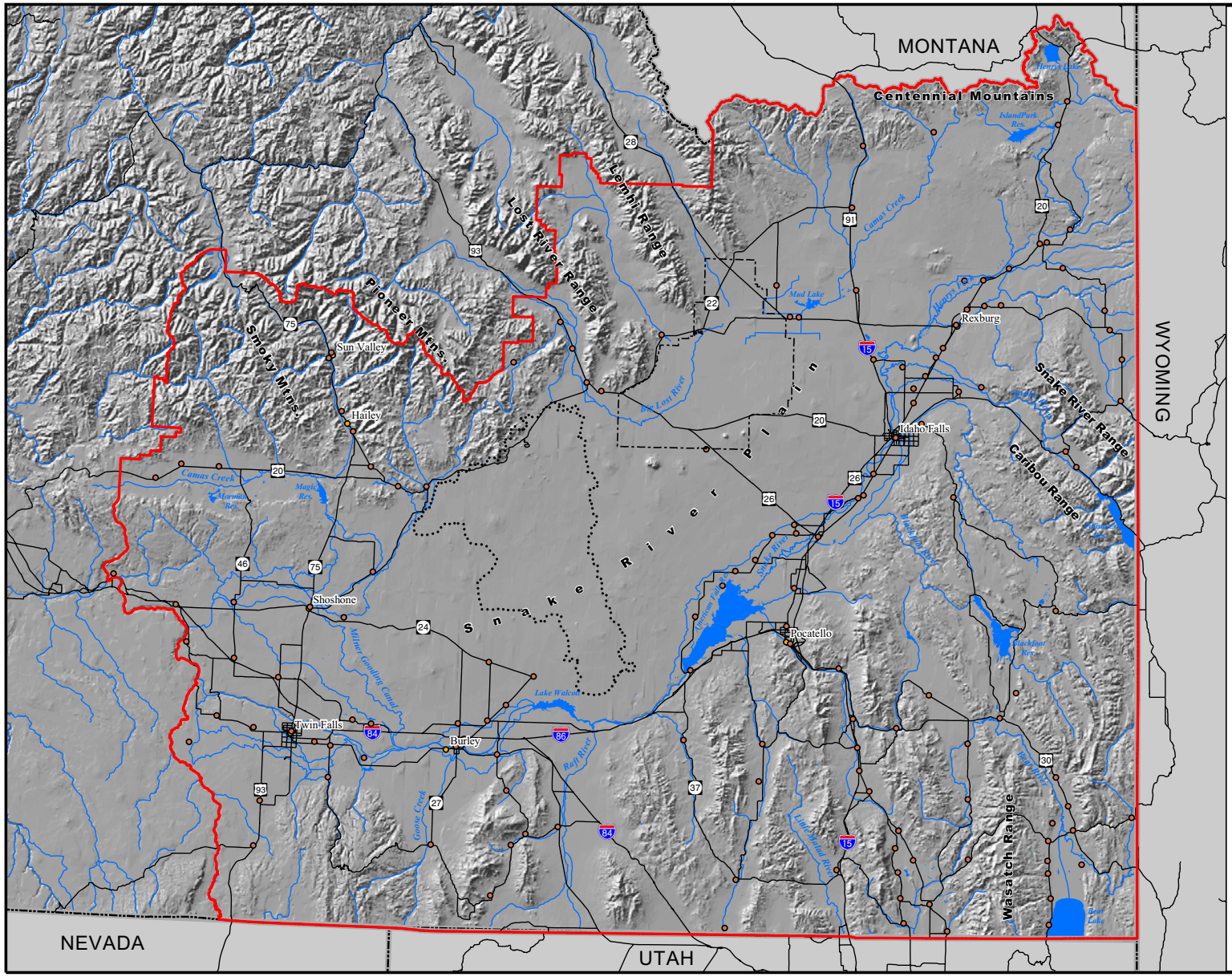


Figure 3-2
Communities at Risk from Wildfire.

- Planning Area
- Craters of the Moon National Monument & Preserve (CRMO)
- Idaho National Laboratory (INL)
- Major Roads
- Major rivers
- Federal Register listed "Communities at Risk"* (FR, 4 January 2001)

*Communities at risk data comes from the BLM, Idaho, 2002.

All data is projected in UTM Zone 12, the datum is NAD27 and the units are meters.

0 5 10 20 30 Miles

N

No Warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

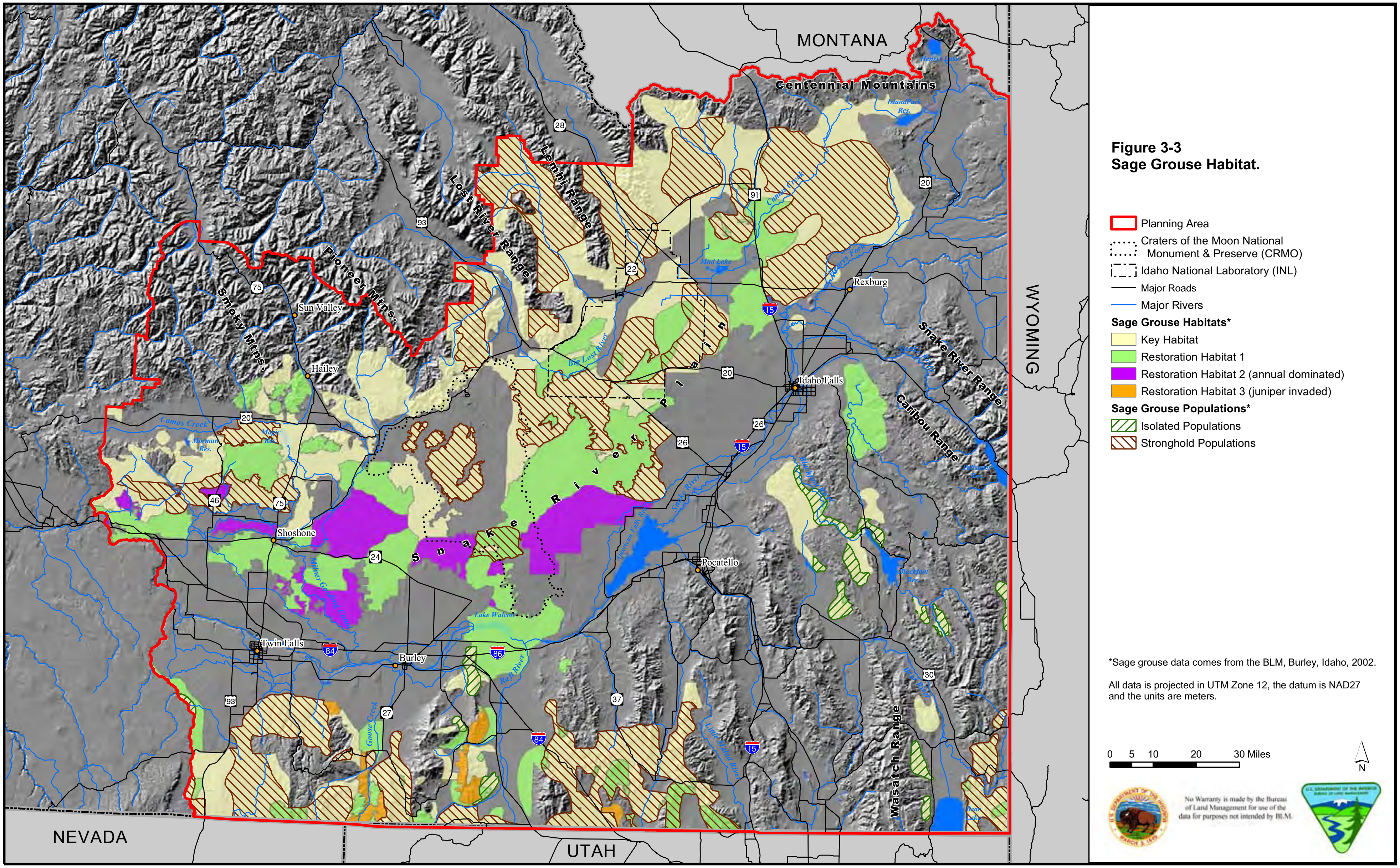


Figure 3-3
Sage Grouse Habitat.

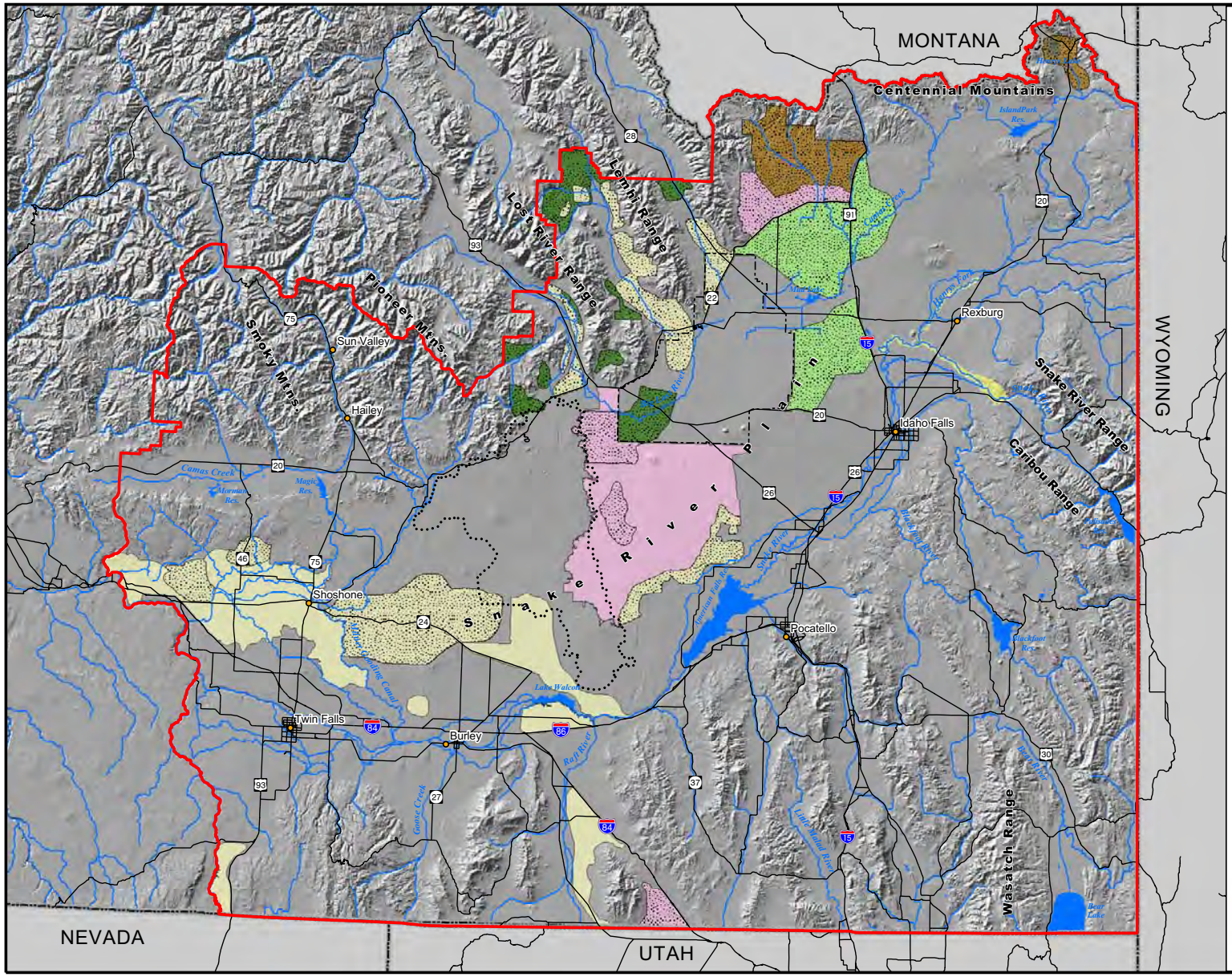


Figure 3-4
Pronghorn and
White-tailed Deer Habitat.

*Big game data comes from the BLM, USRD, Idaho, 2002.

All data is projected in UTM Zone 12, the datum is NAD27 and the units are meters.

No Warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

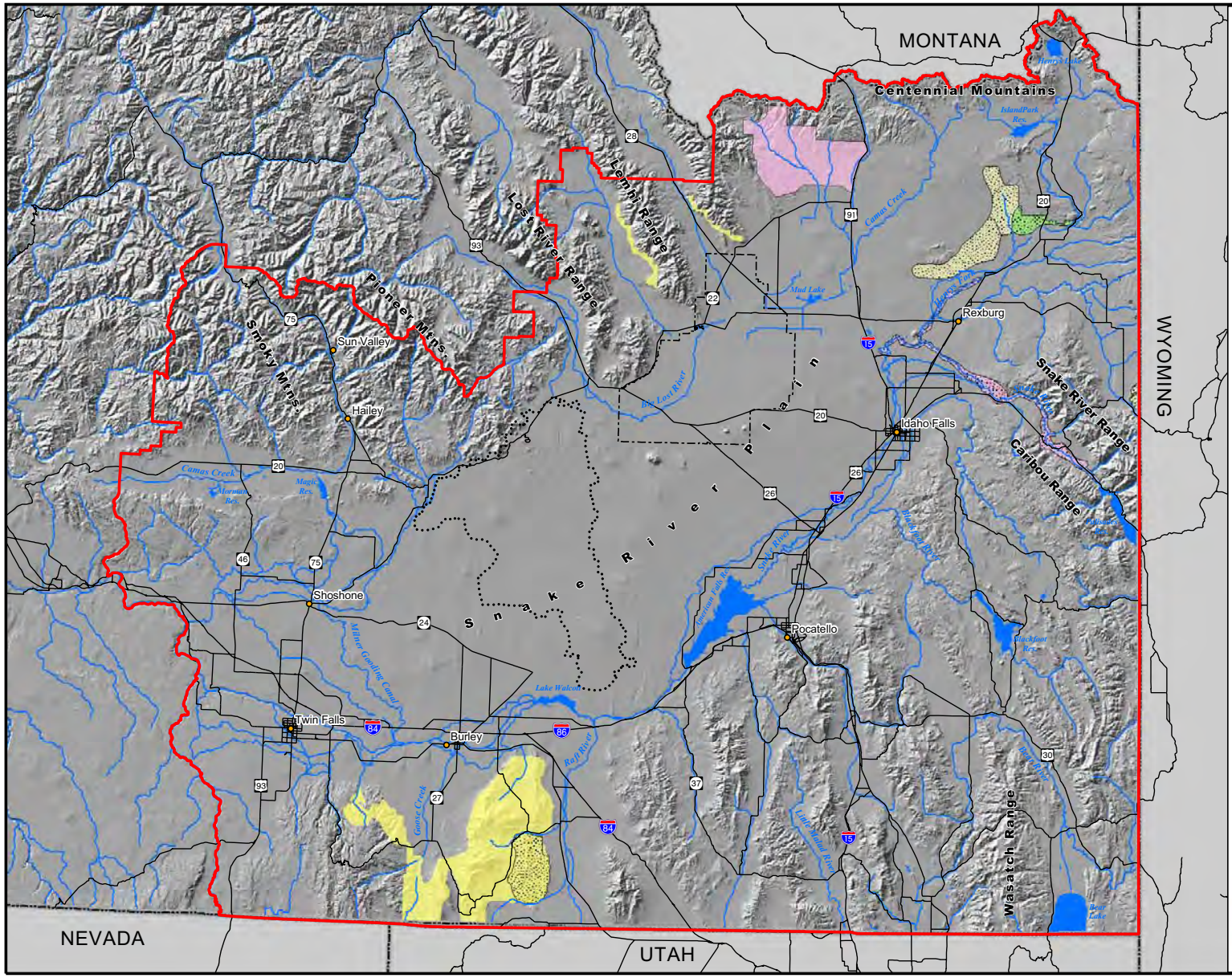


Figure 3-5
Moose and Bighorn Sheep Habitat.

- Planning Area
- Craters of the Moon National Monument & Preserve (CRMO)
- Idaho National Laboratory (INL)
- Major Roads
- Major Rivers

Moose Habitat*

- Winter
- Winter and Spring
- Yearlong
- Crucial

Bighorn Sheep Habitat*

- Winter
- Crucial

*Big game data comes from the BLM, USRD, Idaho, 2002.

All data is projected in UTM Zone 12, the datum is NAD27 and the units are meters.

0 5 10 20 30 Miles

N

No Warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

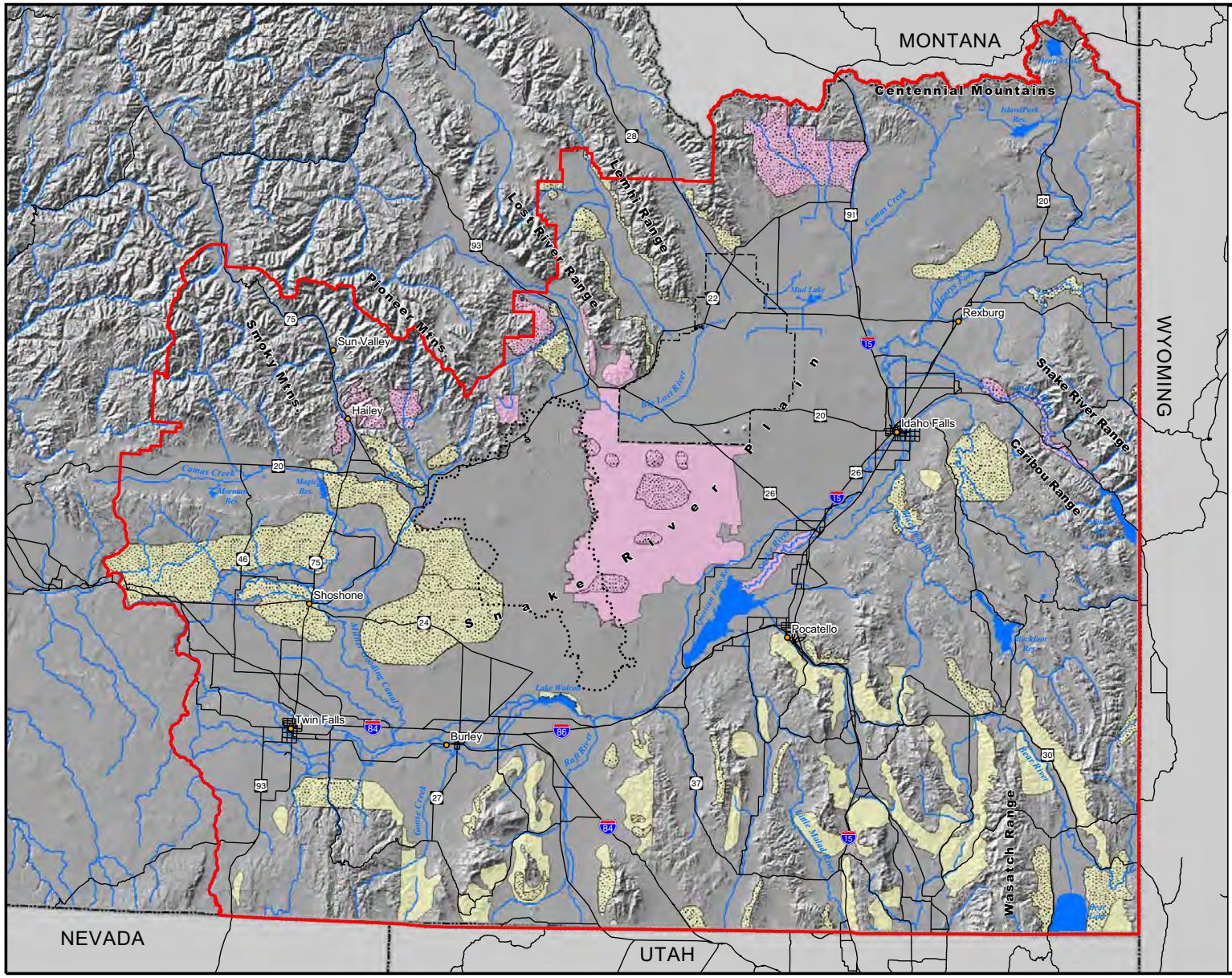


Figure 3-6
Mule Deer Habitat.

- Planning Area
- Craters of the Moon National Monument & Preserve (CRMO)
- Idaho National Laboratory (INL)
- Major Roads
- Major Rivers

Mule Deer Habitat*

- Spring and Summer
- Winter
- Yearlong
- Crucial

*Big game data comes from the BLM, USRD, Idaho, 2002.

All data is projected in UTM Zone 12, the datum is NAD27 and the units are meters.

0 5 10 20 30 Miles

N

No Warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

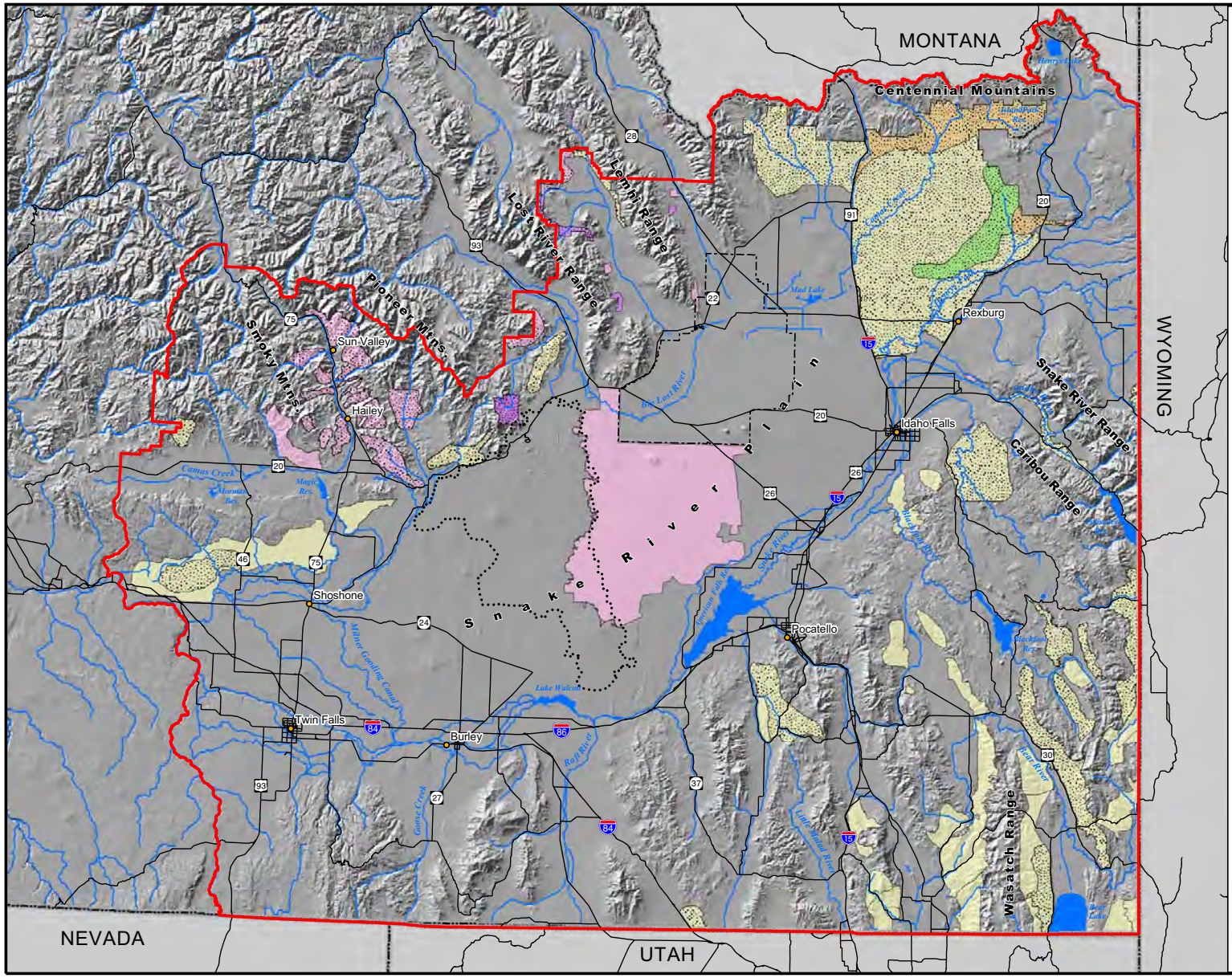


Figure 3-7
Elk Habitat.

*Big game data comes from the BLM, USRD, Idaho, 2002.

All data is projected in UTM Zone 12, the datum is NAD27 and the units are meters.

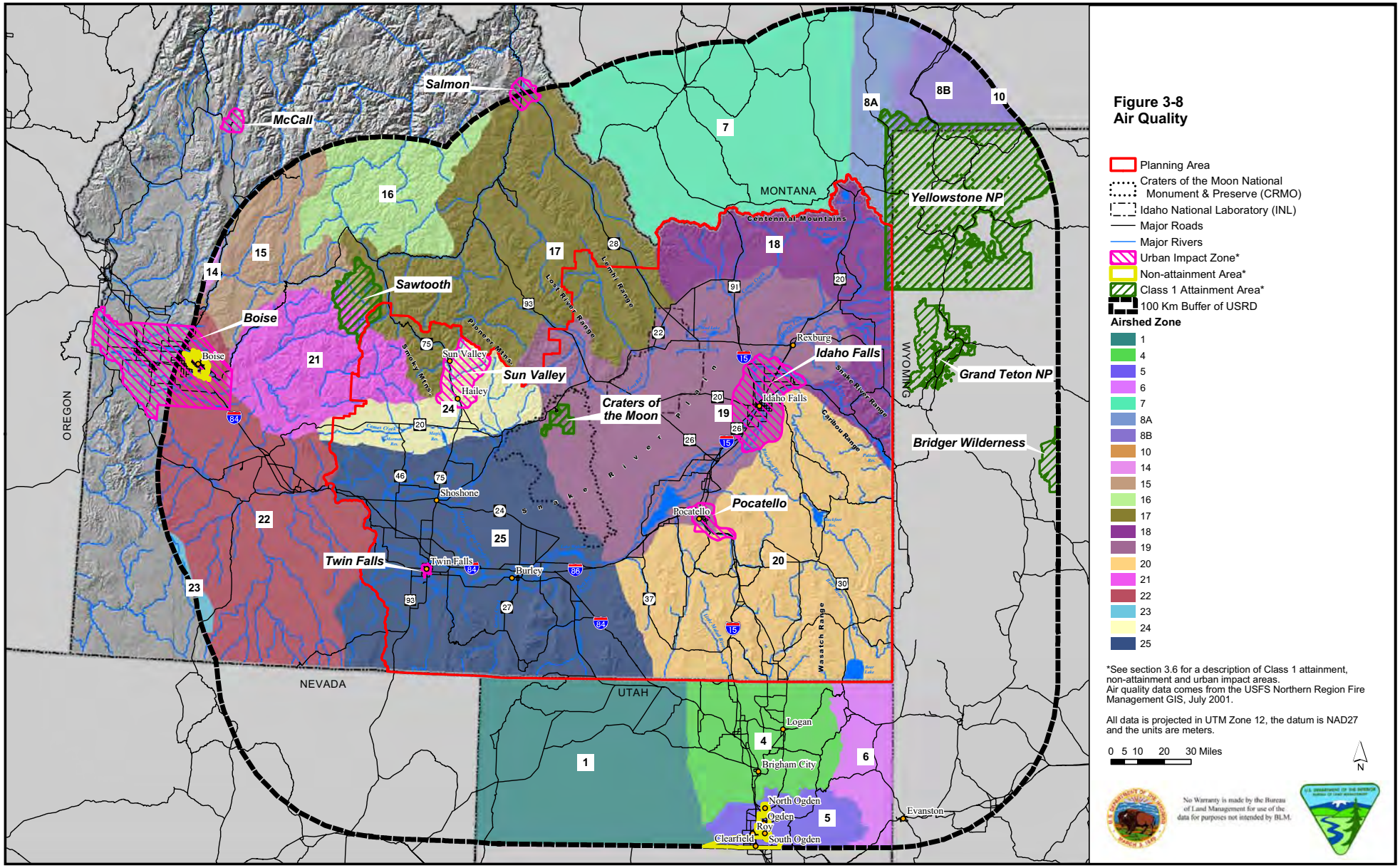


Figure 3-8
Air Quality

- Planning Area
- Craters of the Moon National Monument & Preserve (CRMO)
- Idaho National Laboratory (INL)
- Major Roads
- Major Rivers
- Urban Impact Zone*
- Non-attainment Area*
- Class 1 Attainment Area*
- 100 Km Buffer of USRD

Airshed Zone

- 1
- 4
- 5
- 6
- 7
- 8A
- 8B
- 10
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25

*See section 3.6 for a description of Class 1 attainment, non-attainment and urban impact areas.
Air quality data comes from the USFS Northern Region Fire Management GIS, July 2001.

All data is projected in UTM Zone 12, the datum is NAD27 and the units are meters.

0 5 10 20 30 Miles

N

No Warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

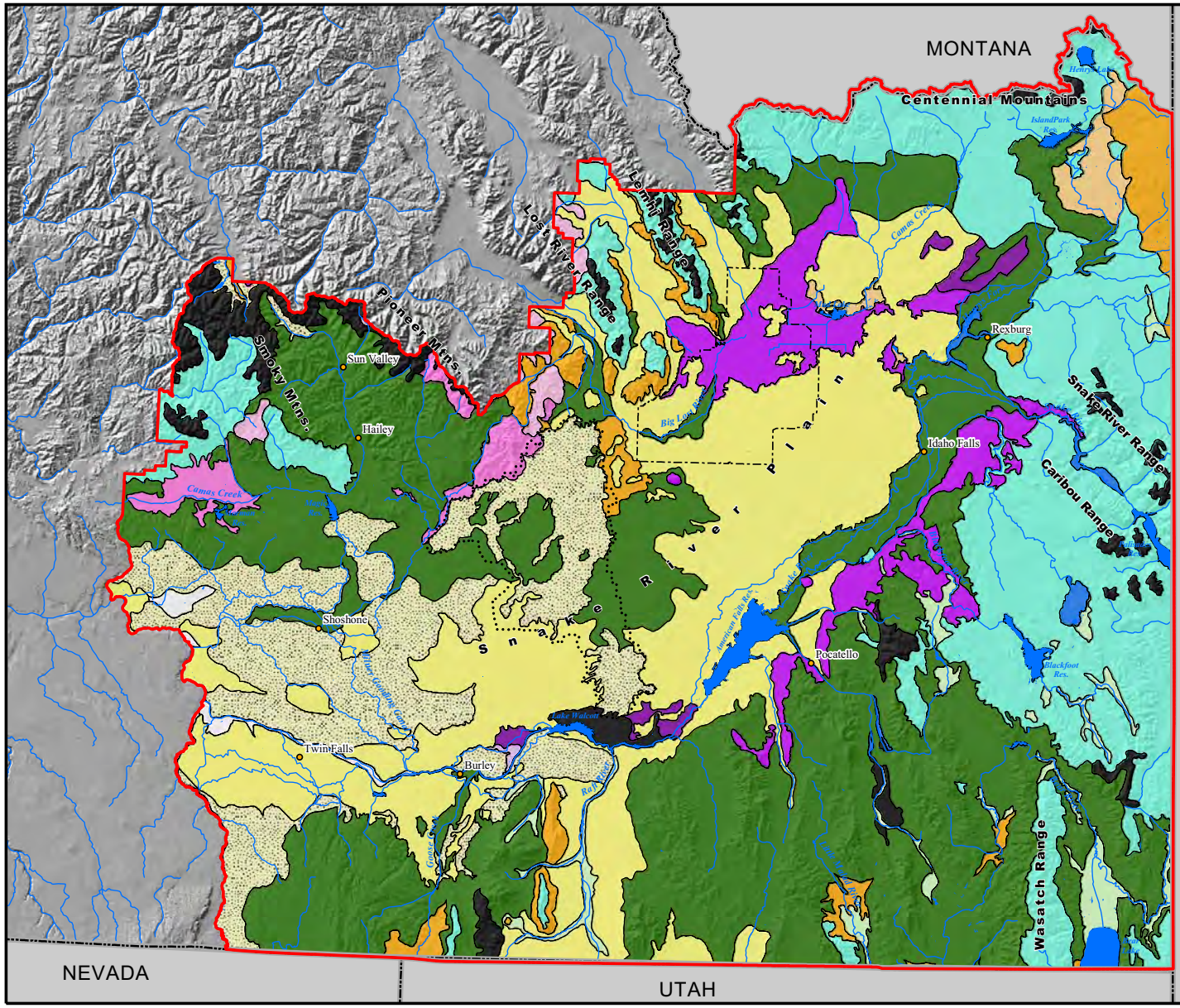


Figure 3-9
Soils by Suborder.

- Planning Area
- Craters of the Moon National Monument & Preserve (CRMO)
- Idaho National Laboratory (INL)
- Major rivers

Soils by Suborder*

- Cool Alfisols (Boralfs)
- Dry Alfisols (Xeralfs)
- Badlands
- Clayey Aridisols (Argids)
- Typical Aridisols (Orthids)
- Wet Entisols (Aquents)
- Typical Entisols (Orthents)
- Sandy Entisols (Psamments)
- Wet Inceptisols (Aquepts)
- Light-colored Inceptisols (Ochrepts)
- Wet Mollisols (Aquolls)
- Cool Mollisols (Borolls)
- Dry Mollisols (Xerolls)
- Rock Outcrop

*Soil data comes from NRCS STATSGO data.

All data isprojected in UTM Zone 12, the datum is NAD27 and the unitsare meters.

0 5 10 20 30 Miles

N

No Warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

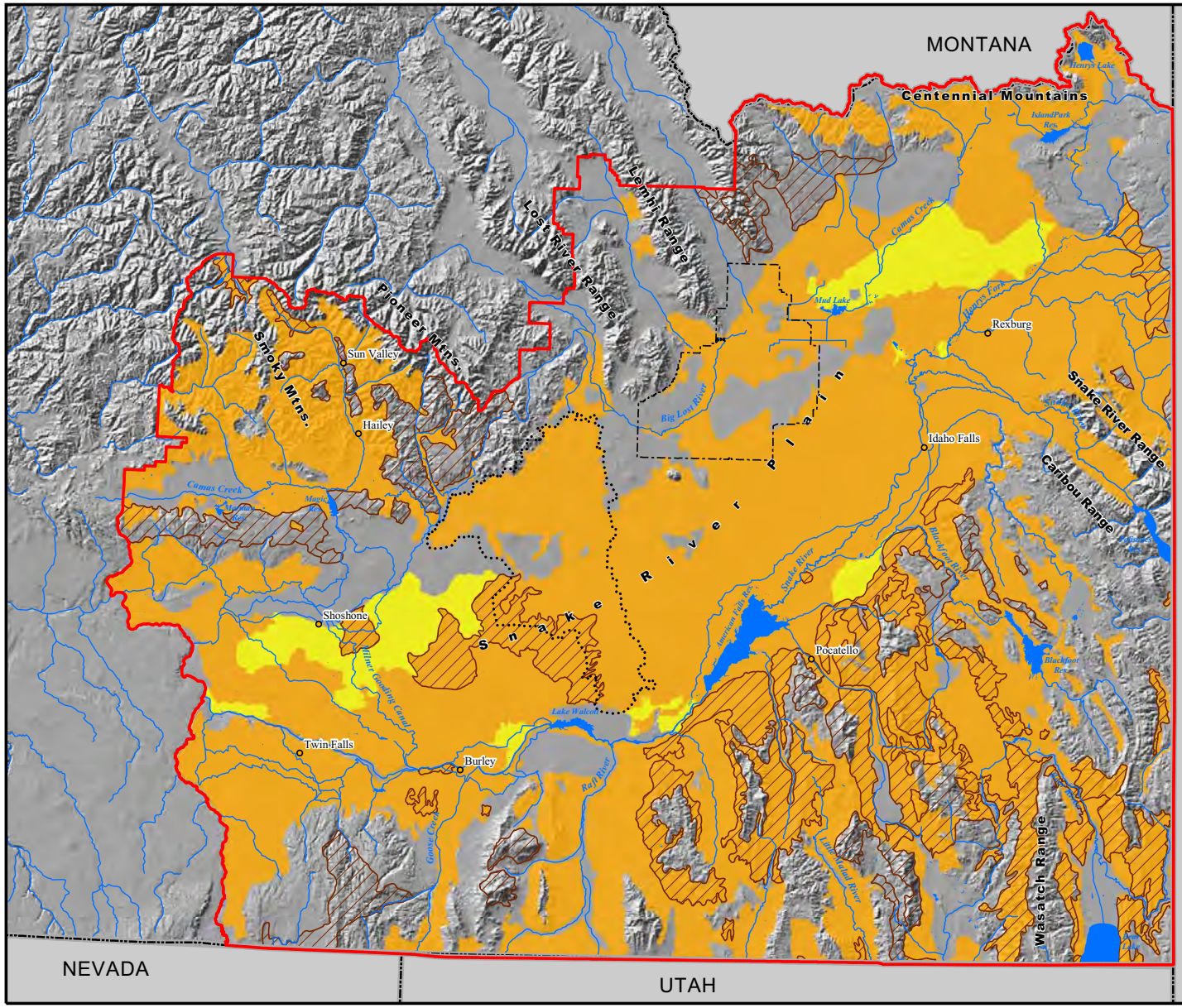


Figure 3-10
Erodible Soils.

- Planning Area
- Craters of the Moon National Monument & Preserve (CRMO)
- Idaho National Laboratory (INL)
- Major rivers
- Water Erodible Soils*

Wind Erodible Soils*

- Severe Wind Erosion
- Moderate Wind Erosion

*Soil data comes from NRCS STATSGO data. Wind and Water Erodibility Indices come from BLM. 2000. Soil Suitability Extension (SSE) Version 1.0 User's Guide. USDI-BLM, National Science and Technology Center, August 24, 2000.

All data is projected in UTM Zone 12, the datum is NAD27 and the units are meters.

0 5 10 20 30 Miles

N

No Warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

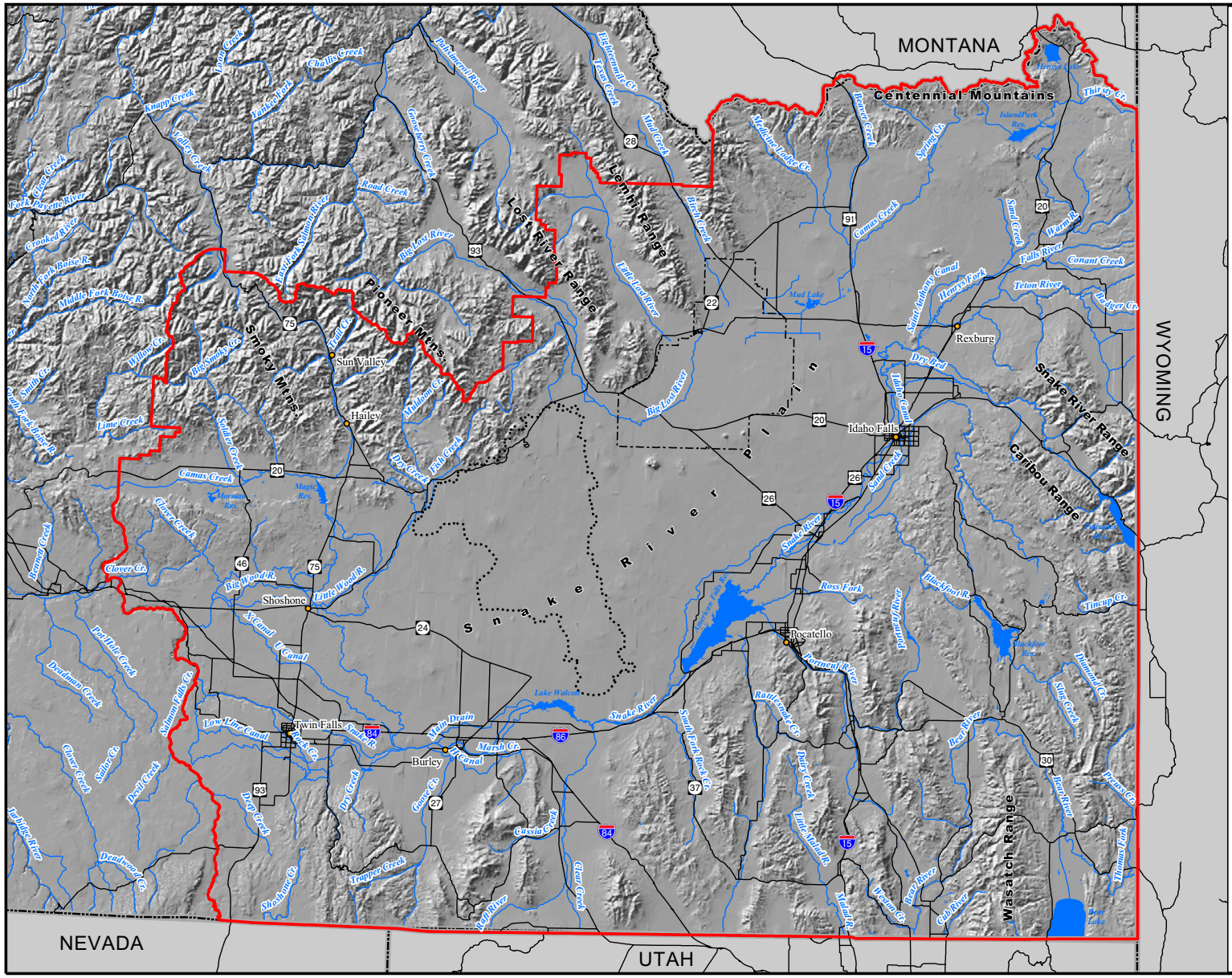


Figure 3-11
Surface Water Resources.

- Planning Area
- Craters of the Moon National Monument & Preserve (CRMO)
- Idaho National Laboratory (INL)
- Major Roads
- Major rivers
- Lakes*

*Hydrology data comes from the BLM, Idaho State Office, 2002.

All data is projected in UTM Zone 12, the datum is NAD27 and the units are meters.

0 5 10 20 30 Miles

N

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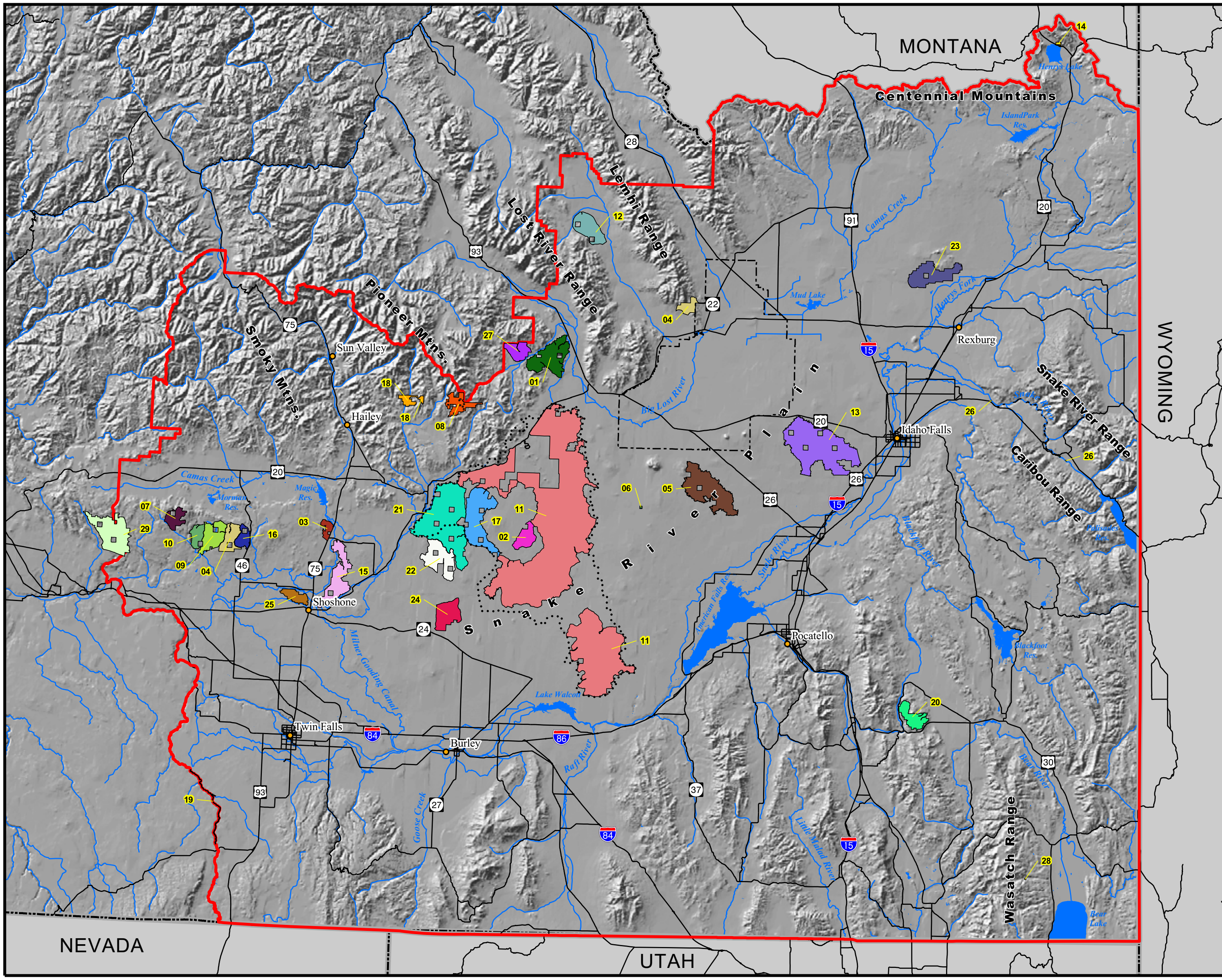

Figure 3-12
Wilderness Study Areas.

Planning Area
Craters of the Moon National Monument & Preserve (CRMO)
Idaho National Laboratory (INL)
Major Roads
Major rivers

Wilderness Study Area*

01 APPENDICITIS HILL (ID-31-14)
02 BEAR DEN BUTTE (ID-57-14)
03 BLACK BUTTE (ID-54-2)
04 BLACK CANYON (ID-54-6 & ID-32-9)
05 CEDAR BUTTE (ID-33-4)
06 CHINA CUP BUTTE (ID-33-2)
07 DEER CREEK (ID-54-10)
08 FRIEDMAN CREEK (ID-53-5)
09 GOODING CITY OF ROCKS EAST (ID-54-8A)
10 GOODING CITY OF ROCKS WEST (ID-54-8B)
11 GREAT RIFT (ID-33-1)
12 HAWLEY MOUNTAIN (ID-32-3)
13 HELL'S HALF ACRE (ID-33-15)
14 HENRY'S LAKE (ID-35-77)
15 LAVA (ID-56-2)
16 LITTLE CITY OF ROCKS (ID-54-5)
17 LITTLE DEER (ID-57-11)
18 LITTLE WOOD RIVER (ID-53-4)
19 LOWER SALMON FALLS CREEK (ID-17-10)
20 PETTICOAT PEAK (ID-28-1)
21 RAVEN'S EYE (ID-57-10)
22 SAND BUTTE (ID-57-8)
23 SAND MOUNTAIN (ID-35-3)
24 SHALE BUTTE (ID-57-2)
25 SHOSHONE (ID-59-7)
26 SOUTH FORK SNAKE RIVER ISLANDS (ID-34-2)
27 WHITE KNOB MOUNTAINS (ID-31-17)
28 WORM CREEK (ID-37-77)
29 KING HILL CREEK (ID-19-2)

*Wilderness data comes from the BLM, Idaho State Office GIS, 2000.
All data is projected in UTM Zone, the datum is NAD27 and the units are meters.

0 5 10 20 30 Miles

N

No Warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

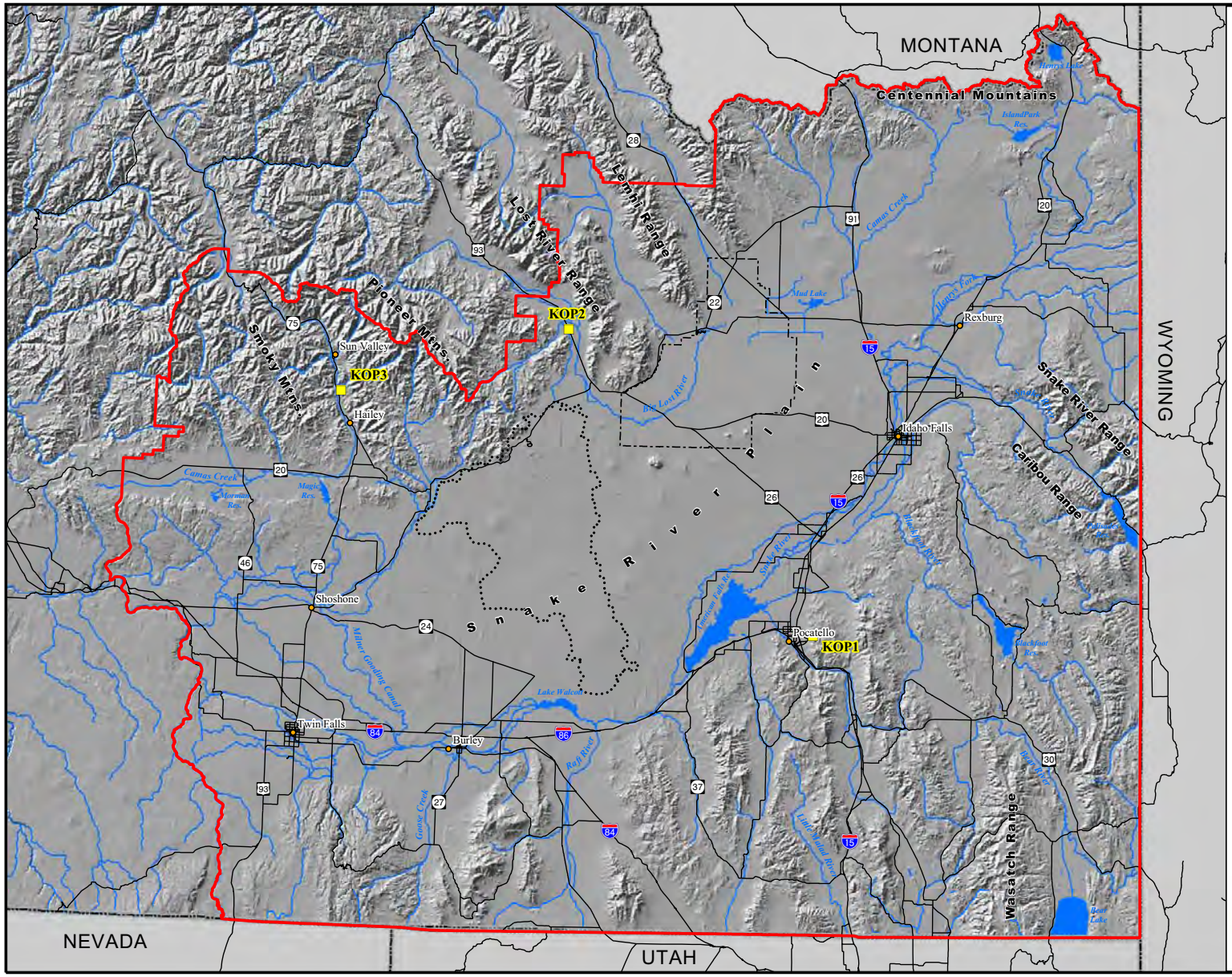

Figure 3-13
Key Observation Points for Visual Impact.

Planning Area
Craters of the Moon National Monument & Preserve (CRMO)
Idaho National Laboratory (INL)
Major Roads
Major rivers
Key Observation Point (KOP)*
KOP1 = Pocatello Creek Urban Boundary
KOP2 = Appendicitis Hill WSA
KOP3 = Ohio Gulch

*Data comes from SWCA, Inc., 2002.

All data is projected in UTM Zone 12, the datum is NAD27 and the units are meters.

0 5 10 20 30 Miles

N

No Warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.