

# South Mountain Group Draft Environmental Assessment

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EA #DOI-BLM-ID-B030-2013-0022-EA

Idaho BLM NEPA Permit Renewal Team

October 2013



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# 1 INTRODUCTION

## 1.1 Title

South Mountain Group 4 Allotments Livestock Grazing Permit Renewal Environmental Assessment

## 1.2 Name and Location of Preparing Office

Bureau of Land Management  
Idaho State Office  
1387 S. Vinnell Way  
Boise, ID 83709

## 1.3 Background

This Environmental Assessment (EA) has been prepared to analyze the impacts of renewing livestock grazing permits for a term of 10 years on seven allotments in Owyhee County, Idaho, the South Mountain Group-Group 4: Dougal FFR (0456), Lequerrica FFR (0557), Mckay FFR (0457), Sheep Creek (0559), South Dougal (0536), South Mountain Area (0561), and Wilson Cr FFR (0537) (Map GEN-1).

The Bureau of Land Management (BLM) Owyhee Field Office has prioritized and grouped allotments to fully process and renew grazing permits in accordance with the Order Approving Stipulated Settlement Agreement (United States District Court for the District of Idaho Case 1:97-CV-00519-BLW), dated June 26, 2008. The agreement defined a schedule for completing the required environmental analyses and to issue final decisions and grazing permits for a number of allotments.

The seven South Mountain Group allotments in this EA, which are under the purview of the Owyhee Field Office, are located adjacent to one another within the South Mountain area of Owyhee County, Idaho. Applications for renewal of grazing permits for use in these seven allotments have been received by BLM from permittees who are currently authorized to graze livestock in these allotments. Applications by permittees are described section 2.

### **South Mountain Area Allotment (0561)**

The South Mountain Area allotment is located in Owyhee County, Idaho, approximately 14 miles southeast of Jordan Valley, Oregon (Map Gen-1). It runs in a northwest to southeast direction and lies to the west, south, and southeast of South Mountain. In the Owyhee Resource Management Plan (USDI BLM, 1999), the South Mountain allotment was placed in the Improve (I) category with high priority. Categorization of allotments in that land use plan prioritized development and implementation of grazing systems to meet multiple use resource objectives and rangeland health standards based on resource conditions, potentials, and concerns, as well as economics, present management, and other criteria.

In addition to allocating livestock grazing within the South Mountain Area allotment, the Owyhee Resource Management Plan (ORMP) identified issues associated with management activities with a listing of resource concerns and applicable ORMP resource objectives. Resource concerns identified included the ecological condition of vegetation communities, perennial surface water present, known riparian/wetland ecosystems, and redband trout.

Currently, four operators are permitted to graze cattle on the South Mountain Area allotment with a total of 745 AUMs. Within the allotment, four pastures do not have a specific season of use or rotation of livestock under the current permit, with licensed use occurring from June 1 to September 30 each year. A

summary of actual use reported by permittees authorized to graze livestock within the Group 4 allotments is provided in Appendix B. A summary of the acres of land are provided in Table ALLOT-1.

**Table ALLOT-1:** South Mountain Area allotment (acres)

Pastures	Public	State	Private	Total
1	2130	2816	2065	
2	2899	5012	371	
3	266	57	306	
4	710	72	398	
Total	6,006 (35%)	7,957 (46%)	3,340 (19%)	17,303 (100%)

**Dougal FFR (0456)**

The Dougal FFR allotment is located 28 miles southwest of Silver City, Idaho near the Idaho/Oregon Stateline in Owyhee County (Map Gen-1). In the Owyhee Resource Management Plan (USDI BLM, 1999), the Dougal FFR allotment was placed in the Improve (I) category with low priority. Categorization of allotments in that land use plan prioritized development and implementation of grazing systems to meet multiple use resource objectives and rangeland health standards based on resource conditions, potentials, and concerns, as well as economics, present management, and other criteria.

In addition to allocating livestock grazing within the Dougal FFR allotment, the ORMP identified issues associated with management activities with a listing of resource concerns and applicable ORMP resource objectives. Resource concerns identified included the ecological condition of vegetation communities and riparian/wetland ecosystems.

Currently, Frankie Dougal is permitted to graze 90 AUMs on the Dougal FFR allotment. Although the existing permit identifies a season of use from December 1 to December 31, it also includes a term and condition that the number of livestock and season of use within the allotment is at the permittee’s discretion. Actual use has been submitted but is lacking accuracy to the pasture level. A summary of actual use reported by permittees authorized to graze livestock within the Group 4 allotments is provided in Appendix B.

Within the allotment, cross fences divide the allotment into smaller pastures. Within these pastures are an irrigation reservoir and the ranch headquarters, which includes numerous out-buildings and hay fields. The cross fences are used to managed livestock, and the irrigation water is used to grow hay. A summary of the acres of land are provided in Table ALLOT-2.

**Table ALLOT-2:** Dougal FFR allotment (acres)

Pastures	Public	State	Private	Total
1	115	497	541	
2	1	5	262	
3	134		171	
4	200		45	
5	44		91	
6	45		118	
7	20		600	
8	268		123	

Pastures	Public	State	Private	Total
9	43		640	
Total	868 (22%)	502 (13%)	2590 (65%)	3961 (100%)

### South Dougal Allotment (0536)

The South Dougal allotment is located adjacent to the Dougal FFR allotment (Map Gen-1). The 1999 Owyhee Resource Management Plan (USDI BLM, 1999) identified the South Dougal allotment as a Maintain (M) category allotment. Categorization of allotments in that land use plan prioritized development and implementation of grazing systems to meet multiple use resource objectives and rangeland health standards based on resource conditions, potentials, and concerns, as well as economics, present management, and other criteria.

In addition to allocating livestock grazing within the South Dougal allotment, the ORMP identified issues associated with management activities with a listing of resource concerns and applicable ORMP resource objectives. Resource concerns identified included the ecological condition of vegetation communities, perennial surface water presence, and riparian/wetland ecosystems

Currently, Frankie Dougal is permitted to graze 374 AUMs on the South Dougal allotment as outlined in the South Dougal Allotment Management Plan, which was approved by the BLM in September of 1984. The plan objective was to improve rangeland condition by promoting livestock grazing distribution and proper range utilization through water developments, fence construction, and controlled season of use. The plan prescribed a 2-Pasture deferred rotation grazing system with each pasture being deferred on alternating years use until after seed-ripe, which the plan stated normally occurs the second or third week of July. Even though the plan recommended projects, no new projects were determined to be needed as the majority of the range improvement projects had been constructed prior to the grazing plan. The authorized season of use for the allotment is from June 12 to September 30, with current use occurring within this period. A summary of actual use reported by permittees authorized to graze livestock within the Group 4 allotments is provided in Appendix B. A summary of the acres of land are provided in Table ALLOT-3.

**Table ALLOT-3:** South Dougal allotment (0536) (acres)

Pastures	Public	State	Private	Total
1	2261	9	30	
2	1919	2	10	
Total	4180 (99%)	11	40 (1%)	4230 (100%)

### Sheep Creek (0559)

The Sheep Creek allotment is located on the Idaho/Oregon border approximately 24 miles southwest of Silver City, Idaho in Owyhee County. In the Owyhee Resource Management Plan (USDI BLM, 1999), the Sheep Creek allotment is listed as a Maintain (M) category allotment. Categorization of allotments in that land use plan prioritized development and implementation of grazing systems to meet multiple use resource objectives and rangeland health standards based on resource conditions, potentials, and concerns, as well as economics, present management, and other criteria.

In addition to allocating livestock grazing within the Sheep Creek allotment, the ORMP identified issues associated with management activities with a listing of resource concerns and applicable ORMP resource objectives. Resource concerns identified included the ecological condition of vegetation communities, riparian/wetland ecosystems, and sage-grouse.

The allotment is subdivided into two pastures (pasture 1, BLM managed lands; pasture 2, private lands), with 68 AUMs of permitted grazing in pasture 1. The authorized season of use for the allotment is from August 16 to October 15. The livestock that graze this allotment are part of a larger group of cattle that move from lands in Oregon to private lands in Idaho around the first of August. A summary of actual use reported by permittees authorized to graze livestock within the Group 4 allotments is provided in Appendix B. A summary of the acres of land are provided in Table ALLOT-4.

**Table ALLOT-4: Sheep Creek allotment (0559) (acres)**

Pastures	Public	State	Private	Total
1	617	0	124	
2	0	3	806	
Total	617 (40%)	3	930 (60%)	1550 (100%)

**Wilson Creek FFR (0537)**

The Wilson Creek FFR allotment is located in Owyhee County, Idaho, approximately 14 miles southeast of Jordan Valley, Oregon. In the Owyhee Resource Management Plan (USDI BLM, 1999), the Wilson Creek FFR allotment is listed as a Maintain (M) category allotment. Categorization of allotments in that land use plan prioritized development and implementation of grazing systems to meet multiple use resource objectives and rangeland health standards based on resource conditions, potentials, and concerns, as well as economics, present management, and other criteria.

In addition to allocating livestock grazing within the Wilson Creek FFR allotment, the ORMP identified issues associated with management activities with a listing of resource concerns and applicable ORMP resource objectives. Resource concerns identified included the ecological condition of vegetation communities, perennial surface water present, and riparian/wetland ecosystems.

The allotment is subdivided into five pastures with 78 AUMs of permitted grazing. Although the existing permit identifies a season of use from December 1 to December 31, it also includes a term and condition that the number of livestock and season of use within the allotment is at the permittee’s discretion. Actual use has been submitted but is lacking accuracy to the pasture level. A summary of actual use reported by permittees authorized to graze livestock within the Group 4 allotments is provided in Appendix B. A summary of the acres of land are provided in Table ALLOT-5.

**Table ALLOT-5: Wilson Creek FFR allotment (0537) (acres)**

Pastures	Public	State	Private	Total
1	314	0	697	
2	218	0	590	
3	0	0	112	
4	70	0	525	
5	14	0	283	
Total	616 (22%)	0 (0%)	2207(78%)	2823 (100%)

**Mckay FFR Allotment (0457)**

The Mckay FFR allotment is located in Owyhee County, Idaho, approximately 14 miles southeast of Jordan Valley, Oregon. In the Owyhee Resource Management Plan (USDI BLM, 1999), the Mckay FFR allotment is listed as a Custodial (C) category allotment. Categorization of allotments in that land use plan

prioritized development and implementation of grazing systems to meet multiple use resource objectives and rangeland health standards based on resource conditions, potentials, and concerns, as well as economics, present management, and other criteria.

In addition to allocating livestock grazing within the Mckay FFR allotment, the ORMP identified issues associated with management activities with a listing of resource concerns and applicable ORMP resource objectives. Resource concerns identified included the ecological condition of vegetation communities, perennial surface water present, riparian/wetland ecosystems, redband trout, and sage-grouse.

The allotment is subdivided into three pastures with 20 AUMs of permitted grazing. Although the existing permit identifies a season of use from December 1 to December 31, it also includes a term and condition that the number of livestock and season of use within the allotment is at the permittee’s discretion. Actual use has been submitted but is lacking accuracy to the pasture level and has only 2 years of information. A summary of actual use reported by permittees authorized to graze livestock within the Group 4 allotments is provided in Appendix B. A summary of the acres of land are provided in Table ALLOT-6.

**Table ALLOT-6:** Mckay FFR allotment (0457) (acres)

Pastures	Public	State	Private	Total
1	260	0	591	
2	1	0	191	
3	0	0	39	
Total	261 (24%)	0	821 (76%)	1082 (100%)

**Lequerica FFR (0473)**

The Lequerica FFR allotment is located in Owyhee County, Idaho, approximately 14 miles southeast of Jordan Valley, Oregon. In the Owyhee Resource Management Plan (USDI BLM, 1999), the Lequerica FFR allotment is listed as a Custodial (C) category allotment. Categorization of allotments in that land use plan prioritized development and implementation of grazing systems to meet multiple use resource objectives and rangeland health standards based on resource conditions, potentials, and concerns, as well as economics, present management, and other criteria.

In addition to allocating livestock grazing within the Lequerica FFR allotment, the ORMP identified issues associated with management activities with a listing of resource concerns and applicable ORMP resource objectives. Resource concerns identified included the ecological condition of vegetation communities, perennial surface water present, riparian/wetland ecosystems, redband trout, and sage-grouse.

The allotment is subdivided into two pastures with 11 AUMs of permitted grazing. Although the existing permit identifies a season of use from December 1 to December 31, it also includes a term and condition that the number of livestock and season of use within the allotment is at the permittee’s discretion. Actual use has been submitted. A summary of actual use reported by permittees authorized to graze livestock within the Group 4 allotments is provided in Appendix B. A summary of the acres of land in the allotment are provided in Table ALLOT-7.

**Table ALLOT-7:** Lequerica FFR allotment (0457) (acres)

Pastures	Public	State	Private	Total
1	47	0	668	

Pastures	Public	State	Private	Total
2	23	0	224	
Total	70 (13%)	0	892 (87%)	962 (100%)

### Land Health Assessments and Determinations

Assessment of meeting the Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management (Appendix A) within allotments of the South Mountain group and determinations of causal factors when standards were not met was initiated as early as 2002 in some allotments. Earlier initial allotment reviews, assessments, evaluations, and determinations were amended with the most current monitoring data and information available to complete a consolidated set of determinations for the group, signed July of 2013 by the BLM authorized officer. A summary of the findings of land health assessments, evaluations, and determinations for the South Mountain Group allotments is provided in Table RHA-1.

**Table RHA-1:** Summary of the standards and associated guidelines under current BLM grazing management as they apply to the South Mountain Group allotments

Are Rangeland Health Standards Being Met (Yes/No/MP/NA) <sup>1</sup>									
Allotment	1	2	3	4	5	6	7	8	Significant factors in failing to Achieve Standards
South Mountain	No <sup>2</sup>	No <sup>2</sup>	No <sup>2</sup>	No <sup>2</sup>	N/A <sup>3</sup>	N/A	No <sup>2</sup>	No <sup>2</sup>	1,2,3,4,7,8 = current livestock grazing, juniper invasion
South Dougal	No	No <sup>2</sup>	No <sup>2</sup>	No	N/A	N/A	N/A	No <sup>2</sup>	1,2,3,4,8 = lack of sagebrush, increase in bulbous bluegrass  2,3 = poor riparian condition current livestock grazing
Sheep Creek	Yes	No <sup>2</sup>	No <sup>2</sup>	No	N/A	N/A	N/A	No <sup>2</sup>	1,2,3,4,8 = juniper, invasive grasses  2,3 = poor riparian condition current livestock grazing
Wilson Creek FFR	No	No <sup>2</sup>	No <sup>2</sup>	No	N/A	N/A	N/A	No <sup>2</sup>	1, 4,8 = juniper  2,3 = poor riparian condition current livestock grazing
Mckay FFR	No	N/A	N/A	No	N/A	N/A	N/A	No	1,4,7,8 = juniper, bulbous bluegrass
Dougal FFR	Yes	No	No	No	N/A	N/A	N/A	Yes	2,3,4 = short stream channel influenced from out flow from reservoir, juniper
Lequerica FFR	No	No	No	No	N/A	N/A	Yes	No	1,4,7,8 = juniper  2,3 = historical

Are Rangeland Health Standards Being Met (Yes/No/MP/NA) <sup>1</sup>									
									grazing

<sup>1</sup>Standards: 1 watersheds; 2 riparian areas and wetlands; 3 stream channel/floodplain; 4 native plant communities; 5 seedings; 6 exotic plant communities, other than seedings; 7 water quality; 8 threatened and endangered plants and animals

<sup>2</sup>Current livestock grazing is the causal factor

<sup>3</sup>N/A – Not applicable

## 1.4 Purpose and Need

### Purpose

The purpose of this action is to enable the Owyhee Field Office to determine if, and under what terms and conditions to renew grazing permits in the South Mountain Group allotments in compliance the National Environmental Policy Act (NEPA), Federal Land Policy and Management Act (FLPMA), the Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management (Appendix A), the ORMP, and other policies including those outlined in BLM IM-2010-043, consistent with a court-approved settlement agreement requiring BLM to fully process a number of grazing permits on or before December 31, 2013.

### Need

This action is needed now because:

1. The Owyhee Field Office has received applications to renew grazing permits for the South Mountain Group allotments.
2. Many of the allotments at issue are currently being managed under permits developed prior to adoption of the Idaho Standards for Rangeland Health and approval of the 1999 ORMP.
3. BLM agreed to fully process permits for these allotments on or before December 31, 2013 (see *WWP v. BLM*, Dyer 1:97-cv-00519-BLM (docket #451 dated May 15, 2008). To meet this deadline, BLM is not considering new range improvements in this permit renewal process. (For further discussion of this point, see section 2.3 South Mountain Group Allotments Livestock Grazing Permit Renewal Environmental Assessment for Alternatives Considered but not Analyzed in Detail.)

## 1.5 Supporting Information

Supporting background information not included as part of this EA document consists of:

- Digital photos taken in upland and riparian areas where BLM conducted standards assessment field work.
- Upland and riparian field forms used to document Idaho BLM standards assessments.
- Field forms and digital photos of upland and riparian monitoring areas.

All information listed above is available to the public in digital format and may be obtained from BLM upon request.

## 1.6 Scoping, Issues, and Decision to be Made

### 1.6.1 Scoping

On January 11, 2013, The Owyhee Field Office initiated by letter the collective public scoping process for Groups 3 through 5 of the Owyhee 68 grazing permit renewal process. These groups are referred to as the Toy Mountain, South Mountain, and Morgan groups, respectively. The letter informed recipients that the purpose of the public outreach effort was to identify resource and management issues associated with the Idaho Rangeland Health Standards and Guidelines and the ORMP for the purpose of developing grazing management alternatives for all three groups, including the South Mountain Group, Group 4, NEPA document. The letter also served to request additional resources and monitoring information that could help the BLM to complete the permit renewal process. The letter encouraged comments and information to be received by February 25, 2013 for each group of allotments but did not set a closing date for the receipt of public comments. The scoping document was also presented to the Shoshone-Paiute Tribe and Owyhee County Commissioners.

The Owyhee Field Office range staff, field manager, and members of the NEPA Permit Renewal (NPR) Team met with the permittees authorized for livestock grazing in the South Mountain Group allotments on April through August of 2013, to discuss allotment conditions, objectives, and livestock management on the respective allotments, including amendments to permittees applications.

The circulation of this EA serves as an additional method of public outreach, providing the permittees, any member of the interested public, State and local governments, and Tribes a 21-day period to review and comment on the NEPA document.

### **1.6.2 Scoping Comments**

Comments were received from Katie Fite of Western Watersheds Project (WWP), Idaho Department of Fish and Game (IDFG), Junayo Ranch and Idaho Department of Environmental Quality (IDEQ).

### **1.6.3 Issues**

Throughout the internal and external (public) scoping process and project development period, the BLM interdisciplinary team identified the following issues concerning livestock grazing management in one or more of the Group 4 allotments:

- *Habitat conditions for greater sage-grouse (Centrocercus urophasianus)*; from this point on referred to as sage-grouse): Sage-grouse habitat health is directly related to upland vegetation and watershed conditions. Specific areas of the South Mountain Group allotments contain altered sagebrush community composition, structure, and function that are affecting sage-grouse and other sagebrush habitat-dependent species. Other areas in the group are outside of defined sage-grouse habitat.
- *Fish and amphibian habitat conditions*: Stream, floodplain, wetland, and mesic (moderately moist) habitat conditions are directly related to conditions within the riparian vegetation community. Altering of the riparian community may affect the health and sustainability of fish and amphibian populations.
- *Soil compaction*: Soil compaction from the physical presence of livestock remains a concern with moist soils, especially in areas with shallow and fine-textured soils. The hazard of compaction of wet soils with hoof action of livestock may be present, resulting in a reduction of infiltration and soil moisture holding capacity in fine-textured soils.
- *Riparian vegetation conditions*: Livestock grazing is affecting riparian condition and aquatic habitat by changing the health and composition of riparian vegetation communities.

- *Climate change*: The issue of climate change and its relationship to the proposed federal action of renewing grazing permits is twofold. Livestock grazing in Owyhee County contributes CO<sub>2</sub> and methane emissions to the earth's atmosphere. In addition, climate change, itself a stressor on the sagebrush-steppe semi-arid ecosystem found in the Owyhee Uplands can, when found in conjunction with cattle grazing, further stresses the ecosystem's vegetation.
- *Upland vegetation and watershed conditions*: Livestock grazing is affecting upland vegetation by reducing or removing native vegetation communities that protect watershed soil and hydrologic function.
- *Special status plant species*: Livestock grazing is adversely affecting special status plants by altering surrounding upland vegetation, habitat, and reproduction of individuals within Dougal FFR and South Dougal allotment.
- *Noxious and invasive weeds*: Livestock grazing and trailing has the potential to increase or spread noxious and invasive weeds.
- *Livestock trailing*: Livestock trailing may adversely affect upland vegetation, soils, weeds, and riparian vegetation.
- *Cultural resources*: Livestock grazing has the potential to damage or displace artifacts and features of a historic property, which may alter the characteristics that qualify it for listing in the National Register of Historic Places.
- *Paleontological resources*: Livestock grazing has the potential to cause breakage and displacement of fossils.
- *Wildfire fuels*: Livestock grazing has the potential to change vegetation that may affect wildfire.
- *Socioeconomic impacts*: Livestock grazing affects local and regional socioeconomic activities generated by livestock production.

## **Issues Considered but Not Analyzed in Detail**

### **Climate Change**

The science on predicting future climate conditions is continuously evolving. Land management actions might contribute to changes in atmospheric greenhouse gas levels, which can affect global climate. Addressing effects on greenhouse gas (GHG) levels within the scope of NEPA is difficult due to the lack of explicit regulatory guidance on how to meaningfully apply existing NEPA regulations to this evolving issue, and due to the continuously evolving science available at varying levels.

Agencies apply the rule of reason to ensure that their discussion pertains to the issues that deserve study and deemphasizes issues that are less useful to the decision regarding the proposal, its alternatives, and mitigation options (40 CFR 1500.4(f), (g), 1501.7, 1508.25). In addressing GHG emissions, the BLM ensures that such description is commensurate with the importance of the GHG emissions of the proposed action, avoiding useless bulk and boilerplate documentation, so that the NEPA document may concentrate attention on important issues (40 CFR 1502.5, 1502.24).

The BLM's 2008 NEPA Handbook, H-1790-1, explains that a topic must have a cause-and-effect relationship with the proposed action or alternatives to be considered an issue (H-1790-1, p. 40).

Climate change does not have a clear cause-and effect-relationship with the proposed action or alternatives. It is currently beyond the scope of existing science to identify a specific source of GHG emissions or sequestration and designate it as the cause of specific climate or resource impacts at a specific location.

The proposed action and alternatives, when implemented, would not have a clear, measurable cause-and-effect relationship to climate change because the available science cannot identify a specific source of GHG emissions, such as those from livestock grazing, and tie it to a specific amount or type of changes in climate.

Therefore, the effects of livestock grazing to the global climate will not be analyzed in detail in this EA. Effects of climate change on native perennial vegetation resources when also affected by livestock grazing are discussed in the rangeland vegetation sections of this EA.

#### **1.6.4 Decision to be Made**

The Owyhee Field Manager is the authorized officer responsible for the decisions regarding management of public lands within the Owyhee Field Office, including the authorization of livestock grazing through permit within the seven allotments and also the connected authorization of crossing permits to trail livestock across public land associated with grazing use in the seven allotments. Based on the results of the NEPA analysis, the authorized officer will make an informed decision whether, and under what terms and conditions, to renew grazing permits and authorize crossing permits. If grazing and crossing permits are offered, management actions, mitigation measures, and monitoring requirements will be prescribed for each of the seven allotments to ensure management objectives and Idaho Standards and Guidelines are met.

### **1.7 Conformance**

The alternatives analyzed here involve public lands and are subject to and in conformance with the ORMP dated December 1999. Relevant objectives from the ORMP are summarized below:

- SOIL 1: Improve unsatisfactory and maintain satisfactory watershed health/condition on all areas.
- SOIL 2: Achieve stabilization of current, and prevent the potential for future, localized accelerated soil erosion problems (particularly on streambanks, roads, and trails).
- WATR 1: Meet or exceed State of Idaho water quality standards on all federally administered waters within the Owyhee Resource Area.
- VEGE 1: Improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas.
- RPN 1: Maintain or improve riparian-wetland areas to attain proper functioning and satisfactory conditions. Riparian-wetland areas include streams, springs, seeps, and wetlands.
- WDLF1: Maintain or enhance the condition, abundance, structural stage, and distribution of plant communities and special habitat features required to support a high diversity and desired population of wildlife.
- FISH 1: Improve or maintain perennial stream/riparian areas to attain satisfactory conditions to support native fish.
- SPSS1: Manage special status species and habitats to increase or maintain populations at levels where their existence is no longer threatened and there is no need for listing under the Endangered Species Act of 1973, as amended.
- LVST 1: Provide for sustained level of livestock use compatible with meeting other resource objectives.
- VISL1: Manage the public lands for visual resource values under visual resource management classifications.
- CULT 1: Protect known cultural resource values from loss until their significance is determined.
- CULT 2: Provide special management emphasis for the protection and conservation of significant cultural resource sites and values.

#### **Relevant Statutes, Regulations, or Other Plans:**

- American Indian Religious Freedom Act of 1978
- Archaeological Resource Protection Act of 1979
- Bald and Golden Eagle Protection Act
- Bureau of Land Management 6840 Manual on Special Status Species Management 2008
- Bureau of Land Management National Sage-Grouse Habitat Conservation Strategy 2010
- Clean Air Act of 1970 (amended 1990)
- Clean Water Act of 1972
- Code of Federal Regulations (CFR); Title 40; Part 1500 – Council on Environmental Quality 2009
- CFR; Title 43; Part 4100 – Grazing Administration – Exclusive of Alaska 2006
- Coordinated Implementation Plan for Bird Conservation in Idaho
- Endangered Species Act (ESA) of 1973, Section 7, as amended
- Federal Land Policy and Management Act 1976
- Greater Sage-Grouse Interim Management Policies and Procedures <sup>1</sup>
- Idaho Comprehensive Wildlife Conservation Strategy 2005
- Idaho Sage-Grouse Conservation Strategy 2006
- Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management
- Migratory Bird Treaty Act of 1918 (MBTA)
- National Fire Plan 2000
- National Historic Preservation Act of 1966
- Native American Graves Protection and Repatriation Act of 1990
- North American Mule Deer Conservation Plan
- The Public Rangeland Improvement Act of 1978
- The Taylor Grazing Act of 1934

## 2 PROPOSED ACTION AND ALTERNATIVES

### 2.1 *Management Common to all Grazing Alternatives*

#### 2.1.1 Management Objectives

##### **Rangeland Project Maintenance and Construction**

Cooperative agreements between the individual livestock operators and the BLM have assigned responsibility for rangeland improvement maintenance to the individual operators. These cooperative agreements will remain in effect regardless of which grazing permit renewal alternative considered in this NEPA document is implemented. As a result, maintenance of existing projects is outside the scope of this NEPA document.

##### **Suspension AUMs**

In accordance with regulation pertaining to reducing permitted use (43 CFR 4110.3-2), alternatives that result in a reduction in active use AUMs to meet Rangeland Health Standards or make significant

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<sup>1</sup> Per BLM Instruction Memorandum No. 2012-043

[http://www.blm.gov/wo/st/en/info/regulations/Instruction\\_Memos\\_and\\_Bulletins/national\\_instruction/2012/IM\\_2012-043.html](http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2012/IM_2012-043.html)

progress, as well as reductions in active use animal unit months (AUMs) to meet ORMP management objectives, would be implemented by reducing permitted use. Active use AUMs no longer available would not be converted to suspension<sup>2</sup>. Suspension AUMs held on permits prior to this activity planning process would continue to be held on permits as suspension.

## **Monitoring**

Monitoring studies would be conducted during the term of the grazing permits in accordance with guidance provided by the Idaho State Office Instruction Memorandum IM ID-2008-022: Monitoring Strategies for Rangelands. Monitoring studies during the term of permits would include but are not limited to nested plot frequency, upland utilization, browse utilization, photo plots, multiple indicator monitoring (MIM), stubble height measurement, bank alteration, riparian woody browse utilization, and water quality testing.

### **2.1.2 Boise District terms and conditions common to all grazing alternatives:**

1. Grazing use will be in accordance with the grazing schedule identified in the final decision of the Owyhee Field Office Manager dated \_\_\_\_\_. Livestock grazing will be in accordance with your allotment grazing schedule(s). Changes to the scheduled use require approval.
2. Turn-out is subject to the Boise District range readiness criteria.
3. The permittee's certified actual use report is due within 15 days of completing the authorized annual grazing use.
4. Salt and/or supplements shall not be placed within one-quarter (1/4)-mile of springs, streams, meadows, aspen stands, playas, special status plant populations, or water developments.
5. Trailing activities must be coordinated with the BLM prior to initiation. A trailing permit or similar authorization may be required prior to crossing public lands.
6. Pursuant to 43 CFR 10.4(B), the permittee must notify the BLM field manager, by telephone with written confirmation, immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined in 43 CFR 10.2) on federal lands. Pursuant to 43 CFR 10.4 (C), the permittee must immediately stop any ongoing activities connected with such discovery and make a reasonable effort to protect the discovered remains or objects.
7. Livestock exclosures located within the grazing allotment are closed to all domestic grazing use.
8. Range improvements must be maintained in accordance with the cooperative agreement and range improvement permit in which you are a signatory or assignee. All maintenance of range improvements within designated Wilderness requires prior consultation with the authorized officer.
9. All appropriate documentation regarding base property leases, lands offered for exchange-of-use, and livestock control agreements must be approved prior to turn out. Leases of land and/or livestock must be notarized prior to submission and be in compliance with Boise District Policy.
10. Failure to pay the grazing bill within 15 days of the due date specified shall result in a late fee assessment of \$25.00 or 10 percent of the grazing bill, whichever is greater, not to exceed \$250.00. Payment made later than 15 days after the due date shall include the appropriate late fee assessment. Failure to make payment within 30 days may be a violation of 43 CFR § 4140.1(b)(1) and shall result in action by the authorized officer under 43 CFR § 4150.1 and § 4160.1.

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<sup>2</sup> In accordance with revisions to the grazing regulations as amended through February 6, 1996, paragraph "c" with provisions requiring the authorized officer to hold AUMs comprising the decreased permitted use in suspension was removed from 43 CFR 4110.3-2.

11. Livestock grazing will be in accordance with your allotment grazing schedule(s). Changes in scheduled pasture use dates will require prior authorization.
12. Utilization may not exceed 50 percent of the current year's growth.

### 2.1.3 Livestock Trailing/Crossing

Trailing or moving animals across Federal, State, or private land is a component of regular grazing management practices in the South Mountain Group 4 allotments. Livestock are primarily actively trailed on the existing roads, where no or limited forage is consumed and the trailing occurs for short durations. For the majority of situations, trailing activities have not been documented, nor are they expected to substantially affect resources. Thus, they are not affecting the ability of these allotments to meet or make significant progress toward meeting standards. For specific livestock routes, see Table TRL-1 below and Map RNGE-2 Trailing.

Trailing, or moving animals across federal, State, or private land, is a component of regular grazing management practices in the South Mountain Group allotments. Livestock are primarily actively trailed on the existing roads, where no or limited forage is consumed and the trailing occurs for short durations. For the majority of situations, trailing activities have not been documented, nor are they expected to substantially affect resources. Thus, they are not affecting the ability of these allotments to meet or make significant progress toward meeting standards.

The timing of specific trailing events varies annually based on factors such as forage production, drought, resource conditions, weather, wildfire, court decisions, and individual livestock operations across the Owyhee Mountains. Livestock trailing effects were analyzed over a 10-year period and are incorporated here by reference to the 2012 Owyhee Field Office Livestock Trailing Environmental Assessment (USDI BLM, 2012) and the 2013 South Mountain Group 4 EIS (USDI BLM, 2012d). Although the timing of occurrence of livestock trailing may be adjusted to coincide with the grazing alternative selected, the effects of the trailing would be the same as described in the 2012 Trailing EA. Effects other than those described in the 2012 Trailing EA will be discussed below in the effects section by resource.

**Table TRL-1:** Trailing/Crossing miles by allotment and material crossed (New Routes – Not Analyzed in Trailing EA or South Mountain Group 4 EIS)

Route and Allotment	Gravel	Native Material	Paved	Unknown/No Data	Grand Total
South Dougal	0	0.9	0	0	0.9

#### Terms and Conditions:

##### *Livestock Trailing:*

- Trailing will be active with livestock moving toward their final destination, except at night.
- 90 percent of the livestock will stay within the required 0.25-mile and or 240-foot corridor.
- The permittee will contact the Owyhee Field Office if natural events such as heavy rain or fire would not allow the permittee to complete the trailing event during the permitted time. The BLM would work with the permittee in these instances to mitigate resource impacts using all the applicable terms and conditions and design criteria.
- All supplemental feeding of livestock during trailing, including feeding horses used for the purposes of herding, will use certified noxious-weed-free forage to prevent the spread of noxious weeds on BLM-administered public lands in Idaho.

- Areas used for staging vehicles, horse trailers, fence panels, etc. will avoid sagebrush areas. If this is not feasible, previously disturbed sites will be used such as areas around stock ponds or troughs, or in past seedings or other grassland sites.
- Sheep trailing in the fall through Graveyard Point, Sands Basin and Poison Creek allotments would require 1 scout, 2 herders, and sheep herding dogs. A wagon or truck would follow to ensure no sheep are left behind for any reason.
- Fall overnighing of sheep in the Poison Creek allotment would requires electric fencing of the bedding ground and a watch person.

***Soils:***

- Trailing will only be authorized during times when soils are firm enough to support trailing livestock with little to no pugging/hummocking to minimize impacts to soils as per Boise District Range Readiness soil criteria.

***Wildlife:***

- From March 1 to May 15, livestock trailing will be routed at least 0.62 miles (1 km) from occupied and undetermined sage-grouse leks; if this is not possible, trailing events would be timed to occur between 10:00 a.m. and 6:00.p.m. These trailing routes are identified in Map RNGE-4.
- From March 1 to July 15, trailing routes will avoid areas known to be occupied by pygmy rabbits in order to avoid impacts to natal burrows; if this is not possible, then livestock are to be kept within 120 feet of trailing routes in those areas.
- From March 1 to June 30, temporary water sites and overnight areas will not be located in sagebrush habitat within 4.0 miles of occupied or undetermined sage-grouse leks in order to avoid impacts to lekking or nesting sage-grouse (and/or hens with early broods); if this is not possible, 90 percent of watering and overnighing livestock are to be kept within a 35-acre area or in previously disturbed sites, such as areas around stock ponds or troughs, corrals, existing seedings, or other grassland sites.
- Sheep trailing will continue to follow the separation agreement and BMPs or subsequent plans for big horn sheep (Appendix H).

***Special Status Plants:***

- Livestock trailing will be narrowed to within 120 feet on either side (240 feet total) of the identified trailing route within pastures containing special status plants within the otherwise 0.25-mile corridor.

***Riparian:***

- Livestock trailing adjacent to perennial streams or springs will require 90 percent of the livestock to be kept out of riparian areas for resource protection.

***Cultural:***

- Bedding or other congregation areas will not be allowed within at least 0.25 miles of known National Register of Historic Places eligible sites.
- Trailing will not occur over wet soils to avoid mixing of undisturbed stratified cultural deposits, as per Boise District Range Readiness soil criteria.

***Travel Management and Off Highway Vehicles:***

- Motorized vehicles incorporated with trailing activities will remain on existing vehicle routes. Cross country use of motorized vehicles will not be authorized.

## **2.2 Description of Proposed Action and Alternatives**

### **2.2.1 Alternative 1 – Current Situation**

Under Alternative 1 – Current Situation, grazing permits for the seven allotments of the South Mountain Group would be renewed consistent with the summarized actions that have led to the current conditions. In most instances, this alternative should be the livestock management actions which resulted in the current resource conditions and will provide the baseline for comparison of environmental effects resulting from implementation of other alternatives. The pasture-specific seasons of grazing use, with the duration and frequency of use consistent with recent grazing practices, would define each allotment's grazing schedule. Authorized active use in each of the seven allotments would be consistent with the maximum actual use, not to exceed the permitted level, which has been reported. When the current situation for any of the seven allotments in the South Mountain Group closely matched the terms and conditions of the existing permit, the current situation alternative is equivalent to the current permit terms and conditions or a no action alternative.

Under Alternative 1, permits to graze livestock on the South Mountain Group allotments would be renewed with the terms and conditions of permits currently in effect. This would include terms and conditions imposed by the U.S. District Court in February 29, 2000, because they have been in effect since that time. The mandatory and other terms and conditions for each allotment are listed for each allotment in the tables below (Section 2.4). Interim terms and conditions as currently permitted are:

- Key herbaceous riparian vegetation, where streambank stability is dependent upon it, will have a minimum stubble height of 4 inches on the streambank, along the greenline, after the growing season;
- Key riparian browse vegetation will not be used more than 50 percent of the current annual twig growth that is within reach of the animals;
- Key herbaceous riparian vegetation on riparian areas, other than the streambanks, will not be grazed more than 50 percent during the growing season, or 60 percent during the dormant season; and
- Streambank damage attributable to grazing livestock will be less than 10 percent on a stream segment.

Under Alternative 1, standard Boise District terms and conditions identified in Section 2.1 would apply, in addition to others incorporated into the grazing permit as identified in Section 2.4 below.

### **2.2.2 Alternative 2 – Applicants' Proposed Action**

Under Alternative 2 – Applicants' Proposed Action, grazing permits for the seven allotments of the South Mountain Group would be renewed consistent with the actions or terms and conditions of applications received from permittees. Consultation, cooperation, and coordination between the permittee and BLM should strive toward applications that meet land health standards, are consistent with the guidelines for livestock grazing management, and make progress toward meeting the ORMP objectives to the degree possible; Alternative 2 should meet the purpose and need stated in this EA.

For the South Mountain Area allotment, the permittees and Idaho Department of Lands submitted an application together. This application will be analyzed in this alternative.

### **2.2.3 Alternative 3**

Under Alternative 3, grazing permits for the seven allotments of the South Mountain Group would be renewed with actions or terms and conditions that constrain seasons, intensities, duration, and frequency

of grazing use to a degree necessary to meet or make significant progress toward meeting standards and the ORMP objectives. In addition, constraints would be applied and actions would be implemented to maintain meeting standards and objectives within pastures where identified resources are present and current conditions are consistent with desired future conditions. Although the frequency of grazing use would be limited during seasons when impacts to identified resources are greatest, flexibility in grazing schedules would be provided by limiting the duration and intensity of grazing use during a critical period to compensate for frequent use during a critical period.

Constraints used to develop Alternative 3 actions are one set of actions that will allow progress toward meeting or maintain meeting standards and ORMP objectives. Constraints to seasons, intensity, duration, and/or frequency of grazing use as follow would be applied under Alternative 3 specific to the pastures of each allotment where the following resources are present:

- **Wildlife:**
  - No more than 2 years of use in any consecutive 3-year period during sage-grouse nesting/early brood-rearing season (April 1 to June 30)<sup>3</sup> when PPH-Key habitat occurs in the pasture.
  - No more than 2 years of use in any consecutive 3-year period during spawning season (March 15 to June 15)<sup>4</sup> when occupied redband trout streams occur on BLM lands in the pasture.
  - No more than 2 years of use in any consecutive 3-year period during breeding (egg mass stage) season (May 1 to June 15)<sup>5</sup> when occupied Columbia spotted frog streams and lentic areas occur in the pasture.
  - Based on the habitat of the two special status plants known to occur in the Group 4 allotments, the upland vegetation and riparian constraints provide the necessary livestock limitations to maintain or improve the special status plants present. For this reason, there are no constraints unique to special status plants.
  
- **Upland Perennial Vegetation:**
  - When the mean elevation of the pasture is less than 5,000 feet<sup>6</sup>,

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<sup>3</sup> Managing breeding habitats are critical for the survival of sage-grouse populations (Connelly, Schroeder, Sands, & Braun, 2000). This constraint would aid in managing livestock grazing to maintain healthy, residual cover of herbaceous understory vegetation to reduce predation during the critical nesting and early brood-rearing stages, in addition to preventing direct trampling and disturbance of nests, eggs, and incubating females. Nesting and early brood-rearing habitat use period dates are derived from Table 5-2 in the Conservation plan for the Greater Sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee, 2006).

<sup>4</sup> Livestock have been shown to have high estimated rates of trampling on simulated salmonid redds (Gregory and Gamett 2009). Models of redd trampling by livestock has been shown to cause large increases in egg-to-fry mortality that could lead to undesirable population-level effects (i.e., reduced population growth rates), especially in populations with limited demographic resilience (Peterson et al. 2010). This constraint would aid in managing spawning habitat by reducing trampling of redds and significantly increasing egg-to-fry survival (BLM 2013). Spawning and egg incubation core-period dates are derived from Table F-1 in Grafe et al. (2002) and modified by information for local populations (Schill et al. 2004, BLM 2013).

<sup>5</sup> One of the most important factors in the demography of Columbia spotted frogs is survival of the young (i.e., eggs, larvae, and metamorphs)(Patla and Keinath 2005). Livestock have been shown to disturb and break apart fragile egg masses (Engle 2000, USFWS 2013) and cause direct mortality to larvae and young metamorphs (Maxell 2000). This constraint would aid in managing breeding habitat by reducing disturbance to egg masses and mortality of eggs and larvae due to livestock trampling. Although dates may vary among years depending on temperatures and snowmelt, the core-period dates of egg deposition and emergence of larvae are derived from Patla and Keinath (2005) and modified by information for local populations (Lohr & Haak, 2009) (Lohr 2010) (Lohr, 2011) (USDI USFWS, 2013).

<sup>6</sup> Mountain big sagebrush sites are present at higher elevation and in areas that receive greater effective annual precipitation than Wyoming big sagebrush and basin big sagebrush sites. The combined higher elevation, with cooler temperatures through the growing season and greater

- no more than 1 year of grazing use during the active growing season (May 1 to June 30) would be scheduled in any consecutive 3-year period<sup>7</sup>;

**OR**

- no more than 2 years of grazing use during the active growing season would be scheduled in any consecutive 3-year period when 30 or fewer days<sup>8</sup> of use occurs during the active growing season and the intensity of use is held to less than 41 percent<sup>9</sup> utilization at the end of the active growing season;

**OR**

- no more than 2 years of grazing use during the active growing season would be scheduled in any consecutive 3-year period during the active growing season when more than 30 days of grazing use occurs during the active growing season and the intensity of use that occurs during the active growing season is held to less than 21 percent utilization at the end of the active growing season.
- When the mean elevation of the pasture is greater than 5,000 feet,
  - no more than 1 year of grazing use during the active growing season (May 1 to July 15) would be scheduled in any consecutive 3 year period;

**OR**

- no more than 2 years of grazing use during the active growing season would be scheduled in any consecutive 3-year period when 30 or fewer days of use occurs during the active growing season and the intensity of use is held to less than 41 percent utilization at the end of the active growing season;

**OR**

- no more than 2 years of grazing use during the active growing season would be scheduled in any consecutive 3-year period during the active growing season when more than 30 days of grazing use occurs during the active growing season

annual effective precipitation, extends the growing season for sites dominated by mountain big sagebrush as compared to the other two subspecies. Mountain big sagebrush generally begins growth approximately two weeks after Wyoming and basin big sagebrush (Johnson 2000). The delay in the growing season would be more dramatic as elevation increases and mountain big sagebrush ecological sites replace Wyoming and basin big sagebrush ecological sites. Similarly, co-dominant native bunchgrass species associated with mountain big sagebrush ecological sites respond with a phenological delay as elevation increases (see Appendix F, which contains information on the relationship between elevation and the phenological development of key bunchgrass species present in the Owyhee Field Office). GIS analysis of the relationship between ecological site descriptions dominated by these three big sagebrush subspecies reveals that within the Owyhee 68 groups 3-5 allotments, no sites classified within the Wyoming or basin big sagebrush ecological site descriptions occur above 5000 feet elevation. Analysis also shows a zone between 4,000 and 5,000 feet elevation with scarce representation of Wyoming and basin big sagebrush sites. Use of 5,000 feet elevation as a transition point for an extended active growing season for upland vegetation communities is supported by the delay in the phenological development of plant communities within the project area.

<sup>7</sup> A number of sources suggest limiting the intensity of grazing use of bluebunch wheatgrass during the active growing season and limiting active growing season use with periodic deferment or year-long (Stoddart, 1946); (Blaisdell & Pechanec, 1949); (Mueggler W. F., 1972); (Mueggler W. F., 1975); (Miller, Seufert, & Haferkamp, 1994); (USDA NRCS, 2012); (Burkhardt & Sanders, 2010); (Anderson L. D., 1991). Some of these sources suggest this deferment or rest occur as frequent as two of every 3 years or more often. Flexibility would be provided in the development of grazing schedules under alternative three by limiting the duration and intensity of grazing use during the active growing season when use is schedule more frequent than one of 3 years during the active growing season

<sup>8</sup> Reed et.al. (Reed, Roath, & Bradford, 1999), in providing a grazing response index, identified the frequency of grazing while plants are actively growing, in addition to the intensity of use and opportunity for plants to grow prior to grazing or regrow after grazing has occurred, as factors that contribute toward repeated, selective use of the best, most palatable plants; overgrazing. These authors provided a citation concluding that seven to 10 days are required for a plant to grow enough to be grazed again.

<sup>9</sup> Utilization levels would be assessed, as determined by the key forage plant method, at the end of the growing season for key species and before plant senescence. The light level is a class of utilization between 21 and 40 percent whereas the slight level is a class of utilization between 5 and 20 percent. The constraint is consistent with ORMP management action number 4 under the Livestock Management Objective LVST 1; limiting impacts to vigor and health of perennial bunchgrasses during the active growing season.

and the intensity of use that occurs during the active growing season is held to less than 21 percent utilization at the end of the active growing season.

- **Soils:**
  - When the mean elevation of the pasture is less than 5,000 feet, no more than 2 years of use would be scheduled during periods of high soil moisture for low elevations (March 1 to May 15)<sup>10</sup> in any consecutive 3-year period.
  - When the mean elevation of the pasture is greater than 5,000 feet, no more than 2 years of use would be scheduled during periods of high soil moisture for high elevations (March 1 to May 31)<sup>11</sup> in any consecutive 3-year period.
- **Riparian:**
  - When the mean elevation of the pasture is less than 5,000 feet (see vegetation rational for elevation breaks), no more than 2 years of use June 15 to September 30<sup>12</sup> in any consecutive 3 year period
  - When the mean elevation of the pasture is greater than 5,000 feet, no more than 2 years of use July 1 to September 30 in any consecutive 3 year period
  - Where the indicator is appropriate<sup>13</sup>, and when grazing occurs more than 1 in 3 years during the specified time constraint period, limit the intensity of use to (measured at the end of the riparian growing season in key riparian areas<sup>14</sup>):
    - Stubble height no less than 6”<sup>15</sup>
    - Woody browse use no greater than 30 percent incidence of use on most recent year’s lead growth<sup>16</sup>
    - Bank alteration no greater than 10 percent<sup>17</sup>

## 2.2.4 Alternative 4

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<sup>10</sup>A number of sources (Laycock & Conrad, 1967) (Warren, Thurow, Blackburn, & Taylor, Jr., 1986) (Eldridge S. , 2004) (Bilotta, Brazier, & Haygarth, 2007) suggest limitations for grazing on wet or saturated soils due to increases in physical impacts of compaction and pugging (plunging hoofs into wet soil, forming a void). This is based on the principle that the resistance of a soil to deformation declines as soil moisture increases and therefore the greatest amount of soil damage occurs when livestock tread on wet soils. When livestock are removed from the pasture during these high risk times, damage to soils and vegetation will be limited.

<sup>11</sup> Extended deferred period is due to elevated soil moisture retention and delayed snow melt that increase with elevation it coincides with upland perennial vegetation constraints that serve as a proxy and reflect changes in precipitation and temperature. The constraint is consistent with ORMP management objective SOIL 1 - limiting impacts to watershed health/condition and associated management actions of providing adequate amounts of ground cover to support proper infiltration, maintain soil moisture, stabilize soils, and maintain site productivity.

<sup>12</sup> Many sources discuss the impacts of livestock grazing in riparian areas and to stream channels during the summer months: (Bailey & Brown, 2011); (Green & Kauffman, 1995); (Belsky, Matzke, & Uselman, 1999); (Liggins, 1999) (Stevens, McArthur, & Davis, 1992); (Clary, 1995).

<sup>13</sup> For example: bank alteration may not be necessary where a stream is rock armored, woody browse is NA when there is not a woody component (at the discretion of the Owyhee Field Office).

<sup>14</sup> Key riparian areas for intensity monitoring may include the locations of established DMAs and other locations that fit the definition of a key area provided in BLM Technical Reference 1737-23 or 1737-15; Key areas may be cooperatively chosen by Owyhee Field Office specialists, permittees, and other interested public.

<sup>15</sup> Stubble height technique as described in the Interagency Technical Reference 1737-23, *Multiple Indicator Monitoring of Stream Channels and Streamside Vegetation* (USDI BLM 2011)

<sup>16</sup> Woody species use technique as described in the Interagency Technical Reference 1737-23, *Multiple Indicator Monitoring of Stream Channels and Streamside Vegetation* (USDI BLM 2011)

<sup>17</sup> Bank Alteration technique as described in the Interagency Technical Reference 1737-23, *Multiple Indicator Monitoring of Stream Channels and Streamside Vegetation* (USDI BLM 2011)

Under Alternative 4, grazing permits for the seven allotments of the South Mountain Group 4 allotments would be renewed with actions (terms and conditions) that emphasize limiting the frequency of grazing use during seasons when impacts to identified resources are greatest. Limits on critical seasons of grazing use under Alternative 4 would also limit the intensity and duration of grazing during those periods. Limitations would constrain use to a degree necessary to meet, or maintain meeting all standards and the ORMP objectives within pastures where identified resources are present. In addition, Alternative 4 would implement actions that protect and enhance high value resources (e.g., perennial or extensive riparian resources, special status species habitats, resources associated with special management areas).

Actions of Alternative 4 would provide for additional resistance and resilience following disturbance and changing conditions. These additional protective measures would be provided by more frequently implementing actions that limit grazing use during seasons when impacts to identified resources are greatest than would occur under Alternative 3 and would not be as dependent on monitoring limitations on the intensity of use that are a part of grazing use flexibility in Alternative 3.

Constraints used to develop Alternative 4 actions are one set of actions that will allow progress toward meeting or maintain meeting standards and ORMP objectives. Similarly, these constraints are one set of actions that provide additional protection of high value resources. Constraints to seasons, intensity, duration, and/or frequency of grazing use meet objectives and to protect and enhance high-value resources would be applied specific to pastures where the following resources are present:

- ***Special status species:***
  - No more than 1 year of use in any consecutive 3 year period during sage-grouse pre-laying/lekking season (March 1 to March 31)<sup>18</sup> when an occupied and/or active lek occurs within the pasture or the pasture occurs within PPH-Key and a 75 percent BBD area
  - No more than 1 year of use in any consecutive 3 year period during sage-grouse nesting/early brood-rearing season (April 1 to June 30)<sup>1</sup> when PPH habitat occurs in the pasture
  - No more than 1 year of use in any consecutive 3 year period during sage-grouse late brood-rearing/summer season (July 1 to August 31)<sup>19</sup> within PPH-Key habitat and the local population's summer range occur in the pasture *and* the pasture is not meeting Standard 8 due to sage-grouse upland summer or summer riparian habitat
  - No more than 1 year of use in any consecutive 3 year period during spawning season (March 15 to June 15)<sup>3</sup> when occupied redband trout streams occur on BLM lands in the pasture

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<sup>18</sup> Managing breeding habitats are critical for the survival of sage-grouse populations (Connelly, Schroeder, Sands, & Braun, 2000). This constraint would aid in managing livestock grazing to provide healthy and abundant herbaceous understory vegetation to improve the condition of pre-laying females and provide nesting cover during the breeding season, in addition to preventing displacement of sage-grouse from leks. Lekking and early breeding habitat use period dates are derived from Table 5-2 in the Conservation plan for the Greater Sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee, 2006).

<sup>19</sup> Because areas with relatively moist conditions and abundant succulent forbs are typically limited across the landscape in mid to late summer, managing late brood-rearing/summer habitats is important for recruitment of immature sage-grouse into the adult population. This constraint would aid in managing livestock grazing to provide abundant succulent herbaceous vegetation (i.e., perennial forbs and bunchgrasses) for forage and concealment cover to improve the survival and condition of immature sage-grouse during the late brood-rearing/summer season. Late brood-rearing/summer habitat use period dates are derived from Table 5-2 in the Conservation plan for the Greater Sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee, 2006).

- No more than 1 year of use in any consecutive 3 year period during breeding (egg mass stage) season (May 1 to June 15)<sup>4</sup> when the pasture contains potential habitat (i.e., lentic areas, perennial streams) and occurs in occupied Columbia spotted frog watersheds
  - Based on the habitat of the two special status plants known to occur in the Group 4 allotments, the upland vegetation and riparian constraints provide the necessary livestock limitations to maintain or improve the special status plants present. For this reason, there are no constraints unique to special status plants.
- ***Upland Perennial Vegetation***<sup>20</sup>:
    - When the mean elevation of the pasture is less than 5,000 feet, no more than 1 year of use would be scheduled during the active growing season for low elevations (May 1 to June 30) in any consecutive 3-year period.
    - When the mean elevation of the pasture is greater than 5,000 feet, no more than 1 year of use would be scheduled during the active growing season for high elevations (May 1 to July 15) in any consecutive 3-year period.
- ***Soils:***
    - When the mean elevation of the pasture is less than 5,000 feet, no more than 1 year of use would be scheduled during periods of high soil moisture for low elevations (March 1 to May 15)<sup>8</sup> in any consecutive 3-year period.
    - When the mean elevation of the pasture is greater than 5,000 feet, no more than 1 year of use would be scheduled during periods of high soil moisture for high elevations (March 1 to May 31)<sup>9</sup> in any consecutive 3-year period.
- ***Riparian:***
    - When the mean elevation of the pasture is less than 5,000 feet (see vegetation rational for elevation breaks), no more than 1 year of use June 15 to September 30 in any consecutive 3 year period
    - When the mean elevation of the pasture is greater than 5,000 feet, no more than 1 year of use July 1 to September 30 in any consecutive 3 year period
    - When 1.0 or more mile (s) of perennial streams occur in a pasture per NHD *and* the pasture contains streams that were identified by the Idaho Department of Fish and Game as being within the range of Columbia red band trout, no use during mid-summer (dates dependent on elevation; see above) in all years<sup>21</sup>

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<sup>20</sup> A number of sources suggest limiting the frequency of grazing use of bluebunch wheatgrass during the active growing season to no more than one of 3 (Stoddart, 1946); (Blaisdell & Pechanec, 1949); (Mueggler W. F., 1972); (Mueggler W. F., 1975); (Miller, Seufert, & Haferkamp, 1994); (USDA NRCS, 2012); (Burkhardt & Sanders, 2010); (Anderson L. D., 1991).

<sup>21</sup> An analysis was performed to attain the range of perennial stream (per NHD) by pasture; 64 of the 123 pastures contain perennial stream (0.02-9.66 mile), and 30% of them have less than 1.0 mile of perennial stream. In other words 6% or 9.5 miles of the total perennial miles (152.8) occur in reaches of less than 1.0 mile by pasture. These pastures were eliminated from the added constraints (19 pasture were eliminated). Additionally, if a pasture did not also have RBT range identified by Idaho Fish and Game Department, the pasture was eliminated (8 additional pastures eliminated). Thus, the added constraints would apply to 37 pastures within the Group 3-5 allotments (see the project record for further detail).

High value resources defined by the above Alternative 4 constraints are:

- When sage-grouse pre-laying/lekking habitats are present,
- When sage-grouse late brood-rearing/summer habitats are present, or
- When 1.0 or more mile(s) of perennial streams occur in a pasture per NHD and the pasture contains streams that were identified by the Idaho Department of Fish and Game as being within the range of Columbia red band trout.

### 2.2.5 Alternative 5 – No Grazing

No grazing would be authorized on public lands within the 7 South Mountain Group allotments for a term of 10 years. Applications for grazing permit renewal would be denied and no grazing permits would be offered. All AUMs of permitted use for all of the South Mountain Group allotments would be unavailable for livestock grazing on public lands. Upon expiration of the 10-year term, livestock grazing on the allotment(s) would be reevaluated, with retention of preference (priority for grazing authorization) for approval of application(s) for grazing permit(s) attached to current base property(s).

### 2.2.6 Preferred Alternative

The preferred alternative is the result of assigning management prescriptions in a way designed to meet the resource needs of each individual allotment. This preferred alternative, therefore, is a composite of the action alternatives that are analyzed in this EA because no individual alternative analyzed is expected to provide the resource benefits for all seven allotments that BLM was seeking. This preferred alternative is summarized in Table PREF-1 below.

**Table PREF-1:** Preferred Alternatives by allotment

Allotment Name	Preferred Alternative
South Mountain Area	Alternative Three
South Dougal	Alternative Three
Sheep Creek	Alternative Three
Wilson Creek FFR	Alternative Three
Mckay FFR	Alternative Two
Dougal FFR	Alternative Three
Lequerica FFR	Alternative Three

## 2.3 Alternatives Considered but Not Analyzed in Detail

### *Grazing permit renewal with current terms and conditions (Alternative 6)*

The renewal of the grazing permit with the same terms and conditions as the current permits is the equivalent of a no-action alternative and was considered but not analyzed. In accordance with the BLM NEPA Handbook (H-1790-1), the no-action alternative for externally generated proposals or applications is generally to reject the proposal or deny the application. The sole exception to this is for renewal of a

grazing permit, for which the no-action alternative is to issue a new permit with the same terms and conditions as the expiring permit. As noted in the BLM NEPA Handbook, an alternative that documents the current and future state of the environment can be used to compare the effects brought about by the proposed action or alternatives.

Often, the livestock management practices implemented in recent years and that have resulted in documented resource conditions differ to some degree from terms and conditions of the current permit. As a result, analysis of an alternative that lists terms and conditions of the current grazing permit does not serve a purpose when recent livestock management practices do not closely follow the terms and conditions of the current grazing permit. This EA analyzes the effects of an alternative (Alternative 1 – Current Situation) that reflects livestock management actions that have been recently implemented, rather than an alternative that would renew the grazing permits with terms and conditions unchanged, to provide the baseline for analysis that documents the current and future state of the environment in the absence of action.

As a result, a no action alternative or renewing the permit without changes is not analyzed in detail. When the current situation for any of the South Mountain Group allotments closely matched the terms and conditions of the existing permit, the current situation alternative is equivalent to the current permit terms and conditions or a no action alternative.

#### ***New Rangeland Projects and Infrastructure (Alternative 7)***

A number of applications received for permit renewal identify rangeland improvement projects<sup>22</sup> (usually fences or water developments) that would modify existing projects or propose the construction of new projects. Though rangeland projects are one of a number of tools available to meet land health standards and/or resource objectives, BLM did not consider such proposals in detail for the following reasons:<sup>23</sup>

- BLM limited the action to renewing grazing permits using existing infrastructure on the allotments at issue, and thus requests to build new infrastructure that do not meet the purpose and need for this action.

Although the ORMP recognizes that rangeland projects have the potential to assist BLM in meeting management objectives in some situations, the ORMP states, “Use a minimal level of rangeland developments (e.g., fences, water facilities) to adjust livestock grazing practices to achieve multiple use resource objectives and meet standards for rangeland health (RMP/ROD at 24)”. This language identifies range improvements as only one tool among many that can be used to implement appropriate livestock management practices.

- A variety and considerable number of range improvement projects such as spring developments, fences, reservoirs, storage tanks, and troughs have already been constructed across the allotments to aid in livestock grazing management. For example, approximately 81 miles of fencing and approximately 9 reservoirs are in place on public land in the Group 4 allotments. The BLM

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<sup>22</sup> *Range improvement* means an authorized physical modification or treatment which is designed to improve production of forage; change vegetation composition; control patterns of use; provide water; stabilize soil and water conditions; restore, protect and improve the condition of rangeland ecosystems to benefit livestock, wild horses and burros, and fish and wildlife. The term includes, but is not limited to, structures, treatment projects, and use of mechanical devices or modifications achieved through mechanical means (43 CFR 4100.0-5).

<sup>23</sup> Information specific to each allotment and project proposed in permit renewal applications is provided in section 2.2.2 of this EA.

decided to rely on additional means to improve rangeland health and meet RMP objectives in this permit renewal process, including in part, varying the seasons of use for grazing, adjusting the timing and intensity of use, and also by considering adjustments to stocking rates.

- The BLM is preparing an RMP-amending Environmental Impact Statement that considers alternative strategies to protect sage-grouse in Idaho and southwestern Montana; consequently, the Owyhee Field Office is reluctant to approve new range improvement projects in sage-grouse habitat.<sup>24</sup>
- BLM Washington Office Instruction Memorandum 2012-043 provides interim conservation policies and procedures to the field offices to be applied to ongoing and proposed authorizations and activities that affect sage-grouse and its habitats while the sub-regional RMP Amendment process is underway. The guidance is in effect until the BLM develops and decides how to best incorporate long-term conservation measures for greater sage-grouse into applicable Land Use Plans. Proposed fences are addressed with the following guidance:

*Evaluate the need for proposed fences, especially those within 1.25 miles of leks that have been active within the past 5 years and in movement corridors between leks and roost locations. Consider deferring fence construction unless the objective is to benefit Greater Sage-Grouse habitat, improve land health, promote successful reclamation, protect human health and safety, or provide resource protection.*

Similarly, water developments are addressed with the following guidance:

*NEPA analysis for all water developments must assess impacts to Greater Sage-Grouse and its habitat. Install escape ramps and a mechanism such as a float or shut-off valve to control the flow of water in tanks and troughs. Design structures in a manner that minimizes potential for production of mosquitos which may carry West Nile virus.*

As a result, the complexity of considering and analyzing proposed projects during grazing permit renewal is heightened pending the identification of long-term conservation measures for sage-grouse in the amendment to the ORMP not yet completed.

- Inventories and surveys would be necessary to fully and appropriately analyze and disclose the direct, indirect, and cumulative impacts associated with new or modified infrastructure projects. The limited time available in order to meet the terms of June 26, 2008 Order Approving Stipulated Settlement Agreement permits makes it impossible to complete the analysis of project modification and/or construction. There simply is no time to conduct the necessary site-specific inventories and surveys of resources affected by infrastructure projects.

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<sup>24</sup> 2005BLM Land Use Planning Handbook H-1601-1, Status of Existing Decisions During the Amendment or Revision Process: During the amendment or revision process, the BLM should review all proposed implementation actions through the NEPA process to determine whether approval of a proposed action would harm resource values so as to limit the choice of reasonable alternative actions relative to the land use plan decisions being reexamined. Even though the current land use plan may allow an action, the BLM manager has the discretion to defer or modify proposed implementation-level actions and require appropriate conditions of approval, stipulations, relocations, or redesigns to reduce the effect of the action on the values being considered through the amendment or revision process. The appropriate modification to the proposed action is subject to valid existing rights and program-specific regulations. A decision to temporarily defer an action could be made where a different land use or allocation is currently being considered in the preferred alternative of a draft or proposed RMP revision or amendment. These decisions would be specific to individual projects or activities and must not lead to an area-wide moratorium on certain activities during the planning process (H-1601-1 at 47).

- The project proposals received failed to identify the way in which they would facilitate significant progress towards, or the attainment of, land health standards. While many of the proposed projects appear to facilitate livestock production, the majority appear to have a limited relationship to the grazing management practices needed to meet or make progress toward meeting land health standards, conform to guidelines, or meet management objectives.
- The projects proposed provided insufficient site-specific information (locations, engineering specifications, etc.) for BLM to fully analyze the improvements.
- Funding availability for range improvements in years past was much more reliable and predictable than it is currently. The 2011 Budget Control Act (sequestration) and impending budget reductions gives the Department of Interior and BLM unprecedented challenges in anticipating what level of funding will be available for all programs including range improvement projects for livestock grazing in the years ahead. Because of these funding uncertainties, approving range improvements in concept now provides no assurance that their construction on the ground would be realized in the foreseeable future.
- BLM's regulations for grazing administration specific to the standards and guidelines (43 CFR 4180.2) require that the authorized BLM officer, upon determining existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the standards and conform with the guidelines, take appropriate action as soon as practicable but not later than the start of the next grazing year.

Considering the time required for project design, completion of site specific surveys and NEPA analysis, plus construction time, it is unlikely that the authorized officer could take the required appropriate action prior to the start of the next grazing year. It would be most likely that these projects could not be completed in time, and would therefore require a set of interim actions to be taken while projects were still in various stages of analysis and construction. Even these interim actions could require another layer of NEPA analysis before implementation, further delaying progress toward improving rangeland conditions.

- Although BLM excluded range improvements from this permit renewal process for the above reasons, this is not intended to preclude proposals for range improvement projects that directly address rangeland health standards, ORMP objectives, and issues relating to protection of BLM sensitive species such as sage-grouse. Permittees are still encouraged to submit applications for range improvement projects outside the current permit renewal process, and the BLM will take a close look at the merit of these proposals within the context of any budgetary constraints at the time.

### ***Wildfire Fuels (Alternative 8)***

Wildfire is a natural event that defines a range of variability in potential vegetation communities of sagebrush steppe vegetation types. Wildfire behavior is dependent on a number of factors, including climatic conditions and current weather, as well as the size and connectivity of fuels, fuel loading, fuel

moisture, and topographic slope. In the absence of actions that significantly alter fuel loading, wildfire spread rates for grass fuel types and grass/shrub fuel types are similar. Models for the rate of spread in these fuel types follow similar curves for low fuel load and moderate fuel load and differ most at the extremes of fuel moisture and wind speed (USDA USFS, 2005).

Invasive annual grasses have been shown to alter wildfire behavior. Knapp (1996) reviewed the history, persistence, and influences to human activities of cheatgrass dominance in the Great Basin desert and noted that changes in density of cheatgrass have led to commensurate changes in fire frequency. Further, fires have shown a tendency to occur repeatedly within cheatgrass dominated areas. Balch et al (2012) found that cheatgrass-dominated lands had a shorter fire-return interval, were disproportionately represented in the larger fires, were significantly more likely to have been the ignition point for fires, and showed a strong inter-annual response to wet years in comparison to other prominent land cover classes across the Great Basin.

Livestock grazing has been identified as a potential underutilized tool in assisting managers to achieve fuels and vegetation management objectives. A number of sources suggest that livestock grazing could minimize wildfire impacts to high priority areas (Great Basin Restoration Initiative Workgroup, 2010) (Davies, Bates, Svejcar, & Boyd, 2010) (Diamond, Call, & Devoe, 2009) (Taylor, Jr., 2006). The Governor's Federal alternative for greater sage-grouse management in Idaho says, "The unintended consequences of altering grazing use, such as possible increased risk of wildfire, must be carefully considered in any management proposal" (The State of Idaho, 2012). The following discussion of the value and consequences of using landscape-scale and targeted livestock grazing to manage fuels is provided in the context of the purpose-and-need for this NEPA document, renewal of grazing permits consistent with meeting the Idaho S&G as well as the ORMP objectives.

Following a series of large wildfires in south-central Idaho and northern Nevada in 2007, a team of scientists, habitat specialists, and land managers examined initial information pertaining to plant communities and patterns of livestock grazing, as they related to fuel loads and fire behavior. Many vegetation communities involved in the 2007 fires are similar to sagebrush steppe within the South Mountain Group allotments. The team concluded that much of the area involved in these fires burned under extreme fuel and weather conditions that likely overshadow livestock grazing as a factor influencing fine fuels and thus fire behavior. One finding was that fire behavior in sagebrush vegetation types is driven by sagebrush cover and height, with the herbaceous component on which livestock focus their grazing playing a lesser role. Consequently, opportunities to influence fire behavior through livestock grazing are greatest in grassland vegetation types as compared to shrub-grasslands. Secondly, the potential effects of grazing on fire behavior are highly dependent on weather, fuel load, and fuel moisture conditions. Grazing applied at sustainable utilization levels would have limited or negligible effects on fire behavior when fuel moisture and weather conditions are extreme. When weather and fuel moisture conditions are less extreme, grazing may reduce the rate of spread and intensity of fires allowing for more patchy burns with lower fuel consumption levels. The team further identified the use of targeted grazing programs on specific areas as greater opportunities when livestock can affect fire behavior through reduction in fine fuels on semi-arid rangelands, as opposed to landscape-scale grazing that is not strategic (USDI USGS, 2008).

Targeted grazing is the application of a specific kind of livestock at a determined season, duration, and intensity to accomplish defined vegetation or landscape goals. The major difference between good grazing management and targeted grazing is that targeted grazing refocuses outputs of grazing from livestock production to vegetation and landscape enhancement (Launchbaugh & Walker, Targeted Grazing-A New Paradigm for Livestock Management: in Targeted Grazing-A Natural Approach to Vegetation Management and Landscape Enhancement, 2006). Some recent applications of targeted grazing have included control of noxious weeds, control of competing vegetation in agroforestry, and the

establishment and maintenance of fuel breaks. Targeted grazing is one of a number of tools available for constructing desirable ecosystems. Targeted grazing should be used in combination with other technologies to meet vegetation management objectives, with consideration for economic, ecological, and social implications.

Sheep and goats have been identified as livestock more conducive to fuels reduction in vegetation types with a shrub component, as compared to cattle. Although woody species are a greater portion of the selected diet of sheep and goats, intensive livestock management, including protein and energy supplements, increases consumption of shrubs (Taylor, Jr., 2006). Terms and conditions of existing permits to graze livestock in the Group 4 allotments do not include grazing by sheep or goats, nor did any application for permit renewal include a desire to graze sheep or goats in these allotments. All existing grazing use authorized is by cattle, unchanged in applications received. As a result, the indirect consequences of reducing the shrub component of fuels have limited application to grazing permit renewal in the Group 4 allotments.

A number of sources, in addition to the USGS (2008) report following the Murphy Complex fires, have identified the utility of targeted livestock grazing as one of a number of tools that can be used in an integrated plan to establish and maintain fuel breaks, as opposed to landscape-scale livestock grazing to reduce fuel loads (Great Basin Restoration Initiative Workgroup, 2010) (University of Nevada Cooperative Extension, 2007) (Taylor, Jr., 2006). In addition to the emphasis on site specific targeted grazing to provide fuel breaks, these sources and other citations listed above have consistently noted that grazing as a fuels management tool is primarily limited to grassland dominated vegetation types. Many of these sources recognize the need to ensure that prescriptions for reduction in fine fuels through targeting grazing before the fire season also do not reduce the health and vigor of perennial herbaceous species during the active growing season, impair watershed function, or limit the ability to meet other resource objectives on a landscape scale. The adverse effect on these resources in small areas to meet targeted grazing prescriptions that establish and maintain linked fuel breaks needs to be considered against a goal to minimize impacts of wildfire to large areas of intact habitat (Great Basin Restoration Initiative Workgroup, 2010) (USDI USGS, 2008).

The Policy Analysis Group for the College of Natural Resources of the University of Idaho (University of Idaho, 2011a) provided information on policy options related to wildfire management and fuels treatments on Idaho's rangelands. The report summarized the potential benefits and detrimental effects of a number of tools, including livestock grazing. Although the group's report did not recommend an alternative, it focused on landscape-scale treatments and identified livestock grazing as an effective tool to reduce fuel loading. In addition, the report included information on potential adverse impacts from grazing treatments for fuels reductions, the same impacts that are identified in a number of other sources. Like those other sources, the report identified livestock grazing as a complex and dynamic tool with many plant and animal variables.

The role of targeted grazing to manage fuels, as compared to traditional grazing authorizations by permit or lease, is discussed in the Great Basin Restoration Initiative Workgroup's report (2010). Although targeted livestock grazing to reduce fuels within strategic strips or zones can help reduce wildfire impacts, accomplishing this goal is a formidable challenge given the many climatic, biological, wildfire behavior, and livestock management variables that may affect the outcome. The option and benefits of using stewardship contracting are discussed. The report suggests that targeted fuels management is best addressed in a fire management plan that can integrate all wildland fire management guidance, direction, and activities to implement national fire policy and fire management direction from the resource management plan. Taylor (2006) also identified that planning for use of livestock grazing for fuels management planning needs to consider the integration of additional fuels management tools. Livestock grazing actions for fuels management involves a shift in purpose from providing an opportunity for a use

of public lands to meet a permittee's livestock production objectives to a purpose of meeting vegetation or fuels management objectives.

Diamond, Call, and Devoe (2009) found that targeted, or prescribed, cattle grazing that removed 80 to 90 percent of cheatgrass biomass during the growing season was an effective tool to reduce flame length and rate of spread of fire during the following fire season, especially when combined with late summer prescribed fire treatment and the same grazing treatment in the following year. Few rangeland managers, including the authors in the final sentence of the article, would suggest that native perennial herbaceous species could be maintained, let alone improved, with this series of livestock grazing and prescribed fire treatments. In addition, site stability and watershed function would likely be jeopardized with consecutive years of herbaceous utilization at these levels and with frequent prescribed burning. Ecological objectives should be included as a part of the overall strategy of targeted grazing to reduce fuel loading (Taylor, Jr., 2006). Utilization levels of 50 to 60 percent on crested wheatgrass were effective in creating a patchy burn in the Murphy Complex fires (USDI USGS, 2008). In addition, contracted sheep grazing has been used by the BLM Boise District to establish and maintain narrow fuel breaks in the wildland-urban interface. The BLM has and will continue to develop plans to create fuel breaks that provide firefighters an additional tool in managing wildland fire. Livestock grazing will continue to be a tool available to establish and maintain strategically located fuel breaks.

A review of the literature related to livestock grazing effects on fuel loads in sagebrush ecosystems by Strand and Launchbaugh (2013) identified the potential applications of livestock grazing in fuels management similar to those identified above. These authors identified the role of introduced annual species in altered fire regimes, the potential for reducing fine fuels through livestock grazing, and the appropriate timing of grazing treatments to reduce herbaceous fuel loads to coincide with peak biomass and the initiation of dormancy. They also identified that under extreme burning conditions wildland fires are driven by weather conditions rather than by fuel characteristics and that the potential role of grazing on fire behavior is limited.

In conclusion, landscape-scale fuels treatment through livestock grazing has limited application within the sagebrush/bunchgrass vegetation types in the South Mountain Group allotments, a landscape with few large or connected areas dominated by annual species or grazing tolerant introduced perennial grasses. The use of livestock grazing as a fuels treatment in an integrated program is better adapted to fuels planning and contracting (including stewardship contracting) with objectives for vegetation and fuels management, as opposed to being administered through the typical grazing permit/lease program that provides an opportunity for permittees to use an available resource to meet their livestock production objectives. Although grazing authorized in the alternatives of this EA will reduce fine fuels, the intensity of grazing necessary to be an effective fuels treatment at the landscape-level and the timing of grazing during the active growing season for native bunchgrass species (May 1 to June 30 at elevations below 5000 feet and slightly later at higher elevations) that would be necessary to reduce fuels prior to the typical onset of the fire season (late June to early July) is outside the purpose and need for this permit renewal EA. Additionally, targeted grazing for fuels reduction to establish fuel breaks is outside the purpose and need of this NEPA document, which responds to applications for grazing permit renewal authorizing cattle grazing to meet rangeland health standards and resource management objectives. Therefore, targeted grazing although considered is not included in alternatives analyzed. Analysis of the consequences of livestock grazing on fuels reductions is limited in this NEPA document to the discussion above.

Using livestock grazing as a tool for managing vegetation and fuel loads will be addressed in the Idaho/Southwest Montana Environmental Impact Statement for sage-grouse, a planning effort that will amend relevant BLM resource management plans, including the ORMP. Once the RMPs are amended,

renewal of permits for grazing within the Owyhee Field Office, as well as fuels management planning, will incorporate resource objectives and actions according to direction in the amended ORMP.

***Reserve Forage Allotments or Temporary Non Renewable (TNR) grazing use (Alternative 9)***

The Environmental Protection Agency (EPA) submitted an alternative in February 2012 that would designate allotments to be used temporarily and on a non-renewable basis to allow for rangeland restoration and recovery. There was no opportunity at this time for any of the South Mountain Group allotments to be converted to forage reserve allotments.

***Management Alternatives (Alternative 10)***

The following management alternatives were submitted by Western Watersheds Project in April 2012 to BLM for consideration for development of this EA:

The active/passive restoration alternative would include the following actions:

1. Protect remaining relatively intact sagebrush habitats.
2. Enable passive restoration of lands at risk of weed invasion and/or suffering degradation or facing further losses of native species.
3. Provide for active restoration and removal of livestock facilities or roads or end practices that damage important, sensitive, and imperiled species' habitats and populations. This includes actions such as removal of fences and water developments, salt/supplement sites, and associated roading or other disturbance.
4. Provide for active restoration of crested wheatgrass seedings and cheatgrass or other exotic species areas.

Active or passive restoration alternatives will not be analyzed in this EA. BLM has developed and considered a reasonable range of alternatives, including a no-grazing alternative, which will be analyzed in this EA. The BLM Boise District Office has a weed management plan in place that includes an active weed management program within the Owyhee Field Office.

A request to designate new ACECs has been considered but will not be analyzed in detail, per Section 202(c) of FLPMA (43 U.S.C.1712), which requires that in developing land use plans (or amending existing plans), the BLM must give priority to designating and protecting areas of critical environmental concern (ACECs). Designation of a new ACEC is a land use planning-level decision that would require an amendment to the existing Owyhee RMP. The BLM is not in the position to include an ORMP amendment in this permit renewal process. Grazing authorization renewal is an implementation-level decision that does not involve changes to an RMP.

***Idaho Governor's Sage Grouse Management (Alternative 11)***

The following summary of the Governor's Sage Grouse Management Alternative was considered during the South Mountain Group allotments EA. Although the BLM eliminated this alternative from detailed study, many concepts and aspects of the alternative are already available to the BLM and have been incorporated into Alternatives 3 through 5 of the EA, including: incorporation of habitat characteristics, conducting habitat assessments and priority area assessments, determination of achievement of habitat objectives, achievement of objectives 2 of 5 years (the Governor's Alternative differs by proposing achievement in 3 of 5 years), and monitoring to determine effectiveness. In addition, the Governor's Alternative was intended for the BLM Idaho RMP amendment process, and BLM understood that this alternative would not be applicable at the project level until the RMP amendment process has been completed; and furthermore, only if the selected alternative in the Record of Decision (ROD) includes the Governor's sage-grouse alternative.

The Idaho Governor's Office of Species Conservation with the unanimous recommendation of the Task Force adopted a designation of a Sage-Grouse Management Area ("SGMA") with three distinct management zones: Core Habitat ("CHZ"), Important Habitat ("IHZ") and General Habitat ("GHZ"). (The BLM recognizes these management areas and have similar habitat zones identified for management of sage-grouse that have been used in the development of the EA.)

Generally, these management zones outline a suite of basic management activities that may, under certain conditions, occur within a given area. In other words, the three management zones within the SGMA represent a management continuum that includes at one end a relatively restrictive approach aimed at providing a high level of protection to the species within the CHZ, and on the other end, a relatively flexible approach for the GHZ allowing for more multiple-use activities. While the IHZ provides greater flexibility than in the CHZ, the overall quality and ecological importance of the habitat within this zone is more closely aligned with the habitat in the CHZ than in the GHZ.

Allocation to a specific management zone does not mandate or direct the relevant Federal agency to propose or implement any action; rather, the three habitat zones provide an array of permitted and prohibited activities. Activities not specifically addressed by the alternative are still subject to the allowances and restrictions of the applicable resource management plan.

This alternative only provides special management for sage-grouse on lands managed by the BLM and U.S. Forest Service, and while beneficial to other sage-steppe species, agencies will still have the obligation to analyze other values when considering a proposed action.

The relevant Federal agencies considering these measures as part of environmental analyses, planning updates, and ESA listing determinations should recognize that actions on these lands can have direct and indirect impacts on State endowment trust lands managed by the Idaho Department of Lands. Thus, it is important to evaluate sage-grouse management in a comprehensive and holistic manner.

## **2.4 Allotment Specific Proposed Action and Alternatives**

### **2.4.1 Dougal FFR (0473)**

Standards 2, 3, and 4 of the applicable standards for rangeland health are not being met in the Dougal Fenced in Federal Range (FFR) allotment; Standards 1 and 8 are met; and Standards 5, 6, and 7 are not applicable to resources present within the allotment. Current livestock grazing management practices are not significant factors in failing to meet Standards 2, 3, and 4.

#### **2.4.1.1 Alternative 1**

Under alternative 1, BLM would renew the livestock grazing permit for the use in the Dougal FFR allotment in accordance with the current permit and the current situation that led to conditions on the ground. Because of limited actual use information, alternative 1 would authorize grazing in the Dougal FFR allotment consistent with the current permit (2003). Under the current permit, the permittee is authorized 90 AUMs of permitted grazing from December 1 to December 31, with the number of livestock and season of use within the allotment at the permittee's discretion.

Current livestock use terms and conditions for stubble height, woody browse, utilization, and streambank alteration imposed on the grazing permit by the United States District Court for the District of Idaho would be included in terms and conditions of the offered permits.

Frankie Dougal would be offered a 10-year grazing permit as outlined in Table Alt-1 with terms and conditions described below and in Table Alt-2.

**Table ALT-1:** Permitted grazing use within the Dougal FFR allotment

Active Use	Suspension	Permitted Use
90 AUMs	0 AUMs	90 AUMs

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-2. This permit as described is for billing purpose only. The season of use would allow for 365 days of use.

**Table ALT-2:** Mandatory and other terms and conditions for the Dougal FFR allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
88	Cattle	12/1	12/31	100	Active	90

**Terms and conditions (2003):**

1. Boise District terms and conditions common to all grazing alternatives.
2. The number of livestock and season of use on the Fenced in Federal Range (FFR) allotment 0456 is at your discretion.
3. Key herbaceous riparian vegetation, where streambank stability is dependent upon it, will have a minimum stubble height of 4 inches on the streambank, along the greenline, after the growing season.
4. Key riparian browse vegetation will not be used more than 50 percent of the current annual twig growth that is within reach of the animals.
5. Key herbaceous riparian vegetation on riparian areas, other than the streambanks, will not be grazed more than 50 percent during the growing season, or 60 percent during the dormant season.
6. Streambank damage attributable to grazing livestock will be less than 10 percent on a stream segment.

**2.4.1.2 Alternative 2**

Under alternative 2, BLM would renew the livestock grazing permit for the use in the Dougal FFR allotment in accordance with the application and grazing system received from Frankie Dougal. The grazing system would graze pasture 8 on deferred grazing system with no more than 45 cattle. All other pastures would be grazed at the permittee’s discretion. Permitted AUMs would remain unchanged at 90 AUMs. The complete application is reproduced in Appendix D.

Frankie Dougal would be offered a 10-year grazing permit as outlined in Table Alt-3, Table ALT-4, and Table ALT-5. The permit would also include terms and conditions described below.

**Table ALT-3:** Permitted grazing use within the Dougal FFR allotment

Active Use	Suspension	Permitted Use
90 AUMs	0 AUMs	90 AUMs

In accordance with the application, the grazing schedule for pastures of the Dougal FFR allotment identified in Table ALT-4 would be authorized.

**Table ALT-4:** Applicants proposed a 2-year grazing system for Dougal FFR allotment

Year	Pasture	Date On	Date Off	Days
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Year	Pasture	Date On	Date Off	Days
1	1-7 and 9 <sup>1</sup>	1/1	12/31	
	8 <sup>2,3</sup>	4/1	6/14	75
2	1-7 and 9 <sup>1</sup>	1/1	12/31	
	8 <sup>2,3</sup>	6/15	8/31	75

<sup>1</sup>Pastures 1-7 and 9: The number of livestock and season of use is at the permittee's discretion

<sup>2</sup>Pasture 8 would follow the grazing rotation described above

<sup>3</sup>Cattle numbers would not exceed 45 for Pasture 8

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-5. The season of use would allow for 365 days of use.

**Table ALT-5: Mandatory and other terms and conditions for the Dougal FFR allotment**

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
88	Cattle	12/1	12/31	100	Active	88

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. Pastures 1-7 and 9: The number of livestock and season of use is at the permittee's discretion.
3. Pasture 8 would follow the grazing rotation described above.
4. Cattle numbers would not exceed 45 for Pasture 8.

**2.4.1.3 Alternative 3**

Under Alternative 3, the BLM would renew grazing on the Dougal FFR allotment using resource constrains and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and Owyhee RMP objectives as described in the description of proposed action and alternatives in section 2.2.2 above. Under this alternative, a 3-year rotational grazing system was developed that would authorize livestock use based on soil, vegetation, riparian, and sage-grouse resource issues while still permitting use similar to the permittee's application. Resource constraints used to develop this alternative are provided in Table Alt-6.

Because the BLM-administered lands in this allotment are isolated and fenced in with a large amount of private land, livestock management in this alternative would also consider the private landowner needs. Specifically, this alternative would consider:

1. The need to allow for varying livestock number because management decisions the operator may make within this allotment can require moving cattle around frequently within pastures due to water availability, vegetation condition, haying operations, weather, and calving. Also, these pastures can be affected by changes in livestock decisions made on other lands they graze resulting in increasing or decreasing cattle.
2. Private lands that are fenced separately from BLM lands not captured in the allotment map would not be managed under this permit (corrals, holding pastures, etc.).
3. In the future, if BLM lands in the Dougal FFR allotment are fenced separately from the private land, resource constraints may be adjusted to account for change in resource issues within that pasture assuming BLM lands still exist in the pasture. The BLM lands that are fenced separate

would still be authorized for grazing consistent with the current resource constraints identified for that pasture.

**Table ALT- 6:** Resource constraints for the Dougal FFR allotment

Resource	Pasture 1	Pasture 2	Pasture 3	Pasture 4	Pasture 5	Pasture 6	Pasture 7	Pasture 8	Pasture 9
Sage-Grouse/ Wildlife	None	N/A	April 1 to June 30 – No more than 2 yrs use in 3 yrs	April 1 to June 30 – No more than 2 yrs use in 3 yrs	April 1 to June 30 – No more than 2 yrs use in 3 yrs	April 1 to June 30 – No more than 2 yrs use in 3 yrs	None	April 1 to June 30 – No more than 2 yrs use in 3 yrs	April 1 to June 30 – No more than 2 yrs use in 3 yrs
Vegetation	No use 2/3 yrs May 1- Jul 15	N/A	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15
Soils	March 1 to May 31 - No more than 2 yrs use in 3 yrs	N/A	March 1 to May 31 - No more than 2 yrs use in 3 yrs	March 1 to May 31 - No more than 2 yrs use in 3 yrs	March 1 to May 31 - No more than 2 yrs use in 3 yrs	March 1 to May 31 - No more than 2 yrs use in 3 yrs	March 1 to May 31 - No more than 2 yrs use in 3 yrs	March 1 to May 31 - No more than 2 yrs use in 3 yrs	March 1 to May 31 - No more than 2 yrs use in 3 yrs
Riparian/ Water Quality	NA	N/A	NA	No use 1/3 yrs July 1- Sep 30	NA	NA	NA	No use 1/3 yrs July 1- Sep 30	NA

Pasture 2 has 1 acre of public land. The resource constraints are not applicable because the accuracy of the map, fencing, and GIS calculations are not accurate enough to ensure the 1 acre is in pasture 2. For this reason, the 1 acre is included in pasture 1 or 3.

The grazing system would authorize varying livestock numbers from March 1 to February 28 with duration of use varying from 30 to 365 days. For pastures 4 and 8, the duration of use would be from 30 to 32 days. This duration combined with pasture 4 and 8 resource constraints should ensure the riparian resources found in these pastures would continue to meet or make significant progress towards meeting the related riparian/water quality rangeland health standards. Pastures 1, 3, 5, 6, 7, and 9 would allow for more flexibility in the season and duration of use while still complying with the resource constraints. The increased flexibility would still allow for these pastures to meet standards.

**Alternative 3 allotment specific terms and conditions:**

1. The number of livestock on the Fenced in Federal Range (FFR) allotment 0456 is at your discretion so long as authorized active use of 90 AUMs from public land is not exceeded.

This alternative would result in no reduction in permitted AUMs compared to the current permitted AUMs over the same 3-year period.

Frankie Dougal would be offered a 10-year grazing permit as outlined in Table Alt-7, a 3-year pasture rotation described in Table ALT-8, and the terms and condition described below and within Table ALT-9.

**Table ALT-7:** Permitted grazing use within the Dougal FFR allotment

Active Use	Suspension	Permitted Use
90 AUMs	0 AUMs	90 AUMs

A 3-year pasture rotation would be implemented as identified in Table Alt-8.

**Table ALT-8:** Alternative 3 Dougal FFR allotment 3-year grazing system

Year	Pasture	Date On	Date Off	Days
1	1	3/1	4/30	61
	or			
	1	7/16	2/28	228
	2	n/a		
	3	3/1	4/30	61
	or			
	3	7/16	9/30	77
	4	6/1	7/1	31
	5	3/1	4/30	61
	or			
	5	7/16	2/28	228
	6	3/1	4/30	61
	or			
	6	7/16	2/28	228
	7	3/1	4/30	61
	or			
	7	7/16	2/28	228
	8	4/1	4/30	30
	9	3/1	4/30	61
	or			
9	7/16	2/28	228	
2	1	7/16	2/28	228
	2	n/a		
	3	7/16	2/28	228
	4	7/16	8/16	32
	5	7/16	2/28	228
	6	7/16	2/28	228
	7	7/16	2/28	228
	8	5/1	6/1	32
	9	7/16	2/28	228
3	1	3/1	2/28	365
	2	n/a		
	3	3/1	2/28	365
	4	10/1	11/1	32
	5	3/1	2/28	365
	6	3/1	2/28	365
	7	3/1	2/28	365
	8	7/16	8/16	32
	9	3/1	2/28	365

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-9. The 88 AUMs in this table are below the 90 active AUMs because increasing the cattle numbers above 90 would exceed the 90 active AUMs. However, this does not preclude use to 90 AUMs.

**Table ALT-9:** Mandatory and other terms and conditions for the Dougal FFR allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
7	Cattle	3/1	2/28	100	Active	88

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. The number of livestock on the Fenced in Federal Range (FFR) allotment 0456 is at your discretion so long as authorized active use of 90 AUMs from public land is not exceeded.

**2.4.1.4 Alternative 4**

Under Alternative 4, the BLM would renew grazing on the Dougal FFR allotment using resource constrains and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and Owyhee RMP objectives as described in the description of proposed action and alternatives and added emphasis on high value resources (Section 2.24). This alternative developed a 3-year rotational grazing system that authorizes livestock use based on soil, vegetation, riparian, and sage-grouse resources constraints with increased emphasis on high value resources of riparian areas. Resource constraints used to develop this alternative are provided in Table Alt-10.

**Table ALT- 10:** Resource constraints for Dougal FFR allotment

Resource	Pasture 1	Pasture 2	Pasture 3	Pasture 4	Pasture 5	Pasture 6	Pasture 7	Pasture 8	Pasture 9
Sage-Grouse/ Wildlife	April 1 to June 30 - No more than 1 yrs use in 3 yrs	NA	April 1 to June 30 - No more than 1 yrs use in 3 yrs	April 1 to June 30 - No more than 1 yrs use in 3 yrs	April 1 to June 30 - No more than 1 yrs use in 3 yrs	April 1 to June 30 - No more than 1 yrs use in 3 yrs	None	April 1 to June 30 - No more than 1 yrs use in 3 yrs	April 1 to June 30 - No more than 1 yrs use in 3 yrs
Vegetation	No use 2/3 yrs May 1-Jul 15	NA	No use 2/3 yrs May 1-Jul 15	No use 2/3 yrs May 1-Jul 15	No use 2/3 yrs May 1-Jul 15	No use 2/3 yrs May 1-Jul 15			
Soils	March 1 to May 31 - No more than 1 yrs use in 3 yrs	NA	March 1 to May 31 - No more than 1 yrs use in 3 yrs	March 1 to May 31 - No more than 1 yrs use in 3 yrs	March 1 to May 31 - No more than 1 yrs use in 3 yrs	March 1 to May 31 - No more than 1 yrs use in 3 yrs	March 1 to May 31 - No more than 1 yrs use in 3 yrs	March 1 to May 31 - No more than 1 yrs use in 3 yrs	March 1 to May 31 - No more than 1 yrs use in 3 yrs
Riparian/ Water Quality	NA	NA	NA	No use 2/3 yrs July 1-Sep 30	NA	NA	NA	No use 2/3 yrs July 1-Sep 30	NA

Pasture 2 has 1 acre of public land. The resource constraints were not applied because the accuracy of the map, fencing, and GIS calculations are not accurate enough to assure this 1 acre is in the pasture. For this reason the 1 acre is included in pasture 1 or 3.

As part of this alternative the BLM would calculate the percentage of public land (% PL) in the allotment. The % PL is calculated by the proportion of livestock forage available on public lands within the allotment compared to the total available from both public land and lands that they may control. Within the Dougal FFR allotment, this would include 2,630 acres of private land, 828 acres of BLM land and 502

acres of State land. Based on NRCS Ecological Site Description, the proportion of livestock forage on public land within the Dougal FFR allotment is 14 percent. Because of a lack of water on some of the BLM land it more likely cattle use will occur on private land.

Based on these resource constraints and percent public land calculation, a 3-year grazing system was developed that would authorize 90 AUMs. The grazing system would authorize from 5 to 200 cattle from March 1 to March 28 with up to 152 days of use. This grazing system would stock the allotment between 2 and 20 acres per AUM. The stocking rates were adjusted to account for irrigated and dry land. The lower stocking rates of 2 acres per AUM were located in pastures with irrigated or sub-irrigated pastures while the higher stocking rates of 20 acres per AUM occurred in non-irrigated or sub-irrigated pastures.

This alternative would result in no reduction in permitted AUMs compared to the current permitted AUMs over the same 3-year period. The following 3-year rotational grazing system did calculate the percentage of public land by pasture to provide for further pasture accuracy.

**Alternative 4 allotment specific terms and conditions:**

1. The number of livestock on the Fenced in Federal Range (FFR) allotment 0456 is at your discretion so long as authorized active use of 90 AUMs from public land is not exceeded.

Frankie Dougal would be offered a 10-year grazing permit as outlined in Table Alt-11, a 3-year pasture rotation described in Table ALT-12, and terms and condition described below and within Table ALT-13.

**Table ALT-11: Permitted grazing use within the Dougal FFR allotment**

Active Use	Suspension	Permitted Use
90 AUMs	0 AUMs	90 AUMs

A 3-year pasture rotation would be implemented as identified in Table Alt-12.

**Table ALT-12: Alternative 4 Dougal FFR allotment 3-year grazing system**

Year	Pasture	Date On	Date Off	Days	# Cows	% PL	AUMs
1	1	10/1	11/1	32	110	11	13
	2	n/a					0
	3	3/1	5/1	62	25	43	22
	4	6/1	7/1	31	25	67	17
	5	9/30	2/28	152	5	21	5
	6	9/30	2/28	152	5	31	8
	7	9/30	2/28	152	200	1	10
	8	4/1	4/30	30	21	63	13
	9	4/1	5/1	31	50	5	3
2	1	10/1	11/1	32	110	11	13
	2	n/a					0
	3	7/16	9/30	77	20	43	22
	4	10/1	11/1	32	25	67	18
	5	9/30	2/28	152	5	21	5

Year	Pasture	Date On	Date Off	Days	# Cows	% PL	AUMs
	6	9/30	2/28	152	5	31	8
	7	9/30	2/28	152	200	1	10
	8	7/1	7/30	30	20	63	12
	9	7/16	8/16	32	50	5	3
3	1	7/1	9/30	78	70	11	20
	2	n/a					0
	3	7/16	9/30	66	20	43	19
	4	10/1	11/1	32	25	67	18
	5	9/30	2/28	152	5	21	5
	6	9/30	2/28	152	5	31	8
	7	9/30	2/28	152	100	1	5
	8	10/1	11/1	32	20	63	13
	9	7/16	8/16	32	50	5	3

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-13. The 89 AUMs in this table are below the 90 active AUMs because increasing the cattle numbers above 90 would exceed the 90 active AUMs. However, this does not preclude use to 90 AUMs.

**Table ALT-13:** Mandatory and other terms and conditions for the Dougal FFR allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
53	Cattle	3/1	2/28	14	Active	89

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. The number of livestock on the Fenced in Federal Range (FFR) allotment 0456 is at your discretion so long as authorized active use of 90 AUMs from public land is not exceeded.

**2.4.1.5 Alternative 5**

Under Alternative 5, the BLM would not authorize livestock to use public lands within the Dougal FFR allotment for the next 10 years. The BLM would deny the application for permit renewal (i.e., not reissue the permit) and for the next 10 years not approve any applications to graze public lands in this allotment. After 10 years, the BLM would reevaluate whether to again authorize grazing on the public lands within the allotment, considering such factors as wildlife, upland vegetation, and riparian health. The BLM would not cancel the existing preference for grazing use of this allotment's public lands as part of this action and would continue administering it under applicable law and regulation. After 10 years, the BLM would grant first priority for receipt of a future authorization, if any, to graze public lands within the Dougal FFR allotment to the qualified applicant who holds this preference.

**2.4.2 Lequerica FFR**

Standards 1, 2, 3, 4, and 8 of the applicable standards for rangeland health are not being met in the Lequerica FFR allotment; Standard 7 is met; and Standards 5 and 6 are not applicable to this allotment.

Current livestock grazing management practices are not significant factors in not meeting Standards 1, 2, 3, 4, and 8.

**2.4.2.1 Alternative 1**

Under alternative 1, the BLM would renew the livestock grazing permit for the use in the Lequerica FFR allotment in accordance with the current situation that led to conditions on the ground. Through meetings with the current permittee (Mr. Lequerica) and allotment research, it was determined that a portion of the private lands within the Lequerica FFR allotment is owned and fenced separately by Mr. Lowry. Within this fenced in pasture are approximately 23 acres of BLM land and 240 acres of private land.

Even though the private land within the allotment boundaries is not all owned by Mr. Lequerica, the current situation would be to authorize grazing on all BLM lands within the existing Lequerica FFR as described in the Owyhee RMP. Alternative 1 would also authorize grazing within the Lequerica FFR allotment consistent with recent actual use 2003 and 2005-2011. During this period, a maximum of 350 cattle grazed within the allotment, with most of the use occurring from September 1 to October 12. The new 10-year permit would authorize up to 350 cattle from September 1 to October 12.

Current livestock use terms and conditions for stubble height, woody browse, utilization, and streambank alteration imposed on the grazing permit by the United States District Court for the District of Idaho would be included in terms and conditions of the offered permits.

Mr. Lequerica would be offered a 10-year grazing permit as outlined in Table Alt-14 with terms and conditions described below and in Table Alt-15.

**Table ALT-14:** Permitted grazing use within the Lequerica FFR allotment

Active Use	Suspension	Permitted Use
11 AUMs	0 AUMs	11 AUMs

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-15.

**Table ALT-15:** Mandatory and other terms and conditions for the Lequerica FFR allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
8	Cattle	9/1	10/12	100	Active	11

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. Authorized up to 350 cattle.
3. The number of livestock and season of use on the FFR allotment 0456 is at your discretion.
4. The number of livestock and season of use on the FFR allotment 0457 is at your discretion.
5. Key herbaceous riparian vegetation, where streambank stability is dependent upon it, will have a minimum stubble height of 4 inches on the streambank, along the greenline, after the growing season.
6. Key riparian browse vegetation will not be used more than 50 percent of the current annual twig growth that is within reach of the animals.
7. Key herbaceous riparian vegetation on riparian areas, other than the streambanks, will not be grazed more than 50 percent during the growing season, or 60 percent during the dormant season.
8. Streambank damage attributable to grazing livestock will be less than 10 percent on a stream segment.

**2.4.2.2 Alternative 2**

Under alternative 2, BLM would renew the livestock grazing permit for the use in the Lequerica FFR allotment in accordance with the application received from the Lequerica and Sons. The application received would authorize use unchanged from the current permit. Under this permit, the permittee is authorized 11 AUMs of permitted grazing from December 1 to December 31. It also includes a term and condition that the number of livestock and season of use within the allotment is at the permittee’s discretion. The complete application is reproduced in Appendix D.

Lequerica and Sons would be offered a 10-year grazing permit as outlined in Table ALT-16 and Table ALT-17. The permit would also include terms and conditions described below.

**Table ALT-16:** Permitted grazing use within the Lequerica FFR allotment

Active Use	Suspension	Permitted Use
11 AUMs	0 AUMs	11 AUMs

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-17. This permit as described is for billing purpose only. The season of use would allow for 365 days of use.

**Table ALT-17:** Mandatory and other terms and conditions for the Lequerica FFR allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
11	Cattle	12/1	12/31	100	Active	11

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. The number of livestock and season of use on the Fenced in Federal Range (FFR) allotment 0456 is at your discretion.

**2.4.2.3 Alternative 3**

Under Alternative 3, the BLM would renew grazing on the Lequerica FFR allotment using resource constrains and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and Owyhee RMP objectives as described in the description of proposed action and alternatives. This alternative includes a 3-year rotational grazing system that was developed based on soil, vegetation, riparian, and sage-grouse resources issues while still permitting use similar to the permittee application. Resource constraints used to develop this alternative are provided in Table Alt-18.

As part of this alternative, the BLM would also permit Tim Lowery to graze within pasture 2 of Lequerica FFR by transferring 3 AUMs from Lequerica and Sons to Tim Lowery. This would result in the lequerica FFR allotment being a common allotment. The BLM would require Pasture 1 to be grazed by only Lequerica and Sons, and Pasture 2 would be grazed by only Tim Lowery.

Because the BLM land in this allotment is isolated and fenced in with a large amount of private land, livestock management in this alternative would also consider the private landowner needs. Specifically, this alternative would consider:

1. The need to allow for varying livestock number because management decisions the operator may make within this allotment can require moving cattle around frequently within pastures due to water, vegetation condition, haying operations, weather, and calving. Also, these pastures can be

affected by changes in livestock grazing made on other lands they graze resulting in increasing or decreasing cattle.

2. Private lands that are fenced separately from BLM not captured in the allotment map would not be managed under this permit (corrals, holding pastures, etc.)
3. In the future, if BLM lands in the Lequerica FFR allotment are fenced separately from the private land, resource constraints may be adjusted to account for change in resource issues within that pasture assuming BLM lands still exist in the pasture. The BLM land that is fenced separate would still be authorized for grazing consistent with the current resource constraints identified for that pasture.

**Table ALT- 18:** Resource constraints for Lequerica FFR allotment

Resource	Pasture 1	Pasture 2
Sage-Grouse/Wildlife	Not Present	Not Present
Vegetation	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15
Soils	March 1 to May 31 - No more than 1 yrs use in 3 yrs	March 1 to May 31 - No more than 1 yrs use in 3 yrs
Riparian/ Water Quality	No use 1/3 yrs July 1-Sep 30	Not present

Based on these resource constraints, a 3-year grazing system was developed that would authorize 20 AUMs.

The grazing system would authorize varying livestock numbers from March 1 to December 1 with up to 110 days of use. The duration of use is used combined with the resource constraints should ensure riparian resources would continue to meet or make significant progress.

**Alternative 3 allotment specific terms and conditions:**

1. Pasture 1 would be grazed by only Lequerica and Sons, and Pasture 2 would be grazed by only Tim Lowery.
2. The number of livestock on the FFR allotment 0536 is at your discretion so long as your active AUMs are not exceeded.

This alternative would result in no reduction in permitted AUMs compared to the current permitted AUMs over the same 3-year period.

Lequerica and Sons and Tim Lowery would be offered a 10-year grazing permit as outlined in Table ALT-19, a 3-year pasture rotation in Table ALT-20, and the terms and condition described below and within Table ALT-21.

**Table ALT-19:** Permitted grazing use within the Lequerica FFR allotment

Permittee	Active Use	Suspension	Permitted Use
Lequerica and Sons	8 AUMs	0 AUMs	8 AUMs
Tim Lowery	3 AUMs	0 AUMs	3 AUMs

**Table ALT-20:** Alternative 3 Lequerica FFR allotment 3-year grazing system

Year	Pasture	Date On	Date Off	Days
1	1	3/1-4/30 Or		61 Or

Year	Pasture	Date On	Date Off	Days
		10/1-12/1		62
	2	7/16	12/1	139
2	1	3/1	12/1	276
	2	3/1	12/1	276
3	1	10/1	12/1	62
	2	10/1	12/1	62

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-21.

**Table ALT-21:** Mandatory and other terms and conditions for the Lequerica FFR allotment

Allotment	Permittee	Livestock		Grazing Period		% PL	Type Use	AUMs
		Number	Kind	Begin	End			
00536 Lequerica FFR	Lequirica and Sons	1	Cattle	3/1	2/28	100	Active	8
	Tim Lowery	1	Cattle	3/1	2/28	100	Active	3

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. Pasture 1 would be grazed by only Lequerica and Sons, and Pasture 2 would be grazed by only Tim Lowery.
3. The number of livestock on the Fenced in Federal Range (FFR) allotment 0536 is at your discretion so long as your active AUMs are not exceeded.

**2.4.2.4 Alternative 4**

Under Alternative 4, the BLM would renew grazing on the Lequerica FFR allotment using resource constrains and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and Owyhee RMP objectives as described in the description of proposed action and alternatives and added emphasis on high value resources (Section 2.2.4). This alternative developed a 3-year rotational grazing system that authorizes livestock use based on soil, vegetation, and riparian resources constraints, with increased emphasis on high value resources of riparian. Resource constraints used to develop this alternative are provided in Table Alt-22.

**Table ALT- 22:** Resource constraints for Lequerica FFR allotment

Resource	Pasture 1	Pasture 2
Sage-Grouse/Wildlife	Not Present	Not Present
Vegetation	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15
Soils	March 1 to May 31 - No more than 1 yrs use in 3 yrs	March 1 to May 31 - No more than 1 yrs use in 3 yrs
Riparian/ Water Quality	No use 2/3 yrs July 1-Sep 30	Not present

As part of this alternative, the BLM would calculate the percentage of public land (% PL) in the allotment. The % PL is calculated by the proportion of livestock forage available on public lands within

the allotment compared to the total available from both public land and lands that they may control. Within the Lequerica FFR allotment, this would include 70 acres of BLM land and 892 acres of private land. Based on NRCS Ecological Site Description, the proportion of livestock forage on public lands within the Lequerica FFR allotment is 6 percent.

Based on these resource constraints and percent public land calculation, a 3-year grazing system was developed that would authorize 11 AUMs. The grazing system would authorize from 15 to 120 cattle from July 15 to November 1 with 47 to 110 days of use. This grazing system would stock the allotment at 6 and 7 acres per AUM. This stocking rate is lower than what is common for the allotments in group 4; however, because the BLM controls 70 acres, reducing AUMs was not considered. Instead, the season of use and duration of use was considered.

**Alternative 4 allotment specific terms and conditions:**

1. Pasture 1 would be grazed by only Lequerica and Sons, and Pasture 2 would be grazed by only Tim Lowery.
2. The number of livestock on the Fenced in Federal Range (FFR) allotment 0536 is at your discretion so long as your active AUMs are not exceeded.

This alternative would result in no reduction in permitted AUMs compared to the current permitted AUMs over the same 3-year period. The following 3-year rotational grazing system did calculate the percentage of public land by pasture to provide for further pasture accuracy.

Lequerica and Sons and Tim Lowery would be offered a 10-year grazing permit as outlined in Table ALT-23, a 3-year pasture rotation in Table ALT-24, and the terms and condition described below and within Table ALT-25.

**Table ALT-23: Permitted grazing use within the Lequerica FFR allotment**

Permittee	Active Use	Suspension	Permitted Use
Lequerica and Sons	8 AUMs	0 AUMs	8 AUMs
Tim Lowery	3 AUMs	0 AUMs	3 AUMs

**Table ALT-24: Alternative 4 Lequerica FFR allotment 3-year grazing system**

Year	Pasture	Date On	Date Off	Days	# Cows	% PL	AUMs
1	1	7/16	11/15	124	32	6	8
	2	7/16	11/15	124	15	5	3
2	1	10/1	11/15	46	90	6	8
	2	10/1	11/15	46	45	5	3
3	1	10/1	11/15	46	90	6	8
	2	10/1	11/15	46	45	5	3

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-25.

**Table ALT-25: Mandatory and other terms and conditions for the Lequerica FFR allotment**

Permittee	Livestock		Grazing Period		% PL	Type Use	AUMs
	Number	Kind	Begin	End			
Lequirica and Sons	32	Cattle	7/16	11/15	6	Active	8
Tim Lowery	12	Cattle	7/16	11/15	6	Active	3

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. Pasture 1 would be grazed by only Lequerica and Sons, and Pasture 2 would be grazed by only Tim Lowery.
3. The number of livestock on the Fenced in Federal Range (FFR) allotment 0536 is at your discretion so long as your active AUMs are not exceeded.

**2.4.2.5 Alternative 5**

Under Alternative 5, the BLM would not authorize livestock to use public lands within the Lequerica FFR allotment for the next 10 years. The BLM would deny the application for permit renewal (i.e., not reissue the permit) and for the next 10 years would not approve any applications to graze public lands in this allotment. After 10 years, the BLM would reevaluate whether to again authorize grazing on the public lands within the allotment, considering such factors as wildlife, upland vegetation, and riparian health. The BLM would not cancel the existing preference for grazing use of this allotment's public lands as part of this action and would continue administering it under applicable law and regulation. After 10 years, the BLM would grant first priority for receipt of a future authorization, if any, to graze public lands within the Lequerica FFR allotment to the qualified applicant who holds this preference.

**2.4.3 Mckay FFR Allotment (0457)**

Standards 1, 4, and 8 of the applicable standards for rangeland health are not being met in the Mckay FFR allotment. Standards 2, 3, 5, 6, and 7 are not applicable to this allotment. Current livestock grazing management practices are not a significant factor in not meeting Standards 1, 4, and 8.

**2.4.3.1 Alternative 1**

Under alternative 1, BLM would renew the livestock grazing permit for the use in the Mckay FFR allotment in accordance with the current permit and the current situation that led to conditions on the ground. When reviewing information about this allotment, the Owyhee RMP allocated 2 AUMs. However, since 1998, the allotment has been billed and authorized through a grazing permit of 20 AUMs. Because of limited actual use information, Alternative 1 would authorize grazing in the Mckay FFR allotment consistent with the current permit (1997). Under this permit the permittee is authorized 20 AUMs of permitted grazing from December 1 to December 31. It also includes a term and condition that the number of livestock and season of use within the allotment is at the permittee's discretion. (See Appendix K for clarification on allotment boundaries and amendment to RMP.)

Due to the allotment boundary adjustment in the Mckay FFR and Wilson Creek FFR allotment, the public land in the allotment and allotment boundaries would be modified. (See Appendix K for clarification on allotment boundaries and amendment to RMP.)

Current livestock use terms and conditions for stubble height, woody browse, utilization, and streambank alteration imposed on the grazing permit by the United States District Court for the District of Idaho would be included in terms and conditions of the offered permits.

LU Ranch would be offered a 10-year grazing permit as outlined in Table Alt-26 with terms and conditions described below and in Table Alt-27.

**Table ALT-26: Permitted grazing use within the Mckay FFR allotment**

Active Use	Suspension	Permitted Use
20 AUMs	0 AUMs	20 AUMs

In accordance with the current permit, the grazing schedule for the Mckay FFR allotment identified in Table ALT-27 would be authorized. This permit, as described, is for billing purposes only. The season of use would allow for 365 days of use.

**Table ALT-27: Mandatory and other terms and conditions for the Mckay FFR allotment**

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
20	Cattle	12/1	12/31	100	Active	20

**Terms and conditions:**

1. The number of livestock and season of use on the Fenced in Federal Range (FFR) allotment 0457 is at your discretion.
2. Key herbaceous riparian vegetation, where streambank stability is dependent upon it, will have a minimum stubble height of 4 inches on the streambank, along the greenline, after the growing season.
3. Key riparian browse vegetation will not be used more than 50 percent of the current annual twig growth that is within reach of the animals.
4. Key herbaceous riparian vegetation on riparian areas, other than the streambanks, will not be grazed more than 50 percent during the growing season, or 60 percent during the dormant season.
5. Streambank damage attributable to grazing livestock will be less than 10 percent on a stream segment.

**2.4.3.2 Alternative 2**

Under alternative 2, BLM would renew the livestock grazing permit for the use in the Mckay FFR allotment in accordance with the application received from the LU ranch. The application received would authorize use unchanged from the current permit. Under this permit the permittee is authorized 20 AUMs of permitted grazing from December 1 to December 31. It also includes a term and condition that the number of livestock and season of use within the allotment is at the permittee’s discretion. The complete application is reproduced in Appendix D.

LU Ranch would be offered a 10-year grazing permit as outlined in Table Alt-28 and Table ALT-29. The permit would also include terms and conditions described below.

**Table ALT-28: Permitted grazing use within the Mckay FFR allotment**

Active Use	Suspension	Permitted Use
20 AUMs	0 AUMs	20 AUMs

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-29. This permit, as described, is for billing purposes only. The season of use would allow for 365 days of use.

**Table ALT-29: Mandatory and other terms and conditions for the Wilson Creek FFR allotment**

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
20	Cattle	12/1	12/31	100	Active	20

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. The number of livestock and season of use on the fenced in federal range (FFR) allotment 0457 on the FFR allotment is at discretion.

### 2.4.3.3 Alternative 3

Under Alternative 3, the BLM would renew grazing on the Mckay FFR allotment using resource constraints and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and Owyhee RMP objectives as described in the description of proposed action and alternatives (Section 2.2.3). This alternative developed a 3-year rotational grazing system that authorizes livestock use based on soil, vegetation, riparian, and wildlife/special status animal resource issues while still permitting use similar to the permittee application. Resource constraints used to develop this alternative are provided in Table Alt-30.

Because the BLM land in this allotment is isolated and fenced in with a large amount of private land, livestock management in this alternative would also consider the private landowner needs. Specifically, this alternative would consider:

1. The need to allow for varying livestock cattle because management decisions the operator may make within this allotment can require moving cattle around frequently within pastures due to water, vegetation condition, haying operations, weather, and calving. Also, these pastures can be affected by changes in livestock grazing made on other lands they graze resulting in increasing or decreasing cattle.
2. Private land that is fenced separately from BLM land not captured in the allotment map would not be managed under this permit (corrals, holding pastures, etc.)
3. In the future, if BLM land in the Mckay FFR allotment are fenced separately from the private land, resource constraints may be adjusted to account for change in resource issues within that pasture assuming BLM land still exist in the pasture. The BLM land that is fenced separate would still be authorized for grazing consistent with the current resource constraints identified for that pasture.

**Table ALT- 30:** Resource constraints for Mckay FFR allotment

Resource	Pasture 1	Pasture 2
Sage-Grouse/Wildlife	None	N/A
Vegetation	No use 2/3 yrs May 1- Jul 15	N/A
Soils	March 1 to May 31 - No more than 2 yrs use in 3 yrs	N/A
Riparian/ Water Quality	NA	NA

Based on these resource constraints, a 3-year grazing system was developed that would authorize 20 AUMs. In pasture 2 is 1 acre of public land next to Anderson Reservoir. The resource constraints were not applied because the BLM land is located where there is a potential for high livestock congregation. For this reason the area would likely not meet standards with or without the resource constraints being applied. As indicated in the Idaho Standards for Rangeland Health, scale is an important factor to consider. For this reason even with the 1 acre of land not meeting standards it would not affect the allotments ability to meet standards.

The grazing system would authorize varying livestock numbers from March 1 to February 28, with use varying from 228 to 365 days of use. Pasture 1 would allow for flexibility in the season of use and duration of use while still complying with the resource constraints. The increased flexibility would still allow for this pasture to meet standards.

**Alternative 3 allotment specific terms and conditions:**

1. The number of livestock on the Fenced in Federal Range (FFR) allotment 0457 is at your discretion so long as authorized active use of 20 AUMs from public land is not exceeded.

This alternative would result in no reduction in permitted AUMs compared to the current permitted AUMs over the same 3-year period.

LU Ranch would be offered a 10-year grazing permit as outlined in Table Alt-31, a 3-year pasture rotation described in Table ALT-32 and terms and condition described below and within Table ALT-33.

**Table ALT-31: Permitted grazing use within the Mckay FFR allotment**

Active Use	Suspension	Permitted Use
20 AUMs	0 AUMs	20 AUMs

**Table ALT-32: Alternative 3 Mckay FFR allotment 3-year grazing system**

Year	Pasture	Date On	Date Off	Days
1	1	7/16	2/28	228
	2	3/1	2/28	365
2	1	7/16	2/28	228
	2	3/1	2/28	365
3	1	3/1	2/28	365
	2	3/1	2/28	365

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-33. The season of use would allow for 365 days of use. The 12 AUMs in this table are below the 20 active AUMs because increasing the cattle numbers above 1 would exceed the 20 active AUMs. However, this does not preclude use to 20 AUMs.

**Table ALT-33: Mandatory and other terms and conditions for the Mckay FFR allotment**

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
1	Cattle	3/1	2/28	100	Active	12

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. The number of livestock on the Fenced in Federal Range (FFR) allotment 0457 is at your discretion so long as authorized active use of 20 AUMs from public land is not exceeded.

**2.4.3.4 Alternative 4**

Under Alternative 4, the BLM would renew grazing on the Mckay FFR allotment using resource constrains and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and Owyhee RMP objectives as described in the description of proposed action and alternatives and added emphasis on high value resources (Section 2.2.4). This alternative developed a 3-year rotational grazing system that authorizes livestock use based on soil and vegetation resource constraints with increased emphasis on the high value resources of riparian and sage-grouse. Resource constraints used to develop this alternative are provided in Table Alt -34.

**Table ALT- 34: Resource constraints for Mckay FFR allotment**

Resource	Pasture 1	Pasture 2
Sage-Grouse/ Wildlife	None	None
Vegetation	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15
Soils	March 1 to May 31 - No more than 1 yrs use in 3 yrs	March 1 to May 31 - No more than 1 yrs use in 3 yrs
Riparian/Water Quality	NA	NA

In Pasture 2, there is 1 acre of public land next to Anderson Reservoir. The resource constraints were not applied because the BLM land is located where there is a potential for high livestock congregation. For this reason the area would likely not meet standards with or without the resource constraints being applied. As indicated in the Idaho Standards for Rangeland Health, scale is an important factor to consider. Even with the 1 acre of land not meeting standards it would not affect the allotments ability to meet standards. Grazing in this pasture would be at the permittee discretion for this reason.

As part of this alternative the BLM would calculate the percentage of public land (% PL) in the allotment. The % PL is calculated by the proportion of livestock forage available on public land within the allotment compared to the total available from both public land and lands that they may control. Within the Mckay FFR allotment, this would include 261 acres of BLM land and 821 acres of Private land. Based on NRCS Ecological Site Description, the proportion of livestock forage on public land within the Mckay FFR allotment is 21 percent. Because of a lack of water on BLM lands, it more likely cattle use will occur on private land.

Based on these resource constraints and percent public land calculation, a 3-year grazing system was developed that would authorize 20 AUMs. The grazing system would authorize 19 cattle from July 16 to November 1 with 109 days of use for pasture 1 and 365 days of use for pastures 2 and 3. This grazing system would stock the allotment at 13 acres per AUM.

This alternative would result in no reduction in permitted AUMs compared to the current permitted AUMs over the same 3-year period. The following 3-year rotational grazing system did calculate the percentage of public land by pasture to provide for further pasture accuracy.

**Alternative 4 allotment specific terms and conditions:**

1. The number of livestock on the Fenced in Federal Range (FFR) allotment 0457 is at your discretion so long as authorized active use of 20 AUMs from public land is not exceeded.

LU Ranch would be offered a 10-year grazing permit as outlined in Table Alt-35, a 3-year pasture rotation described in Table ALT-36, and the terms and condition described below and within Table ALT-37.

**Table ALT-35:** Permitted grazing use within the Mckay FFR allotment

Active Use	Suspension	Permitted Use
20 AUMs	0 AUMs	20 AUMs

**Table ALT-36:** Alternative 4 Mckay FFR allotment 3-year grazing system

Year	Pasture	Date On	Date Off	Days	# Cows	% PL	AUMs
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Year	Pasture	Date On	Date Off	Days	# Cows	% PL	AUMs
1	1	7/16	11/1	109	19	29	20
	2	3/1	2/28	365			
2	1	7/16	11/1	110	19	29	20
	2	3/1	2/28	365			
3	1	7/16	11/1	110	19	29	20
	2	3/1	2/28	365			

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-37. The season of use would allow for 365 days of use.

**Table ALT-37: Mandatory and other terms and conditions for the Mckay FFR allotment**

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
8	Cattle	3/1	2/28	21	Active	20

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. The number of livestock on the Fenced in Federal Range (FFR) allotment 0457 is at your discretion so long as authorized active use of 20 AUMs from public land is not exceeded.

**2.4.3.5 Alternative 5**

Under Alternative 5, the BLM would not authorize livestock to use public lands within the Mckay FFR allotment for the next 10 years. The BLM would deny the application for permit renewal (i.e., not reissue the permit) and for the next 10 years would not approve any applications to graze public lands in this allotment. After 10 years, the BLM would reevaluate whether to again authorize grazing on the public lands within the allotment, considering such factors as wildlife, upland vegetation, and riparian health. The BLM would not cancel the existing preference for grazing use of this allotment's public lands as part of this action and would continue to administer it under applicable law and regulation. After 10 years, the BLM would grant first priority for receipt of a future authorization, if any, to graze public lands within the Mckay FFR allotment to the qualified applicant who holds this preference.

**2.4.4 Sheep Creek (0559)**

Standards 2, 3, 4, and 8 of the applicable standards for rangeland health are not being met in the Sheep Creek allotment; Standard 1 is meeting; and Standards 5, 6, and 7 are not applicable to resources present within the allotment. Current livestock grazing management practices are a significant factor in failing to meet Standards 2, 3, and 8. However, current livestock grazing management practices are not a significant factor in failing to meet Standard 4.

**2.4.4.1 Alternative 1**

Under alternative 1, BLM would renew the livestock grazing permit for the use in the Sheep Creek allotment in accordance with the current permit and the current situation that led to conditions on the ground. Median actual use the past 16 years (1997-2012) has been at 60 AUMs, with a maximum use of 68 AUMs with a maximum of 34 cattle. Since 1997 when actual use has been submitted, AUMs have been within 10 % of the permitted AUMs in 9 years and the season of use has also closely followed the permit. Because past use is close to the exiting permitted AUMS (68 AUMs) and season of use,

alternative 1 would authorize grazing in the Sheep Creek allotment consistent with the current permit (2003).

Current livestock use terms and conditions for stubble height, woody browse, utilization, and streambank alteration imposed on the grazing permit by the United States District Court for the District of Idaho would be included in terms and conditions of the offered permits.

Larrusea Cattle Co. would be offered a 10-year grazing permit as outlined in Table Alt-38 with the terms and conditions described below and in Table Alt-39.

**Table ALT-38:** Permitted grazing use within the Sheep Creek allotment

Active Use	Suspension	Permitted Use
68 AUMs	0 AUMs	68 AUMs

**Table ALT-39:** Mandatory and other terms and conditions for the Sheep Creek allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
34	Cattle	8/16	10/15	100	Active	68

**Terms and conditions on permit (2003):**

1. Boise District terms and conditions common to all grazing alternatives.
2. Key herbaceous riparian vegetation, where streambank stability is dependent upon it, will have a minimum stubble height of 4 inches on the streambank, along the greenline, after the growing season.
3. Key riparian browse vegetation will not be used more than 50 percent of the current annual twig growth that is within reach of the animals.
4. Key herbaceous riparian vegetation on riparian areas, other than the streambanks, will not be grazed more than 50 percent during the growing season, or 60 percent during the dormant season.
5. Streambank damage attributable to grazing livestock will be less than 10 percent on a stream segment.

**2.4.4.2 Alternative 2**

Under alternative 2, BLM would renew the livestock grazing permit for the use in the Sheep Creek allotment in accordance with the application and grazing system received from the Larrusea Cattle Co. Livestock use would occur from August 16 to September 24 with 40 days of use with 52 cattle. The allotment would be permitted at 68 AUMs which would result in no change in permitted AUMs over the 10-year permit. Based on the 3-year grazing system, the permittee would graze 204 AUMs. The complete application is reproduced in Appendix D.

Larrusea Cattle Co. would be offered a 10-year grazing permit as outlined in Table ALT-40, a grazing schedule described in Table ALT-41, and terms and conditions described below and within Table ALT-42.

**Table ALT-40:** Permitted grazing use within the Sheep Creek allotment

Active Use	Suspension	Permitted Use
68 AUMs	0 AUMs	68 AUMs

In accordance with the application, the grazing schedule for pastures of the Sheep Creek allotment identified in Table Alt-31 would be authorized.

**Table ALT-41: Applicants proposed grazing system within the Sheep Creek allotment**

Date On	Date Off	Days <sup>1</sup>	# Cows <sup>2</sup>	AUMs
8/16	9/24	40	52	68

<sup>1</sup>Provide 3 days of flexibility to move all cattle on and off allotment

<sup>2</sup>Livestock numbers may vary as long as AUMs are not exceeded for the allotment

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-42.

**Table ALT-42: Mandatory and other terms and conditions for the Sheep Creek allotment**

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
34	Cattle	8/16	10/15	100	Active	68

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. Provide 3 days of flexibility to move all cattle on and off allotment.
3. Livestock numbers may vary as long as AUMs are not exceeded for the allotment.

**2.4.4.3 Alternative 3**

Under Alternative 3, the BLM would renew grazing on the Sheep Creek allotment using resource constraints and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and ORMP objectives as described in the description of proposed action and alternatives (Section 2.2.3). This alternative developed a 3-year rotational grazing system that would authorize livestock use based on soil, vegetation, riparian, and wildlife/special status animal resource issues while still permitting use similar to the permittee application and past use. Resource constraints used to develop this alternative are provided in Table Alt-33.

**Table ALT- 33: Resource constraints for the Sheep Creek allotment**

Resource	Pasture 1
<b>Sage-Grouse/ Wildlife</b>	April 1 to June 30 – No more than 2 yrs use in 3 yrs
<b>Vegetation</b>	No use 2/3 yrs May 1- Jul 15
<b>Soils</b>	March 1 to May 31 - No more than 2 yrs use in 3 yrs
<b>Riparian/Water Quality</b>	No use 1/3 yrs July 1-Sep 30

Based on these resource constraints, a 3-year grazing system was developed that would authorize 68 AUMs each year. This would represent no reduction in permitted AUMs compared to current authorized AUMs over the 10-year permit.

The 3-year grazing system would authorize 52 cattle from August 16 to November 19 with no more than 40 days of use each year. The cattle number was increased from the current permitted number of livestock of 34; however, the number of days was reduced resulting in no change of AUMs.

Under this grazing system, the allotment would be stock at 9 acres per AUM. The permittee would be authorized 204 AUMs over the 3-year period that would result in no reduction in AUMs over the 3-year period. Included in this alternative are specific terms and conditions:

**Alternative 3 specific terms and conditions:**

1. Livestock numbers would be coordinated between BLM and the permittee and may vary in accordance with annual grazing application as long as the permitted use period and active AUMs are not exceeded.

Larrusea Cattle Co. would be offered a 10-year grazing permit as outlined in Table ALT-44; a 3-year rotation identified in Table ALT-45; and terms and conditions listed below and within Table ALT-46.

**Table ALT-44:** Permitted grazing use within the Sheep Creek allotment

Active Use	Suspension	Permitted Use
68 AUMs	0 AUMs	68 AUMs

**Table ALT-45:** Alternative 3 Sheep Creek allotment 3-year grazing system

Year	Date On	Date Off	Days	# Cows	AUMs
1	10/1	11/19	40	52	68
2	8/16	9/24	40	52	68
3	5/22	6/30	40	52	68

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-46. The 66 AUMs in this table are below the 68 active AUMs because increasing the cattle numbers above 10 would exceed the 68 active AUMs. However, this does not preclude use to 68 AUMs.

**Table ALT-46:** Mandatory and other terms and conditions for the Sheep Creek allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
10	Cattle	5/22	11/19	100	Active	66

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. Livestock numbers would be coordinated between BLM and the permittee and may vary in accordance with annual grazing application as long as the permitted use period and active AUMs are not exceeded.

**2.4.4.4 Alternative 4**

Under Alternative 4, the BLM would renew grazing on the Sheep Creek allotment using resource constraints and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and ORMP objectives as described in the description of proposed action and alternatives and added emphasis on high value resources (Section 2.2.4). This alternative developed a 3-year rotational grazing system that authorizes livestock use around soil, vegetation, riparian, and wildlife/special status animal resource constraints with increased emphasis on the high value resources of sage-grouse and riparian habitat. Resource constraints used to develop this alternative are provided in Table Alt-47.

**Table ALT- 47:** Resource constraints for Sheep Creek allotment

Resource	Pasture 1
Sage-Grouse/Wildlife	April 1 to June 30 - No more than 1 yrs use in 3 yrs
	July 1 to August 31 - No more than 1 yrs use in 3 yrs
	May 1 to June 15 - No more than 1 yrs use in 3 yrs
Vegetation	No use 2/3 yrs May 1- Jul 15
Soils	March 1 to May 31 - No more than 1 yrs use in 3 yrs
Riparian/Water Quality	No use 2/3 yrs July 1-Sep 30

Based on these resource constraints, a 3-year grazing system was developed that would authorize 56 AUMs. This would result in a 42 percent reduction in permitted AUMs, 6 percent reduction in average use, and 17 percent reduction in median use over the 10-year permit.

The grazing system would authorize 55 cattle from May 31 to August 15 with no more than 31 days of use each year. Based on the resource constraints, fall grazing in Sheep Creek allotment in the third year of the grazing system would be allowed. However, based on alternative 4 constraints, to ensure riparian and sage-grouse values are meeting or making significant progress, rest would replace fall grazing. The 3-year grazing system would stock the allotment at 11 acres per AUM. The cattle numbers remain virtually the same for this alternative compared to alternative 3. However, the season of use and AUMs were reduced to provide for faster improvement and further long-term sustainability for the riparian and sage-grouse resources.

Under this alternative the permittee would be authorized 112 AUMs compared to 204 AUMs authorized over the same 3-year period in Alternative 1. This would result in a 45 percent reduction in use over the 3 years.

**Alternative 4 specific terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. Livestock numbers would be coordinated between BLM and the permittee and may vary in accordance with annual grazing application as long as the permitted use period and active AUMs are not exceeded.

Larrusea Cattle Co. would be offered a 10-year grazing permit as outlined in Table ALT-48 with a 3-year rotation described in Table ALT-49, and terms and conditions described below and within Table ALT-50.

**Table ALT-48:** Permitted grazing use within the Sheep Creek allotment

Active Use	Suspension	Permitted Use
56 AUMs	0 AUMs	56 AUMs

**Table ALT-49:** Alternative 4 3-year grazing system for the Sheep Creek allotment

Year	Date On	Date Off	Days	# Cows	AUMs
1	7/16	8/15	31	55	56
2	5/31	6/30	31	55	56
3	rest	rest	0	0	0

**Table ALT-50:** Mandatory and other terms and conditions for the Sheep Creek allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
22	Cattle	5/31	8/15	100	Active	56

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. Livestock numbers would be coordinated between BLM and the permittee and may vary in accordance with annual grazing application as long as the permitted use period and active AUMs are not exceeded.

**2.4.4.5 Alternative 5**

Under Alternative 5, the BLM would not authorize livestock to use public lands within the Sheep Creek allotment for the next 10 years. The BLM would deny the application for permit renewal (i.e., not reissue the permit) and for the next 10 years would not approve any applications to graze public lands in this allotment. After 10 years, the BLM would reevaluate whether to again authorize grazing on the public lands within the allotment, considering such factors as wildlife, upland vegetation, and riparian health. The BLM would not cancel the existing preference for grazing use of this allotment's public lands as part of this action and would continue to administer it under applicable law and regulation. After 10 years, the BLM would grant first priority for receipt of a future authorization, if any, to graze public lands within the Sheep Creek allotment to the qualified applicant who holds this preference.

**2.4.5 South Dougal Allotment (0536)**

Standards 1, 2, 3, 4, and 8 of the applicable standards for rangeland health are not being met in the South Dougal allotment; Standards 5, 6, and 7 are not applicable to resources present within the allotment. Current livestock grazing management practices are a significant factor in failing to meet Standards 2, 3, and 8. However, current livestock grazing management practices are not a significant factor in failing to meet Standards 1 and 4. Livestock management practices do not conform with the applicable livestock grazing management guidelines 4, 5, and 7 for several standards.

### 2.4.5.1 Alternative 1

Under alternative 1, BLM would renew the livestock grazing permit for use in the South Dougal allotment in accordance with the current permit and the current situation that led to conditions on the ground. The current conditions include the following 1984 South Dougal Allotment Management Plan, which authorized a deferred grazing system with use occurring June 16 through August 15 with flexibility in season of use and livestock numbers. The objective of the allotment management plan is to establish the proper livestock stocking rate for the allotment; improve the vigor reproduction and composition of the key forage plants; and within a 20-year period improve the range condition within the allotment. The plan also included flexibility in the season of use so livestock use may occur any time from June 16 to September 30.

Average actual use during the past 16 years (1997-2012) has been 356 AUMs, with a median use of 379 AUMs. Since 1997, when actual use has been submitted AUMs have been within 10 percent of the permitted AUMs in nine years. Since 2006, the allotment management plan rotation has generally followed the 1984 allotment management plan. During that period, the allotment was grazed with 187 cattle. The current permit authorized 374 AUMs from June 12 to September 30. Based on this past information, Alternative 1 would authorize grazing in the South Dougal allotment consistent with the current permit (2003) and the 1984 allotment management plan since recent AUM use is close to the permitted active use AUMs.

Terms and conditions for stubble height, woody browse, utilization, and streambank alteration imposed on the grazing permit by the United States District Court for the District of Idaho would be included in terms and conditions of the offered permits.

Frankie Dougal would be offered a 10-year grazing permit as outlined in Table ALT-51 with terms and conditions described below and in Table Alt-52.

**Table ALT-51: Permitted grazing use within the South Dougal allotment**

Active Use	Suspension	Permitted Use
374 AUMs	253 AUMs	627 AUMs

In accordance with the current permit, the grazing schedule for pastures of the South Dougal allotment identified in Table Alt-17 would be authorized. The 372 AUMs in this table are below the 374 active AUMs because increasing the cattle numbers above 102 would exceed the 374 active AUMs. However, this does not preclude use to 374 AUMs.

**Table ALT-52: Mandatory and other Terms and Condition for the South Dougal allotment**

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
102	Cattle	6/12	9/30	100	Active	372

#### Terms and conditions:

1. Boise District terms and conditions common to all grazing alternatives.
2. Key herbaceous riparian vegetation, where streambank stability is dependent upon it, will have a minimum stubble height of 4 inches on the streambank, along the greenline, after the growing season.
3. Key riparian browse vegetation will not be used more than 50 percent of the current annual twig growth that is within reach of the animals.
4. Key herbaceous riparian vegetation on riparian areas, other than the streambanks, will not be grazed more than 50 percent during the growing season, or 60 percent during the dormant season.

5. Streambank damage attributable to grazing livestock will be less than 10 percent on a stream segment.
6. All grazing within the 00536 allotment will be in accordance with your existing AMP.

**2.4.5.2 Alternative 2**

Under alternative 2, the BLM would renew the livestock grazing permit for the use in the South Dougal allotment in accordance with the application and 3-year deferred grazing system received from Frankie Dougal. Livestock use would occur from June 12 to September 30 with 60 days of use with 187 cattle. The allotment would be permitted at 374 active AUMs that would result in no change in active AUMs over the 10-year permit. Based on the 3-year grazing schedule, a total of 1,112 AUMs would be authorized over the 3-year period. Flexibility is provided to allow for all 374 active AUMs to be grazed each year. The complete application is reproduced in Appendix D.

Under this alternative, the permittee would also require 2 days of trailing up to 187 cattle from April 8 to June 10 in pasture 1. This would require 12 AUMs in addition to the 374 AUMs of permitted use.

Frankie Dougal would be offered a 10-year grazing permit as outlined in Table Alt-53 with a 3-year grazing rotation described in Table Alt-54, and terms and conditions described below and in Table Alt-55.

**Table ALT-53:** Permitted grazing use within the South Dougal allotment

Active Use	Suspension	Permitted Use
374 AUMs	253 AUMs	627 AUMs

**Table ALT-54:** 3-year grazing system for the South Dougal Allotment

Pasture	Year	Date On	Date Off	Days	# Cows	% PL	AUMs
Flat Iron (1)	1	7/2	8/8	38	187	1	234
South Dougal (2)		6/10	7/1	22	187	1	135
Flat Iron (1)	2	7/2	8/8	38	187	1	234
South Dougal (2)		6/10	7/1	22	187	1	135
Flat Iron (1)	3	6/10	7/9	30	187	1	184
South Dougal (2)		7/10	8/8	30	187	1	184

**Terms and conditions applied for by the permittee:**

1. Provide 3 days of flexibility to move all cattle between pastures and off allotment.
2. Cattle could be turned out as early as June 8 and could stay until August 15 as long as AUMs are not exceeded.
3. Livestock numbers may vary as long as AUMs are not exceeded.
4. Grazing years 1, 2, and 3 may be switched. However within a 3-year period the South Dougal pasture would need to be grazed in the spring 2 out of 3 years.
5. Would need 2 days to trail 187 cattle between April 8 and June 10 through the flat Iron pasture.

**Table ALT-55:** Mandatory and other terms and condition for the South Dougal allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
165	Cattle	6/8	8/15	100	Active	374

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. Provide 3 days of flexibility to move all cattle between pastures and off allotment.

3. Cattle could be turned out as early as June 2 and could stay until August 15 as long as AUMs are not exceeded.
4. Livestock numbers may vary as long as AUMs are not exceeded.
5. Grazing years 1, 2, and 3 may be switched. However, within a 3-year period, the South Dougal pasture would need to be grazed in the spring 2 out of 3 years.
6. Would need 2 days to trail 187 cattle from April 8 to June 10 through the flat Iron pasture.

### 2.4.5.3 Alternative 3

Under Alternative 3, the BLM would renew grazing on the South Dougal allotment using resource constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and Owyhee RMP objectives as described in the description of proposed action and alternatives (Sec 2.2.3). For this alternative, a 3-year rotational grazing system was developed that authorize livestock use based on soil, vegetation, riparian, and wildlife/sage-grouse resource issues while still permitting livestock use similar to recent use and the permittees application. Resource constraints used to develop this alternative are provided in Table Alt-56.

**Table ALT-56:** South Dougal resource constraints

Resource	Pasture 1	Pasture 2
<b>Sage-Grouse/ Wildlife</b>	April 1 to June 30 – No more than 2 yrs use in 3 yrs	April 1 to June 30 – No more than 2 yrs use in 3 yrs
<b>Vegetation</b>	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15
<b>Soils</b>	March 1 to May 31 - No more than 2 yrs use in 3 yrs	March 1 to May 31 - No more than 2 yrs use in 3 yrs
<b>Riparian/ Water Quality</b>	No use 1/3 yrs July 1-Sep 30	No use 1/3 yrs July 1-Sep 30

Based on these resource constraints, a 3-year grazing system was developed that would authorize 374 AUMs each year. This would result in no reduction in permitted AUMs compared to current authorized AUMs over the 10-year permit.

The 3-year rotational grazing system would authorize 187 cattle from May 31 to September 13 with no more than 60 days of use each year. The riparian and upland resource constraint for pasture 2 was adjusted to the constraint associated with the elevation above 5,000 feet because the pasture elevation is an average of 4,989 feet (see section 2.2.3). The cattle number and number of days were not adjusted from the current grazing system allotment management plan.

Under this grazing system, the allotment would be stocked at approximately 11 acres per AUM, and the permittee would be authorized 1,112 AUMs over the 3-year period. Flexibility is provided to allow for 374 AUMs to be grazed each year. Included in this alternative are allotment specific terms and conditions:

#### **Alternative 3 allotment specific terms and conditions:**

1. Utilization in pastures 1 and 2 may not exceed 40 percent utilization at the end of the active growing season in year 2 and year 3.
2. In pasture 1 and 2, stubble height of no less than 6”, woody browse use no greater than 30 percent incidence of use on most years’ lead growth, and bank alteration no greater than 10 percent measured at the end of the growing season in key riparian areas may not be exceeded when grazed during July1 through September 30.

- Livestock numbers would be coordinated between BLM and the permittee and may vary in accordance with annual grazing application as long as the permitted use period and active AUMs are not exceeded.

Frankie Dougal would be offered a 10-year grazing permit as outlined in Table ALT-57, with a 3-year pasture rotation identified in Table Alt-58, and terms and conditions described below and within Table Alt-59.

**Table ALT-57:** Permitted grazing use within the South Dougal allotment

Active Use	Suspension	Permitted Use
374 AUMs	253 AUMs	627 AUMs

**Table ALT-58:** Alternative 3 South Dougal allotment 3-year grazing system

Pasture	Year	Date On	Date Off	Days	# Cows	AUMs
Flat Iron (1)	1	7/16	8/16	32	187	197
South Dougal (2)		8/17	9/13	28	187	172
Flat Iron (1)	2	5/31	6/30	31	187	191
South Dougal (2)		7/1	7/29	29	187	178
Flat Iron (1)	3	7/1	7/30	30	187	184
South Dougal (2)		6/1	6/30	30	187	184

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table Alt-59. The 373 AUMs in this table are below the 374 active AUMs because increasing the cattle numbers above 107 would exceed the 374 active AUMs. However, this does not preclude use to 374 AUMs.

**Table ALT-59:** Mandatory and other terms and conditions for the South Dougal allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
107	Cattle	5/31	9/13	100	Active	373

**Terms and conditions:**

- Boise District terms and conditions common to all grazing alternatives.
- Utilization in pastures 1 and 2 may not exceed 40 percent utilization at the end of the active growing season in year 2 and year 3.
- In pasture 1 and 2 stubble height of no less than 6", woody browse use no greater than 30 percent incidence of use on most years' lead growth, and bank alteration no greater than 10 percent measured at the end of the growing season in key riparian areas may not be exceeded when grazed during July 1 through September 30.
- Livestock numbers would be coordinated between BLM and the permittee and may vary in accordance with annual grazing application as long as the permitted use period and active AUMs are not exceeded.

**2.4.5.4 Alternative 4**

Under Alternative 4, the BLM would renew grazing on the South Dougal allotment using resource constraints and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and ORMP objectives as described in the description of proposed action and alternatives and added emphasis on high value resources (Section 2.2.4). Under this alternative, a 3-year rotational grazing system was developed that would restrict livestock use based on soil, vegetation, riparian, and wildlife/special status animal

resource constraints with increased emphasis on high value resources of sage-grouse habitat and riparian areas. Resource constraints used to develop this alternative are provided in Table Alt-60.

**Table ALT-60: Resource constraints for the South Dougal allotment**

Resource	Pasture 1	Pasture 2
<b>Sage Grouse/Wildlife</b>	April 1 to June 30 - No more than 1 yrs. use in 3 yrs.	April 1 to June 30 - No more than 1 yrs use in 3 yrs.  July 1 to August 31 - No more than 1 yrs use in 3 yrs.
<b>Vegetation</b>	No use 2/3 yrs. May 1- Jul 15	No use 2/3 yrs. May 1- Jul15
<b>Soils</b>	March 1 to May 31 - No more than 1 yrs. use in 3 yrs.	March 1 to May 31 - No more than 1 yrs. use in 3 yrs.
<b>Riparian/ Water Quality</b>	No use 2/3 yrs. July 1- Sep 30	No use 2/3 yrs. July 1-Sep 30

Based on these resource constraints, a 3-year grazing system was developed that would authorize 284 AUMs each year. This alternative would result in a 35 percent reduction in permitted AUMs (3,740 Alt 1 vs 2,441 Alt 4), 20 percent reduction in average use, and 25 percent reduction in median use over the 10-year permit.

The 3-year rotational grazing system would authorize 144 cattle from May 18 to September 13 with no more than 60 days of use each year. Based on the resource constraints, fall grazing in South Dougal pasture 2 during the second year of the grazing system could be allowed (Table ALT-26). However, based on alternative 4 constrains, to ensure the high value riparian and sage-grouse habitats are meeting or making significant progress, rest would replace fall grazing. While the duration of use was not reduced in comparison to alternative 3, AUMs were reduced in order to provide for faster improvement and further long-term sustainability of the riparian and sage-grouse resources. The 3-year grazing system would stock the allotment at 15 acres per AUM.

Under this alternative, the permittee would be authorized 719 AUMs compared to 1,122 AUMs authorized over the same 3-year period in Alternative 1. This would result in a 56 percent reduction over the 3 years.

**Alternative 4 specific terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. Livestock numbers would be coordinated between BLM and the permittee and may vary in accordance with annual grazing application as long as the permitted use period and active AUMs are not exceeded.

Frankie Dougal would be offered a 10-year grazing permit as outlined in Table ALT-61, with a 3-year pasture rotation as described in Table ALT-62 and terms and conditions described below and in Table ALT-63.

**Table ALT-61: Permitted grazing use within the South Dougal allotment**

Active Use	Suspension	Permitted Use
284 AUMs	253 AUMs	284 AUMs

**Table ALT-62: Alternative 4 South Dougal allotment 3-year grazing system**

Pasture	Year	Date On	Date Off	Days	# Cows	AUMs
Flat Iron (1)	1	7/16	8/16	32	144	151
South Dougal (2)		8/17	9/13	28	144	133
Flat Iron (1)	2	10/1	11/1	32	144	151
South Dougal (2)		rest	rest			
Flat Iron (1)	3	10/1	11/1	32	144	151
South Dougal (2)		5/18	6/14	28	144	133

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-27. The 282 AUMs in this table are below the 284 active AUMs because increasing the cattle numbers above 72 would exceed the 284 active AUMs. However, this does not preclude use to 284 AUMs.

**Table ALT-63:** Mandatory and other terms and conditions for the South Dougal allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
72	Cattle	5/18	9/13	100	Active	282

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. Livestock numbers would be coordinated between BLM and the permittee and may vary in accordance with annual grazing application as long as the permitted use period and active AUMs are not exceeded.

**2.4.5.5 Alternative 5**

Under Alternative 5, the BLM would not authorize livestock to use public lands within the South Dougal allotment for the next 10 years. The BLM would deny the application for permit renewal (i.e., not reissue the permit) and for the next 10 years would not approve any applications to graze public lands in this allotment. After 10 years, the BLM would reevaluate whether to again authorize grazing on the public lands within the allotment, considering such factors as wildlife, upland vegetation, and riparian health. The BLM would not cancel the existing preference for grazing use of this allotment's public lands as part of this action and would continue to administer it under applicable law and regulation. After 10 years, the BLM would grant first priority for receipt of a future authorization, if any, to graze public lands within the South Dougal allotment to the qualified applicant who holds this preference.

**2.4.6 South Mountain Area Allotment (0561)**

Standards 1, 2, 3, 4, 7, and 8 of the applicable standards for rangeland health are not being met in the South Mountain Area allotment. Standards 5 and 6 are not applicable to this allotment. Current livestock grazing management practices are significant factors in not meeting Standards 1, 2, 3, 4, 7, and 8.

**2.4.6.1 Alternative 1**

Under alternative 1, BLM would renew four permits to graze livestock in the South Mountain Area allotment in accordance with the current permit and the current situation which led to conditions on the ground.

In 2009, the allotment was divided into two geographical areas (southern and northern) by a pasture fence. The fence was constructed by the permittees on State lands to help with livestock management. Since construction of the fence LU Ranch and Corral Creek grazing association have generally grazed the southern portion of the allotment (pastures 2, 3, and 4) while Lequerica and Sons, LU Ranches, and Brashers have generally grazed the northern portion of the allotment (pasture 1). Although the fence has

changed cattle locations, the AUMs or season of use within this 4-year period (2009-2012) will not be used for defining the current conditions because the effects to resources from grazing usually take longer than 4 years. For this reason, the current condition is defined by the effects of livestock use within the last 16 years (1997-2012). Within this period, livestock use has occurred from June 3 to September 30 with an average use of 621 AUMs, a median use 659 AUMs, a maximum use of 745 AUMs, and a maximum cattle number of 756 when all permittees reported their use. Since 1997, when actual use has been submitted by all permittees AUMs have been within 10 percent of the permitted AUMs in 6 years. The current permits authorized 746 AUMS from June 1 to September 30. Based on the past 16 years of information, Alternative 1 would authorize grazing the same as the current permit (1997). Also, the permit would separate the LU Ranch, Corral Creek grazing association in pastures 2, 3, and 4, while Lequerica and Sons, and Craig and Ronda Brasher would be separated into pasture 1, since this is how they are currently grazing the allotment.

Terms and conditions for stubble height, woody browse, utilization, and streambank alteration imposed on the grazing permit by the United States District Court for the District of Idaho would be included in terms and conditions of the offered permits.

Lequerica and Sons, Craig Brasher, Corral Creek Grazing Association, and LU Ranch would be offered a 10-year grazing permit as outlined in Table Alt-64 and terms and condition described below and in Table ALT-65.

**Table ALT-64: Permitted grazing use within the South Mountain allotment**

Permittee	Active Use	Suspension	Permitted Use
Lequerica and Sons	95	0	95
Craig and Ronda Brasher	184	0	184
Corral Creek Grazing Association	300	0	300
LU Ranch	166	0	166
Total	745	0	745

In accordance with the current permit, the grazing schedule for the South Mountain allotment identified in Table Alt-65 would be authorized. The 742 AUMs in this table are below the 745 active AUMs because increasing the cattle numbers would exceed the 745 active AUMs. However, this does not preclude use to the active AUMs.

**Table ALT-65: Mandatory and other Terms and Condition for the South Mountain allotment**

Permittee	Livestock		Grazing Period		% PL	Type Use	AUMs
	Number	Kind	Begin	End			
Lequerica and Sons	96	Cattle	6/1	9/30	24	Active	92
Craig and Ronda Brasher	117	Cattle	6/1	9/30	40	Active	184 <sup>1</sup>
Corral Creek Grazing Association	312	Cattle	6/1	9/30	24	Active	300
LU Ranch	122	Cattle	6/1	9/30	34	Active	166
Total							742

<sup>1</sup>The application printed by the BLM and signed by the Brashers authorized 188 AUMs. Because this is above the permitted use AUMs of 184, the cattle numbers were adjusted to 114 from 117

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.

2. Craig and Ronda Brasher and Lequerica and Sons would graze in pasture 1, while Corral Creek Grazing Association and LU Ranch would graze in pasture 2, 3, and 4.
3. Key herbaceous riparian vegetation, where streambank stability is dependent upon it, will have a minimum stubble height of 4 inches on the streambank, along the greenline, after the growing season.
4. Key riparian browse vegetation will not be used more than 50 percent of the current annual twig growth that is within reach of the animals.
5. Key herbaceous riparian vegetation on riparian areas, other than the streambanks, will not be grazed more than 50 percent during the growing season, or 60 percent during the dormant season.
6. Streambank damage attributable to grazing livestock will be less than 10 percent on a stream segment.

**Terms and conditions specific to LU Ranch from the 1997 permit:**

1. A minimum 4-inch stubble height will be left on herbaceous vegetation within the riparian area along 0.5 mile of juniper creek and 5.6 miles of corral creek in allotment 0561 at the end of the growing season as identified in the fisheries objective of the Owyhee EIS.

**Terms and conditions specific to Craig and Ronda Brasher from the 1997 permit:**

1. A minimum 4-inch stubble height will be left on herbaceous vegetation within the riparian area along 0.5 mile of juniper creek and 5.6 miles of corral creek in allotment 0561 at the end of the growing season as identified in the fisheries objective of the Owyhee EIS.

**Terms and conditions specific to Lequirica and Sons from the 1997 permit:**

1. A minimum 4-inch stubble height will be left on herbaceous vegetation within the riparian area along 0.5 mile of juniper creek and 5.6 miles of corral creek in allotment 0561 at the end of the growing season as identified in the fisheries objective of the Owyhee EIS.

**Terms and conditions specific to Corral Creek Grazing Association from the 1997 permit:**

1. A minimum 4-inch stubble height will be left on herbaceous vegetation within the riparian area along 0.5 mile of juniper creek and 5.6 miles of corral creek in allotment 0561 at the end of the growing season as identified in the fisheries objective of the Owyhee EIS.

**Terms and conditions specific to bills:**

1. Regular riding of cattle off of corral, cabin, and lone tree creeks would occur, beginning no later than July 15, 20XX and would continue for the remainder of the grazing season. Cattle would be regularly moved from the here said creek to private and state lands.

**2.4.6.2 Alternative 2**

Under Alternative 2, BLM would renew the livestock grazing permit for the South Mountain allotment in accordance with the application and grazing system received from Lequerica and Sons, Craig and Ronda Brasher, Corral Creek Grazing Association, and LU Ranch in coordination with Idaho Department of Lands (IDL). In accordance with the application received from the permittees, grazing in the South Mountain allotment would permit livestock grazing the same as the current permit for the next 10 years. The application included a 2-year rotational grazing system that would authorize 643 cattle from June 11 to September 20. The application did not reduce permitted AUMs on their 10-year permits. However, the application did include a grazing system that did reduce AUMs. Also included in the application were grazing management tools as described below. Gazing management tools 7, 8, and a portion of 1 would be terms and conditions on their permits because they are specific to the BLM lands. The other tools are specific state lands that the BLM would not require compliance with. The complete application is reproduced in Appendix D.

**Grazing management tools provided by the permittees and in cooperation with IDL:**

1. Livestock control and compliance with the scheduled rotation includes intensive herding and the use of natural barriers. Permittee agree to ride riparian/creek bottoms weekly between July 15 and September 15 to push cattle to upland grazing. A natural barrier ridgeline divides Lone Tree Creek Unit from Buck Creek unit; and a natural barrier ridgeline divides Buck Creek West from Buck Creek East.
2. 5.5 miles of pasture fences would need to be constructed on state, private and BLM lands creating four pastures.
3. Salting would occur 0.5 mile from any riparian areas spring, stream, meadow, or aspen stand.
4. Up to five water developments may be constructed on state sand.
5. IDL would conduct PFC assessments on state land along Juniper Creek, Buck Creek, Cabin Creek, and Corral Creek every 5 years.
6. Permittees would monitor one upland and riparian photo point per pasture. Permittees agree to monitor each pasture annually and submit photos and documentation to BLM and the State for review.
7. If streams are not improving after 5 years of PFC monitoring and annual indicator monitoring, the permittees agree to reduce the season of use by 7 days. If the streams are determined to be PFC after 5 years, season of use would be increased by 7 days as long as the desired riparian conditions are maintained. Monitoring would be collected primarily by IDL; BLM monitoring will also be used to help determine long-term health of these streams. IDL, permittees, and BLM agree to meet annually to determine if adjustments within the permitted season of use are needed to further ensure improvements to riparian health.
8. At least 90 percent of the livestock will be off of the allotment by September 20, and 100 percent of the livestock will be off the allotment by October 7.

Under this alternative, the permittees would be authorized to graze 1,243 AUMs over the 2-year period. This would results in a 17 percent reduction in active AUMs, 5 percent reduction in median use, and no change in average use over the 10-year permit. If after 5 years the allotment is not PFC, the season of use would be reduced by 7 days resulting in 1,157 AUMs available to grazing over the next 2-year grazing cycle (beginning, 2019 grazing year). This would represent a 23 percent decrease in AUMs (1,157 AUMs vs. 1,490 AUMs). Conversely, if the allotment is PFC, there would be an increase in AUMs to 1,328. AUMs could not be increased above 1,490 AUMs.

Construction of the fence on BLM lands in the Lone Tree Creek pasture would not be authorized in this EA because it does not meet the purpose and need. Until additional NEPA is completed, the BLM believes that active herding and salting would be a solution to ensure livestock are kept in the correct Lone Tree Creek North and Lone Tree Creek South pastures since the gap in the fence are limited to approximately a 0.25-mile on either side of the fence. For this reason the pasture moves as described in Table Alt-68 would be analyzed. The direct impacts of the fence and spring development construction on state land would not be considered in the effects analysis since the BLM does not control these lands. Below in Table Alt 66 are the estimated acres of lands within each pasture based on the application.

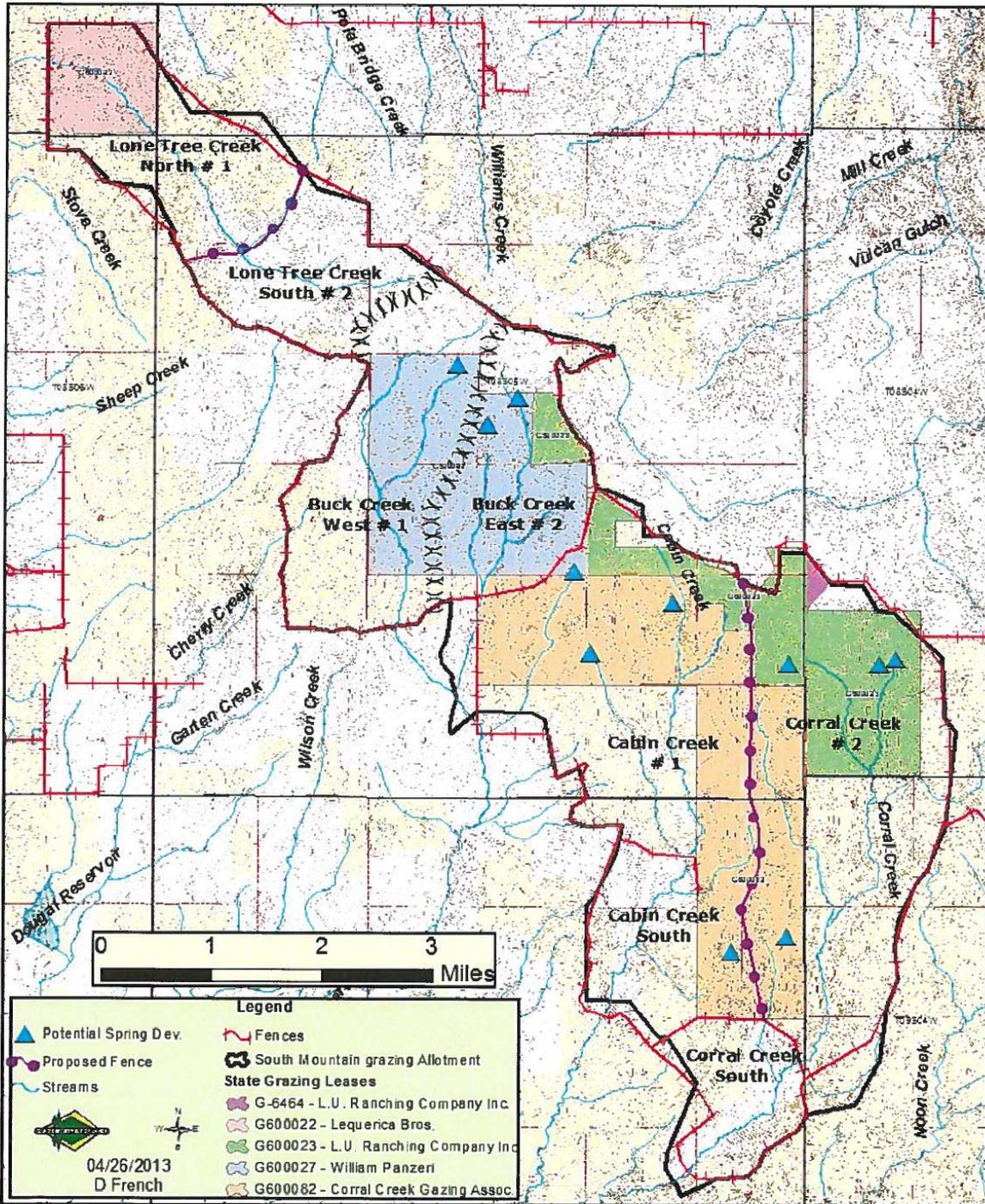
**Table Alt-66:** Approximate land status acres within each pasture based on the permittee application

Pasture Name	BLM	Private	State	Total
Buck Creek East	113	258	1199	1571
Buck Creek West	848	519	1051	2418
Cabin Creek North	1116	363	2730	4209
Cabin Creek South	266	506	57	829
Corral Creek North	1784	9	2281	4074

<b>Pasture Name</b>	<b>BLM</b>	<b>Private</b>	<b>State</b>	<b>Total</b>
Corral Creek South	710	398	72	1179
Lone Tree Creek North	1043	214	566	1823
Lone Tree Creek South	127	1073	0	1200
Grand Total	6006	3340	7957	17303

The following map is from the IDL and grazing applicants describing the new location of fences, potential spring developments, and new pastures.

### IDL Alternative South Mountain Grazing Allotment (561)



Lequerica and Sons, Craig Brasher, Corral Creek Grazing Association, and LU Ranch would be offered a 10-year grazing permit as outlined in Table Alt-67, a 2-year pasture rotation in Table ALT-68, and terms and condition described below and within Table ALT-69.

**Table ALT-67:** Permitted grazing use within the South Mountain allotment

Permittee	Active Use	Suspension	Permitted Use
Lequerica and Sons	95	0	95
Craig and Ronda Brasher	184	0	184
Corral Creek Grazing Association	300	0	300
LU Ranch	166	0	166
Total	745	0	745

The 2-year rotational grazing system proposed by the permittee and IDL is described in Table Alt-68. The Authorized AUMs in the table do not represent the AUMs used solely on BLM land, because the BLM AUMs are authorized at the applicant’s percent public land calculation (see Table Alt-7), this information provides the total AUMs use in the allotment based on the application. BLM AUMs used in the allotment are described in the grazing system in Table Alt-69.

**Table ALT-68:** Alternative 2 South Mountain allotment 2-year grazing system

Pastures	Year 1	Year 2	# Cow/Calf Pairs	Authorized AUMs	Grazing schedule based on available AUMs
Lone Tree Creek North (Pasture 1)	6/11-8/15	7/28-9/29	110 Lequerica	241	65 days
Lone Tree Creek South (Pasture 2)	8/15-9/20	6/11-7/28	110 Lequerica	174	47 days
Buck Creek West (Pasture 1)	7/26-9/20	6/11-8/25	117 Brasher 21 Lowry	350	76 days
Buck Creek East (Pasture 2)	6/11-7/26	8/25-9/20	117 Brasher 21 Lowry	211	46 days
Cabin Creek <sup>1</sup> North/South (Pasture 1)	6/11-7/24	8/5-9/20	101 Lowry 294 Lequerica	625	45 days
Corral Creek <sup>1</sup> North/South (Pasture 2)	7/24-9/20	6/11-8/5	101 Lowry 294 Lequerica	792	57 days

<sup>1</sup>Cabin Creek and Corral Creek pastures will be used for turnout. Gates will be left open and cattle allowed to drift

**Table ALT-69:** Alternative 2 allocation of BLM AUMs used in South Mountain allotment

Pastures	Year 1 BLM AUMs	Year 2 BLM AUMs
Lone Tree Creek North	57	47
Lone Tree Creek South	31	42

Pastures	Year 1 BLM AUMs	Year 2 BLM AUMs
Lone Tree Creek North	57	47
Buck Creek West	99	135
Buck Creek East	82	46
Cabin Creek North/South	152	162
Corral Creek North/South	200	190

In accordance with the permittee application, the grazing schedule for the South Mountain allotment identified in Table Alt-70 would be authorized. The 742 AUMs in this table are below the 745 active AUMs because increasing the cattle numbers would exceed the 745 active AUMs. However, this does not preclude use to the active AUMs.

**Table Alt-70: Mandatory and other terms and condition for the South Mountain allotment**

Permittee	Livestock		Grazing Period		% PL	Type Use	AUMs
	Number	Kind	Begin	End			
Lequirica and Sons	96	Cattle	6/1	9/30	24	Active	92
Craig and Ronda Brasher	114	Cattle	6/1	9/30	40	Active	184 <sup>1</sup>
Corral Creek Grazing Association	312	Cattle	6/1	9/30	24	Active	300
LU Ranch	122	Cattle	6/1	9/30	34	Active	166
Total							742

<sup>1</sup>The application printed by the BLM and signed by the Brashers authorized 188 AUMs. Because this is above the permitted use AUMs of 184 the cattle numbers were adjusted to 114 from 117

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. Livestock control and compliance with the scheduled rotation includes intensive herding and the use of natural barriers. Permittee agree to ride riparian/creek bottoms weekly from July 15 to September 15 to push cattle to upland grazing.
3. If streams are not improving after 5 years of PFC monitoring and annual indicator monitoring, the permittees agree to reduce the season of use by 7 days. Conversely, if the streams are determined to be PFC after 5 years, season of use would be increased by 7 days as long as the desired riparian conditions are maintained. Monitoring would be collected primarily by IDL; BLM monitoring will also help determine long-term health of these streams. IDL, permittees, and BLM agree to meet annually to determine if adjustments within the permitted season of use are needed to further ensure improvements to riparian health.
4. At least 90 percent of the livestock will be off of the allotment by September 20, and 100 percent of the livestock will be off the allotment by October 7.

**2.4.6.3 Alternative 3**

Under Alternative 3, the BLM would renew grazing on the South Mountain allotment using resource constraints and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and Owyhee RMP objectives as described in the description of proposed action and alternatives (Sec 2.2.3). The BLM developed this alternative as a 3-year rotational grazing system that would authorize livestock use based on soil, vegetation, riparian, and wildlife issues while still permitting livestock use similar to the

permittees and IDL application, and past management. Resource constraints used to develop this alternative are provided in Table Alt-71.

**Table ALT-71: Resource constraints for the South Mountain allotment**

Resource	Pasture 1	Pasture 2	Pasture 3	Pasture 4
Sage-Grouse/ Wildlife	April 1 to June 30 - No more than 2 yrs use in 3 yrs  March 15 to June 15 - No more than 2 yrs use in 3 yrs	March 15 to June 15 - No more than 2 yrs use in 3 yrs  May 1 to June 15 - No more than 2 yrs use in 3 yrs	March 15 to June 15 - No more than 2 yrs use in 3 yrs	Not Present
Vegetation	No use 2/3 yrs May 1 - Jul 15	No use 2/3 yrs May 1 - Jul 15	No use 2/3 yrs May 1 - Jul 15	No use 2/3 yrs May 1 - Jul 15
Soils	March 1 to May 31 - No more than 2 yrs use in 3 yrs	March 1 to May 31 - No more than 2 yrs use in 3 yrs	March 1 to May 31 - No more than 2 yrs use in 3 yrs	March 1 to May 31 - No more than 2 yrs use in 3 yrs
Riparian/ Water Quality	No use 1/3 yrs July 1- Sep 30	No use 1/3 yrs July 1- Sep 30	No use 1/3 yrs July 1- Sep 30	Not Present

Based on these resource constraints, a 3-year grazing system was developed that would authorize 409 AUMs each year. This would represent a 49 percent reduction in permitted AUMs (7,450 Alt 1 vs 3,828 Alt 3), 34 percent reduction in average actual use, and 38 percent reduction in median use over the 10-year permit.

The grazing system would authorize 748 cattle from June 11 to November 15 with no more than 58 days of use each year. The permittees would be provided 15 days to gather 5 percent of the stray cattle after the yearly off date. Cattle numbers were increased to 748 because this is close the maximum number of livestock the permittees have stocked the allotment in the past. Under this alternative, the allotment would be stocked at 13 to 20 acres per AUM.

Under this alternative, the permittees would be authorized 1,140 AUMs compared to 2,238 AUMs authorized over the same 3-year period in Alternative 1. This would represent a 49 percent reduction in use over the 3 years. Included in this alternative are specific allotment terms and conditions:

**Alternative 3 allotment specific terms and conditions:**

1. In pastures 1, 2, 3, and 4, a stubble height of no less than 6", woody browse use no greater than 30 percent incidence of use on current year's lead growth, and bank alteration no greater than 10 percent measured at the end of the growing season in key riparian areas may not be exceeded in years 1 and 2.
2. Daily livestock herding would be required to move cattle away from riparian areas from July 1 to September 30.
3. Due to topography and Juniper 95 percent of the cattle must be off the allotment by the yearly off date. The remaining cattle will need to be removed 15 days after the yearly off date.

Lequerica and Sons, Craig Brasher, Corral Creek Grazing Association, and LU Ranch would be offered a 10-year grazing permit as outlined in Table Alt-72, a 3-year pasture rotation in Table ALT-73, and terms and condition described below and in Table ALT-74.

**Table ALT-72: Permitted grazing use within the South Mountain allotment**

Permittee	Active Use	Suspension	Permitted Use
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Permittee	Active Use	Suspension	Permitted Use
Lequerica and Sons	51	0	51
Craig and Ronda Brasher	103	0	103
Corral Creek Grazing Association	164	0	164
LU Ranch	91	0	91
Total	409	0	409

**Table ALT-73:** Alternative 3 3-year grazing system for the South Mountain allotment

Permittee	Year	Pasture	Date On	Date Off	Days	# Cows	AUMs
LU Ranch	Year 1	2,3,4	6/11	8/7	58	130	84
Corral Creek Grazing Association	Year 1	2,3,4	6/11	8/7	58	358	164
LU Ranch	Year 2	2,3,4	7/16	9/11	58	130	84
Corral Creek Grazing Association	Year 2	2,3,4	7/16	9/11	58	358	164
LU Ranch	Year 3	2,3,4	10/1	11/15	46	130	67
Corral Creek Grazing Association	Year 3	2,3,4	10/1	11/15	46	358	130
Craig and Ronda Brasher	Year 1	1	6/11	8/7	58	135	103
Lequerica and Sons	Year 1	1	6/11	8/7	58	111	51
LU Ranch	Year 1	1	6/11	8/7	58	14	66
Brasher	Year 2	1	7/16	9/11	58	135	103
Lequerica and Sons	year 2	1	7/16	9/11	58	111	51
LU Ranch	year 2	1	7/16	9/11	58	14	6
Brasher	Year 3	1	10/1	11/15	46	135	82
Lequerica and Sons	Year 3	1	10/1	11/15	46	111	40
LU Ranch	Year 3	1	10/1	11/15	46	14	5

Mandatory and other terms and condition offered to Lequerica and Sons, Craig Brasher, Corral Creek Grazing Association, and LU Ranch outlined in Table Alt-74. The 408 AUMs in this table are below the 409 active AUMs because increasing the cattle numbers would exceed the 409 active AUMs. However, this does not preclude use to 408 AUMs.

**Table Alt-74:** Mandatory and other terms and condition for the South Mountain allotment

Permittee	Livestock		Grazing Period		% PL	Type Use	AUMs
	Number	Kind	Begin	End			
Lequerica and Sons	37	Cattle	6/11	12/1	24	Active	51
Craig and Ronda Brasher	45	Cattle	6/11	12/1	40	Active	103
Corral Creek Grazing Association	119	Cattle	6/11	12/1	24	Active	163
LU Ranch	47	Cattle	6/11	12/1	34	Active	91
Total							408

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. In pastures 1, 2, 3, and 4, a stubble height of no less than 6”, woody browse use no greater than 30 percent incidence of use on most years’ lead growth, and bank alteration no greater than 10 percent measured at the end of the growing season in key riparian areas may not be exceeded in years 1 and 2.
3. Weekly livestock herding would be required to move cattle away from riparian areas from July 1 to September 30.
4. Due to topography and juniper, 95 percent of the cattle must be off the allotment by the yearly off date.
5. The remaining cattle will need to be removed 15 days after the yearly off date.

**2.4.6.4 Alternative 4**

Under Alternative 4, the BLM would renew grazing on the South Mountain allotment using resource constraints and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and Owyhee RMP objectives as described in the description of proposed action and alternatives and added emphasis on high value resources (Section 2.2.4). This alternative developed a 3-year rotational grazing system that authorizes livestock based on soil, vegetation, riparian, and wildlife resources constraints with increased emphasis on the high value resources of redband trout and sage-grouse habitat. Resource constraints used to develop this alternative are provided in Table ALT-75.

**Table ALT- 75: Resource constraints for the South Mountain allotment**

<b>Resource</b>	<b>Pasture 1</b>	<b>Pasture 2</b>	<b>Pasture 3</b>	<b>Pasture 4</b>
<b>Sage-Grouse/ Wildlife<sup>1</sup></b>	April 1 to June 30 - No more than 1 yrs use in 3 yrs.  July 1 to August 31 - No more than 1 yrs use in 3 yrs.  March 15 to June 15 - No more than 1 yrs use in 3 yrs	March 15 to June 15 - No more than 1 yrs use in 3 yrs.  May 1 to June 15 - No more than 1 yrs use in 3 yrs	March 15 to June 15 - No more than 1 yrs use in 3 yrs	None
<b>Vegetation</b>	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15
<b>Soils</b>	March 1 to May 31 - No more than 1 yrs use in 3 yrs	March 1 to May 31 - No more than 1 yrs use in 3 yrs	March 1 to May 31 - No more than 1 yrs use in 3 yrs	March 1 to May 31 - No more than 1 yrs use in 3 yrs
<b>Riparian/ Water Quality<sup>2</sup></b>	No use all yrs July 1-Sep 30	No use all yrs July 1- Sep 30	No use all yrs July 1-Sep 30	NA

<sup>1</sup>Pastures 1-3 have high value (>1.0 mile and redband trout habitat)

<sup>2</sup>Pasture 1 has high value sage-grouse habitat

Based on these resource constraints, a 3-year grazing system was developed that would authorize 284 AUMs each year. This alternative would result in a 74 percent reduction in permitted AUMs, 53 percent reduction in average actual use, and 56 percent reduction in median use over the 10-year permit.

The 3-year rotational grazing system would authorize 647 cattle from May 15 to November 1 with no more than 48 days of use each year. The resource constraints would allow for fall grazing in year 3; however, to ensure riparian and fish values are meeting or making significant progress, rest would replace fall grazing in year 3. The cattle numbers were not reduced; however, the duration of use and AUMs

compared to Alternative 3 were reduced to provide for faster improvement and further long-term sustainability for the sage-grouse, riparian, and fish resources. This alternative would authorize livestock use with a stocking rate from 19 to 23 acres per AUM.

Under this alternative, the permittees would be authorized 573 AUMs compared to 2,238 AUMs over the same 3-year period as in Alternative 1. This would result in 74 percent reduction in use over the 3 years. Included in this alternative are specific terms and conditions:

**Alternative 4 specific terms and conditions:**

1. Do to topography and juniper, 90 percent of the cattle must be off the allotment by the yearly off date. The remaining cattle will need to be removed 15 days after the off date.
2. Livestock numbers would be coordinated between BLM and the permittee and may vary in accordance with annual grazing application as long as the permitted use period and active AUMs are not exceeded.

Lequerica and Sons, Craig Brasher, Corral Creek Grazing Association, and LU Ranch would be offered a 10-year grazing permit as outlined in Table ALT-76, a 3-year pasture rotation in Table ALT-77, and terms and condition described below and within Table ALT-78.

**Table ALT-76:** Permitted grazing use within the South Mountain allotment

Permittee	Active Use	Suspension	Permitted Use
Lequerica and Sons	36	0	36
Craig and Ronda Brasher	74	0	74
Corral Creek Grazing Association	117	0	117
LU Ranch	65	0	65
Total	292	0	292

**Table ALT-78:** Alternative 4 South Mountain allotment 3-year grazing system

Permittee	Year	Pasture	Date On	Date Off	Days	# Cows	% PL	AUMs
LU Ranch	1	2,3,4	5/14	6/30	48	114	34	61
Corral Creek Grazing Association	1	2,3,4	5/14	6/30	48	310	24	117
LU Ranch	2	2,3,4	10/1	11/15	46	114	34	59
Corral Creek Grazing Association	2	2,3,4	10/1	11/15	46	310	24	113
LU Ranch	3	2,3,4	rest					
Corral Creek Grazing Association	3	2,3,4	rest					
Craig and Ronda Brasher	1	1	5/15	6/30	48	117	40	74

Permittee	Year	Pasture	Date On	Date Off	Days	# Cows	% PL	AUMs
Lequirica	1	1	5/14	6/30	48	95	24	36
LU Ranch	1	1	5/14	6/30	48	11	24	4
Craig and Ronda Brasher	2	1	10/1	11/15	46	117	40	71
Lequirica	2	1	10/1	11/15	46	95	0.24	34
LU Ranch	2	1	10/1	11/15	46	11	0.24	4
Craig and Ronda Brasher	3	1	rest					
Lequirica	3	1	rest					
LU Ranch	3	1	rest					

Mandatory and other terms and condition offered to Lequerica and Sons, Craig Brasher, Corral Creek Grazing Association, and LU Ranch outlined in Table Alt-78. The 288 AUMs in this table are below the 292 active AUMs because increasing the cattle numbers would exceed the 288 active AUMs. However, this does not preclude use to 292 AUMs.

**Table Alt-78:** Mandatory and other terms and condition for the South Mountain allotment

Permittee	Livestock		Grazing Period		% PL	Type Use	AUMs
	Number	Kind	Begin	End			
Lequerica and Sons	22	Cattle	5/14	12/1	24	Active	35
Craig and Ronda Brasher	28	Cattle	5/14	12/1	40	Active	74
Corral Creek Grazing Association	73	Cattle	5/14	12/1	24	Active	116
LU Ranch	28	Cattle	5/14	12/1	34	Active	63
<b>Total</b>							288

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. Do to topography and Juniper, 90 percent of the cattle must be off the allotment by the yearly off date. The remaining cattle will need to be removed 15 days after the off date.
3. Livestock numbers would be coordinated between BLM and the permittee and may vary in accordance with annual grazing application as long as the permitted use period and active AUMs are not exceeded.

**2.4.6.5 Alternative 5**

Under Alternative 5, the BLM would not authorize livestock to use public lands within the South Mountain allotment for the next 10 years. The BLM would deny the application for permit renewal (i.e., not reissue the permit) and for the next 10 years would not approve any applications to graze public lands in this allotment. After 10 years, the BLM would reevaluate whether to again authorize grazing on the

public lands within the allotment, considering such factors as wildlife, upland vegetation, and riparian health. The BLM would not cancel the existing preference for grazing use of this allotment's public lands as part of this action and would continue to administer it under applicable law and regulation. After 10 years, the BLM would grant first priority for receipt of a future authorization, if any, to graze public lands within the South Mountain allotment to the qualified applicant who holds this preference.

### 2.4.7 Wilson Creek FFR (0537)

Standards 5, 6, and 7 are not applicable to this allotment. Current livestock grazing management practices are significant factors in not meeting Standards 2, 3, and 8. However, current livestock management practices are not significant factors toward the failure to meet Standard 1, 4, and 8. Livestock management practices do not conform with the applicable livestock grazing management guidelines 5, 6, and 7 for several standards.

#### 2.4.7.1 Alternative 1

Under alternative 1, BLM would renew the livestock grazing permit for the use in the Wilson Creek FFR allotment in accordance with the current permit and the current situation that led to conditions on the ground. Because of limited actual use information and lack of a clear season of use, Alternative 1 would authorize grazing in the Wilson Creek FFR allotment consistent with the current permit (1997). Under this permit, the permittee is authorized 78 AUMs of permitted grazing between December 1 and December 31. It also includes a term and condition that the number of livestock and season of use within the allotment is at the permittee's discretion.

Due to the allotment boundary adjustment in the McKay FFR and Wilson Creek FFR allotment, the public land in the allotment and allotment boundaries would be modified. (See Appendix K for clarification on allotment boundaries and amendment to RMP.)

Current livestock use terms and conditions for stubble height, woody browse, utilization, and streambank alteration imposed on the grazing permit by the United States District Court for the District of Idaho would be included in terms and conditions of the offered permits.

Thenon Elordi would be offered a 10-year grazing permit as outlined in Table Alt-79 with terms and conditions described below and in Table Alt-80.

**Table ALT-79:** Permitted grazing use within the Wilson Creek FFR allotment

Active Use	Suspension	Permitted Use
78 AUMs	0 AUMs	78 AUMs

In accordance with the current permit, the grazing schedule for the Wilson Creek FFR allotment identified in Table ALT-80 would be authorized. This permit as described is for billing purpose only. The season of use is for 365 days of potential use.

**Table ALT-80:** Mandatory and other terms and conditions for the Wilson Creek FFR allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
77	Cattle	12/1	12/31	100	Active	78

#### Terms and conditions:

1. Boise District terms and conditions common to all grazing alternatives.
2. The number of livestock and season of use on the Fenced in Federal Range (FFR) allotment 04537 is at your discretion.

3. Key herbaceous riparian vegetation, where streambank stability is dependent upon it, will have a minimum stubble height of 4 inches on the streambank, along the greenline, after the growing season.
4. Key riparian browse vegetation will not be used more than 50 percent of the current annual twig growth that is within reach of the animals.
5. Key herbaceous riparian vegetation on riparian areas, other than the streambanks, will not be grazed more than 50 percent during the growing season, or 60 percent during the dormant season.
6. Streambank damage attributable to grazing livestock will be less than 10 percent on a stream segment.

### 2.4.7.2 Alternative 2

Under alternative 2, BLM would renew the livestock grazing permit for the use in the Wilson Creek FFR allotment in accordance with the application and grazing system received from Thenon Elordi. The grazing system would graze pasture 1 from June 1 to July 1 with no more than 200 cattle. All other pastures would be grazed at the permittees discretion. The allotment would be permitted at 78 AUMs that would result in no change in permitted AUMs over the 10-year permit. The complete application is reproduced in Appendix B.

Thenon Elordi would be offered a 10-year grazing permit as outlined in Table ALT-81, Table-ALT-82, and Table ALT-83. The permit would also include terms and conditions described below.

**Table ALT-81:** Permitted grazing use within the Wilson Creek FFR allotment

Active Use	Suspension	Permitted Use
78 AUMs	0 AUMs	78 AUMs

In accordance with the application, the grazing schedule for pastures of the Wilson Creek FFR allotment identified in Table ALT-82 would be authorized.

**Table ALT-82:** Applicants proposed grazing system for Wilson Creek FFR allotment

Pasture	Date On	Date Off	Days
2-5 <sup>1</sup>	1/1	12/31	365
1 <sup>2,3</sup>	6/1	7/1	31

<sup>1</sup>Pastures 2-5: The number of livestock and season of use is at the permittee discretion

<sup>2</sup>Pasture 1 would follow the grazing rotation described above

<sup>3</sup>Cattle numbers would not exceed 200 for Pasture 1 (BLM and Private)

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-83. The permit would allow for 365 days of use allowed with the exception for pasture 1, which has use described in the terms and conditions below.

**Table ALT-83:** Mandatory and other terms and conditions for the Wilson Creek FFR allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
77	Cattle	12/1	12/31	100	Active	78

#### Terms and conditions:

1. Boise District terms and conditions common to all grazing alternatives.
2. Pastures 2-5: The number of livestock and season of use is at the permittee discretion.
3. Pasture 1 would follow the grazing rotation described in the final decision.

4. Cattle numbers would not exceed 200 for Pasture 1.

**2.4.7.3 Alternative 3**

Under Alternative 3, the BLM would renew grazing on the Wilson Creek FFR allotment using resource constraints and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and Owyhee RMP objectives as described in the proposed action and alternatives (Section 2.2.3). This alternative developed a 3-year rotational grazing system that authorizes livestock use based on soil, vegetation, riparian, and sage-grouse wildlife/resource issues while still permitting use similar to the permittee application. Resource constraints used to develop this alternative are provided in Table Alt-84.

Because the BLM land in this allotment is isolated and fenced in with a large amount of private land, livestock management in this alternative would also consider the private landowner operational needs while still meeting the resource constraints. Specifically, this alternative would consider:

1. The need to allow for varying livestock because management decisions the operator may make within this allotment can require moving cattle around frequently within pastures due to water, vegetation condition, haying operations, weather, and calving. Also, these pastures can be affected by changes in livestock grazing made on other lands they graze resulting in increasing or decreasing cattle.
2. Private lands that are fenced separately from BLM lands and are not identified in the allotment map would not be managed under this permit (corrals, holding pastures, etc.)
3. In the future, if BLM lands in the Wilson Creek FFR allotment are fenced separately from the private lands, resource constraints may be adjusted to account for change in resource issues within that pasture assuming BLM lands still exist in the pasture. The BLM land that is fenced separately would still be authorized for grazing consistent with the current resource constraints identified for that pasture.

**Table ALT- 84:** Resource constraints for Wilson Creek FFR allotment

<b>Resource</b>	<b>Pasture 1</b>	<b>Pasture 2</b>	<b>Pasture 3</b>	<b>Pasture 4</b>	<b>Pasture 5</b>
<b>Sage-Grouse/ Wildlife</b>	Resource not present	April 1 to June 30 – No more than 2 yrs use in 3 yrs	Private	Resource not present	April 1 to June 30 – No more than 2 yrs use in 3 yrs
<b>Special Status Plant</b>	Resource not present	Resource not present	Private	Resource not present	Resource not present
<b>Vegetation</b>	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15	Private	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15
<b>Soils</b>	March 1 to May 31 - No more than 2 yrs use in 3 yrs	March 1 to May 31 - No more than 2 yrs use in 3 yrs	Private	March 1 to May 31 - No more than 2 yrs use in 3 yrs	March 1 to May 31 - No more than 2 yrs use in 3 yrs
<b>Riparian/ Water Quality</b>	No use 1/3 yrs July 1-Sep 30	Resource not present	Private	Resource not present	Resource not present

Based on these resource constraints, a three-pasture grazing system was developed that would authorize 78 AUMs. This would represent no reduction in permitted AUMs compared to current authorized AUMs over the 10-year permit.

The grazing system would authorize varying livestock numbers from March 1 to February 28 with duration of use varying from 30 to 365 days. Specifically, in pasture 1 the duration of use would be from 30 to 32 days while adhering to the resource constraints.

**Alternative 3 allotment specific terms and conditions:**

1. The number of livestock on the Fenced in Federal Range (FFR) allotment 0437 is at your discretion so long as authorized active use of 78 AUMs from public land is not exceeded.

Thenon Elordi would be offered a 10-year grazing permit as outlined in Table ALT-85 with a 3-year pasture rotation described in Table ALT-86, the terms and conditions described below and in Table ALT-87.

**Table ALT-85:** Permitted grazing use within the Wilson Creek FFR allotment

Active Use	Suspension	Permitted Use
78 AUMs	0 AUMs	78 AUMs

**Table ALT-86:** Alternative 3 Wilson Creek FFR allotment 3-year grazing system

Year	Pasture	Date On	Date Off	Days
1	1	6/1/13	6/30/13	30
	2	3/1/13	2/28/14	365
	4	3/1/13	2/28/14	365
	5	3/1/13	2/28/14	365
2	1	4/1/13	4/30/13	30
	2	7/16/13	2/28/14	228
	4	7/16/13	2/28/14	228
	5	7/16/13	2/28/14	228
or				
3	1	4/1/13	4/30/13	30
	1	10/1/13	11/1/13	32
	2	3/1/13	4/30/13	61
or				
3	2	7/16/13	2/28/14	228
	4	3/1/13	4/30/13	61
or				
3	4	7/16/13	2/28/14	228
	5	3/1/13	4/30/13	61
or				
3	5	7/16/13	2/28/14	228

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-87. The season of use would allow for 365 days of use. The 72 AUMs in this table are below the 78 active AUMs because increasing the cattle numbers above 6 would exceed the 78 active AUMs. However, this does not preclude use to 78 AUMs.

**Table ALT-87:** Mandatory and other terms and conditions for the Wilson Creek FFR allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
6	Cattle	3/1	2/28	100	Active	72

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. The number of livestock on the Fenced in Federal Range (FFR) allotment 0437 is at your discretion so long as authorized active use of 78 AUMs from public land is not exceeded.

**2.4.7.4 Alternative 4**

Under Alternative 4, the BLM would renew grazing on the Wilson Creek FFR allotment using resource constraints and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and Owyhee RMP objectives as described in the proposed action and alternatives and added emphasis on high value resources (Section 2.2.4). This alternative developed a 3-year rotational grazing system that authorizes livestock use based on soil and vegetation resource constraints with increased emphasis on the high value resources of riparian and sage-grouse. Resource constraints used to develop this alternative are provided in Table Alt-88.

**Table ALT- 88:** Resource constraints for Wilson Creek FFR allotment

Resource	Pasture 1	Pasture 2	Pasture 3	Pasture 4	Pasture 5
Sage-Grouse/Wildlife	Resource not present	April 1 to June 30 - No more than 1 yrs use in 3 yrs	Private	Resource not present	April 1 to June 30 - No more than 1 yrs use in 3 yrs
Vegetation	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15	Private	No use 2/3 yrs May 1- Jul 15	No use 2/3 yrs May 1- Jul 15
Soils	March 1 to May 31 - No more than 1 yrs use in 3 yrs	March 1 to May 31 - No more than 1 yrs use in 3 yrs	Private	March 1 to May 31 - No more than 1 yrs use in 3 yrs	March 1 to May 31 - No more than 1 yrs use in 3 yrs
Riparian/ Water Quality	No use 2/3 yrs July 1-Sep 30	Resource not present	Private	Resource not present	Resource not present

As part of this alternative, the BLM would calculate the percentage of public land (% PL) in the allotment. The % PL is calculated by the proportion of livestock forage available on public lands within the allotment compared to the total available from both public land and lands that they may control. Within the Wilson Creek FFR allotment are 1,800 acres of private land and 560 acres of BLM-administered land. Based on NRCS Ecological Site Description the proportion of livestock forage on public lands within the Wilson Creek FFR allotment is 24 percent. Except for pasture 1, where water is present on BLM lands, there is a general lack of water on the BLM lands throughout the allotment, which shifts livestock pressure to private lands.

Based on these resource constraints and the percentage of public land calculation, a 3-year grazing system was developed that would authorize 78 AUMs. The grazing system would authorize from 50 to 110 cattle from June 1 to November 11 with use varying from 30 to 61 days. This grazing system would stock the allotment from 6 to 9 acres per AUM.

This alternative would result in no reduction in permitted AUMs compared to the current permitted AUMs over the same 3-year period. The 3-year rotational grazing system did calculate the percentage of public land by pasture to provide for further accuracy.

**Alternative 4 allotment specific terms and conditions:**

1. The number of livestock on the Fenced in Federal Range (FFR) allotment 0437 is at your discretion so long as authorized active use of 78 AUMS from public land is not exceeded.

Thenon Elordi would be offered a 10-year grazing permit as outlined in Table ALT-89 with a 3-year pasture rotation described in Table ALT-90, and terms and conditions described below and in Table ALT-91.

**Table ALT-89:** Permitted grazing use within the Wilson Creek FFR allotment

Active Use	Suspension	Permitted Use
78 AUMs	0 AUMs	78 AUMs

**Table ALT-90:** Alternative 4 3-year grazing system for the Wilson Creek FFR allotment

Year	Pasture	Date On	Date Off	Days	# Cows	% PL	AUMs
1	1	6/1	6/30	31	110	30	34
	2	7/16	8/17	33	110	27	32
	4	8/18	9/19	33	50	19	10
	5	9/20	11/1	43	50	3	2
2	1	7/1	8/1	32	110	30	35
	2	7/16	8/15	31	110	27	30
	4	4/1	4/30	31	55	19	11
	5	6/1	7/1	31	75	3	2
3	1	4/1	4/30	30	110	30	33
	2	5/1	6/30	61	60	27	32
	4	7/16	8/16	32	55	19	11
	5	9/1	10/1	31	75	3	2

Mandatory and other terms and conditions of the offered permit would be defined as listed in Table ALT-91.

**Table ALT-91:** Mandatory and other terms and conditions for the Wilson Creek FFR allotment

Livestock		Grazing Period		% PL	Type Use	AUMs
Number	Kind	Begin	End			
46	Cattle	4/1	11/1	24	Active	78

**Terms and conditions:**

1. Boise District terms and conditions common to all grazing alternatives.
2. The number of livestock on the Fenced in Federal Range (FFR) allotment 0437 is at your discretion so long as authorized active use of 78 AUMS from public land is not exceeded.

**2.4.7.5 Alternative 5**

Under Alternative 5, the BLM would not authorize livestock to use public lands within the Wilson Creek FFR allotment for the next 10 years. The BLM would deny the application for permit renewal (i.e., not reissue the permit) and for the next 10 years would not approve any applications to graze public lands in this allotment. After 10 years, the BLM would reevaluate whether to again authorize grazing on the public

lands within the allotment, considering such factors as wildlife, upland vegetation, and riparian health. The BLM would not cancel the existing preference for grazing use of this allotment's public lands as part of this action and would continue to administer it under applicable law and regulation. After 10 years, the BLM would grant first priority for receipt of a future authorization, if any, to graze public lands within the Wilson Creek FFR allotment to the qualified applicant who holds this preference.

### 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

#### 3.1 Affected Environment Common to All Allotments

##### 3.1.1 Vegetation, including Noxious Weeds

This section describes how the current vegetation condition was determined within the Group 4 allotments. The condition of the current vegetation is then used as a baseline comparison for determining the effects of each alternative.

As a whole, juniper encroachment is a prevailing issue in the Group 4 allotments but to varying degrees. In addition, sagebrush steppe vegetation communities within all allotments exhibit vegetation functional-structural groups that vary from site potential, with an underrepresentation of dominant deep-rooted bunchgrass species and increased representation of the shallow-rooted native bunchgrass Sandberg bluegrass that is a minor component when described in ecological site descriptions for the reference site. For further detail of Idaho Standards and Guidelines by allotment, see appropriate sections under Section 3.3.

##### Upland Vegetation

Ecological sites are a description of the expected vegetation based on soils, climate (precipitation and temperature), and natural disturbance regime. The Group 4 allotments are composed of four major ecological sites, which account for approximately 96 percent of the BLM managed land area, with the expected vegetation of each ecological site encompassing a co-dominance of shrubs and native perennial bunchgrasses (Table VEGE-1). The drier sites are dominated by low sagebrush with more mesic sites dominated by mountain big sagebrush. However, these two species often create a mosaic or mixed stand in the project area with each species confined to a particular soil type. The remaining 4 percent is made up of several different ecological sites. The common ecological sites in order of dominance are in Table VEGE-1 (USDA NRCS, 2010). The ecological sites indicate that under a natural disturbance regime the Group 4 allotments should be dominated by sagebrush/bunchgrass communities common at higher elevations. Within the prevailing ecological sites other vegetation types, such as Douglas fir, mountain mahogany and snowberry, aspen, and meadows, are expected to occur as unmapped inclusions within the larger ecological sites.

**Table VEGE-1: BLM lands mapped by Ecological Sites in the Group 4 allotments**

Ecological Site	Dominant Species Expected	Acres	Percent of Allotment
Shallow claypan 12-16" ARAR8/FEID	low sagebrush, Idaho fescue	4,341	34%
Loamy 13-16" ARTRV/PSSPS-FEID	mountain big sagebrush, bluebunch wheatgrass, Idaho fescue	4,174	33%
Very shallow stony loam	low sagebrush,	2,179	17%

<b>Ecological Site</b>	<b>Dominant Species Expected</b>	<b>Acres</b>	<b>Percent of Allotment</b>
10-14" ARAR8/POSE-PSSPS	Sandberg bluegrass, Bluebunch wheatgrass		
Loamy 16+" ARTRV/FEID	mountain big sagebrush, Idaho fescue	1,527	12%
Mountain ridge 14-18" ARAR8/FEID	low sagebrush, Idaho fescue	73	<1%
Loamy 10-13" ARTRW8/PSSPS	Wyoming big sagebrush, bluebunch wheatgrass	63	<1%
Dougals fir snowberry 22-32" PSMEG/SYOR2	Douglas fir, mountain snowberry	37	<1%
Aspen thicket 16-22" POTR5	quaking aspen	28	<1%
Dry meadow 25-39" PONE3-PHAL2	Nevada bluegrass, alpine timothy	16	<1%
Mahogany savanna 16-22" CELE3-SYOR2/FEID-ACHNA	curl-leaf mountain mahogany mountain snowberry, Idaho fescue, needlegrass	6	<1%
Loamy bottom 12-16" ARTRT/LECI4	basin big sagebrush, basin wildrye	<1	<1%
Total:		12,577	100%

Alterations from what would be expected on the ecological site, as a result of a number of change agents over the years, including livestock grazing, reduced wildfires, invasion by non-native plants, infrastructure, and roads/OHV, have occurred to varying degrees throughout the Group 4 allotments. When combined, disturbance from these change agents can be compounded and ultimately challenge the resilience of the native plant community. However, the mid to high elevation of the project area (4,800 to 7,770 feet) and the effective precipitation provides the allotments with greater resilience compared to the Wyoming and basin big sagebrush sites. Generally, these sites are at lower elevations, where ecological resilience to a change agent is more fragile.

In general, and as a result of past livestock grazing practices, sagebrush steppe vegetation communities within the project area exhibit vegetation composition that has drifted, to varying degrees, from reference condition with an underrepresentation of dominant deep-rooted bunchgrass species for the project area, primarily bluebunch wheatgrass, and Idaho fescue, which are preferred forage species. Also, Sandberg bluegrass, a shallow-rooted native bunchgrass, occurs more often than the minor contribution described in ecological site descriptions for the reference state.

Invasive plants are present throughout the allotments but to varying degrees (additional information below in Weeds). The primary invasive species is juniper, which has affected the most prominent ecological sites within the Group 4 allotments. The extended fire regime has a strong influence on juniper expansion when a juniper seed source is in close proximity, particularly within the mountain big sagebrush ecological sites in the project. These sites show the greatest deviation from site potential in comparison to low sagebrush sites. In general, when the ecological site is in equilibrium, juniper would be present as seedlings, saplings, or very sparse mature trees. Ecological site descriptions identify that once juniper dominate a vegetation community, the community is limited to a new state in the state-and-transition model for the Loamy 13-16", Shallow Claypan 12-16", Very Shallow Stony Loam 10-14", and Loamy 16+ ecological sites. The new juniper-dominated state results from improper grazing

management and the absence of fire with the visual aspect of western juniper and a sparse understory of bluebunch wheatgrass and Idaho fescue. The peak of juniper establishment in closed canopy woodland stands in southeastern Oregon and southwestern Idaho was identified to be between 1890 and 1920 (Oregon State University Agricultural Experiment Station, 2005). Closed canopy stands produce limited shrub and herbaceous biomass, even in the absence of livestock grazing. The ecological site descriptions where juniper is encroaching identify juniper as an invasive species that, when dominant, results in a new state requiring management inputs to restore ecological function of the reference site sagebrush/bunchgrass state.

The vegetation shift away from the reference site plant communities noted for the Group 4 allotments likely occurred from past livestock grazing. The introduction of season-long grazing by large numbers of domestic livestock beginning in the late 1800s, a period of uncontrolled livestock grazing (Yensen D. , 1982) (National Research Council, 1994), reduced fine fuels and significantly reduced the frequency, extent, and effect of naturally occurring fire (Oregon Watershed Enhancement Board, 2007). The devastated native vegetation in the lowlands of southwestern Idaho left encouraging opportunity for invasive species (Yensen D. , 1982). Improper grazing management decreases the vigor of deep-rooted perennial bunchgrasses, which declines recruitment of these species. As deep-rooted perennial species decline and a seed source for invasive species (i.e., juniper, cheatgrass, etc.) is in close proximity, the plant community becomes susceptible to invasion. Invasive grasses are scattered throughout the allotments, with lower frequency in the high elevation allotments moving towards higher concentrations as elevation decreases; however, no non-native monocultures are known to occur within the project area. Past livestock grazing has also resulted in a reduction of biotic soil crusts, which has affected both the plant community and watershed/soil processes.

Other disturbances from infrastructure and motorized vehicles has removed or altered the native vegetation on and adjacent to the disturbed areas. This physical disturbance to vegetation and soils increase bare ground and erosion, in turn creating niches for the introduction and spread of invasive and noxious weeds.

### **Biological Soil Crusts**

Microbiotic crusts are an important component of many ecological sites in the South Mountain Group allotments. They function as living mulch by retaining soil moisture and discouraging annual weed growth. By occupying interspatial areas between larger plants, these crusts reduce wind and water erosion, and they enhance soil stability, soil moisture retention, and site fertility by fixing atmospheric nitrogen and contributing soil organic matter (Belnap, et al., 2001), (Belnap & Gillette, 1998).

### **Weeds**

BLM noxious weed records show one infestation of noxious weeds within the South Mountain Group allotments and in South Dougal allotment. The BLM Boise District has an active weed control program that annually updates the locations of noxious weeds and treats known weed infestations utilizing chemical, mechanical, and biological control techniques. Infestations of noxious weeds are treated contingent upon the BLM annual weed budget, employee availability, and noxious weed priority. To cooperatively combat weeds across ownership boundaries, the BLM has also developed partnerships known as Cooperative Weed Management Areas with Federal, State, county, and private organizations.

### **3.1.2 Soils**

The South Mountain Group allotments are situated within the North Fork Owyhee, Soldier Creek, Big Boulder Creek, and Trout Creek-Jordan Creek subbasins. Winter snow and early spring rain provide the majority of precipitation to these watersheds. Summer thunderstorms provide short but potentially intense bursts of rain. Soils within the analysis area have been mapped and are described in the Owyhee County

Soil Survey (USDA NRCS, 2003). The soils in these allotments are diverse mainly due to position on the landscape, climate, and source of parent materials. The majority of these soils occur on structural benches, foothills, and mountains. A small but important soil group occurs on stream and fan terraces. The main body of soils formed in mixed alluvium, colluvium, and residuum derived from welded rhyolitic tuffs, basalts, and mixed sources.

Shallow soils are common on ridges and peaks of South Mountain. Deeper soils are common along the stream terraces, swales, toe-slopes, and valley bottom landforms. The upper elevation areas have a cryic soil temperature regime, while the lower elevation sites are frigid. Soil moisture regimes are xeric. The Dehana, Wareagle, and Parkay soil series typify the upper elevation soils. The Sharesnout and Snell soil series typify the mid-elevation sites. The Fairylawn, Acrelane, and Longcreek soils typify lower elevations. These soils are typically loamy to clayey with high amounts of coarse fragments on the surface and in the profile.

Accelerated erosional processes are evident in portions of the analysis area, but in general the area has stable soils. Most processes involve accelerated overland flow and subsequent flow patterns, pedestalled plants, and soil surface physical features. The locations and reasons for accelerated erosion are described in section 3.3. In many areas of this allotment the high amount of surface gravels is a major factor in maintaining soil stability.

Areas of bare ground are generally small and scattered, intermingling with plant communities throughout the watershed. Localized areas of more continuous patches of bare ground are sometimes associated with habitual livestock congregation areas, such as troughs, dietary supplement locations, fence lines, and gates. Road construction and maintenance activities and fire suppression activities have removed or severely degraded native soils in localized, linear features of the analysis area landscape.

Areas with healthy shrub and bunchgrass communities stabilize soils, improve infiltration and storage, prevent excessive runoff, and maintain soil productivity. Where western juniper and native shrubs have invaded on ecological sites (i.e., Loamy 13-16"), they are having a negative influence on hydrological cycles and vegetative composition and density. Where invasion is heavy, the juniper and shrubs are highly competitive in terms of available moisture, nutrients, and understory photosynthetic needs. The occurrence of this type of encroachment in combination with plant understory disturbances has affected soil and watershed processes adversely.

Biological soil crusts are an important component of soil stability and health for lower elevations of the analysis area because plant interspaces can be relatively large due to low precipitation. At higher elevations with greater precipitation, soil stability depends less on biological crust because vascular plant growth can preclude biological crust development (Belnap, et al., 2001). They primarily affect processes at the soil-air interface including, soil stability and erosion control, atmospheric N-fixation, nutrient contributions to plants, soil-plant-water relations, infiltration, seedling germination, plant growth, and invasive annuals control (Belnap & Gillette, 1998). The presence of biological soil crusts and soil organic matter are good indicators of soil surface resistance to erosion.

The hazard of erosion on these soils from water is rated slight to moderate, with the exception of the soils that occur on slopes greater than 30 percent where the hazard of erosion is rated moderate to very high. The amount of surface rock fragments can greatly modify the hazard of erosion due to the cover they provide. The hazard of erosion from wind is generally low. The Proposed ORMP and Final Environmental Impact Statement (ORMP & FEIS) include a soil erosion hazard analysis for each of the subject allotments and is incorporated here by reference (USDI BLM, 1999a).

For further detail of Idaho Standards and Guidelines by allotment see appropriate sections under Section 3.3.

### 3.1.3 Riparian/Water Quality

#### Desired Condition, Resource Objectives, & Assessment/Monitoring Methods

The resource objective specified in the ORMP for both riparian-wetland areas and stream channels is to maintain or improve riparian-wetland areas to attain proper functioning and satisfactory conditions. Riparian-wetland areas include streams, springs, seeps, and wetlands. The BLM has primarily utilized the lotic and lentic<sup>25</sup> proper functioning condition (PFC)<sup>26</sup> protocol to determine whether the objective is being met. The PFC assessment is a qualitative determination that refers to a consistent approach for considering hydrology, vegetation, and erosion/deposition (soils) attributes and processes to assess the condition of riparian-wetland areas. Essentially, a PFC determination rates the state of resiliency that will allow a riparian area to maintain integrity during a high-flow event, which then allows the area to provide desired values.

Leonard and Karl (1995) state, “Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bed load, and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. Even though this definition emphasizes lotic areas, it can be applied to lentic areas with minor modification. For example, instead of ‘adequate vegetation...present to dissipate stream energies...’ an assessment would determine whether adequate vegetation, etc., is present to dissipate wind and wave energies.”

The BLM employs several additional assessment methods that aid in interpreting the condition of the water and riparian resources and thus determine whether the ORMP objective is being met. In 2011, the multiple indicators monitoring method (MIM)<sup>27</sup> was finalized. MIM is a quantitative monitoring and analysis method used to assess the long-term trend of a designated stream reach. MIM can be used to help evaluate livestock grazing management (i.e., timing, duration, and frequency of grazing) by determining how the vegetation and stream channels are impacted by herbivore use. Monitoring data is gathered for ten indicators to assess the existing condition and trend of the streambanks, channel, and vegetation. From the gathered data, an evaluation is made for the stream reach in relation to the following three capability groups: 1) ecological status, 2) vegetation-erosion resistance (i.e., streambank stability), and 3) site wetland status. Depending on the objectives for an area or stream, the MIM method can also be modified (MIM) allowing the observers to collect either the three short-term indicators (stubble height, woody browse, and bank alteration) or any of the indicators of interest.

The ORMP objective for water quality is to meet or exceed State of Idaho water quality standards on all federally administered waters. To assess and interpret whether this objective is met for an area, a stream,

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<sup>25</sup> Lotic = flowing water. Lentic = standing water, e.g., a seep or pond.

<sup>26</sup> PFC Assessments are based on Interagency Technical Reference 1737-15, *A User Guide to Assessing Proper Functioning Condition and Supporting Science for Lotic Areas* and 1737-16, *A User Guide to Assessing Proper Functioning Condition and Supporting Science for Lentic Areas*.

<sup>27</sup> MIM: Interagency Technical Reference 1737-23, *Multiple Indicator Monitoring of Stream Channels and Streamside Vegetation*.

and/or a stream segment, the BLM utilizes watershed information collected by IDEQ and collects water temperature and bacteria information internally.

### 3.1.4 Special Status Plants

#### Introduction

No federally listed plant species are known to occur in the project area; however, two BLM special status species, Bach’s calicoflower (*Downingia bacigalupii*) and thinleaf goldenhead (*Pyrrocoma linearis*), are present. The former is known at one site in the Dougal FFR allotment, and the latter occurs at one site that spans across Dougal FFR allotment and South Dougal allotment (Table SSPS-1 and Appendix E).

The resource objective for special status species, as specified in the ORMP, is to manage special status species and habitats to increase or maintain populations at levels where their existence is no longer threatened and there is no need for listing under the Endangered Species Act of 1973, as amended. In addition, BLM Manual 6840 directs the BLM to ensure that any activities authorized, funded, or carried out do not contribute to the need to federally list any species as threatened or endangered, all while managing for multiple uses. Standard 8 of the Idaho Standards for Rangeland Health is used to assess whether this objective is being met. GIS data, aerial photography, site visits, plant observation records made by BLM staff (on file at the Owyhee Field Office and available upon request), and the Idaho Fish and Game Department (IDFG) Idaho Fish and Wildlife Information System (IFWIS) (IDFG, 2011) were used to evaluate the current conditions of special status plants. In addition, a file search at the Owyhee Field Office was conducted to obtain observation records not yet entered into the IFWIS database. Findings were compiled in the associated Amended Rangeland Health Assessments, Evaluation Reports and Determinations (available upon request from the Owyhee Field Office). The report: 1) discloses if Standard 8 (Threatened and Endangered Plants and Animals) is being met, 2) provides rationales and causes for meeting or not meeting the Standard, and 3) supplies background on the analysis methods for special status plant species. The following analysis focuses on existing conditions and environmental effects of the proposed grazing activities on special status plants and their habitats in the Group 4 project area (Map GEN-1, Table SSPS-1).

Table SSPS-1 identifies the allotments in which special status plant species are known to occur on BLM-administered lands within the project area. Due to the vast and rugged nature of the land, unknown occurrences of special status plants are likely to be present as well. Table SSPS-1 also identifies special status plant species ranks and state status. The species rank provides an estimate of the risk of elimination of an occurrence.

**Table SSPS-1:** Special status plant species, status, and general habitat type by allotment

Species	ID BLM Status <sup>1</sup>	State Rank <sup>2</sup>	Habitat	Allotment
Bach’s calicoflower	4	ID S2/OR S4	Shallow periphery/drying mud of vernal pools, margins of muddy lakes, wet meadows, roadsides, irrigation ditches and streambanks.	Dougal FFR
Thinleaf goldenhead	3	ID S3/OR S4	Wet or dry alkaline meadows, streambanks, or around springs.	Dougal FFR, South Dougal

<sup>1</sup>Idaho BLM Types (USDI BLM, 2011):

1. *ESA listed, Proposed & Candidate Species:* These are species federally identified as threatened, endangered, proposed, or candidate.
2. *Rangewide/Globally Imperiled Species (high endangerment):* These are species that have a high likelihood of being listed in the foreseeable future due to their global rarity and significant endangerment factors.

3. *Range-wide or State-wide Imperiled (moderate endangerment)*: These are species that are globally rare or very rare in Idaho, with moderate endangerment factors. Their global or state rarity and the inherent risks associated with rarity make them imperiled species.
4. *Species of Concern*: These are species that are generally rare in Idaho with small populations or localized distribution and currently have low threat levels. However, due to the small populations and habitat area, certain future land uses in close proximity could significantly jeopardize these species.

<sup>2</sup>State Ranks for ID and OR:

1. Critically imperiled because of extreme rarity or because it is somehow especially vulnerable to extinction or extirpation, typically with 5 or fewer occurrences.
2. Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (extirpation), typically with 6-20 occurrences.
3. Rare, uncommon, or threatened, but not immediately imperiled, typically with 21-100 occurrences.
4. Not rare and apparently secure, but with cause for long-term concern, usually with more than 100 occurrences.
5. Demonstrably widespread, abundant, and secure.
6. SNR identifies that a species is not ranked within that state.

## Species Descriptions

### Bach's calicoflower

Bach's calicoflower distribution is centered around northern California and adjacent Nevada, with a secondary population center in southeastern Oregon and adjacent Idaho (NatureServe Explorer, 2013). Within the analysis area the species was recorded in the Dougal FFR in 1977, but the specific site has not been relocated (IDFG, 2011). It germinates in late spring to early summer, and its flowering and fruiting period follows the receding waterline through the summer. It is most sensitive to grazing during critical growth and flowering. This annual species grows in moist mudflats of vernal pool, pond, stream, ditch bank, or reservoir edges.

### Thinleaf goldenhead

Thinleaf goldenhead has a worldwide range of Owyhee County, Idaho and Harney County, Oregon (NatureServe). Within the analysis area this species is known from one occurrence that spans from South Dougal pasture 1 into Dougal FFR pasture 1. It is most sensitive to grazing during critical growth and flowering (March-June), but its subterranean, rhizomatous growing point is somewhat resistant to moderate trampling at other times of the year (Beth Corbin, May 22, 2013, personal communications see Admin Record).

## Existing Conditions

No populations of BLM special status plant species are known to occur on BLM-administered lands in the following allotments within the project area: South Mountain Area, Sheep Creek, McKay FFR, Wilson Creek FFR, and Lequerica FFR.

### 3.1.5 Wildlife and Special Status Animals

#### Wildlife Habitat

Three Level IV Ecoregions of Idaho are represented within the South Mountain Group allotments (Map GEN-2) (McGrath, et al., 2002). These ecoregions are distinguished by differences in physiography, precipitation, and elevation. The Dissected High Lava Plateau ecoregion occurs at the lowest elevations and is the flattest, driest, and most extensive of the ecoregions represented. The Owyhee Uplands and Canyons ecoregion occurs in the Triangle Flat/Rock Creek Basin and the mid to upper slope portions of the Owyhee Front and is characterized by deep canyons, badlands, and rocky outcrops covered predominantly with low sagebrush steppe and juniper woodland vegetation communities. The Semiarid

Uplands ecoregion occurs on the higher elevation portions of the Owyhee Front where granitic and volcanic mountains and hills ascend out of the lower elevation lava plains; these areas typically are dominated by mesic shrub steppe, mountain shrub, and juniper woodland vegetation communities interspersed with stands of Douglas-fir forest in drainage headwaters and where favorable conditions exist.

The dominant upland wildlife habitats within the South Mountain Group allotments are generally defined by differences in elevation and precipitation (Map ECOL-1). Low sagebrush communities (e.g., South Dougal pastures 1 and 2) transition to mesic shrub steppe habitat as elevation increases and soils deepen; these types are dominated by mountain big sagebrush and bitterbrush communities along higher elevation slopes (>5,000 feet) of South Mountain (e.g., South Mountain Area pastures 2 and 3). These communities become more interspersed with mixed mountain shrub habitat composed of mixed patches of snowberry, serviceberry, chokecherry, and mountain mahogany communities on mountain top slopes (>6,000 feet) and at the highest elevations along the South Mountain Range (e.g., South Mountain Area pasture 1). Western juniper woodlands of varying densities, seral stages, and dominance are found throughout all of these communities above 5,000 feet. The expansion of juniper into former shrub steppe habitats has transformed many of the allotments (e.g., Sheep Creek pasture 1 and McKay FFR pasture 1) into woodlands.

Riparian-wetland wildlife habitats are more limited in abundance and extent especially at lower elevations (<3,500 feet) and include wet meadow complexes and woody and herbaceous riparian areas along perennial and intermittent streams and around springs, seeps, and reservoirs. Upland and riparian vegetation communities within the South Mountain Group allotments are discussed in the Rangeland Vegetation, Water Resources, and Riparian-wetland Affected Environment sections.

Historic fires since the 1960's within the South Mountain allotments (Map FIRE-1) have been insignificant. One fire, primarily within Wilson Creek FFR allotment, occurred in 2013 burning in sage-grouse PPH and PGH, but largely occurred in juniper. A lack of fire for over 50 years has contributed to the expanse of Western juniper in Group 4 at the cost of sagebrush habitats.

### **Wildlife Species**

Many wildlife species utilize a variety of habitats in the South Mountain allotments. These habitats provide forage, nesting substrate, and cover for a variety of bird, mammal, amphibian, reptile, and fish species common to southwestern Idaho and the Northern Great Basin region. Although all of the species are important members of native communities and ecosystems, most are common and have wide distributions within the allotments, State, and region. Consequently, the relationship of most of these species to the permit renewal is not discussed here in the same depth as species upon which the BLM places management emphasis.

Although no threatened or endangered animal species listed under the Endangered Species Act (ESA) occur in the South Mountain allotments, several candidate species in consideration for listing were identified from the U.S. Fish and Wildlife Service's (USFWS) Endangered Species Program (USDI USFWS, 2011a). BLM, USFWS, and Idaho Department of Fish and Game (IDFG) maintain an active interest in other special status species that have no legal protection under the ESA. BLM special status species are: 1) species listed or proposed for listing under the ESA, and 2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA (USDI BLM, 2008), which are designated as sensitive by the BLM State Director(s). Special status wildlife species discussed in this document include those listed on the Idaho BLM State Sensitive Species List (USDI BLM, 2003c) and those afforded protection under the Bald and

Golden Eagle Protection Act (BGEPA) (USDI USFWS, 1940) with potential to occur within the allotments and whose habitat may be affected by the current action.

One bird and one amphibian species are listed as candidates under the ESA, and nine mammals, thirteen birds, four reptiles, one amphibian, and one fish with special status potentially could occur within the South Mountain allotments and may be affected by the current action. Common and scientific names of special status wildlife species, their status, and occurrence potential within each South Mountain allotments are summarized in Appendix E.

### **Focal Special Status Animal Species**

With the exception of a few well-studied species, current occurrence and population data for most special status animal species within the South Mountain allotments are limited due to a deficiency of surveys, directed research, and lack of access. Therefore, only a few focal special status animal species (Lambeck, 1997) will be discussed in detail individually. These species include the greater sage-grouse, Columbia spotted frog, and Columbia River redband trout.

The USFWS has determined that greater sage-grouse and Columbia spotted frogs warrant listing under ESA (i.e., candidate species) but have been precluded due to higher priorities. The BLM in Idaho has determined that Columbia River redband trout are imperiled globally and range-wide (i.e., BLM Type 2 sensitive species). These species will be discussed in greater detail because they occur or possibly could occur within the South Mountain allotments, and they have been the subject of targeted surveys and periodic species-specific monitoring studies.

The focal species concept provides a link between single- and multi-species methods of wildlife conservation and management (Mills, 2007). Focal species serve as a set of species that define the characteristics of different spatial and compositional landscape attributes necessary for functional and healthy ecosystems (Lambeck, 1997) (Caro & O'Doherty, 2001). In short, because they are a sagebrush obligate species, sage-grouse function as a surrogate for sagebrush communities and associated vertebrates (Rowland, Wisdom, Suring, & Meinke, 2006), while spotted frogs and redband trout serve as coarse proxies for the relative integrity of lentic and lotic systems (Reaser, 1996) (Thurow, Lee, & Rieman, 1997). Other special status animal species, migratory birds, raptors, and species of socioeconomic importance (e.g., big game) will be included in a general discussion by taxonomic groupings.

### **Greater sage-grouse**

The greater sage-grouse is a sagebrush-obligate species that requires large areas of relatively undisturbed sagebrush steppe habitat. Sage-grouse were once abundant and concomitant with sagebrush steppe ecosystems across western North America (Schroeder, Young, & Braun, 1999); currently however, their distribution has been reduced to nearly one-half of what it was historically (Schroeder, et al., 2004). Despite long-term population declines, sage-grouse persist across more than 250,000 square miles of the sagebrush ecosystem (Schroeder, et al., 2004). Within this requisite sagebrush landscape, important seasonal habitats (e.g., wet meadows, higher elevation mesic shrublands) are also necessary (Connelly, Schroeder, Sands, & Braun, 2000).

Because sage-grouse are still broadly distributed, dependent on a diversity of heterogeneous seasonal habitats, and some populations are wide-ranging, they are expected to be vulnerable to changes to the sagebrush ecosystem. In addition, the maintenance of viable sage-grouse populations is of special concern to State and Federal resource managers across the species' present range, and their persistence is important in the socio-political, economic, and environmental realms (Sands & Smurthwaite, 1992). On March 5, 2010, the USFWS submitted a new finding to the Federal Register which found that listing the

greater sage-grouse was warranted but precluded by the need to take action on other species facing more immediate and severe extinction threats (USDI USFWS 2010). The finding has changed the status of sage-grouse from a BLM Type 2 sensitive species to a candidate species under the ESA. Due to these factors, the focal species concept (Mills, 2007) is applicable to sage-grouse because they can serve as an umbrella species for broader conservation of the sagebrush habitats across the West (Rowland, Wisdom, Suring, & Meinke, 2006) (Hanser & Knick, 2011).

### Habitat Characteristics

#### *Western Regional Populations Broad-Scale*

The South Mountain Group allotments are located in the Western Association of Fish and Wildlife Management Agencies (WAFWA) Snake River Plain Management Zone (MZ; (Stiver, et al., 2006)). The Northern Great Basin population within the Snake River Plain MZ (Garton, et al., 2011) is a large population in Nevada, southeast Oregon, southwest Idaho, and northwest Utah (Map WDLF-1). Of the three subpopulations identified by Connelly et al. (2004) within the Northern Great Basin population, the north-central Central Nevada/southeast Oregon/southwest Idaho (hereafter Owyhee) subpopulation overlaps the South Mountain allotments (Map WDLF-1, Map CMLV-1).

Generally, habitat conditions have deteriorated or been altered to some degree throughout the entire distribution of sage-grouse. This has caused local extirpations or declines in sage-grouse populations throughout their historical range and in the South Mountain allotments and surrounding area. Connelly et al., (2004) conducted a population analysis by state but not by management zone, population, or subpopulation; annual rates of change for sage-grouse in Idaho suggest a long-term decline. More recently, Garton et al. (2011) conducted a population analysis of the Northern Great Basin population based on data from 1965 to 2007. During the assessment period, the proportion of active leks decreased and average number of males per active lek declined by 17 percent (Garton, et al., 2011). Although the Garton et al. (2011) analysis is more detailed than the Connelly et al. (2004) analysis, both indicated similar trends for sage-grouse populations in the Snake River Plain MZ.

#### *Northern Great Basin Population/Owyhee Subpopulation Mid-Scale*

Recently, Idaho BLM initiated a modeling effort to identify preliminary priority sage-grouse habitat (PPH) within the Snake River Plain MZ (Makela & Major, 2012). Priority habitat includes breeding, late brood-rearing, and winter concentration areas. Because priority habitat areas have the highest conservation value for maintaining the species and its habitat, it is BLM policy to identify these areas in collaboration with respective state wildlife agencies (as per WO IM 2010-071), and maintain, enhance, or restore conditions for greater sage-grouse and their habitat within PPH areas (as per WO IM 2012-043). Model results indicate that the South Mountain Group allotments encompass a mix of PPH, general sage-grouse habitat and non-sage-grouse habitat (Map WDLF-1).

#### *Southern Owyhee Mountain Local Population Fine-scale*

Based on lek surveys and incidental observations seasonal locations show that the South Mountain Group allotments contains differing amounts of breeding, upland summer, early brood-rearing, and late brood-rearing riparian summer areas. Typically, sage-grouse in the vicinity of the South Mountain Group allotments congregate on communal strutting grounds (i.e., leks) located at lower elevations in Oregon from March to early May. The nesting season occurs soon after, extending from May to late June. Broods remain with females for several more months as they move from early brood-rearing areas (e.g., forb- and insect-rich upland areas surrounding nest sites) to moister, higher elevations that support late brood-rearing and summer habitats (e.g., wet meadows and riparian areas) from June to August. Local sage-grouse remain at higher elevations through the fall and early winter (i.e., September through November) where they begin to congregate into large groups and gradually move to the west (primarily Oregon) and

lower elevations in winter (i.e., December through February) where sagebrush is exposed above typical snow accumulations and is available for forage and cover.

Within the Southern Owyhee Mountain Local Population, the South Mountain group of allotments has low to average habitat importance. Approximately 10,222 acres (32 percent) of the group area is out of any designated or modeled sage-grouse habitat, containing neither PPH nor PGH. Of the 11,531 acres of PPH in the South Mountain group, 5,487 acres (47.6 percent) are juniper encroached, heavily compromising the habitat's usefulness or suitability for sage-grouse. Of the 31,913 total acres of land in South Mountain group and 12,578 acres of BLM-administered land, only 2,665 acres are PPH with sagebrush. The remaining 2,579 acres of PPH have been encroached by conifers negating their nesting potential until trees are removed naturally or by human-caused means.

#### *Habitat Assessments*

The current conditions of sage-grouse seasonal habitats were assessed following protocols outlined in the Sage-grouse Habitat Assessment Framework (Stiver, Rinkes, & Naugle, 2010). The primary habitat indicators and habitat suitability ranges within the SG HAF are consistent with sage-grouse habitat management guidelines provided by Connelly et al. (2000), the State of Idaho's sage-grouse management alternative (State of Idaho, 2012), and interim BLM sage-grouse habitat management guidance as per WO-IM 2012-043. Habitat indicators and suitability ranges should not be viewed independently but rather as an assembly of vegetation components that contribute to providing for sage-grouse seasonal habitat requirements.

#### **Columbia Spotted Frog**

The Great Basin Distinct Population Segment (DPS) of the Columbia spotted frog occurs in eastern Oregon, southwestern Idaho, and northern Nevada. On April 23, 1993, the USFWS submitted a finding to the Federal Register which found that listing the spotted frog in some parts of its range (i.e., Great Basin DPS) was warranted but precluded by the need to take action on other species (USDI USFWS 1993). As a candidate species under the ESA and in conformance with a U.S. District court-approved settlement agreement, Columbia spotted frogs are awaiting review and additional information for potential listing as threatened or endangered by 2016 (Suthers & Myers, III, 2011).

The species is highly aquatic and in the DPS is seldom found far from water. 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. Wetland and riparian habitat loss and degradation from conversion to irrigated pastures, dewatering of rivers for irrigation, drying of ponds due to drought or overuse, and reduction in riparian habitat quality due to overgrazing are the most serious threats to the maintenance of viable populations of spotted frogs (USDI USFWS, 1993) (Lohr & Haak, 2009) (USDI USFWS, 2012).

Based on surveys, research, and consistent demographic monitoring of the Owyhee subpopulation of the Great Basin DPS, spotted frogs emerge from hibernation in spring-fed or permanent streams with willows several days after these sites thaw; gravid females join males to breed soon after and oviposition commences within a week (Engle, 2000). Although dates may vary among sites and between years depending on temperature and snowmelt, the core-period dates of egg deposition and emergence of larvae (i.e., tadpoles) for the local population occurs roughly from late-April through mid-June (Engle 2000) (Patla and Keinath 2005) (Lohr & Haak, 2009)(Lohr, 2011) (C. Mellison, pers. comm., 2013). Research in the Owyhee Uplands has detected certain levels of natal and pond complex fidelity; however, various Wildlife Extension Agreements between the USFWS and private landowners in the last five years have demonstrated that spotted frogs will colonize newly constructed ponds and begin breeding within them the following year (K. Lohr, pers. comm., 2013). Seasonal migratory movements between breeding,

foraging, and hibernating sites by Owyhee subpopulation frogs occurs along wet riparian corridors (Engle 2000). In addition, metamorphs (juveniles) have been observed making small-scale terrestrial nocturnal movements across uplands under moist conditions (e.g., during and after precipitation events) and with dropping temperatures during dry conditions (K. Lohr, pers. comm., 2013). Occupied and potential habitat for Columbia spotted frogs occurs within the South Mountain Group allotments; however, due to limited access, few potential Columbia spotted frog sites have been surveyed in the South Mountain Group allotments (Map WDLF-3).

### **Columbia River redband trout**

Redband trout of the Columbia River Basin are also a BLM Type 2 sensitive species. BLM manages the species under BLM Manual 6840 (USDI BLM, 2008) to prevent future ESA listing as threatened or endangered. Redband trout are the resident form of steelhead trout that historically returned from the ocean to spawn in streams throughout the South Mountain Group allotments' watersheds (now restricted by downstream dams). In the Owyhee Uplands, redband trout prefer cool streams with temperatures below 70° F (21° C). However, they can survive daily cyclic temperatures up to 80° F (27° C) for a short period of time (IDFG, 2006b). Habitat loss and fragmentation of currently occupied habitat are among the major threats identified as issues relevant to the maintenance of viable populations of redband trout.

Redband trout have been documented in various streams in and around the South Mountain Group allotments (Map WDLF-3). However, a recent range wide status update and conversations with IDFG fisheries biologists reveal that the number of streams formerly occupied by redband trout has decreased over the last 10 years in the South Mountain Group watersheds (Middle Owyhee 4<sup>th</sup> level hydrologic unit)(May et al. 2012; J.Kozfkay, pers. comm., 2013).

### ***Migratory Birds, Raptors, and other Birds (including Special Status Species)***

A variety of special status bird species (Appendix E) including BLM Type 5 Watch List Species occur or may occur within the South Mountain Group allotments. The majority of these species are associated with shrub steppe, grassland, or riparian habitats. Brewer's sparrow, sage sparrow, and sage thrasher are heavily reliant on sagebrush steppe for nesting and foraging. Loggerhead shrike, black-throated sparrow, and green-tailed towhee are less reliant on sagebrush but are dependent on shrubland habitat. Grassland species include long-billed curlew and grasshopper sparrow. Brewer's blackbird, calliope hummingbird, and willow flycatcher typically are associated with riparian areas, and American white pelicans, white-faced ibis and Wilson's phalarope are associated with ponds and wetlands. Cassin's finch, Lewis' woodpecker, and red-naped sapsucker prefer forest habitat. Juniper woodlands and aspen stands within the South Mountain Group allotments provide substantial amounts of suitable habitat for these species.

Further consideration is given to avian species afforded special management emphasis under the Migratory Bird Treaty Act (MBTA). As of 2010, under a signed Memorandum of Understanding with the USFWS, the BLM has a responsibility to "as practical, protect, restore, and conserve habitat of migratory birds, addressing the responsibilities in Executive Order 13186" (USDI, 2010). The South Mountain Group allotments may provide foraging and nesting habitat for up to 177 additional species of migratory birds.

The North American Bird Conservation Initiative (NABCI) is a comprehensive instrument by which government agencies such as the BLM and private partners can promote and achieve integrated continental bird conservation as specified by Executive Order 13186 and the BLM-USFWS Memorandum of Understanding. One product of the NABCI is the designation of Bird Conservation Regions (BCR) across North America. BCRs are ecologically distinct regions with similar avian communities, habitats, and management concerns are developed as the primary unit within which issues are resolved, sustainable habitats are designed, and priority projects are initiated (NABCI-US, 2000).

Within BCRs, regional partnerships, or joint ventures, identify Bird Habitat Conservation Areas (BHCA) in which to deliver and implement state or local bird conservation plans.

On a regional scale, the South Mountain Group allotments fall within the Great Basin BCR. In addition, the South Mountain Group allotments are within the more localized Owyhee BHCA. The Owyhee BHCA has been identified by the Intermountain West Joint Venture as an area of statewide importance for priority bird species where the opportunity for effective conservation activities exists. Within the Great Basin BCR and the Owyhee BHCA, partner agencies and organizations have compiled a list of continentally important bird species based on a variety of bird initiatives and plans (Appendix G).

The nesting requirements of many migratory birds are fulfilled within the South Mountain Group allotments from late-April to mid-July and/or during spring and fall migrations. While some migratory bird species use a wide variety of habitats, others are more specialized. Several species can successfully nest and raise multiple broods during a single breeding season if suitable conditions exist. Bird species that utilize woodlands have benefitted from the recent expansion of juniper across thousands of acres of the Owyhee Uplands. Nevertheless, no bird species are considered juniper-obligates, and generally, as juniper densities increase, species diversity decreases (Miller, Bates, Svejcar, Pierson, & Eddleman, 2005). Grasslands and shrub steppe provide nesting and foraging habitat for the majority of migratory bird species within the South Mountain Group allotments. Most of these ground nesting or shrub-dependent species rely on the vegetative structure and cover found in these habitat types for successful breeding. Among birds, grassland and shrubland species are declining faster than any other group of species in North America (Dobkin & Sauder, 2004) (Brennan & Kuvlesky, Jr., 2005).

Riparian habitats support the most diverse migratory bird communities in the arid and semiarid portions of the Intermountain West (Knopf, Johnson, Rich, & Samson, 1988) (Dobkin, 1994) (Dobkin, 1998). In addition, healthy riparian areas sustain high densities of breeding migratory birds (Mosconi & Hutto, 1982). In Idaho, 60 percent of migratory landbirds are associated with riparian habitats (IDFG, 1992), and one of the main reasons for the decline of migratory landbirds is the loss of riparian habitat (DeSante & George, 1994).

An assortment of raptor species occur or potentially occur within the South Mountain Group allotments (Appendix G). The juniper woodlands, rock outcrops, and shrub steppe located within the South Mountain Group allotments provide nesting and foraging substrate for many of these species. Generally, raptors return to areas in which they have nested in the past, often using the same nesting territories. Nesting activities may be initiated in mid-February to late April depending upon species. Nest occupation continues until chicks are fledged, which usually occurs from early June to mid-August. Raptor nesting is expected to occur in suitable habitats within the South Mountain Group allotments.

Eagle species are afforded additional protection under the BGEPA. Bald eagles have been documented south of the West Fork Owyhee River near the South Mountain Group allotments during migration and winter months. However, bald eagle breeding within the South Mountain Group allotments is highly improbable because of the lack of open water and nesting trees.

Golden eagles, prairie falcons, ferruginous hawks, and Swainson's hawks prefer open shrub steppe, sagebrush, and grassland habitats. Golden eagles, ferruginous hawks, and prairie falcons nest on cliffs and rocky outcrops throughout southwest Idaho. All three species breed and forage in and around the South Mountain Group allotments. Documented golden eagle nest sites are absent in South Mountain Group allotments, but they are recorded along cliffs on the Owyhee River south of the area and to the southwest in Oregon. Potential nesting habitat for these species is abundant in the uplands on rocky outcrops and cliffs and nearby canyons (i.e., North Fork Owyhee River, Cabin Creek, and Corral Creek). Golden

eagles, prairie falcons, ferruginous hawks, and Swainson's hawks primarily prey on medium to small-sized mammals, especially jackrabbits, ground squirrels, rodents, and voles.

The *Accipiter* species (northern goshawk, Cooper's hawk, and sharp-shinned hawk) and most owls prefer mixed open forest to more dense forest. In semiarid areas, these species often focus hunting efforts in riparian areas due to the abundance of prey found there. The expanding juniper woodlands in some of the South Mountain Group allotments provide suitable foraging habitat for these species. Accipiters primarily prey upon birds but also will take small mammals.

Several species of owls that potential occur within the South Mountain allotments include great horned owl, long-eared owl, northern saw-whet owl, and western screech owl; these species generally are associated with greater tree cover found in woodlands, forest, and riparian areas. Flammulated owls prefer dense forest and probably occupy woodland areas where juniper has expanded and become thicker.

A number of raptor species prefer open woodland or shrub steppe to dense forest. American kestrel, northern harrier, red-tailed hawk, short-eared owl, and western burrowing owl usually are found in more open areas such as sagebrush steppe, grasslands, meadows, or open riparian areas; and prey on a wide variety of small mammals, reptiles, birds, and insects. Northern harriers and short-eared owls are ground nesters and need adequate cover for suitable nest sites. Burrowing owls nest in burrows dug by other animals, usually badgers, and they hunt in grasslands and sagebrush steppe areas. Expansion of juniper woodlands probably has restricted the distribution of these open habitat species within parts of the South Mountain Group allotments.

#### ***Big Game and other Mammals (including Special Status Species)***

Several special status mammal species have been documented or have the potential to occur within the South Mountain allotments (Appendix G). A portion of the Owyhee Front California bighorn sheep Population Management Unit (PMU) exists in the South Mountain group (north of the North Fork Owyhee River); however, the PMU only occurs in the southwest half of pasture 2 of South Dougal allotment (Map WDLF-4). No current population is associated with this disjunct portion of the PMU in Idaho as the PMU is an extension out of Oregon. None the less, habitat should still be managed for California bighorn sheep suitability to allow for herd expansion in the future and reduce the risk of a possible future listing as either threatened or endangered. In recent years, the larger population (Owyhee Front PMU) of approximately 75 California bighorn sheep has remained relatively stable (IDFG, 2010). The overall management goal for the Owyhee Front PMU is to maintain or increase the current population; IDFG estimates the PMU is capable of supporting 400 to 700 sheep (IDFG, 2010). The local South Mountain group of allotments being relatively close to the North Fork Owyhee River could accommodate some of the population goal. Special status bat species occurring or potentially occurring within the South Mountain Group allotments include fringed myotis, spotted bat, and Townsend's big-eared bat. Although these species have been detected in the general area around the allotments, research conducted in the juniper woodlands in the Owyhee Uplands suggest that bat populations are not numerous and species diversity is low (Perkins & Peterson, 1997). Quality day-roosting habitat (particularly caves and large, mature, live cottonwoods, and snags) appears to be a limiting factor for bats in the area. Although abundant, the cliffs, rock outcrops, and seral junipers found the portions of the allotments only provide marginal roosting habitat (Perkins & Peterson, 1997). Because the effects of livestock grazing on bats are not well-known and old growth junipers would remain the most abundant day roost substrates in the area, effects to bats are expected to be negligible and will not be discussed further.

Pygmy rabbits have the potential to occur within the South Mountain Group allotments. The pygmy rabbit is a sagebrush-obligate species that requires tall stands of big sagebrush on deep, friable soils where they dig extensive burrow systems. These dense sagebrush habitats provide food and shelter throughout

the year. During winter, pygmy rabbits are almost entirely dependent on sagebrush for food. Fragmentation of sagebrush habitats poses a threat to this species by isolating disjunct populations, increasing susceptibility to localized threats, and reducing gene flow among populations. Habitat loss and fragmentation due to conversion of sagebrush to agriculture, wildfire, invasive plants, and conifer encroachment have been identified as some of the primary threats to pygmy rabbit populations (IDFG, 2006b). A model created by Idaho BLM in 2009 suggests portions of the Owyhee River allotments have a moderate likelihood of core habitat presence (USDI BLM, unpublished data). Although dense, big sagebrush stands exist within the South Mountain allotments, deep, friable soils are more limited and patchily distributed. Because pygmy rabbits have been documented in the Owyhee Uplands, some pygmy rabbits may occur in areas with suitable shrub steppe habitat.

A variety of other medium to small-sized mammals such as jackrabbits, cottontails, ground squirrels, rodents, and voles occur within the South Mountain Group allotments. Many of these species prefer open habitats including sagebrush steppe, grasslands, meadows, and other productive bottomlands. As well as being major constituents to biodiversity, small mammals serve as predators, prey, seed dispersers, and grazers. An abundant and diverse small mammal community can be an indicator of a healthy and functioning ecosystem (Fricke, Kempema, & Powell, 2009).

The South Mountain Group allotments have long supported populations of a wide variety of big game species. Rocky Mountain elk (*Cervus canadensis*), mule deer (*Odocoileus hemionus*), and pronghorn (*Antilocapra americana*) use portions of the area year-long. However, some areas are used specifically as seasonal ranges (i.e., spring, summer, fall, and winter). Most elk and mule deer north of the Owyhee River probably migrate to lower elevations in Oregon for winter, while elk, and mule deer south of the Owyhee River either remain in the area or move into Nevada (IDFG, 2010a) (IDFG, 2010b). Nevertheless, mule deer are common year-round in the uplands and canyonlands within the allotments. Similarly, pronghorn occur year-round throughout the uplands in much of the South Mountain allotments. Some specific pronghorn seasonal habitats (i.e., spring through fall) occur east of Juniper Mountain.

The South Mountain allotments are located within the IDFG game management unit (GMU) 40. Current population data for elk and mule deer are lacking because surveys have not been conducted within GMU 40 for several decades (IDFG, 2000a) (IDFG, 2000b). The Owyhee elk zone (GMUs 38, 40, 41, and 42) is one of the few in Idaho where aerial surveys are not conducted because of the large land area and dispersed groups of elk. Elk populations are managed in this zone through harvest data analysis. Nevertheless, IDFG estimated the 2002 population at approximately 450 elk within GMUs 40 and 42; population objectives within GMU 42 are 190 to 275 elk (IDFG, 2010a). The proposed management direction for Owyhee elk zone is to maintain or increase the elk population over the next 10 years within proposed objectives. IDFG does not have any current population estimates for mule deer in GMU 40; managers have identified population information within the GMU as a primary data need in the future (IDFG, 2010b). The IDFG objective for mule deer within GMU 40 is to increase populations within these important herds (IDFG, 2010b). Pronghorn surveys were conducted in GMU 42 in 2009, and more than 1,500 pronghorn were observed (IDFG, 2010). Besides maintaining a variety of hunting opportunities and average horn lengths, IDFG has no explicit population objectives for pronghorn within GMU 42 (IDFG, 2010).

While juniper provides hiding and thermal cover for elk and deer, juniper encroachment reduces forage and habitat diversity. Browse species important to deer, such as mountain big sagebrush, mountain mahogany, and bitterbrush, have decreased in juniper encroachment areas. Pronghorn probably used the entire Juniper Mountain area when vegetation consisted mainly of open grassland and shrubs; however, pronghorn use has currently been reduced due to the increase in juniper woodlands. Even though population declines were noted in the Juniper Mountain Wildlife Habitat Plan (JMWHF), pronghorn were

more plentiful in the past (USDI BLM, 1969). The plan documented degraded range conditions and competition for forage as the reasons for pronghorn decline.

Large predators that occur within the South Mountain Group allotments include bobcat (*Lynx rufus*), coyote (*Canis latrans*), and mountain lion (*Puma concolor*). These predators are quite secretive and elusive. Because of their secretive nature, predator densities are difficult to determine. However, predators are closely tied to their prey, and if prey numbers are low, predator numbers would reflect that. Because these species are relatively common and abundant habitat exists in the area, they will not be discussed further.

Beavers (*Castor canadensis*) are not as widespread throughout the area as they once were. Habitat for beavers in the South Mountain Group allotments has been affected by livestock use and encroachment of juniper. Loss of aspen, cottonwood, and willow trees has affected beaver by reducing suitable forage and material for building dams to create pond habitat. The loss of beavers throughout much of the area is suspected of leading to declines in spotted frog numbers.

#### ***Amphibians and Reptiles (including Special Status Species)***

Several special status amphibians and reptiles, including the western toad, night snake and common garter snake, have been documented or have the potential to occur within the South Mountain allotments (Appendix E). All three species prefer habitats in proximity to water, including springs, streams, wetlands, and meadows. Loss and degradation of riparian-wetland habitats are the most serious threats to the maintenance of viable populations of these species. Because very little is known about amphibian (with the exception of spotted frogs) and reptile populations in the South Mountain allotments, individual species will not be discussed in detail further. Amphibian and reptile habitat in general will be included in discussions under spotted frogs and in the broader context of upland and riparian habitat conditions.

#### ***Fisheries***

Other fish species that occur or potentially occur within streams in the South Mountain Group allotments include smallmouth bass (*Micropterus dolomieu*), dace (*Rhinichthys* spp.), redband shiner (*Richardsonius batesi*), sculpin (*Cottus* spp.), and suckers (*Catostomus* spp.) (Idaho DEQ, 2002) (IDFG, unpublished data). Fish habitat within the majority of the streams with the potential to support a fishery is degraded due to grazing effects in riparian areas and juniper encroachment (USDI BLM, 2013). These species will not be discussed further, as fish habitat in general will be included in detailed discussions under redband trout.

#### **Desired Conditions for Wildlife and Special Status Animal Species Habitat**

The appropriate structure, function, and composition of native upland and riparian vegetation communities are necessary to ensure the proper functioning of ecological processes and continued diversity and productivity of plant species. Vegetation communities meeting these desired conditions provide habitats suitable for the maintenance of viable wildlife populations, including threatened and endangered, sensitive, and other special status species (Appendix E).

Wildlife habitats should be managed to maintain or enhance the condition, abundance, and structural stage and distribution of plant communities and special habitat features required to support a high diversity and desired populations of wildlife species (USDI BLM, 1999a). In addition, perennial stream and riparian areas should be improved or maintained to provide satisfactory conditions to support native fish. Special status species and their habitats should be managed to increase or maintain populations at levels where their existence is no longer threatened and listing under the ESA is unnecessary. Grazing management practices should provide sufficient residual vegetation to improve, restore, or maintain the

physical and biological conditions (e.g., hydrologic cycle, nutrient cycle, and energy flow) necessary to sustain wildlife habitats in properly functioning, structurally appropriate, and diverse native upland and riparian plant communities. Guiding land management objectives are set by the Owyhee Resource Management Plan (USDI BLM, 1999) that states:

- **Wildlife habitats (WDLF 1):** Maintain or enhance the composition, structure, extent/juxtaposition, and connectivity of plant communities to support local wildlife populations. In addition, perennial/intermittent stream and riparian areas should be improved or maintained to provide satisfactory conditions to support native fish and amphibians.
- **Special Status Species (SPSS 1):** Manage special status species and their habitats to increase or maintain populations at levels where their existence is no longer threatened and there is no need for listing under the Endangered Species Act of 1973, as amended.
- **Fishery Habitat (FISH 1):** Improve and maintain perennial stream/riparian areas to attain satisfactory conditions to support native fish.

Idaho Standards for Rangeland Health and the Guides for Livestock Grazing Management (Appendix A) were approved in 1997. The 8 standards and 20 guidelines identified with the standards and guides are the primary tools for determining if rangeland health, condition, and trend are being met or making progress. Standard 8 (Threatened and Endangered Plants and Animals) of the Idaho Standards for Rangeland Health and the Guides for Livestock Grazing Management identifies:

Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.

Indicators used to assess the condition and quality of wildlife habitats include productivity and diversity of native plant and animal communities, site-appropriate age class and structural diversity of plant species, site-appropriate amount and distribution of ground cover (including litter), presence of deep-rooted, stabilizing riparian vegetation, and water quality.

### 3.1.6 Recreation and Visual Resources

The Group 4 allotments and FFR's cover a large area within the Owyhee Field Office and all lie within the Owyhee Extensive Recreation Management Area (ERMA). An ERMA is an area where recreation management is only one of several management objectives, and where a limited commitment of resources is required to provide extensive and unstructured types of recreation activities (USDI BLM, 1999).

The Owyhee ERMA contains approximately 1,006,700 acres extending from the Snake River south along the Oregon border to Nevada. The extreme diversity of landforms and vegetation within the ERMA create a wide range of natural settings in which to enjoy recreational opportunities. Recreation is widely dispersed and consists mostly of hunting, fishing, horseback riding, rock hounding, nature study, camping, OHV riding, mountain biking, sight-seeing, hiking, and snowmobiling in the winter.

Off-highway motor vehicle (OHV) designations within Group 4 are limited to existing roads and trails. The limited to existing designation will change within the next 5 years (roughly) to limited to designated, as all of Owyhee County is currently undergoing a travel management planning process as per the 2009 Omnibus Public Lands Management Act (OPLMA).

The Recreation Opportunity Spectrum (ROS) classification is used to characterize the type of recreational opportunity settings, activities, and experience opportunities that can be expected in different areas of public land. The Group 4 allotments/FFRs contain multiple settings for recreationists, ranging from Rural, to Roaded Natural, Semi-Primitive Motorized, and Semi-Primitive Non-Motorized classifications.

The Rural classification is an area that is characterized by a substantially modified natural environment. Resource modifications and utilization practices are obvious, the sights and sounds of man are readily evident, and the concentration of users is often moderate to high (USDI-BLM, July 1999).

The Roaded Natural classification is an area that is characterized by a generally natural environment with only moderate evidence of the sights and sounds of man. Resource modifications and utilization practices are evident, but harmonize with the natural environment (USDI-BLM, 1999).

The Semi-Primitive Motorized and the Semi-Primitive Non-Motorized classifications are areas that are characterized by a primarily unmodified natural environment. There is evidence of other users in the area; however, management actions encourage limited contacts between users. Semi-primitive motorized classification permit motorized uses within the area; and semi-primitive non-motorized does not.

The Owyhee Uplands National Backcountry Byway (aka Mud Flat Road) traverses multiple Group 4 allotments/FFRs such as Flat Iron allotment and Dougal FFR. The Byway is a 101-mile improved gravel road between Grandview, Idaho and Jordan Valley, Oregon and serves as a scenic drive and staging point for trips into the scenic and primitive backcountry areas of Owyhee County. Although the Group 4 allotments/FFRs are prominent due to the location, the recreational contribution of the public land in the context of the broader landscape is minimal.

Overall, the Group 4 area offers ample recreational opportunities; however, there is a substantial amount of private lands mixed in throughout these units that can restrict access, thus limiting opportunities. The allotments also contain a fair amount of state lands, access to these lands are typically not restricted.

Aside from travelers along the Byway, the highest recreation use throughout Group 4 occurs within the South Mountain allotment, which contains a large amount of State and private lands. These areas receive a low to moderate amount of OHV riding as well as hunting, camping, horseback riding, sight-seeing, wildlife viewing, and snowmobiling. Big game hunting would likely be considered the most popular recreational activity for this area. The south eastern portion of the South Mountain allotment (Lequerica and South Mountain Area 2 pastures) is also adjacent to the North Fork Owyhee Wilderness area, which offers high quality non-motorized, non-mechanized recreational opportunities.

The visual resource management classes within the Group 4 allotments/FFRs consist of VRM class II, III, and IV. Allotments containing VRM class II include:

- South Mountain (roughly 95%)
- Lequerica FFR and McKay FFR (100%)
- Dougal FFR (roughly 30% , Field 1)
- Wilson Creek FFR (roughly 50%, Field 1)

Allotments containing VRM management class III include:

- Sheep Creek (roughly 50%, Pasture 2)
- Dougal FFR (roughly 40%, Pastures 2, 3, 4, 5, 6, 7)
- South Dougal (roughly 50%, northern and south eastern portions)

The remaining areas/allotments are categorized as class IV VRM.

The VRM Class II objective is to retain the existing character of the landscape. The level of change to the characteristic of the landscape would be low. Management activities may be seen but would not attract the attention of the casual observer. Except within wilderness areas, very limited construction of new rangeland facilities and vegetation treatment projects is permitted.

The VRM class III objective is to partially retain the existing character of the landscape, and the level of change to the characteristic of the landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features or the characteristic landscape. This classification occurs where the amount of use is relatively high and scenic quality is generally good. Maintenance, construction, and reconstruction of rangeland facilities, roads, and vegetation treatment projects are permitted. In this classification, emphasis is placed on construction techniques that will reduce the projects visual impacts to the natural landscape.

The objective for VRM class IV is to provide for management activities that would require major modifications to the existing character of the landscape. These activities may dominate the view and be the focus of attention. However, every attempt should be made to minimize impacts with careful location and minimal disturbances (USDI-BLM, July 1999).

### 3.1.7 Social and Economic Values

#### Economic Profiles

This socioeconomic analysis will focus primarily on Owyhee County, Idaho, where all of the South Mountain Group allotments are located. As some of the livestock operators who own the cattle maintain base ranches in Jordan Valley, Oregon (Malheur County), this county will also be included in the analysis.

Owyhee County, the second-largest county in the State, covers 7,639 square miles. The population in Owyhee County in 2010 was 11,389, an increase of 7 percent from the year 2000, compared to an 18 percent increase throughout the State over that same time period. The population density is only 1.5 people per square mile, and most of the county residents enjoy a largely rural lifestyle. Residents of the Treasure Valley come to the public lands to recreate on weekends and during hunting and fishing seasons. In 2010, the median age in the county was 35.3 years, almost 3 years older than the median age in 2000 and close to the median age of 36.3 for the entire State. Almost one-third of county residents are under the age of 18, and more than 20 percent of residents are age 45 to 64. The population in the baby boomer generation increased almost 26 percent from 2000 to 2010. Southwest Idaho is projected to grow by more than 95,000 people by the year 2020, and 77,000 of these people will live in Ada or Canyon Counties (Gardner & Zelus, 2009).

Unemployment in Owyhee County in 2010 was 11 percent, compared to 8.8 percent in Idaho and 9.6 percent nationwide in the same year. Incomes are lower in Owyhee County than in Idaho, possibly due to employment primarily in lower-paying sectors like agriculture and social services. In 2010, the per capita income for Owyhee County was \$17,373, with a median household income of \$33,441; per capita income for the state was \$22,518 and median household income was \$46,423 (U.S. Census Bureau, 2012). More than 20 percent of people in Owyhee County live below the poverty level, which is a higher rate than Idaho's poverty rate. Table SOCE-1 shows the unemployment rate, per capita income, median household income, and poverty rate of Owyhee and Malheur counties.

**Table SOCE-1:** Economic statistics for populations in Owyhee and Malheur counties

Location	Unemployment rate	Per capita income	Median household income (2010 dollars)	All people below poverty rate
Owyhee County, ID	11.0%	\$17,373	\$33,441	22.2%
Malheur County, OR	10.3%	\$16,335	\$39,144	22.7%

Source: U.S. Census Bureau, 2006-2010 American Community Survey

Agriculture (including livestock ranching), natural resource management, education, and social services are the primary sectors for employment in Owyhee and Malheur counties, although manufacturing and retail trades also employ many residents in the counties (Table SOCE-2). Malheur County in southeastern Oregon covers 9,887 square miles and is 94 percent rangeland, two-thirds of which are managed by the BLM (Malheur County, Ore., 2012). Population density was 3.2 persons per square mile in 2010. Although education, health care, and social services together employ almost one-fourth of the county's residents (U.S. Census Bureau, 2011), irrigated fields in the northeast corner of the county allow for intensive and diversified farming, and residents of the Treasure Valley in Oregon and Idaho support businesses connected to hunting, fishing, golfing, camping, hiking, and water-related activities.

**Table SOCE-2: County employment by industry (2006-2010 average)**

Industry	Owyhee County, Idaho	Malheur County, Oregon	United States
Civilian employed population 16 years and over	4,448	11,487	141,833,331
Agriculture, forestry, fishing and hunting, and mining	19.4%	12.4%	1.9%
Construction	12.6%	7.1%	7.1%
Manufacturing	9.0%	10.0%	11.0%
Wholesale trade	1.6%	4.4%	3.1%
Retail trade	8.3%	10.7%	11.5%
Transportation and warehousing, and utilities	6.3%	3.4%	5.1%
Information	1.0%	1.3%	2.4%
Finance and insurance, and real estate and rental and leasing	4.2%	4.1%	7.0%
Professional, scientific, and management, and administrative and waste management services	2.9%	4.2%	10.4%
Educational services, and health care and social assistance	19.7%	23.1%	22.1%
Arts, entertainment, and recreation, and accommodation and food services	5.7%	7.6%	8.9%
Other services, except public administration	3.3%	3.8%	4.9%
Public administration	5.9%	7.9%	4.8%

Source: U.S. Census Bureau, 2006-2010 American Community Survey

### **Economic contribution of livestock grazing**

The Federal Government manages 78 percent of the total land in Owyhee County; the BLM manages 75.9 percent of all Federal land in the county. Ninety-three percent of the total Federal land in the county is managed for commodity production (timber harvest, crop and livestock production, and mining) and 7 percent is managed primarily for natural, cultural, and recreational activities (EPS-HDT, 2012).

Table SOCE-3 shows the industry classification (based on the North American Industry Classification System (NAICS)) for farms in Owyhee and Malheur counties, as well as the nation as a whole in 2007. Individual farms may engage in various types of agriculture (both crops and livestock), but these classifications provide insight into the likely primary agriculture activity for the farms surveyed in the 2007 USDA Census of Agriculture. As shown in the table, the proportion of farms classified as beef cattle ranching and farming operations substantially exceeds the national average.

**Table SOCE-3a: Number of Farms by Type, 2007**

Farm Type	Owyhee County, ID	Malheur County, OR	County Region	U.S.
All Farms	620	1,250	1,870	2,204,792
Oilseed & Grain Farming	40	74	114	338,237
Vegetable & Melon Farming	10	57	67	40,589
Fruit & Nut Tree Farming	4	8	12	98,281
Greenhouse, Nursery, etc.	4	8	12	54,889
Other Crop Farming	185	388	573	519,893
Beef Cattle Ranch. & Farm.	247	492	739	656,475
Cattle Feedlots	8	34	42	31,065
Dairy Cattle & Milk Prod.	23	35	58	57,318
Hog & Pig Farming	4	10	14	30,546
Poultry & Egg Production	6	4	10	64,570
Sheep & Goat Farming	30	40	70	67,254
Animal Aquaculture & Other Animal Prod.	59	100	159	245,675

**Table SOCE-3b: Percent of each farm in each county, by type, 2007**

Percent of Total	Owyhee County, ID	Malheur County, OR	County Region	U.S.
Oilseed & Grain Farming	6.5%	5.9%	6.1%	15.3%
Vegetable & Melon Farming	1.6%	4.6%	3.6%	1.8%
Fruit & Nut Tree Farming	0.6%	0.6%	0.6%	4.5%
Greenhouse, Nursery, etc.	0.6%	0.6%	0.6%	2.5%
Other Crop Farming	29.8%	31.0%	30.6%	23.6%
Beef Cattle Ranch. & Farm.	39.8%	39.4%	39.5%	29.8%
Cattle Feedlots	1.3%	2.7%	2.2%	1.4%
Dairy Cattle & Milk Prod.	3.7%	2.8%	3.1%	2.6%
Hog & Pig Farming	0.6%	0.8%	0.7%	1.4%
Poultry & Egg Production	1.0%	0.3%	0.5%	2.9%
Sheep & Goat Farming	4.8%	3.2%	3.7%	3.1%
Aquaculture & Other Prod.	9.5%	8.0%	8.5%	11.1%

Source: (EPS-HDT, 2012)

Table SOCE-4 shows county-level economic information for 2011 based on data from the Bureau of Economic Analysis. While total earnings in Owyhee County are substantially less than those of Malheur County, farm earnings in Owyhee County are more than triple those of Malheur County. More than one-half of the earnings generated in Owyhee County come from farming, compared to just under 6 percent in Malheur County.

In terms of employment, the farming section accounts for more than one-quarter of the jobs in Owyhee County, and more than 10 percent of the jobs in Malheur County.

In all three counties, more than one-half of the cash receipts generated by farms come from livestock and products.

**Table SOCE-4: Farm Earnings, Employment, and Cash Receipts (2011)**

	Owyhee Co. (ID)	Malheur Co. (OR)

	Owyhee Co. (ID)	Malheur Co. (OR)
<b>Total earnings by place of work (million dollars)<sup>1</sup></b>	\$198.5	\$578.8
Farm earnings (million dollars)	\$107.3	\$33.3
Farm earnings (%)	54.0%	5.7%
<b>Total employment<sup>2</sup></b>	4,262	17,235
Farm employment	1,123	2,098
Farm employment (%)	26.3%	12.2%
<b>Farm cash receipts and other income (million dollars)<sup>3</sup></b>	\$345.3	\$374.5
Livestock and products (%)	58.6%	59.2%
Crops (%)	37.6%	36.1%
Other (%)	3.8%	4.7%

Source:

<sup>1</sup>Bureau of Economic Analysis, Regional Economic Information System (BEA-REIS). 2012. Table CA05: Personal income by major source and earnings by NAICS industry.

<sup>2</sup>Bureau of Economic Analysis, Regional Economic Information System (BEA-REIS). 2012. Table CA25N: Total full-time and part-time employment by NAICS industry.

<sup>3</sup>Bureau of Economic Analysis, Regional Economic Information System (BEA-REIS). 2012. Table CA45 Farm income and expenses.

Data from the Bureau of Labor Statistics (BLS) indicate that the average annual income of individuals employed in occupations related to animal production earned approximately \$36,047 and \$28,987 in Owyhee and Malheur counties, respectively, in 2011.

In accordance with the ORMP (USDI BLM, 1999a), livestock grazing is available within the seven South Mountain Group allotments. Additionally, the ORMP identified the active authorized use for livestock within the ORMP planning area upon implementation of the plan. The plan further identified that authorized active use would be adjusted through the life of the plan based on monitoring and assessment to determine future stocking levels. Stocking levels necessary to meet objectives<sup>28</sup> were projected to be reduced from 135,116 upon implementation of the ORMP in 1999 to 112,647 AUMs in 2004 and 105,899 AUMs in 2019. These projected levels of authorized active use compare to an average actual use of 96,676 AUMs during the years 1988 through 1997.

In 2010, livestock cash receipts in the State of Idaho totaled \$1.2 billion, an increase of 26 percent over the previous year (USDA NASS, 2011). According to the 2007 USDA Census of Agriculture, the most recent year the census was taken, (USDA NASS, 2009) 134,732 cattle and calves were sold in Owyhee County that year, which brought almost \$67 million to the county that year, an average of \$497 per head. In the State, 1.8 million cattle and calves were sold that same year, totaling more than \$1.3 billion, an average of \$756 per head. However, most of the grazing operations with livestock on the Owyhee River area allotments are family-owned ranches based in Jordan Valley, Oregon. Thus, although the livestock graze in Idaho, income from the sales of those livestock goes to the counties in which the livestock

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<sup>28</sup> The ORMP objective for livestock grazing management is to provide for a sustained level of livestock use compatible with meeting other resource management objectives. In addition, the objective is to resolve issues associated with livestock grazing identified in the allotment management summary (Appendix LVST-1 of the ORMP).

operations are based. In 2007, sales of 203,743 cattle and calves in Malheur County totaled \$179 million (USDA NASS, 2009). Livestock operation owners may still do business in Idaho, especially while the animals are actively grazing on the allotments, by purchasing supplies, equipment, and gasoline for vehicles, as well as visiting local establishments for food and entertainment. Research completed in 1999 estimated that livestock grazing contributed \$66.94/AUM<sup>29</sup> (animal unit month) to the Owyhee County economy (Darden, Harris, Rimbey, & Harp, 1999), with \$46.85/AUM as a direct impact to ranches and \$16.22/AUM as indirect/induced effects to other sectors in the local economy. Indirect and induced economic effects to the regional economy include supply purchases (such as hay, equipment, etc.) and from the labor income expenditures by ranch employees and by employees of suppliers. These numbers provide a means of comparing effects to the local economy from changes in livestock grazing management, but actual economic impacts may vary by ranch and county.

The BLM collects annual grazing fees from the operators based on the number of AUMs they are permitted. An AUM represents the amount of dry forage required to sustain one cow and her calf, one steer, one horse, five sheep, or five goats for one month. The ORMP provides 135,116 active permitted AUMs for all of the allotments in the Owyhee Resource Area. Section 2.2.1 shows the active use, suspension, and permitted use AUMs for each of the South Mountain Group allotments under the current situation. As defined by the Taylor Grazing Act of 1934, active use is the current authorized use, which includes livestock grazing. Suspension is the temporary withholding of active use, and permitted use is the forage allocated by, or under the guidance of, an applicable land use plan for livestock grazing in an allotment under a permit or lease. At the current rate of \$1.35 per AUM, these allotments can generate \$22,152 per year from active-use AUMs (based on the number of AUMs authorized in Alternative 1). The BLM distributes 50 percent of the grazing revenues to range betterment projects, 37.5 percent remains in the U.S. Treasury, and 12.5 percent is returned to the state (43 USC Chapter 8A, 1934). In addition, the BLM contributes payments in lieu of taxes (PILT), which totaled more than \$9.5 million in Owyhee County from 2003 to 2012, for an average of about \$956,000 per year<sup>30</sup>.

### **Non-market values of ranching**

Most environmental goods and services (e.g., clean air and water, fish and wildlife habitat, recreational and aesthetic values) are not traded in markets, so it is difficult to place a monetary value on the protection or degradation of natural resources that provide these goods and services. In many cases, a method called hedonic pricing can attempt to estimate a value of the goods and services an ecosystem provides by examining the amount of money that people would be willing to pay when the characteristics of the service change. For example, the value of the ecosystem services that support recreational activities (e.g., clean air and water that supports habitat for fish and wildlife, which in turn provides hunting, fishing, and wildlife watching opportunities) can be estimated by examining average expenditures for travel, equipment, and supplies for these recreational activities in an area (see Tables SOCE-9 and 10 below). People may spend less time and money on recreational activities in areas where the natural resources have become degraded. The Group 4 South Mountain allotments provide opportunities for recreation such as ORV use, fishing, hunting, boating, camping, and wildlife-watching (see Recreation, Visual Resource, ACEC, Wilderness and Wild and Scenic Rivers, and Lands with Wilderness Characteristics sections in this EA); however, degraded conditions caused by fires and livestock grazing-related activities can reduce wildlife habitat, muddy streams and rivers, and diminish scenic values, all of which can lead to less recreation and thus less money spent in the counties adjacent to these allotments.

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<sup>29</sup> This total includes Value Added as described in Darden et al. (1999), Table 5: Economic Value of a Single AUM to Owyhee County Economy. The Total Economic Impacts include calculations of Regional Income Impact and Value Added.

<sup>30</sup> Based on BLM data retrieved at [http://www.doi.gov/pilt/county-payments.cfm?term=county&state\\_code=ID&fiscal\\_yr=2012](http://www.doi.gov/pilt/county-payments.cfm?term=county&state_code=ID&fiscal_yr=2012)

Other intangible values associated with ecosystems services include social values of natural resource use – the sense of community cohesiveness and belonging that comes from participating in recreational activities, as well as farming and ranching. Degraded conditions, as mentioned above and in the resource impact analysis sections of this EA, lessen the quality of the land and forage available for growing crops or feeding livestock, which can also have economic impacts on the producers of these goods in the counties adjacent to the Group 4 allotments. Ecosystems services also have value beyond providing for the uses discussed in this EA. As noted in (Besser, et al., 2012), providing for healthy, functioning ecosystems can contribute to a greater resilience to extreme events like fires and storms, as well as the long-term impacts of climate change.

### **Rangeland Ecosystem Goods and Services**

Healthy rangeland ecosystems can provide multiple goods and services that can increase the economic, social, and cultural well-being of individuals and communities. To the degree that rangeland resources are degraded, an opportunity exists through restoration of ecosystem health to obtain these goods and services at a higher and more productive level.

According to participants in the Sustainable Rangelands Roundtable, rangeland ecosystem goods and services are divided into three main categories: biological, hydrological/atmospheric, and miscellaneous.<sup>31</sup> The Roundtable identified a list of goods and services available from healthy rangelands, some of which are shown. Additional goods and services not identified by the Roundtable have been added to their list (see table SOCE-5) to show other potential gains within the Owyhee region. This list should not be considered as exhaustive. There may be even more potential goods and services that could be provided in greater amounts by an increase in rangeland health in the area.

**Table SOCE-5: Rangeland ecosystems services**

<b>Biological</b>	<b>Hydrological/Atmospheric</b>	<b>Miscellaneous</b>
Domestic Livestock Production	Clean Drinking Water	Scenic Views
Other Food for Human Consumption	Water for Downstream Economic Uses	Cultural or Spiritual Resources
Forage for Livestock	Floods for Channel and Riparian Area Rejuvenation	Historical/Archeological Sites
Fiber	Flood Mitigation	Recreation and Tourism Sites
Biofuels	Water Bodies for Recreation/Tourism	
Wildlife Habitat Benefits (Fishing, Hunting, Viewing, Existence Value, etc.)	Minimization of Soil Erosion and Downwind/Downstream Soil Deposition	
Potential Biochemicals	Contribution to Clean, Fresh Air	
Genetic Material	Carbon Sequestration	

Some of the potential benefits of increased rangeland health would be realized by individuals who live far away from the Owyhee region. Because streams flowing through the area eventually contribute to the

<sup>31</sup> Source: [http://sustainableangelands.org/pdf/Ecosystem\\_Goods\\_Services.pdf](http://sustainableangelands.org/pdf/Ecosystem_Goods_Services.pdf).

Snake and Columbia River systems, any extra sediment that leaves the area could result in lower hydrologic capacity, lower resistance to flooding, and decreased capacity for boat traffic on the Snake and Columbia rivers. In addition, stream-bottom sediment deposition decreases success rates for spawning fish species, possibly contributing to extended protection and expensive habitat-loss mitigation for salmon and other fish species. While these benefits might not be directly enjoyed by members of the Owyhee community, their value to society as a whole needs to be accounted for. An example of a “downwind” good or service is enhanced carbon sequestration potential, the benefits of which accrue to the entire global community and all earth ecosystems. Although these benefits are not focused on the Owyhee region, their value to the world as a whole must be weighed in the process of evaluating the relative benefits and costs of changes in range allotment permits and management decisions.

In 2011, researchers at the University of Nevada, Reno (UNR) prepared a preliminary draft of a flow-model for economic analysis for land management decision-making in the Intermountain West<sup>32</sup>. In conjunction with this project, the researchers assembled an annotated bibliography of existing studies on the value of ecosystem services provided by rangeland and other land types in the western United States. Table SOCE-6 shows a list of the ecosystem goods services included in that bibliography. For each ecosystem good or service in the list, the table discloses:

1. Whether an impact is expected to occur under any of the alternatives under consideration within this planning process;
2. Whether any anticipated impacts are expected to be measureable;
3. Whether the research included in the bibliography has been able to assign a monetary value to impacts to the ecosystem good or service in question; and
4. Additional resources or data sources used in evaluating the good or service for this EIS.

The UNR document also outlines the conditions under which it would be reasonable to use the studies it cites to estimate the monetary value of the goods and services listed.

**Table SOCE-6:** Rangeland ecosystem goods and services and whether there are potential impacts from grazing and potential values of the services

	<b>Ecosystem Goods and Services listed in the University of Nevada, Reno's Annotated Bibliography</b>	<b>Is this resource expected to be affected under one or more of the alternatives being considered?</b>	<b>Is it expected to be affected in a manner and/or to a degree that can be measured?</b>	<b>Has research found a way to assign a monetary value to impacts to this resource?</b>	<b>Additional source(s) of documentation on this resource and its value and/or additional information</b>
A.1	Ranch Incomes	Yes	Yes	Yes	BLM Value of Change in AUMs Calculator
A.2	Amenity Value of Ranching Lifestyle	Yes	No	Yes	
A.3	Recreation	No	No	Yes	
A.4	Wildfires	Maybe	?	Yes	

<sup>32</sup> *Economic Flow-Model for Western Rangelands: Annotated Bibliography and Additional Resources*, June 2011, University of Nevada, Reno, is available from the Owyhee Field Office project record upon request.

	<b>Ecosystem Goods and Services listed in the University of Nevada, Reno's Annotated Bibliography</b>	<b>Is this resource expected to be affected under one or more of the alternatives being considered?</b>	<b>Is it expected to be affected in a manner and/or to a degree that can be measured?</b>	<b>Has research found a way to assign a monetary value to impacts to this resource?</b>	<b>Additional source(s) of documentation on this resource and its value and/or additional information</b>
A.5	Erosion and Hydrology	Maybe	No	Yes	FS WEPP and WEPS water and wind erosions models
A.6	Carbon Sequestration	Yes	No	Yes	The Chicago Climate Exchange carbon markets is not currently functional. If and when it becomes functional again, the market value of carbon will serve as a type of measure of the economic value of carbon sequestration. It is important to note that the true value of carbon sequestration is found in reduced future impacts from climate change. Those expected impacts can be estimated but are highly uncertain.
A.7	Wild Horses (under Miscellaneous)	Maybe	No	Yes	The study cited shows that additional wild horses beyond the target level cause economic losses due to reduced forage for livestock and wildlife.

Economists regularly quantify the value of ecosystem goods and services in dollar terms. Techniques used to estimate the dollar value of these benefits include:

- Revealed Preference Methods
  - Hedonic Pricing
  - The Travel Cost Method

- Expressed Preference Methods
  - Contingent Valuation
  - Welfare Measures
- Replacement Cost Method
- Dose-Response Methods
- Opportunity Cost Calculation

Revealed preference methods of valuation estimate proxy market prices based on the activities and choices made by actual people:

- In the hedonic pricing method of assessing value, the analyst identifies the contribution that environmental or ecosystem services make to the price of other goods and or services. For example, a piece of land or home with a scenic view will generally command a higher market price than does a similar piece of land or home without the same view. So if a thriving ecosystem provides a more beautiful view, the difference in price between that property and one without the view would be attributed to the ecosystem itself.
- To use the travel cost method of analyzing the value of ecosystem goods or services, the analyst surveys the amount of money people either are willing to spend or actually spend on visits to a particular place. Expenditures on fuel, vehicle wear and tear, airfares, motels or hotels, restaurant food, entry fees, and so on can be interpreted as the value placed by the traveler on the experience of visiting that location. Complicating factors include income effects, differences in the values placed by visitors on the time they spend traveling to the location, proximity of the location to the visitor's starting point, declining willingness to spend money on subsequent visits, and so on.

Expressed preference methods use hypothetical economic data based on interviews or surveys to estimate the market value of ecosystem goods and services:

- Contingent valuation methods rely on surveys in which people are either asked how much they would be willing to pay to obtain an ecosystem good or service, or they are asked to state how much they would have to be compensated in dollars in exchange for giving up an ecosystem good or service. For example, a group of land owners might be asked how much they would each be willing to pay in order to establish a specific wildlife population on a nearby piece of public land. The total amount for all surveyed land owners could be used as a statistical basis for an approximation of the market value of establishing the proposed wildlife population. Or the same landowners could be asked how much they would have to be paid in compensation in order to get them to give up an existing wildlife population on nearby land. Contingent valuation methods are sometimes less than ideal due to strategic "voting" by survey participants. They are also subject to some unsurprising distortions. People are usually more conservative when they state how much they would be willing to pay to obtain something in contrast with how much they would have to be paid by someone else in order for them to give up something they already possess or that they might possess in the future.
- Welfare measures of value refer to methods in which the total consumer well-being (welfare) associated with an ecosystem good or service is measured by comparing the estimated dollar amounts that all prospective consumers are willing to pay for an ecosystem good or service are compared with the actual cost to society of providing that good or service. To the degree to which the actual cost falls below the amount individuals are willing to pay, an economist would say that consumer surplus or, in other words, surplus economic enjoyment, is (or will be) generated by the good or service being evaluated.

In the replacement cost method, economists add up the amount it would cost to provide a specific ecosystem good or service by means of a human-built method. For example, vegetation on a healthy landscape provides water filtration benefits. To calculate the monetary value of those filtration benefits using this method, an economist would use engineers' estimates of the cost of building one or more water treatment plants to treat the same volume of water to the level as provided by the ecosystem. This method can also be used to estimate the value of ecosystem services that are expected to be obtained through restoration of a degraded landscape.

The dose-response method is used to estimate the value of a healthy ecosystem by identifying the cost of treatment for ecological damages where treatment or mitigation is required locally, downstream, or downwind. For example, if a degraded ecosystem allows elevated levels of nutrients to pollute a water body that is a source of drinking water at some point downstream, then the cost of treating human and/or livestock illnesses caused by the polluted water can be used to estimate some of the value of repairing the ecosystem so that nutrient runoff is reduced or eliminated. Similarly, the cost of water treatment downstream to remove the nutrient load (thus preventing contamination-related illnesses) can also be used to approximate the value of upstream ecosystem restoration. This method is sometimes closely correlated with the replacement cost method.

In the opportunity cost method of valuation, the following simple rule is applied: The value of something is equal to the value of whatever must be given up in order to obtain it. Based on the rules of mathematical equality, this must mean, conversely, that the value of what was given up is equal to the value of what was obtained in the exchange. This method is sometimes used to make a statement regarding the value of an ecosystem when a damaging activity either is proposed or has already occurred. For example, if a new gold mine is opened on a piece of land, then the total value of the ecosystem goods and services that were given up in order for the mine to be opened and operated is said to be equal to the total economic value generated by the mine.

These and other methods all provide means of quantifying, in dollars, the value of goods and services not directly traded in existing markets. Many of the goods and services provided by healthy rangeland ecosystems are already traded in existing market systems and could be valued by means of identifying the quantities and qualities in which they exist. The estimation of the market value of all of the goods and services provided by the rangeland in this set of allotments falls outside the scope of the present analysis.

## **Recreation**

Residents in nearby counties in Idaho and Oregon engage in fishing, hunting, boating, off-highway vehicle use, camping, wildlife watching, and winter sports throughout the Owyhee Resource Area. Studies conducted in 1995 identified visitor day values and net willingness-to-pay values for recreation here. Table SOCE-7 depicts the value recreationists place on these activities, rather than the actual expenditures. As mentioned above, there are few or no suppliers for recreational equipment in Owyhee County, so most expenditures for this equipment would occur outside the county and likely would not have much of an impact on the local economy, although recreationists would spend money on gasoline and groceries within Owyhee County. However, recreation presents some costs to the county. According to a 2003 report on the social and community aspects of public land grazing policy alternatives (Wulfhorst, Rimbey, & Darden, 2003), the limited staff of the county Sheriff's department is often overwhelmed with requests from recreational users who are lost, having mechanical problems, or injured. Search-and-rescue efforts often draw in community members who have more familiarity with the landscape than the out-of-town users with little knowledge of the area. Each call to help someone hurt, lost, or stranded in the backcountry costs money. In FY2003, search-and-rescue supplies totaled \$1,000 of the \$13,600 budget for the patrol component of the Sheriff's budget, and additional staff members are hired seasonally to respond to incidents (Wulfhorst, Rimbey, & Darden, 2003). The State reimburses

counties up to \$4,000 per incident to cover some of the costs for volunteer-related expenses and the Sheriff bills the BLM for backcountry patrols. State funds come from the State gas tax and vehicle registrations. However, some county residents are uncomfortable with the idea of state resources being used to rescue recreationists who come from outside the county; attempts to recover costs (\$500 each) from those rescued have been successful only about one-half of the time.

**Table SOCE-7:** Net willingness-to-pay recreation value for the Owyhee Resource Area

Activity	1995 Value
Deer hunting	\$40.02
Elk hunting	52.42
Antelope hunting	80.47
Other big game	53.65
Waterfowl hunting	42.48
Upland and small game	42.47
Warm-water fishing	39.28
Cold-water fishing	38.08
Developed site recreation	7.45
Disbursed use recreation	4.47
Non-game viewing, photography	28.31

Source: (USDI BLM, 1999b)

**Table SOCE-8:** Owyhee Resource Area Estimated Recreation Use and Value (1995)

Activity <sup>1</sup>	Visitor Days	1995 Value
Hunting	70,722	\$3,816,617
Fishing	11,109	429,682
Off-highway vehicles	24,600	696,412
Other motorized use	22,616	640,266
Non-motorized use	10,669	47,689
Camping	39,107	291,344
Other land-based	36,740	717,113
Whitewater boating	1,368	38,714
Other water-based	1,057	29,917
Snowmobiling	2,301	10,285
Other winter sports	423	1,891
<b>Total</b>	<b>220,712</b>	<b>\$6,719,930</b>

<sup>1</sup>Based on 8 hours per visitor day. Source: (USDI BLM, 1999b)

### Social Value of Ranching

As noted in the Owyhee County Natural Resources Plan (Owyhee County Commissioners, 2009), livestock grazing often plays an important social role in this area, in addition to contributing economically. It has been an important component of the local economy in Owyhee County since the late 1860s, when the establishment of the southern Idaho railroad coincided with the migration of sheep through the Owyhee Mountains to Elko, Nevada. Horses and cattle were also introduced in the Owyhee Mountains at that time, and residents of rural Oregon, Idaho, and Nevada have since identified with the tradition, land use, and history of ranching in these areas. Maintaining the land in agriculture and ranching preserves the rural character and small-community feel, keeps the cost of living lower, and provides ample opportunities for recreation. Harp and Rimbey (2004) found that in communities in Owyhee

County where ranching was an essential component, community members felt a much greater connection to each other, to the ranchers, and to local business owners. Among the Owyhee County communities surveyed for the study, Jordan Valley and Marsing communities scored higher in terms of community cohesion, owed at least in part to the large role that ranching plays in each of these communities. Closing a ranch in Jordan Valley or Marsing could have substantial negative social effects.

### Environmental Justice

The Executive Order 12898 of February 11, 1994, established the requirement to address environmental justice concerns within the context of Federal agency operations. This means that agencies must:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations;
- Ensure the full and fair participation by all potentially affected communities in the decision-making process; and
- Prevent the denial of, reduction in or significant delay in the receipt of benefits of the project by minority and low-income populations.

Evaluation of these impacts requires the identification of minority and low-income populations (including Native American tribes) within the affected area and evaluation of the potential for the alternatives to have disproportionately high and adverse impacts on such populations. Low-income populations are determined based on annual statistical poverty thresholds developed by the Bureau of Census. A low-income community may include either a group of individuals living in geographic proximity to one another or dispersed individuals (such as migrant workers or Native Americans) where the group experiences a common effect or environmental exposure. Minorities are individuals who are members of the following population groups: American Indian, Alaskan Native, Asian, Pacific Islander, Black, or Hispanic. (Council on Environmental Quality, 1997)

Table SOCE-1 above shows the median household incomes and poverty rates for all three counties addressed in this document. Owyhee and Malheur counties are largely agriculturally based economies, so incomes are lower and poverty rates are higher.

Table SOCE-9 shows the breakdown in race and ethnicity for both counties. Neither of the counties has a minority population that exceeds 50 percent. However, the proportion of minorities in Owyhee County and Malheur County are higher than the proportions for Idaho (16 percent) and Oregon (21.4 percent), respectively. Crop producers and livestock operations in the United States commonly and legally employ citizens of Mexico and various Latin American countries, and most of these individuals would be classified as minority. Some proportion of the minority populations in Owyhee County and Malheur County could be employed by crop producers and livestock operators, so changes in livestock grazing in these counties could affect some members of the minority communities there.

**Table SOCE-9: Race/ethnicity distribution**

Population	Owyhee County	Malheur County
<b>Population by Race</b>		
White alone	69.2%	64.4%
Black or African American alone	0.1%	0.1%
American Indian and Alaska Native alone	3.1%	0.5%
Asian alone	0.0%	0.9%
Native Hawaiian and other Pacific Islander alone	0.0%	0.1%
Some other race alone	0.0%	0.1%

<b>Population</b>	<b>Owyhee County</b>	<b>Malheur County</b>
Two or more races	3.2%	2.7%
<b>Population by Ethnicity</b>		
Hispanic or Latino	24.4%	30.3%
<b>Minority Population</b>	30.82%	35.60%
<b>Total</b>	11,389.0	31,326.0

Source: U.S. Census Bureau, 2006-2010 American Community Survey

### 3.1.8 Cultural Resources

Cultural resources are past and present indications of human life-ways that create a prehistoric and historic record left in the physical environment. This evidence of human presence on the land can take the form of archaeological sites, natural and modified features, structures, trails and other manifestations of use. Cultural resources also include areas of the landscape known as traditional cultural properties that have past and on-going significance to a people. Historic property is a term used to describe a cultural resource that meets specific eligibility criteria (see 36CFR60.4) for listing in the National Register of Historic Places (NRHP).

The South Mountain Group begins in the geologic region known as the Owyhee Uplands, which stretches from north-central Nevada, through the southwestern corner of Idaho, to the southeastern corner of Oregon and ends at the Snake River Plain. The region is characterized by sagebrush-covered plateaus and narrow, deep canyon bottomlands. Perennial waterways are few, but the landscape has a multitude of ephemeral drainages, springs and pluvial collection points. Aboriginal occupation of the greater area dates back several thousands of years. The archaeological record for the Dirty Shame Rockshelter located in southeastern Oregon reveals continual human use from 9,500 years ago to 400 years ago (Hanes, 1988). Sites in the Camas Creek area of southwestern Idaho date from about 6,000 years ago to 150 years ago (Plew, 2008). The region still holds important cultural significance to the people of the Shoshone-Paiute Tribes of the Duck Valley Indian Reservation.

Euroamerican visits to the Owyhee County area started as early as the beginning of the 19th century. A fur trading expedition led by Donald Mackenzie of the Northwest Company traveled to the Snake River country in 1818 and some trappers were reputed to have visited the region as early as 1812 (Idaho State Historical Society, 1964). Starting in the 1840s, the Oregon Trail and its alternates allowed thousands of immigrants to travel to southwestern Idaho and points farther west. Settlement of the area began in the mid- to-late 19<sup>th</sup> century and the proliferation of gold mining in the 1860s, primarily along Jordan Creek, created a demand for livestock to feed the growing population of prospectors and to supply other markets (Yensen D. , 1982). Although local mining activities have subsided greatly since its heyday, the demand for beef remains strong. More recently, recreational pastimes such as hunting and backcountry motorized travel have become very popular and bring people to areas previously ignored.

BLM cultural resources specialists conducted a Class I records search in conjunction with Geographical Information Systems (GIS) datasets to identify all cultural and paleontological sites and all cultural resources surveys within the allotment group. They reviewed project inventory reports for adherence to current standards and for survey acreage, and checked each site record to verify site location, description and discussion of any type of impacts. Staff also compared GIS range improvement datasets to cultural resources inventory coverage and examined high resolution aerial imagery to identify areas of possible livestock congregation that had not been previously surveyed. BLM archaeologists and a contractor conducted Class III inventories of recognized and potential congregation areas (troughs, reservoirs, springs, salt blocks, etc.) to ascertain the presence or absence of cultural resources. A minimum radius of 50 meters employed as a buffer around these areas is sufficient for survey coverage (Coddington, 2008). Previously recorded sites determined to be within a 100 meter radius of these locations were chosen for

monitoring visits to assess any effects. Since no new range improvements are proposed for any of the allotments, no project-specific inventories occurred. This review process is in accordance with the grazing permit/lease renewal guidelines agreement between the BLM and the SHPO, dated January 29, 1999, and with standard professional procedures for livestock grazing permit/lease renewals. If impacts to NRHP-eligible properties are present, the stipulations of the grazing permit can be modified or other mitigation measures can be authorized to address the presence and protection of these resources.

Within the South Mountain Group, previous inventories for cultural resources on BLM-administered land total 122 acres and 24 acres for land currently under State and private ownership. Of the 26 potential livestock congregation areas identified for this analysis, BLM personnel surveyed 24 (92 percent), as shown in Table CULT-1. These surveys resulted in 27 acres of new cultural resources inventory. Field personnel did not visit two areas. Five of the allotments have no potential areas of congregation on BLM-administered land and four also lacked the presence of recorded sites. No additional surveys occurred within these allotments. Staff monitored two of five previously recorded sites and documented three new sites. No historic properties are listed in the NRHP for the allotment group.

**Table CULT-1: Results of cultural resources analysis**

Allotment	BLM Acres	Previous Survey Acres	New Survey Acres	Total Survey Acres	Percent of BLM Surveyed	Recorded Cultural Sites	Sites Monitored	New Sites Recorded	Cong./ Survey <sup>1</sup>
Dougal FFR	868	14	0	14	1.6	2	0	0	0/0
Lequerrica	69	0	0	0	0	0	0	0	0/0
McKay	261	0	0	0	0	0	0	0	0/0
Sheep Creek	617	0	0	0	0	0	0	0	0/0
South Dougal	4,180	30	57	87	2.1	2	2	3	24/24
South Mountain Area	6,006	75	0	75	1.2	1	0	0	0/0
Wilson Creek FFR	616	3	0	3	0.4	0	0	0	2/0
Totals	12,617	122	27	179	1.4	5	2	3	26/24

<sup>1</sup>Number of potential congregation areas/number of areas surveyed

### **Native American Religious Concerns**

The Shoshone-Paiute Tribes of the Duck Valley Indian Reservation actively maintain their cultural traditions and assert aboriginal rights and/or interests in this area. As Native American traditions and practices are tied to the elements of the natural environment, any impacts to the earth are of concern to the Tribes. The Tribes have been consulted on the renewal of these grazing permits pursuant to AIRFA and NHPA and have not raised any cultural resource concerns. No recorded or known traditional cultural properties or identified sacred sites are within the allotment group.

### **Paleontological Resources**

Paleontological resources (fossils) have long been recognized for their scientific, educational, and recreational value. A fossil is any evidence of past life, and includes body fossils such as shells and bones, as well as trace fossils such as footprints, burrows, trails, or other evidence of an organism's presence. Fossils are preserved in rocks and are usually discovered when they are eroding out of the rock at the

surface, or during ground-disturbing activity such as road grading or trenching. Most individual organisms that lived in the past did not die in such a way as to have their remains fossilized, and fewer still will be collected and studied before they erode away. Therefore fossils are considered rare and nonrenewable.

All fossils contain information about past life, but not all fossils are significant. Significant fossils are those that are unique, unusual, or rare, are diagnostic, stratigraphically important, and add to the existing body of knowledge. In order to determine a fossil's significance, an assessment must be made by someone who is experienced in the field of paleontology, and who possesses a sufficient mastery of the existing body of knowledge to understand how a given fossil contributes to our overall understanding.

The BLM has managed fossils as a valued resource for many years. Legal authority to manage fossils comes from a variety of laws, executive orders, and policies. The laws include the National Environmental Policy Act of 1969 (NEPA) and the Federal Land Policy and Management Act of 1976 (FLPMA). More recently, the Paleontological Resources Preservation subtitle of the Omnibus Public Land Management Act of 2009, also known by its popular name, the Paleontological Resources Preservation Act (PRPA), directs land managers within the Department of the Interior Agencies and the U.S. Department of Agriculture, but not including either Indian or Military (Department of Defense) lands, to manage and protect fossils using scientific principles and expertise. PRPA does not make a distinction between the types of organism preserved; therefore, all fossil resources, plants, invertebrates, and vertebrates that are determined to be scientifically significant are to be actively managed.

Paleontological resources are managed in collaboration with BLM partners such as universities and museums across the country, as it is those parties that provide much of the work done on collecting, studying, storing, and providing meaning to our fossil resources. Additionally, BLM and our partners strive to educate the public about the value of this natural heritage. In general, the desired outcomes for the paleontological resource is to: 1) protect the resource from unnecessary damage, theft, or vandalism; 2) ensure that the resource is responsibly collected by qualified individuals working to benefit the public through their actions; 3) utilize the resource in educational programs for the general public; and 4) teach the public about BLM's role in the management of this important resource.

The impact to fossils from the management of other resources on BLM land can be negligible to deleterious, depending up on nature of those actions. However, by maintaining best practices for the identification of resources and the mitigation of damage, the paleontological resources should continue to remain an invaluable part of the national trust.

No recorded fossil sites are within the South Mountain Group. The lack of fossil discoveries can be directly related to the absence of any fossil-bearing strata underlying the allotments (Erathem-Vanir Geological Consultants, 2009).

## ***3.2 Environmental Consequences Common to All Allotments***

### **3.2.1 Vegetation, including Noxious Weeds**

#### **3.2.1.1 Environmental Consequences Common to All Grazing Alternatives**

The impacts of livestock use on vegetation are related to the season and intensity in which livestock graze a vegetation community. These factors, along with the affected environment (Section 3.1.1), are used to analyze the alternatives. Appendix F provides ecological concepts for expected vegetation change resulting from livestock management practices. Specific details on season and intensity of use are presented by allotment in alternative-specific sections.

Because Standard 4 is not being met due to factors other than current livestock grazing management in all allotments except South Mountain Area allotment, changes in grazing management alone would not cause the allotment to meet or make significant progress toward meeting the Standard in the life of the permit. The allotment would still be influenced by the causal factors of large bunchgrass loss from past grazing, the presence of invasive weeds, and/or juniper encroachment over the term of the permit. Juniper and invasive weeds are expected to be stable over the permit. The alternatives differ somewhat in their effects on vegetation, but because of the other limiting factors, short-term (less than 10 years) recovery to reference condition is not expected.

### **3.2.1.2 Environmental Consequences of Alternative 1 Common to All Allotments**

Livestock grazing seasons of use and livestock numbers authorized in the allotment with implementation of Alternative 1 would not contribute to either improvement or continued failure to meet Standard 4 in areas where the Standard is not being met due to juniper encroachment into sagebrush steppe vegetation communities. Other than the indirect effect from removal of fine fuels that support the spread of wildfire, recent livestock grazing has had little influence on juniper encroachment. The introduction of season-long grazing by large numbers of domestic livestock beginning in the late 1800s, a period of uncontrolled livestock grazing (National Research Council, 1994), reduced fine fuels and significantly reduced the frequency, extent, and effect of naturally occurring fire (Oregon Watershed Enhancement Board, 2007). Miller and others identified that the peak of juniper establishment in closed canopy woodland stands in southeastern Oregon and southwestern Idaho was between 1890 and 1920 (Oregon State University Agricultural Experiment Station, 2005). Closed canopy stands produce limited shrub and herbaceous biomass, even in the absence of livestock grazing.

The effects of Alternative 1 on biological soil crusts are expected to be similar to those on vegetation in general. Biological soil crusts are expected to be maintained when livestock movement from pasture to pasture occurs, which decreases livestock concentrations. The biological soil crusts on clay sites are more sensitive to trampling disturbance when wet, because crusts are displaced more on clay soils when wet. Loamy soils would also experience some impacts during the drier months (Belnap, et al., 2001). Biological soil crusts are important for increasing soil stability and capturing nutrients, and can affect vascular plant species composition (Wicklow-Howard, Serpe, Orm, Stockes, & Rosentreter, 2003).

There is always continued risk of bringing in seeds of invasive species from outside the allotment, and spreading seed from existing invasive species within the allotment. Cattle may spread weed seed by ingesting and depositing seed in manure and carry seed in their fur and in mud on hooves (Nevada Agricultural Experiment Station, 2008). Areas of livestock concentration within the allotment where impacts from livestock grazing decrease vigor/resiliency of native plants and/or biological soil crusts, would continue to be susceptible to invasive plant establishment especially when a seed source for juniper and/or invasive grasses are in close proximity. The risk for introduction of weeds and spread of existing weeds is proportional to the number of livestock authorized to graze within the allotment and the concentration of soil disturbance.

### **3.2.1.3 Environmental Consequences of Alternative 2 Common to All Allotments**

### **3.2.1.4 Environmental Consequences of Alternative 3 Common to All Allotments**

### **3.2.1.5 Environmental Consequences of Alternative 4 Common to All Allotments**

### **3.2.1.6 Environmental Consequences of Alternative 5 Common to All Allotments**

Under Alternative 5, no grazing would be authorized in any of the allotments for the 10-year period. With no grazing authorized on public lands in the seven allotments of the Group 4 allotments, there would

be no grazing effects to upland vegetation, noxious and invasive weeds, and special status plants. Native plant vigor and reproduction, soil nutrient and water cycling, and special status plants and their habitat would not be limited by livestock grazing. Native plant community health and biological soil crusts would be expected to improve in the short and long term (less than and greater than 10 years), limited only by the low precipitation zone, ongoing disturbances (fires), and extent of juniper and other invasive grasses. Large bunchgrasses would be expected to increase where an adequate seed source is available, although restoration to reference conditions is unlikely in most areas because the plant communities have been so highly altered (Rosentreter, Restoration of community structure and composition in cheatgrass dominated rangelands, 1999).

Noxious weeds would be expected to remain static or decline, based on continued treatment activities and on increased competition from improving native perennial vegetation. Juniper and invasive grasses would continue to be present. Increased competition from improving native perennial vegetation may impede the dominance of juniper and invasive grasses. However, without grazing to reduce its biomass, the low elevation allotment South Dougal may result in higher grass production with risk of continuous, flashy fuel loading, potentially increasing wildfire size and intensity (Davies, Bates, Svejcar, & Boyd, 2010). No weed seeds would be introduced into the allotments from livestock vectors. Previous livestock concentrated use areas would eventually become revegetated. Special status plant occurrences in all allotments would be expected to be maintained.

Vegetation would improve faster in the short and long term under this alternative than under any other alternative. Increases in plant community health, residual vegetation, energy flow, nutrient cycling, and ground cover would be near optimum for the site (limited only by weeds, soil/climate conditions, existing plant community structure/available seed sources, and non-grazing disturbances) over the 10-year term.

Exclusion of livestock grazing removes impacts to vegetation resources resulting from authorized use. Defoliation of herbaceous and shrub species is limited to that which occurs from insect and native herbivore use. Except in instances when native herbivore numbers are high, upland utilization levels during the growing season and dormant seasons are light. In any year, small areas of concentrated native herbivore use may have moderate to high utilization levels. Residual standing herbaceous material and litter accumulation is greater than with scheduled use by livestock in any season. Soil protection from rain impact is high, limiting erosion and improving soil structure and infiltration. The initiation of herbaceous growth with warming spring soil temperatures may be slightly delayed due to greater interception of solar radiation by standing and down litter.

## **3.2.2 Soils**

### **3.2.2.1 Environmental Consequences Common to All Grazing Alternatives**

This section provides a description of how grazing affects soils in all allotments under any grazing alternative. These effects would vary in both severity and extent depending on the allotment and alternative, but the effects themselves apply throughout. Allotment-specific effects to soils are described in section 3.3. Soil erosion occurs throughout the analysis area. Erosion rates vacillate within a natural range of variability in healthy watersheds. Soil erosion rates may accelerate where soil degradation occurs. Many factors affect rates of erosion. The erosion factors that most concisely inform the proposed actions include:

- Trailing
- Season of Use
- Soil Structure
- Vegetation
- Bare Ground

- Biological Soil Crust
- Slope

### Trailing

Direct effects of trailing livestock over the 0.9 miles described in section 2.1.3 would be adverse and localized. Direct effects would include the physical effects of trampling, which would likely occur when soils are wet or saturated. Trampling in saturated or wet soils causes soil compaction and erosional pedestals in areas where livestock trailing occurs, especially where ground cover has been reduced or removed. The severity of trailing effects to soils would be low for two reasons. Primarily, trailing would only be authorized during times when soils are firm enough to support trailing livestock with little to no pugging/hummocking to minimize impacts to soils as per Boise District Range Readiness soil criteria. Secondly, the effects would be fairly limited in extent. While animals could potentially utilize a trailing route 0.25 miles wide by 0.9 miles long, an area totaling 144 acres, the effects would not be distributed evenly across that area. Instead, trampling effects would likely be discernible over less than one-half that area (> 2 percent of the South Dougal allotment) due to the tendency of operators to drive livestock in a group. Livestock trailing management practices that minimize surface disturbance such as trailing on firm soil would limit soil degradation and erosion. General effects to soils from trailing livestock are described in the Owyhee Livestock Trailing EA (DOI-BLM-ID-B030-2012-0011-EA), and those effects are incorporated here by reference.

### Season of Use

Impacts on soils and upland watershed resources vary during different grazing seasons and from changes in vegetation due to annual use of a pasture throughout the year. During the winter, frozen soils resist physical hoof damage and compaction. However, resistance decreases as soils thaw. Grazing on saturated soils increases the potential for adverse effects to soil structure and compaction. These impacts not only inhibit water infiltration and increase surface runoff and erosion, they significantly reduce vegetative growth because the destroyed soil layers restrict the movement of water, air, and roots. Table SOIL-1 provides a general summary of how different grazing season can affects soils.

**Table SOIL-1:** Summary of seasonal grazing effects on several soil related variables<sup>1</sup>

Season of Use	Soil Moisture	Vegetation	Pugging <sup>2</sup>	Soil Crusts	Compaction Potential	Erosion Potential	General Effects
<b>Early Spring Grazing</b> (Feb. – Mar.)	available for veg growth; some frozen soils	low – annuals available; most others dormant	low to high depending on freeze/melt conditions	low/mod	high – increased during thaw	low/high	low/high
<b>Upland Growing Season Grazing</b> (Mar. – July)	reduced to no availability as season progresses; increasingly less regrowth potential	high – critical growth and seed production; reduced ground cover	high at first, reduced in early summer	mod/high	high – increased during wetter months	low/mod	high
<b>Summer grazing</b> (July – Oct.)	limited to no availability for regrowth	low/mod – minimal growth; reduced ground cover	low	high	low/mod – increased congregation near water sources	low	low/mod
<b>Fall grazing</b> (Oct. – Nov.)	available	low/mod – emerging annuals	low/mod	mod/low	low/mod	low/mod	low/mod
<b>Winter grazing</b> (Dec. – Feb.)	available; frozen soils	low – emerging annuals; most others dormant	low/mod	low	moderate/high – increased with freeze thaw	low/mod	low/high

<sup>1</sup>low = very little adverse effect, if any; mod = moderate adverse effect; and high = adverse effect likely.

<sup>2</sup>plunging hoofs into wet soil, creating a void

Severe weather conditions may concentrate effects, increasing the susceptibility to localized compaction, pugging, and pedestaling. Snow storms concentrate effects on snow-free areas. Extreme heat increases effects in shaded areas. Disproportionate congregation of livestock during any season therefore promotes the potential of impacts to protective ground cover, resulting in compromised soil stability and hydrologic function in localized areas compared to remaining portions of the pastures. Boise District range readiness criteria would limit the potential for spring grazing to affect soils adversely, but would not eliminate those effects because wetting rains could still occur after turn out.

### **Soil Structure**

The physical impact of large animal hoofs can degrade soil structure and displace soil. The degree of degradation and displacement depends on several factors. Medium to heavy-textured soils, typically clay, are especially prone to damage during the early seasons because they tend to have high moisture-holding capacity, are usually at or near field capacity, or have higher water content due to snow melt. Soil surface alterations that reduce soil aggregates and pore spaces can result in erosion or surface sealing. Erosion risk increases where annual (shallow-rooted) plants dominate. Livestock management practices that maximize litter and above-ground biomass, particularly from bunchgrass, promote infiltration and limit erosion (Thurow, Blackburn, & Taylor, Jr., 1986).

### **Vegetation**

Grazing and trailing animals remove standing vegetation, affecting soils in several ways:

1. Reducing foliar cover may increase erosion potential over the short term if plant regrowth does not occur because foliar cover helps shield soil from displacement by raindrop impact and wind erosion. The effect is direct in the case of grazing but may become indirect if repetitive grazing or trampling reduces plant vigor to the point that the plant's potential for recovery is reduced. Heavy intensity and/or repetitive early season grazing is generally worse over the long term for herbaceous vegetation vigor than light intensity and/or late season grazing.
2. Organic compounds derived from litter stabilize soils and increase their resistance to erosion, particularly for clay soils. Since litter accumulation also benefits soil by promoting infiltration capacity and reducing evaporation, it stands to reason that removal of standing vegetation (the litter source) could adversely affect soil health if adequate amounts of vegetation are not left to decompose. Grazing permit terms and conditions that limit utilization to 50 percent or less generally leaves enough biomass for decomposition and watershed protection, so long as this utilization level is not maximized in several consecutive years.
3. Long-term plant community changes may result from the repeated selection of desirable forage species by livestock. Sagebrush-steppe watershed and soil health depend on the structure and function of deep-rooted perennial bunchgrass species. Hydrologic function and soil stability may be reduced where these plants are absent or under-represented. Grazing systems that avoid soil degradation, maintain plant vigor, and leave an adequate amount of standing vegetation to form litter can maintain soil and watershed conditions. Not all effects of livestock grazing are adverse for soils. For example, vegetation decomposes more rapidly when trampled and broken down as animals graze (Naeth, Bailey, Chanasyk, & Pluth, 1991).

Light to moderate utilization of early vegetative growth has minimal impacts when adequate soil moisture is available for plant regrowth and completion of the annual growth cycle. Moderate utilization, in years with minimal soil moisture availability for regrowth after use, can deplete plant vigor and health, especially during periods of critical growth during the summer. Heavy to severe defoliation exposes the

soil surface to erosive forces of wind and water and affects the soil moisture regime. Boise District utilization limits would prevent large landscapes from heavy to severe defoliation because use would be limited to 50 percent of current year's growth. However, heavy use could still occur in localized areas of livestock congregation.

### **Bare Ground**

Physical (trampling) and biological (grazing) effects may result in more bare ground over the long term, particularly where grazing and trailing livestock grazing are repetitive. Bare ground patches generally increase in size and continuity where water, shade, salt, or dietary supplements are located. Bare ground can initiate runoff and result in accelerated short- or long-distance movement of sediments. Bare ground exposes soil to raindrop impacts capable of loosening soil granules, detaching them, and beating them to pieces. Soil aggregates can disappear. If the dispersed material is not removed by runoff, it may develop into a hard crust upon drying. Water, air, and certain seedlings have difficulty pushing through a soil crust, negatively affecting productivity. Indirect surface sealing is less of a potential in the gravel and sandy soil types than the clay and silt types.

### **Biological Soil Crust**

Biological soil crusts serve as an early indicator to ecological site decline since they appear to be more sensitive to disturbance from livestock than vascular plants. These physical impacts (i.e., physics of hoofs) affect biological crusts specifically because greater than 75 percent of photosynthetic biomass and productivity is from organisms living in the top 3 mm of soils (Belnap & Lange, 2003). Season of use by livestock has a significant effect on biological soil crust coverage values and species richness (Marble & Harper, 1989). Disturbance in dry seasons is generally more destructive than in wet seasons because crusts are brittle when dry. Recovery potential is enhanced during the wet season when crusts are metabolically active. Although biological soil crusts are less fragile during wet seasons, heavy or persistent grazing during wet seasons can cause mortality.

### **Slope**

The potential for erosion increases with the pitch and length of slope. Erosion hazard potential increases on any slope greater than 30 percent and is closely tied to inherent soil characteristics, ground cover, vegetation, biological soil crusts, and rock fragments. This issue is not carried further in the analysis because cattle generally avoid grazing slopes greater than 30 percent in favor of gentler terrain (Mueggler W. F., 1965) (Pinchak, Smith, Hart, & Waggoner Jr., 1991).

#### **3.2.2.2 Environmental Consequences of Alternative 5 Common to All Allotments**

Removing domestic livestock grazing from the analysis area for 10 years would provide the most rapid progress of all alternatives toward desired conditions and would provide the greatest potential for soil and watershed health because adverse soil effects from domestic livestock grazing would not occur. This alternative would provide for the most unimpeded and rapid improvement of soils affected by livestock grazing, but would not eliminate soil impacts resulting from other uses, such as recreation and wildlife.

Soil conditions have the potential to improve over time, although recovery would depend on soil and site characteristics and climate and may not be immediately evident in all locations. Natural processes of recovery would be achieved through cycles of wetting and drying, shrinking and swelling, freeze and thaw, root growth, and recovery of compacted layers, and provide additional soil organic matter. Idaho Rangeland Health Standard 1 and ORMP objectives would be met because proper nutrient cycling, hydrologic cycling, energy flow, and soil and hydrologic function would be maintained or allow for an upward trend over the life of the permit and positively affect soil stability, productivity, and hydrologic function over the short and long term.

### 3.2.3 Riparian/Water Quality

#### 3.2.3.1 Environmental Consequences Common to All Grazing Alternatives

##### Direct and Indirect Effects

The term *riparian* denotes both a landscape position and a specific type of ecosystem; riparian areas are located next to a body of water or wetland. Riparian areas are widely recognized as the most biologically diverse and productive of all ecosystems (Kauffman, Krueger, & Vavra, 1984) (Powell, Cameron, & Newman, 2000). Riparian areas filter sediment, stabilize soil and streambanks, regulate water temperature and flow, and provide many significant habitat attributes for terrestrial and aquatic wildlife (Stevens, McArthur, & Davis, 1992). Because they generally offer gentle slopes, cool microclimate, available water, and abundant forage, livestock often concentrate in riparian areas (Powell, Cameron, & Newman, 2000).

The riparian areas that occur within the allotments have both structural and functional diversity; thus, a need exists to characterize and quantify the effects of grazing management practices on the stream and spring riparian communities and the maintenance of hydrologic systems. The impacts discussed below under each alternative focus primarily on differences among season of use because there is no conclusive evidence and information is speculative regarding impacts on riparian-wetland areas from livestock numbers (Powell, Cameron, & Newman, 2000).

The streams and springs that occur within the allotments are unique in their particular setting: stream characteristics, valley bottom type and soils, potential vegetation, relationship to upland topography, and vegetation. Therefore, each area will require a unique strategy to accomplish desired conditions and meet objectives. There are no one-size-fits-all prescriptions for livestock grazing in riparian areas; however, authors agree that any successful grazing strategy will at a minimum:

- Limit grazing intensity and season of use to provide sufficient rest to encourage plant vigor, regrowth, and energy storage;
- Ensure sufficient vegetation during periods of high flow to protect streambanks, dissipate energy, and trap sediments; and
- Control the timing of grazing to prevent damage to streambanks when they are most vulnerable to trampling.

**Table RIPN-6:** Effects of livestock grazing on aquatic and riparian habitats by alternative and season of use, *adapted from* (Bellows, 2003) *and* (Belsky, Matzke, & Uselman, 1999)

Alternative(s)	Season of Use	Issue	Impacts (P denotes primary impact and S denotes secondary set of impacts)
1, 2, 3, and 4	Spring (March- May)	Soil compaction  Selective grazing on palatable species	P Increased erosion P Sediment loading of riparian areas and streams S increased flooding S reduced groundwater recharge S lowered water table S increase streambank erosion S removal of submerged vegetation S reduced aquatic habitat S reduced fish spawning habitat P Decreased herbaceous cover P Decreased species and age diversity S less shade and higher stream temperatures S decrease in streambank stability S less sediment trapping

Alternative(s)	Season of Use	Issue	Impacts (P denotes primary impact and S denotes secondary set of impacts)
			S decreased water infiltration S impaired aquatic and fish habitat
1, 2, 3, and 4	Summer (June- Aug.) Fall (Sep.-Nov.) <sup>1</sup>	Browsing on trees and shrubs	P Decreased tree and shrub cover S decline in streambank stability S less shade and higher stream temperatures S loss of wildlife habitat S impaired fish habitat
1 and 2	Season-Long (March-Sept) <sup>2</sup>	Continuous grazing	P Decreased species and age diversity P Decreased herbaceous cover S less shade and higher stream temperatures S decrease in streambank stability S less sediment trapping S decreased water infiltration S impaired aquatic and fish habitat
1, 2, 3, and 4	All Seasons	Loss of herbaceous vegetation  Loss of streambank stability  Manure deposition in and near streams  In-stream trampling and congregation	P Decreased streambank stability P Change in channel shape, structure, and form S Reduced water infiltration S increased runoff S increased water velocity S increased flooding S reduced groundwater recharge S lowered water table S increased streambank erosion S removal of submerged vegetation S reduced aquatic habitat S reduced fish spawning habitat P Nutrients, pathogens, and bacteria additions P Sediment loading of riparian areas and streams S increased water temperature S reduced habitat quality for fish and aquatic species S increase in nutrients and pathogens from manure S human health impacts

<sup>1</sup>These impacts are in addition to those listed under all seasons

<sup>2</sup>Includes all of the impacts described in the spring, summer, and fall sections as well as ‘Continuous Grazing’

**Table RIPN-7:** Season of use associated with alternative within each South Mountain Group 4 allotment (see impacts for each season of use in Table RIPN-6)

Allotment & Pasture	Alternative <sup>1</sup>	Alternative 2 <sup>2</sup>	Alternative 3	Alternative 4	Alternative 5
Dougal FFR (0456)	year-round (all yrs)	<b>P<sup>3</sup> 1-7, 9:</b> year-round (all yrs) <b>P 8:</b> spring (1 yr), summer (1 yr)	<b>P 1, 3, 5, 6, 7, 9:</b> spring (1 yr), summer (1 yr), year-round (1 yr) <b>P 4:</b> summer (2 yrs), fall (1 yr) <b>P 8:</b> spring (2	<b>P 1, 2:</b> summer (1 yr), fall (2 yrs) <b>P 3, 9:</b> spring (1 yr), summer (2 yrs) <b>P 5, 6, 7:</b> fall & winter	none

Allotment & Pasture	Alternative <sup>1</sup>	Alternative 2 <sup>2</sup>	Alternative 3	Alternative 4	Alternative 5
			yrs), summer (1 yr)	(all yrs) <b>P 4:</b> summer (1 yr), fall (2 yrs) <b>P 8:</b> spring (1 yr), summer (1 yr), fall (1 yr)	
Lequerica FFR (0473)	fall (all yrs)	year-round (all yrs)	spring, summer, & fall (1 yr), summer & fall (1 yr), fall (1 yr)	summer & fall (1 yr), fall (2 yrs)	none
Sheep Creek FFR (0559)	summer & fall (all yrs)	summer & fall (all yrs)	spring & early summer (1 yr), summer & early fall (2 yr)	spring & early summer (1 yr), summer (1 yr), rest (1 yr)	none
South Dougal (0536)	summer (all yrs)	<b>P 1:</b> summer (all yrs) <b>P 2:</b> spring (2 yrs), summer (1 yr)	spring (1 yr), summer (2 yrs)	<b>P 1:</b> summer (1 yr), fall (2 yrs) <b>P 2:</b> summer (1 yr), rest (1 yr), spring (1 yr)	none
South Mountain Area (0536)	summer and early fall (all yrs)	summer (1 yr), summer and early fall (1 yr)	summer (2 yrs), fall (1 yr)	spring (1yr), fall (1 yr), rest (1 yr)	none
Wilson Creek (0537)	Season-long (all yrs)	<b>P 1:</b> summer (all yrs) <b>P 2, 4, 5:</b> season-long (all yrs)	spring (2 yrs), summer (1 yr)	<b>P 1:</b> spring (1 yr), summer (2 yrs) <b>P 2:</b> spring (1 yr), summer (1 yr), fall (1 yr) <b>P 4:</b> spring (1 yr), summer (2 yrs) <b>P 5:</b> summer (1 yr), fall (2 yrs)	none

<sup>1</sup>The seasons of use represent the current situation; for details regarding recent actual use, see Appendix C-2 and Appendix B

<sup>2</sup>For details on the permittees' applications see Section 2.2 and Appendix D

<sup>3</sup>P = pasture

## Impacts Associated with Season of Use

### Spring (March-May)

Adverse impacts from spring use are the result of grazing when soils are typically wet. The static load of a cattle hoof is reported to range from 2.8 to 10.9 kg/cm<sup>2</sup> and can increase by 2 to 4 times when the animal travels (Powell, Cameron, & Newman, 2000); thus, when the soils are saturated, the physical damage to the streambanks increase. The increased soil compaction causes an increase in erosion and sediment loading that could impair water quality and thus fish and aquatic habitat.

Additionally, during the spring months as herbaceous vegetation is growing and green, livestock selectively graze on the most palatable species. This could directly lead to both decreased herbaceous cover and decreased species and age diversity. The loss of herbaceous cover indirectly causes less shade

and higher stream temperatures, a decrease in streambank stability, less sediment trapping, decreased water infiltration, and thus impaired aquatic and fish habitat (Bellows, 2003), (Belsky, Matzke, & Uselman, 1999).

### **Summer (June-August)**

Livestock grazing during the summer months creates both direct and indirect impacts. Because upland grasses are often dry and temperatures are warmer during the summer months, livestock make disproportionate use of riparian areas and riparian herbaceous vegetation is preferred (Powell, Cameron, & Newman, 2000), (Bailey & Brown, 2011). Once the riparian herbaceous vegetation is used to a level ranging from 45 to 90 percent, willows and other riparian shrubs are browsed at various levels. If both the herbaceous and shrub cover decline, a compounding set of impacts can occur. This is because shade has been reduced, water temperatures increase; vegetative structure and cover for fish and wildlife is lost; streambank stability decreases increasing erosion, sediment and stream velocity; a loss of hydric, deep-rooted species that aid in bank stability occurs; and riparian plant species may be replaced by weedy and/or upland plant species (Green & Kauffman, 1995), (Belsky, Matzke, & Uselman, 1999).

Additionally, when riparian areas are grazed during the growing season, livestock congregate close to water where it is cooler and the forage is more palatable (Bryant, 1982), (Smith, Rodgers, Dodd, & Skinner, 1992), (Liggins, 1999). Once livestock have congregated along the floodplain, in riparian-wetland areas, and in the stream channel, further impacts associated with streambank trampling (Kauffman, Krueger, & Vavra, 1984), soil compaction (Marlow & Pogacnik, 1985), and water quality (Taylor, Gillman, & Pendretti, 1989) occur (see Table RIPN-26). In-stream trampling, disturbance, and erosion from denuded banks, reduced sediment trapping by vegetation, loss of bank stability, and increased peak flows lead to reduced habitat quality for both fish and aquatic species, reduced infiltration, and lowered water tables (Stevens, McArthur, & Davis, 1992). An increase in soil compaction created by congregated livestock causes an increase in erosion, decreased water infiltration rates, and more runoff, reduced plant productivity, and thus less vegetative cover (Clary, 1995). Finally, impacts associated with water quality include a potential increase in nutrient concentrations, bacteria, sediment, and water temperatures. Direct fecal deposition into and near water, runoff from disturbed streambanks, and hoof churn-up of contaminated sediments increase nutrient and bacteria concentrations (Taylor, Gillman, & Pendretti, 1989).

In semi-arid rangelands where forage growth is limited primarily by precipitation, ensuring that riparian area grazing does not occur during the critical late summer period may be more beneficial than rotational systems that defer livestock use throughout the grazing season (Bailey & Brown, 2011). Since the South Mountain Group allotments occur in an arid region, Alternatives 1-4 analyze both scenarios.

### **Fall (September-November)**

Where woody species occur, fall grazing increases the occurrence of browse on woody riparian species because both upland and riparian herbaceous forage have dried and/or been used (Elmore W. , 1994). The amount of time available for both herbaceous and woody species regrowth would be reduced. For example, a study in eastern Oregon showed that the density of cottonwood saplings and the height of both cottonwood and willows increased significantly within a gravel bar community after 2 years of rest (Kauffman, Krueger, & Vavra, 1984).

During the fall season, vegetation growing in the riparian zones is generally more palatable and of higher nutritive quality than the upland vegetation. Kauffman and others (1984) found that once the herbaceous component of the riparian area was reduced, a definite shift to less-palatable species occurs. In their study, the composition of woody species was higher in ungrazed compared to grazed areas in a wet meadow community, and plant dormancy occurred up to two weeks later in the ungrazed areas. Similarly, a study in Colorado (Holland, Leininger, & Trilica, 2005) found that recent grazing exclusion resulted in

an increase in canopy cover, height growth, and stem density during the 11 years of a study in Colorado, indicating that these variables respond positively to removal of livestock grazing.

A fall system of grazing would be beneficial for the improvement of the riparian areas when streambank temperatures are cool enough to discourage animals from congregating in the riparian areas (Bellows, 2003). Additionally, in areas that are not saturated late in the season, the potential for compaction damage and the physical damage to the soils would be reduced.

### **Rest (non-use)**

Rest would restore the riparian ecosystem because the rest from livestock grazing would allow for the recovery of the streambank and a functional riparian plant community. Information is lacking on the length of rest required for recovery of riparian vegetation; however, shrubs often require longer periods of recovery than herbaceous vegetation (Powell, Cameron, & Newman, 2000). Improvement in stream channel form and function would only occur if the channel is at a stage where improvement is possible; for example, downcut systems would need to reach a new base level and widening would have to occur to allow vegetation establishment sufficient to resist higher flows (Leonard & Karl, 1995). Research has found that in ungrazed areas, streams experienced decreased widths and depths (Clary, 1999), vegetation cover increased two-fold, streambank stability increased by 50 percent (Scrimgeour & Kendall, 2002), and streambank erosion was 3.3 times less in an ungrazed area compared to an area grazed at a moderate stocking rate and level of use (Kauffman, 1982).

### **Trailing**

Effects to riparian areas and water quality as analyzed in the 2012 Trailing EA (USDI BLM, 2012c), and the 2012 Chipmunk Group 2 EIS (USDI BLM, 2012d) are applicable and provide the background to the affected South Mountain Group 4 allotments (see Livestock Trailing Section 2.1.3; Map RNGE-2).

The majority of trailing along approximately 85 miles would occur along established paved, gravel, or native surface roads and their associated borrow ditches with the remaining miles occurring on cross-country or unknown surface trailing routes. The impacts of all of the routes that occur within the Group 4 allotments have been previously analyzed, with the exception of 0.9 mile of the Dougal Route that traverses BLM lands in the South Dougal allotment. Animals may spread out up to one-eighth of a mile on each side of the routes (total ¼-mile width), potentially impacting streams and springs they cross once or several times over each route within a year.

Since trailing would be authorized regardless of an allotment/pasture's scheduled rest or deferment, the effects specific to the one affected allotments would be the same for Alternatives 1-4. Approximately 0.6 mile of two unnamed ephemeral tributaries would fall within the trailing buffer. Thus, short duration impacts would occur in the form of vegetation removal and trampling. Overall, effects on riparian areas and water quality due to trailing are minor because they affect a relatively small proportion of the landscape and livestock do not congregate on the streams and springs. Trailing on the existing roadways greatly reduces impacts to riparian areas and water quality.

#### **3.2.3.2 Environmental Consequences of Alternative 1 Common to All Allotments**

General impacts of livestock grazing are discussed in the Environmental Consequences Common to All Grazing Alternatives Section 3.2.3.1.

Under the grazing scheme proposed in Alternative 1 (for details see Section 2.2.1), six of the South Mountain Group 4 allotments contain riparian-wetland areas and would be subject to the impacts described in Table RIPN-6. The impacts would vary according to the season of use (Table RIPN-8).

**Table RIPN-8:** Season of use, and stream mileage and number of springs impacted under Alternative 1 for the Group 4 allotments

Allotment	Season of use	Perennial Miles	Intermittent Miles <sup>1</sup>	Number of Springs
Dougal FFR <b>Pastures 4 &amp; 8</b>	year-round	0	1.5	1
Lequerica FFR	year-round	0	0.8	0
Sheep Creek FFR <b>Pasture 1</b>	summer & fall	0	1.3	0
South Dougal <b>Pasture 1</b>	summer (all yrs)	0.5	5.1	0
South Dougal <b>Pasture 2</b>	spring (2 yrs), summer (1 yr)	0	7.3	0
South Mountain Area <b>Pastures 1-4</b>	summer (1 yr), summer and early fall (1 yr)	9.0	11.4	9
Wilson Creek <b>Pasture 1</b>	summer (all yrs)	0.2	1.5	3

<sup>1</sup>Intermittent miles are not differentiated from ephemeral; thus, many of the intermittent miles do not support riparian-wetland areas (based on the NHD)

### 3.2.3.3 Environmental Consequences of Alternative 2 Common to All Allotments

General impacts of livestock grazing are discussed in the Environmental Consequences Common to All Grazing Alternatives Section 3.2.3.1.

Under the grazing scheme proposed in Alternative 2 (for details see Section 2.2.2), six of the South Mountain Group 4 allotments contain riparian-wetland areas and would be subject to the impacts described in Table RIPN-6. The impacts would vary according to the season of use (Table RIPN-9).

**Table RIPN-9:** Season of use, stream mileage, and number of springs impacted under Alternative 2 for the Group 4 allotments

Allotment	Season of use	Perennial Miles	Intermittent Miles <sup>1</sup>	Number of Springs
Dougal FFR <b>Pastures 4 &amp; 8</b>	year-round	0	1.5	1
Lequerica FFR	year-round	0	0.8	0
Sheep Creek FFR <b>Pasture 1</b>	summer & fall	0	1.3	0
South Dougal <b>Pasture 1</b>	summer (all yrs)	0.5	5.1	0
South Dougal <b>Pasture 2</b>	spring (2 yrs), summer (1 yr)	0	7.3	0
South Mountain Area <b>Pastures 1-4</b>	summer (1 yr), summer and early fall (1 yr)	9.0	11.4	9
Wilson Creek <b>Pasture 1</b>	summer (all yrs)	0.2	1.5	3

<sup>1</sup>Intermittent miles are not differentiated from ephemeral; thus, many of the intermittent miles do not support riparian-wetland areas (based on the NHD)

### 3.2.3.4 Environmental Consequences of Alternative 3 Common to All Allotments

General impacts of livestock grazing are discussed in the Environmental Consequences Common to All Grazing Alternatives Section 3.2.3.1. Under Alternative 3, a deferred grazing system is proposed that would generally allow grazing during the spring and/or summer for 2 years, and during the fall the third year of a 3-year rotation. Thus, it was estimated that the impacts would be eliminated approximately 20 percent of the time, and about 20 percent of the streams currently not meeting the Standard would make progress toward meeting (i.e., streams would be in PFC). Currently, approximately 15 miles of stream have been assessed, and 2.6 of them are in PFC. Therefore, the total mileage of streams meeting or making progress toward meeting the standards would increase from 2.6 miles to approximately 5.1 miles.

Under the grazing scheme proposed in Alternative 3 (for details see Section 2.2.3), six of the South Mountain Group 4 allotments contain riparian-wetland areas and would be subject to the impacts described in Table RIPN-6. The impacts would vary according to the season of use (Table RIPN-10).

**Table RIPN-10:** Grazing rotation, season of use, and stream mileage and number of springs impacted under Alternative 3 for the Group 4 allotments

Allotment & Pastures that contain riparian areas	Year 1				Year 2				Year 3			
	Year 1	Perennial Miles	Intermittent Miles <sup>1</sup>	Springs	Year 2	Perennial Miles	Intermittent Miles	Springs	Year 3	Perennial Miles	Intermittent Miles	Springs
Dougal FFR Pasture 4	summer	0	0.4	0	summer	0	0.4	0	fall	0	0.4	0
Dougal FFR Pasture 8	spring	0	0.4	0	spring	0	0.4	0	summer	0	0.4	0
Lequerica FFR	spring or fall	0	0.8	0	spring, summer, & fall	0	0.8	0	fall	0	0.8	0
Sheep Creek FFR Pasture 1	fall	0	1.3	0	summer & early fall	0	1.3	0	spring	0	1.3	0
South Dougal Pastures 1&2	spring	0.5	12.4	0	summer	0.5	12.4	0	summer	0.5	12.4	0
South Mountain Area Pastures 1-4	summer	9.0	11.4	9	fall	9.0	11.4	9	fall	9.0	11.4	9
Wilson Creek Pasture 1	spring	0.2	1.5	3	spring	0.2	1.5	3	spring or fall	0.2	1.5	3

<sup>1</sup>Intermittent miles are not differentiated from ephemeral; thus, many of the intermittent miles do not support riparian-wetland areas (based on the NHD)

### 3.2.3.5 Environmental Consequences of Alternative 4 Common to All Allotments

General impacts of livestock grazing are discussed in the Environmental Consequences Common to All Grazing Alternatives Section 3.2.3.1. Any additional specific effects from this alternative will be described below by allotment.

Under Alternative 4, a season-based grazing system is proposed that would generally allow grazing during the spring and/or summer for one out of every 3 years. Rest and/or fall grazing would be implemented the remaining 2 years. Thus, it was estimated that the impacts would be eliminated about 50 percent of the time, and approximately 50 percent of the streams currently not meeting the standards would make progress toward meeting the standards (i.e., the streams would be in PFC). Currently, approximately 15 miles of stream have been assessed, and 2.6 are in PFC. Therefore, the total mileage of streams meeting or making progress toward meeting the standards would increase from 2.6 miles to approximately 8.8 miles.

Under the grazing scheme proposed in Alternative 4 (for details see Section 2.2.4), six of the South Mountain Group 4 allotments contain riparian-wetland areas and would be subject to the impacts described in Table RIPN-6. The impacts would vary according to the season of use (Table RIPN-11).

**Table RIPN-11:** Grazing rotation, season of use, and stream mileage and number of springs impacted under Alternative 4 for the Group 4 allotments

Allotment & Pastures that contain riparian	Year 1	Perennial Miles	Intermittent Miles <sup>1</sup>	Springs	Year 2	Perennial Miles	Intermittent Miles	Springs	Year 3	Perennial Miles	Intermittent Miles	Springs
Dougal FFR Pasture 4	spring	0	0.4	0	fall	0	0.4	0	fall	0	0.4	0
Dougal FFR Pasture 8	spring	0	0.4	0	summer	0	0.4	0	fall	0	0.4	0
Lequerica FFR	summer & fall	0	0.8	0	fall	0	0.8	0	fall	0	0.8	0
Sheep Creek FFR Pasture 1	summer	0	1.3	0	spring	0	1.3	0	rest	0	1.3	0
South Dougal Pasture 1	summer	0.5	12.4	0	fall	0.5	12.4	0	fall	0.5	12.4	0
South Dougal Pasture 2	summer	0.5	12.4	0	rest	0.5	12.4	0	spring	0.5	12.4	0
South Mountain Area Pastures 1-4	spring	9.0	11.4	9	fall	9.0	11.4	9	rest	9.0	11.4	9
Wilson Creek Pasture 1	spring	0.2	1.5	3	summer	0.2	1.5	3	spring	0.2	1.5	3

<sup>1</sup> Intermittent miles are not differentiated from ephemeral; thus, many of the intermittent miles do not support riparian-wetland areas (based on the NHD)

### 3.2.3.6 Environmental Consequences of Alternative 5 Common to All Allotments

Under Alternative 5, all of the South Mountain Group 4 allotments would be rested from grazing for the duration of the 10-year permit. Thus, none of the riparian-wetland areas associated with the streams and springs would be impacted by livestock grazing.

**Table RIPN-12:** Grazing rotation, season of use, and stream mileage/number of springs impacted under Alternative 5 for the Group 4 allotments

Allotment & Pasture	All Years	Perennial Miles	Intermittent Miles	Springs
All allotments	no grazing- rested	9.5	29	13

Under Alternative 5 (for details, see Section 2.2.5), the elimination of grazing for a period of 10 years would restore the riparian ecosystem because the rest from livestock grazing would allow for the recovery of the streambank and a functional riparian plant community. Information is lacking on the length of rest required for recovery of riparian vegetation; however, shrubs often require longer periods of recovery than herbaceous vegetation (Powell, Cameron, & Newman, 2000). Improvement in stream channel form and function would only occur if the channel is at a stage where improvement is possible; for example, downcut systems would need to reach a new base level, and widening would have to occur to allow vegetation establishment sufficient to resist higher flows (Leonard & Karl, 1995). Recovery would also be dependent on the levels of degradation and the climatic variables (Bellows, 2003). Since the allotments occur in a semi-arid region and the riparian areas are degraded, 10 years of rest would not always generate riparian-wetland areas that historically existed. However, research has found that in ungrazed areas, streams experienced decreased widths and depths (Clary, 1999), vegetation cover increased two-fold, streambank stability increased by 50 percent (Scrimgeour & Kendall, 2002), and streambank erosion was 3.3 times less in an ungrazed area compared to an area grazed at a moderate stocking rate and level of use (Kauffman, 1982).

The implementation of this alternative would have the greatest benefit for the riparian and water resources because the riparian ecosystem would recover much of the structural and functional diversity that occurs within the allotments. Thus, the allotments would maintain meeting or make progress toward meeting Standards 2, 3, and 7 that are associated with the water and riparian resources. Additionally, the ORMP objective to maintain or improve riparian-wetland areas to attain PFC for all lotic and lentic systems would be achievable. Similarly, the ORMP objective to meet or exceed State water quality standards would make progress toward being attained.

## 3.2.4 Special Status Plants

### 3.2.4.1 Environmental Consequences Common to All Grazing Alternatives

The ORMP recognizes the ecological connectivity between resources by tiering from one resource to another. The management action of protecting and enhancing habitat for a diversity of special status species (USDI BLM, 1999a) is connected to several resources, particularly vegetation, and the need to ensure proper nutrient cycling, hydrologic cycling, and energy flow. When a pasture or allotment is not meeting Standard 4 for upland rangeland vegetation, special status plants and their habitats are more vulnerable to degradation from direct and indirect impacts of livestock. Rare (special status plants) and common native plant communities can be retained with the maintenance of healthy native communities, which aids in limiting their susceptibility to direct and indirect effects of livestock, such as herbivory, trampling, alterations to fire interval, non-native weed invasion (Rosentreter, 1992), and habitat fragmentation.

Grazing strategies that incorporate proper management of special status plants place livestock disturbances outside of special status plant habitats and limit grazing intensity and season of use during special status plant active growing periods and when soils are moist. These management practices reduce or eliminate threats to special status plants by encouraging plant vigor, reproduction, habitat continuity, and overall maintenance.

The consequences of livestock impacts on special status plants are determined by season of use, stocking rate/AUMs, and frequency of use (i.e., recovery interval between disturbances). Monitoring information on special status plants within the project area are limited, so specific livestock effects under current management are limited. However, when livestock are present, direct and indirect effects on special status plants have the potential to occur, and it is likely that direct effects may impact the plants and/or vigor and reproduction of the occurrence and their habitats.

Direct effects on special status plants include herbivory and trampling. Special status plants and their habitats are most vulnerable to direct impacts during the spring/critical growing season when plants are flowering and soils tend to be saturated. The two species within the project area complete their reproductive cycle by mid-June; thus, the positive effects on upland vegetation and special status plants of decreased trampling and herbivory would be most apparent in those years when livestock grazing is deferred from spring to summer or fall. Both special status plants within the project area are not known to be especially palatable to livestock; however, when herbivory does occur, it can lead to partial or entire removal of a plant and subsequent mortality. Bach's calicoflower is also small and low to the ground, making it difficult for most livestock to graze.

Trampling can be responsible for partial or entire uprooting of a plant, subsequent mortality, and disturbance to habitat. When trampling occurs in the spring when soils are moist and plants have not completed their reproductive cycle, effects are likely to be most evident on the annual species Bach's calicoflower because the shallow roots allow for easy dislodging. Thinleaf goldenhead is likely to be somewhat resilient to trampling under light to moderate use not just because it is a perennial with a more robust root structure but also because of its rhizomatous nature. But heavy use, particularly concentrated livestock numbers or extended use within occupied habitat, is likely to damage plants and habitat. Seedlings of both species are highly susceptible to uprooting from trampling and potential mortality.

Indirect effects on special status plants include changes in vegetation composition, juniper and non-native weed increase, altered fire regime, habitat fragmentation, and climate change. Decreased competition in a changing vegetation community from a reduction in perennial grasses and an increase in bare ground may benefit some special status plants by decreasing competition in the short term. However, this could have negative implications as the increase in bare ground also provides opportunity for non-native weed invasion in high use areas near rangeland developments, along roads and salt grounds, and at watering sources that would alter the habitat of special status plants in the long term.

Livestock create bare ground through soil disturbance and can disperse seed as they move from one area to the next. Native and rare plants can be negatively impacted by non-native weed invasion through direct competition for space, moisture, and light (Rosentreter, 1992). Susceptibility to invasion increases when adding drought (West, 1999) to disturbance followed by increased stress to the native and rare plant communities. Within the project area juniper and invasive grasses are of concern for the loss of species and structural diversity, all of which play a role in ensuring the proper functioning of ecological processes and maintenance of special status plants and their habitats.

Another indirect effect from grazing is ongoing contributions to long-term (more than 10 years) changes in the fire regime. Miller and Eddleman (2001) identify a number of temporal changes in vegetation composition within the sagebrush biome attributed to livestock grazing, introduction of exotic plants,

change in fire regimes, and herbicides. One scenario of change is an increase in the dominance of woody species (shrubs and trees), a decline in fire frequency and a decrease in perennial forbs and grasses. For the persistence of most native plants, this lengthened fire cycle is unsuitable and promotes a change toward decreased species composition and opportunity for invasive species such as juniper.

It is likely that juniper and non-native grass invasion and altered fire regime would adversely affect these occurrences in the long term (greater than 10 years) through the loss of and fragmentation of habitat. Fragmentation stems from vegetation composition change and can interrupt the transfer of pollinators and, consequently, genetic flow between special status plant occurrences (Tepedino, Sipes, Barnes, & Hickerson, 1997). Management influences on entire ecological groups of plants can compromise the community through loss of a functional group and, hence, a pollinator group (Corbet, 1997). Corbet (1997) and Tepedino et al. (1997) amplify the importance of maintaining communities with high floristic diversity to provide necessary forage for pollinators throughout a growing season. In pastures where habitat fragmentation has occurred (functional/structural groups have been lost, or non-native weeds are dominant) rare plants are highly susceptible to downward trends.

Global climate change may have a significant negative impact on special status plants due to the small number of sites and the relative lack of resiliency many of these plants show in response to changing habitat conditions. Thinleaf goldenhead is an endemic plant species with limited distribution; according to Hawkins et. al. (2008) and Foden et. al. (2008) endemic species will be at greatest risk. The altered future climate may not provide the conditions that are favorable for the two special status plants where they currently occur. Other plant species may be better adapted to the altered climate at special status plant sites. These invader species could out-compete the special status plants. The cumulative impacts of climate change on endemic special status plants could lead to increasing rarity for these species.

One new trailing route is not analyzed in the 2012 Trailing EA (USDI BLM, 2012c). Special status plants are not known to occur along the route through the South Dougal allotment pasture 1 where trailing will occur. While there are no known special status plant occurrences, impacts to vegetation in general will be minimal because the majority of the trailing would occur on an already disturbed existing road and the associated borrow ditches, and because the frequency of the trailing occurrence is low (two times/year) and of a short distance (0.9 miles). Trailing would occur regardless of the scheduled grazing rotation within a pasture (i.e., use would occur when pastures are otherwise rested).

### **3.2.5 Wildlife and Special Status Animals**

#### **3.2.5.1 Environmental Consequences Common to All Grazing Alternatives**

##### **Upland Habitat**

The direct and indirect effects of livestock grazing can cause changes in plant community composition and result in the overall decrease in the quality and quantity of wildlife habitat within the South Mountain Group allotments. All wildlife species require a level of adequate forage and cover to meet yearly reproduction needs and avoid predators. Plant community departures from what would be expected based upon ecological site descriptions (i.e., tall, deep-rooted perennial grasses like bluebunch wheatgrass versus short-statured, shallow-rooted grasses like Sandberg's bluegrass, and invasive species) are indicators of habitat quality and the health of wildlife community. Further discussions on the effects of livestock grazing on the upland plant community are available in Section 3.2.1.

Alternatives 1-4 all propose varying levels of livestock grazing intensity and duration. Livestock grazing pressure will occur in all of the alternatives within the upland shrub steppe community and will have varying effects. Vegetation will be consumed and soils will be trampled that can directly and indirectly alter or change habitat composition, structure and function. The effects of grazing rotations and associated

terms and conditions under each alternative will be analyzed to determine whether the allotment is making significant progress toward meeting Rangeland Health Standard 8 and ORMP objectives. Alternative 5 is the no grazing alternative and will not realize any impacts from domestic livestock grazing.

### **Riparian Habitat**

The direct and indirect effects of livestock grazing on the riparian community can alter the vegetation community, disrupt ground and surface water flow, and increase the occurrence of invasive species in the South Mountain Group allotments. Riparian habitats are disproportionately the most important habitat features in the landscape and provide the greatest benefit to obligate and facultative wildlife covering fish, birds, amphibians, reptiles, big game, and insect species. Livestock are attracted to these habitat types because of the availability of quality forage, water, and shade, which can contribute to the decrease in quality and quantity of stream, wetland, spring, and mesic habitat conditions. Riparian habitats that are not functioning do not provide for adequate terrestrial, avian, and aquatic species needs. Further discussion on the direct and indirect effects of livestock grazing to riparian communities are available in Section 3.2.3.

Alternatives 1-4 all propose varying levels of livestock grazing intensity and duration. Livestock grazing pressure will occur in all of the alternatives within the riparian community. Riparian vegetation will be consumed and soils will be trampled that can affect the quality and quantity of riparian vigor, structure, and function to support wildlife needs. The effects of grazing rotations and associated terms and conditions under each alternative will be analyzed to determine whether the allotment is making significant progress toward meeting Standard 8 and ORMP objectives.

### **Focal Species**

#### Sage-grouse

Alternatives 1-4 all propose livestock grazing within upland and riparian habitat communities that are used by sage-grouse within the South Mountain Group allotments. Livestock trampling and nest encounters have been shown to destroy nests and eggs and cause sage-grouse to flush and abandon nest. Movement of birds caused by livestock encounters also expose eggs and individuals and alert predators such as ravens and coyotes to their location (USDI USFWS, 2010).

The direct and indirect effects of livestock grazing have the ability to alter the overstory/understory composition and structure of sagebrush habitats and contribute to changes in the plant community function (Section 3.2.1.1). Greater sagebrush and herbaceous cover provides vertical and horizontal concealment of nests from predators and has been demonstrated to result in higher nest success (Coates & Delehanty, 2010), (Moynahan, Lindberg, Rotella, & Thomas, 2007), (DeLong, Crawford, & DeLong, 1995), (Gregg, Crawford, Drut, & DeLong, 1994), (Connelly, Wakkinen, Apa, & Reese, 1991). Livestock grazing can contribute to departures in the plant community from reference site conditions of larger perennial grasses (i.e., bluebunch wheatgrass, Idaho fescue) to smaller stature grazing tolerant species (Sandberg bluegrass, cheatgrass, and medusahead) (Section 3.3) and therefore influence the viability and sustainability of sage-grouse. The effects of grazing result in reduced plant community composition and structure, concealment cover for nesting and hiding, and forb availability, and increase the risk of predation. (USDI USFWS, 2010).

The direct and indirect effects of livestock grazing can alter the composition and function of riparian habitats (Section 3.2.3.1). Riparian habitats are sought out by sage-grouse and provide a critical source of forage (primarily forbs and insects) throughout the year and are especially important during the first few weeks of chick development. Livestock are also attracted to these areas because of quality forage and water and cattle tend to concentrate for longer periods of time in these locations. The effects of livestock

grazing in riparian habitat types can compact soils, inhibit water infiltration, and reduce cover of herbaceous plants and litter, further causing changes to the shrub, grass, and forb components and lead to an increase in exotic plants.

The direct and indirect effects of Alternatives 1-4 to sage-grouse and sage-grouse habitat will depend on the intensity and duration of livestock grazing discussed under each alternative. Vegetation will be consumed and soils will be trampled that can directly and indirectly affect the quality and quantity of upland and riparian vigor, structure, and function to support sage-grouse needs. The effects of grazing rotations and associated terms and conditions under each alternative will be analyzed to determine whether the allotment is making significant progress toward meeting Standard 8 and the ORMP objectives.

#### Columbia spotted frog

Alternatives 1-4 will have levels of riparian (wetland, springs, seeps, and mesic areas) grazing within the South Mountain Group allotments. The direct and indirect effects of livestock grazing to riparian habitats are discussed above and within Section 3.2.3. The Columbia spotted frog lives in creeks and springs within and adjacent to the South Mountain Group allotments, and the effects of improper livestock grazing and trampling will reduce the quality and quantity of spotted frog habitat for nesting, foraging and hibernation. Improperly grazed wetlands result in severely hummocked surfaced soils, the breaking up the dense sod, exposing mineral soil, and leading to erosion potential and weed invasion. These disturbances lead to soil compaction, streambank sloughing, damage to vegetation, and premature drying of the soil surface. Livestock can cause direct injury or mortality by trampling spotted frogs and eggs and impact spotted frog movement by defoliating habitat, causing a shift in species composition, dewatering migration corridors and collapsing banks along ponds used for overwintering sites (Tait & Vetter, 2008)

Healthy and viable populations of spotted frogs depend on properly functioning wetland and riparian habitats (Section 3.1.3). Riparian vegetation will be consumed and soils will be trampled that can directly and indirectly affect the quality and quantity of riparian vigor, structure, and function to support wildlife needs. The effects of grazing rotations and associated terms and conditions, under each alternative will be analyzed to determine whether the allotment is making significant progress toward meeting Standard 8 and ORMP objectives.

#### Columbia redband trout

Under Alternatives 1-4, livestock grazing in or along streams will occur within the South Mountain Group allotments. The direct and indirect effects of improper livestock use of stream corridors and riparian areas will substantially reduce the quality and quantity of functioning fish habitat. When riparian areas are utilized for grazing and impacted by trampling, the direct and indirect effects to fish habitat include increased bank erosion and surface fines, increased stream width-to-depth ratios, loss of stream shading, and reduced woody debris recruitment. Surface fines further degrade spawning substrates and reduce reproductive success and can suffocate eggs or trap newly hatched fry in the substrate. Direct effects from cattle trampling redds (fish nests) while eggs or fry are present may also occur. Increased stream width-to-depth ratios and absence of woody debris lead to simplified channels that reduce hiding cover and increase water temperatures. Loss of overhead cover increases exposure to sunlight, which also reduces hiding cover, increases water temperatures and reduces woody structure to the channel.

Healthy and viable populations of redband trout depend on properly functioning stream and riparian habitats (Section 3.2.3). Stream systems will be accessed and riparian vegetation will be consumed and banks will be trampled that can directly and indirectly affect the quality and quantity of stream and riparian structure, vigor, and function to support redband trout needs. The effects of grazing rotations and associated terms and conditions, under each alternative will be analyzed to determine whether the allotment is making significant progress toward meeting Standard 8 and ORMP objectives.

### **3.2.5.2 Environmental Consequences of Alternative 1 Common to All Allotments**

Alternative 1 represents the current permit and characterizes the present condition and status of the upland, riparian, and focal species habitats and will serve as the baseline for comparison to the other alternatives. In general, no allotments under this alternative provide a full complement of upland, riparian, and focal species habitat conditions that provide for adequate structural and functional habitat requirements for shrub steppe associated species. This is due to a combination of current and historic grazing practices, wildfire, invasive annual species, and the overall departure of plant communities from the ecological reference site conditions. The continuation of grazing activities under Alternative 1 are not anticipated to progress upland and/or riparian habitat conditions towards improved conditions and therefore will continue to fail to meet Standard 8 in allotments that are currently not meeting the Standard.

#### **Upland Habitat**

Upland habitat conditions for shrub steppe associated wildlife are dependent upon the health, vigor, and composition of the plant community to provide adequate cover and forage elements for wildlife to sustain themselves, reproduce, and avoid predators. Plant communities that have departed from ecological site conditions have reduced distribution and abundance of native plant species and are transitioning to communities dominated by more grazing tolerant species (e.g., Sandberg bluegrass, cheatgrass, and medusahead) with reduced stature and structure. This is resulting in less than adequate composition and structure for providing screening and concealment cover for nesting, brood-rearing, and foraging wildlife to hide and escape from predators and avoid detection. In addition, these altered communities reduce connectivity of habitat patches and fragment areas of suitable habitat. If permitted, Alternative 1 would not improve wildlife habitat conditions and would not progress upland habitat conditions towards meeting Standard 8.

#### **Riparian Habitat Conditions**

Terrestrial and aquatic species dependent on stream, wetland, and spring habitats are reliant on the health, vigor, and composition of the riparian plant community to provide adequate cover and forage elements for wildlife to sustain themselves, reproduce, and avoid predators. Riparian communities that are not functioning or are functioning at risk do not provide adequate plant species diversity, age-class structure, regeneration to stabilize banks, create shade, dissipate high flow events, provide woody debris, and improve water quality. Continuation of Alternative 1 would maintain repeated critical season grazing pressure with periodic rest and would further reduce stream quality, alter flow patterns, create dry moist areas, and reduce hydric vegetation, which would allow invasive species to become established and not progress riparian habitats that are not functioning or are functioning at risk towards meeting Standard 8.

#### **Focal Species**

##### Greater sage-grouse

In general, key habitat components for sage-grouse include an adequate canopy cover of tall grasses and medium-height shrubs for nesting, abundant forbs and insects for brood-rearing, and the availability of herbaceous riparian species for late growing-season foraging. Habitat requirements for sage-grouse are closely related to overall health and vigor of the upland and riparian habitats and plant community departure from ecological reference site conditions discussed above. Continuation of Alternative 1 would maintain or further degrade the condition of sage-grouse habitat. Repeated grazing pressure with limited rest during the critical growing season would continue to inhibit the reproduction and distribution of large native species and favor smaller more grazing tolerant species. Continuation of Alternative 1 would not contribute to improved habitat conditions for sage-grouse and would not progress conditions towards meeting Standard 8.

##### Columbia redband trout and Columbia spotted frog

The quality of aquatic habitats for Columbia redband trout and Columbia spotted frog are closely associated to the properly functioning status of riparian habitats discussed above and in Section 3.1.5. Under Alternative 1, repeated grazing pressure in riparian areas not functioning or functioning at risk would continue or further degrade aquatic habitat conditions. Altered riparian habitats would continue to experience reduced herbaceous and woody composition and structure to regulate water flow, maintain hydric communities, reduce sediment loading, create shade, and delivery woody debris. Repeated spring grazing of riparian areas and associated streams, wetlands, and springs allows livestock to trample in redband trout spawning gravels and pools for spotted frog egg laying. Under this alternative, riparian and aquatic habitat conditions would be maintained or would further decline and would not progress towards meeting Standard 8.

### **3.2.5.3 Environmental Consequences of Alternative 2 Common to All Allotments**

General impacts of livestock grazing are discussed in the Effects Common to All Grazing Alternatives section 3.2.5.1. Any additional specific effects from this alternative will be described below by specific allotment section 3.3.

Under Alternative 2, permittees submitted applications for renewal of their 10-year permits. The proposed schedules ranged from no change in grazing management to proposals similar to schedules developed for Alternatives 3 and 4 that included deferment. Request to maintain flexibility in stocking levels ranged from no change to increasing the number of cattle; however, maximum AUMs would stay the same. Permittees for all seven allotments to be analyzed in this document submitted changes in grazing schedules from Alternative 1. The general direct and indirect effects of the permittees proposed schedules are similar to those discussed in Section 3.2.5.1 and 3.2.5.2.

In general, permittee applications that proposed similar or no changes in grazing management (as compared to Alternative 1), the direct and indirect effects would be the same as those discussed in Section 3.2.5.2. For the allotments where the permittees proposed changes, the incorporation of deferment would be a benefit to upland and riparian habitats and to wildlife that use these environments. Where deferment has been proposed, these habitat would benefit from these changes because the reduction in repeated spring grazing during the critical growing season would allow upland native perennial species to complete the annual growth cycle more often in the absence of defoliation by livestock and would improve plant community health and vigor and improve herbaceous composition and structure (Section 3.2.1.3).

Increased deferment from livestock grazing in upland/riparian communities would benefit focal species as well other sagebrush steppe associated species by improving security cover for nesting and brood-rearing wildlife from predators and the increased abundance and availability of forage (e.g., forbs, browse, insects, and berries) because of the reduced spring grazing pressure and improved health of the habitat. More specific discussion on the direct and indirect effects of the permittees applications by allotment will occur in Section 3.3.

### **3.2.5.4 Environmental Consequences of Alternative 3 Common to All Allotments**

General impacts of livestock grazing are discussed in the Effects Common to All Grazing Alternatives section 3.2.5.1. Any additional specific effects from this alternative will be described below by specific allotment section 3.3.

Livestock grazing management as described under Alternative 3 would improve upland and riparian habitat conditions, benefiting identified focal species as well as other associated shrub-steppe and riparian dependent (e.g., migratory birds, pygmy rabbits, big game, and amphibians). The general concept of Alternative 3 identified resource constraints for soil, vegetation, riparian, and focal species resources and would allow grazing during the critical periods for these resources 2 out of 3 years (Section 2.2.3).

Upland communities and the species that use these habitats would benefit from implementation of this alternative and would make progress toward meeting Standard 8 and achieve desired habitat management objectives. Making progress towards meeting this Standard and achieving ORMP objectives would be expected because the periodic decrease in grazing frequency during the spring growing and resource constraint periods would allow upland native perennial species to complete the annual growth cycle more often in the absence of defoliation by livestock and will improve plant community health and vigor and improve herbaceous composition and structure (Section 3.2.1.4). Resulting in greater security cover for nesting and brood-rearing sage-grouse from predators and increasing preferred forb diversity and availability.

In addition, limited riparian habitat grazing intensity and season of use would improve plant vigor, diversity, and regeneration and improve riparian functions to dissipate energy of high flows, trap sediments, harden streambanks, provide shade to streams, deliver woody debris, and improve water quality. Improved herbaceous and woody cover in riparian zones would benefit Columbia River redband trout and Columbia spotted frogs by reduced trampling of spring spawning and egg laying sites, decreased erosion and sediment loading, enhanced shade and woody debris delivery, greater channel structure and flow regulation, and improve water quality (Section 3.1.3 and 3.1.5).

Overall, by the incorporation of deferment 1 out of 3 years into the grazing schedule, repeated grazing pressure during the critical growth season and during critical species nesting periods is reduced. As generally discussed above, Alternative 3 increases the frequency of the implementation of deferment and from livestock grazing compared to Alternative 1 (Current Situation), which would make progress towards meeting Standard 8 and achieving ORMP objectives in the South Mountain Group allotments. More specific discussion on the direct and indirect effects of Alternative 3 by allotment will occur in Section 3.3.

#### **3.2.5.5 Environmental Consequences of Alternative 4 Common to All Allotments**

General impacts of livestock grazing are discussed in the Effects Common to All Grazing Alternatives section 3.2.5.1. Any additional specific effects from this alternative will be described below by specific allotment section 3.3.

Livestock grazing management as described under Alternative 4 would improve upland and riparian habitat conditions, benefiting identified focal species as well as other associated shrub-steppe and riparian dependent (e.g., migratory birds, pygmy rabbits, big game, and amphibians) in all of the South Mountain Group allotments. The general concept of Alternative 4 identified resource constraints for soil, vegetation, riparian, and focal species resources and would allow grazing during the critical periods for these resources 1 out of 3 years (Section 2.2.4). In addition, some allotments see a significant reduction in AUMs from the current permit and utilization is proposed to be light.

Under Alternative 4, the quality and quantity of the upland and riparian habitats would make significant progress towards meeting Standard 8 and achieve desired habitat management objectives (Section 3.1.5). The repeated non-grazing frequency during the spring growing season and resource constraint periods combined with the addition of periodic rest in some allotments and lower stocking levels would allow upland native perennial species to complete the annual growth cycle more often in the absence of defoliation by livestock and improve plant community health and vigor (Section 3.2.1.3). In addition, limited riparian habitat grazing intensity and season of use would improve plant vigor and regeneration and improve riparian functions to dissipate energy of high flows, trap sediments, harden streambanks, provide shade to streams, deliver woody debris, and improve water quality (Section 3.1.3).

Under alternative 4, improved upland and riparian habitat conditions would benefit identified focal species as well as other associated shrub-steppe species and aquatic species (e.g., migratory birds, pygmy rabbits, big game, and amphibians). Implementing a deferment/rest grazing rotation grazing schedule with reduced stocking levels would improve upland plant community health and vigor; enhance herbaceous composition and structure; provide greater security cover for nesting and brood-rearing sage-grouse from predators; and increase preferred forb diversity and availability. Improved herbaceous and woody cover in riparian zones would benefit Columbia River redband trout and Columbia spotted frogs by reducing trampling of spring spawning and egg laying sites, decreasing erosion and sediment loading, enhancing shade and woody debris delivery, providing greater channel structure and flow regulation, and improving water quality and riparian function (Section 3.1.3 and 3.1.5).

Overall, by incorporating deferment/rest 2 out of 3 years into the grazing schedule, repeated grazing pressure during the critical growth season and during critical species breeding, nesting, and brood-rearing periods is reduced. Grazing management under this alternative would make significant progress towards meeting Standard 8 and achieve ORMP objectives as described above. More specific discussion on the direct and indirect effects of Alternative 4 by allotment will occur in Section 3.3.

### **3.2.5.6 Environmental Consequences of Alternative 5 Common to All Allotments**

Under this alternative, extended allotment and pasture rest from repeated grazing pressure would allow for immediate and long-term upland and riparian habitat improvements for all species of wildlife throughout the South Mountain Group allotments. Vegetative vigor, cover, height, residual cover, composition, and forage availability to wildlife would all improve or increase over the length of the 10-year permit in all habitat types. Stream and riparian (e.g., wetlands, springs, seeps, and mesic areas) habitats would improve and expand (Section 3.1.5) due to the removal of livestock grazing pressure. Under this alternative, landscape wide forage availability and cover for all wildlife would significantly improve and subsequently allow wildlife populations to flourish and diversify. In general, none of the negative effects associated with grazing discussed in Alternative 1 would occur, and the benefits to the sagebrush steppe environment would be compounded across the allotments. Response of riparian areas would occur more quickly than upland habitats. Even without grazing, a change in upland plant composition would be slow, especially in instances where invasive grass species have taken a stronghold. In areas of allotments that have seen juniper encroachment, wildfires, prescribed fires, or mechanical treatments would be required to remove the junipers before big sagebrush communities would return.

## **3.2.6 Recreation and Visual Resources**

### **3.2.6.1 Environmental Consequences of Alternatives 1 thru 4**

Hunting is the most likely recreational activity to be affected under any of the grazing alternatives in those allotments/pastures where grazing schedules overlap with hunting seasons. However, these impacts are considered to be negligible. Effects to recreation throughout all of the Group 4 allotments would be the interaction with livestock during periods of livestock use. During periods of non-livestock use, no impacts would be expected. Areas that are improving with current management would likely continue to improve, thus providing enhanced opportunities for recreation. For example, in areas where vegetation and wildlife habitat is improving, these areas may provide better hunting opportunities for recreationists. Areas of heavy livestock use would also continue to impact recreational opportunities. Overall, the impacts to recreationists as a result of any of the livestock grazing activities throughout all of the allotments are negligible.

Livestock trailing activities would not impact recreational resources or public safety due to the fact that trailing events would be of low frequency and would generally be of short duration. Buffers extending beyond the existing roadways also provide an opportunity for livestock to get off of roadways, which

allow traffic to pass through. Additionally, most trailing activities occur on existing routes made up of gravel or native materials that would keep traffic speeds slow. Effects of trailing on visual resources would also be negligible due to the fact that livestock trailing occurs on existing roads.

No proposed spring developments or water haul sites are under any of the grazing alternatives. Additional water sources tend to distribute livestock more evenly throughout the area, decreasing the likelihood of livestock on roads and trails, thus minimizing recreationists' interactions with livestock. Additionally, there are no proposed fence projects for any of the alternatives that would maintain the existing opportunities for hikers and equestrian users to travel cross country. This also prevents the creation of new disturbance as fences are constructed in relationship to visual resources, and the potential for new trails along fence lines.

Due to the fact that impacts to recreation are negligible from any of the grazing alternatives, recreation will not be discussed further in this document.

Regarding visual resources, areas within class II VRM have been identified as not meeting standards in part due to livestock grazing. These areas fall within the South Mountain allotment (upland and riparian/wetlands) and pasture 1 of the Wilson Creek allotment (riparian/wetlands). These two allotments, which contain VRM class II, will be discussed further in the allotment specific environmental consequences section of the EA. All other allotments/FFRs within group 4 will not be discussed further as the impacts to visual resources from any of the alternatives would be considered acceptable.

### **3.2.6.2 Environmental Consequences of Alternative 5 Common to All Allotments**

This alternative would provide the greatest benefit to recreationists. There would be no interaction between livestock and recreationists, and as the overall conditions of the area improve so would visual quality, thus creating a more enjoyable recreation experience. There would be no effects to upland vegetation and riparian areas from livestock, thus improving the overall health and visual quality throughout the allotments. Improved wildlife habitat conditions would increase wildlife viewing opportunities and potentially result in increased hunting success.

## **3.2.7 Social and Economic Values**

### **3.2.7.1 Environmental Consequences Common to All Allotments**

Table SOCE-10 below shows the total change in AUMs in all of the South Mountain Group allotments for each alternative and the value of those changes to the community, based on estimates by Darden et al (1999) (see Section 3.1.9 above); the breakdown for each allotment can be found in Appendix H.<sup>33</sup> Table SOCE-11 shows the average impact on expected 10-year net revenue for representative ranch operations, based on a detailed analysis that incorporates a sample partial enterprise budget showing the potential impact of each alternative on that part of the enterprise affected, based on information provided by a local ranch operator that was reviewed by a BLM rangeland manager (see Explanation of Model in Appendix H). The results of this analysis are intended to represent the impacts of the alternatives on representative small, medium, and large ranch operations and are not specific to any individual ranch.<sup>34</sup> For the purposes

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<sup>33</sup> The actual totals in Table SOCE-9 may differ, since the totals for all of the alternatives assume that the same alternative would be chosen for all allotments; however, the Owyhee Field Manager may choose a different alternative for each allotment, which may result in different total impacts from the ones shown here.

<sup>34</sup> A complete analysis using this model has been conducted for each of the South Mountain Group allotments to inform the development of the sample small, medium, and large ranches. This analysis is available from the Idaho BLM State Office project record upon request.

of this analysis, a small ranch is one with fewer than 200 cattle plus 10 horses; a medium ranch is one with 200 to 500 cattle plus 10 horses, and a large ranch is one with 501 to 2,499 cattle plus 10 horses.

These values assume that the animals use all of the active use AUMs authorized. In Table SOCE-12, the results show the differences in 10-year net revenue when comparing the changes in AUMs in Alternatives 2 through 6 with the baseline AUMs in Alternative 1, which have been averaged and rounded. The figures in Tables SOCE-11 and SOCE-12 should not be construed as an estimate of the actual economic impact on actual individual ranches within the study area. Ranchers have a wide range of options available to them in terms of how they respond to changes in the permitted number of AUMs on their range allotment(s). Depending on the length of their allowed grazing season and the specific change in permitted AUMs, a rancher might choose to increase or decrease herd size, change grazing months, retain or sell animals at their headquarters, lease new ground, cancel one or more leases on private rangeland, switch to irrigated pasture, adjust feed lot contracts, completely change operation types, and so on. Given the number of uncertain variables and the range of possibilities, it is not feasible to anticipate how individual ranches will react to changes in their specific grazing permits. Also unknown are any and all associated business decisions made in response to prevailing markets, Federal and State agricultural policies, and personal values.

BLM acknowledges that as a result of any changes in permitted AUMs there are likely to be multiplier effects within the economy that serves the associated ranching community. Because it is not possible to quantify the specific monetary impacts on individual ranches, it is also not possible to accurately estimate the resulting multiplier effects. It is possible, however, to state qualitatively, for example, that a reduction in AUMs would result in a corresponding reduction in regional economic activity if ranches choose to reduce herd numbers and then in turn reduce their spending within the regional economy. The converse is also true (see also this related discussion above). In addition, canceling grazing on any BLM-administered pasture for 1 or more years (e.g., resting a pasture) could impact grazing revenue brought in by the State because any unfenced state-administered grazing land located within a rested BLM-administered pasture could not be grazed by a State grazing lessee. The State lessee could request that he or she not be charged a State grazing fee during that time, and the loss of income to the State could impact funding for other State programs.

**Table SOCE-10:** Total change in AUMs and value of AUMs to the community for all of the South Mountain Group allotments

<b>Alternative</b>	<b>% Change in AUMs</b>	<b>Change in Total AUMs</b>	<b>Total Active AUMs</b>	<b>Annual Dollar Value of Change</b>	<b>Value of AUMs to community</b>
1 (No Action)	0%	0	1,386	\$0	\$92,778.84
2	0%	0	1,386	\$0	\$92,778.84
3	-24%	-336	1,050	-\$4,257	\$70,287.00
4	-40%	-555	831	-\$7,032	\$55,627.14
5 (No Grazing)	-2%	-1,386	0	-\$17,561	\$0

<sup>1</sup> Ten-year Average Market Value of Forage per AUM in Idaho, 2002 - 2011 (non-irrigated private ground): \$12.67

<sup>2</sup> Based on estimates by Darden et al. (see Section 3.10.1 above)

A number of alternatives call for reductions in AUMs on some or all of the allotments. In some cases, as described below, some operators could incur additional costs from alternative forage options due to changes in livestock numbers or management practices. These costs could include:

- Different AUM fees: Private land AUM fees in 2011 were \$14.50/AUM in Idaho and \$14.80/AUM in Oregon, plus transportation costs. AUM fees on State-owned land in 2012

are \$5.25/AUM in Idaho and \$8.48/AUM in Oregon. The 10-year (2002-2011) average market value of an AUM in Idaho is \$12.67/AUM, which is an estimate based on survey indications of monthly lease rates for private, non-irrigated grazing land.

- Feeding hay on the ranch instead of grazing on pastures: The operators would need 780 lbs. (0.4 tons) dry forage/month for each cow and her calf if the herd were moved back to the ranch instead of to other grazing land. The 10-year (2003-2012) average price for alfalfa hay was \$138/ton in Idaho and \$148/ton in Oregon. This means that the operator would spend up to \$58/month (\$693/year) on dry forage for each cow and her calf.

There may be other costs associated with changes in livestock numbers or management practices that could affect the operators' bottom lines and the community as a whole. For example, Torell and others (2002) found that a 50 percent reduction in BLM AUMs in the Jordan Valley area resulted in a reduction in net annual ranch returns of \$2.41 per AUM removed; reductions of 75 percent and 100 percent resulted in net ranch return reductions of \$2.94 per AUM removed and \$3.44 per AUM removed (respectively). The authors also found that removing spring grazing on BLM land in the Jordan Valley area would reduce an operator's net cash income by \$24.17 per AUM removed. If the operator grazed on private pasture or fed the animals at the ranch during the spring, the negative impact would be lower (\$5.34/AUM removed) (Torell, et al., 2002). However, it is possible that one or more of the operators might find that such a large percentage of the herd would need to be moved or sold that operating the ranch would no longer be economically feasible. Any cuts in AUMs would lead to increased expenses for grazing and/or feed that could be detrimental to the viability of the ranch. This could lead to losses in jobs, income to the community, and tax revenue for the county and state. Additionally, ranching is so intimately connected to the overall culture in the areas in and around Owyhee County that the closing of a ranch would lead to a substantial loss of community cohesion. The closing of a ranch in Jordan Valley or Marsing could be viewed by community members as an adverse effect on the social conditions of the local community.

**Table SOCE-11:** Average impact on expected 10-year net revenue for representative ranch operations

Average Impact on Expected 10-year Net Revenue	Alt. 1 (Baseline) Expected 10-year Net Revenue	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Small (< 100 Head)	\$724,080	-\$321,715	-\$199,443	-\$134,555	-\$553,680
Medium (100 - 499)	\$536,220	\$315,702	\$25,056	-\$122,379	-\$394,965
Large (500 - 2500 Head)	\$3,964,050	-\$15,033	-\$1,895,076	-\$2,344,814	-\$3,010,795

**Table SOCE-12:** Impact on expected 10-year net revenue for each alternative by allotment

Allotment	Alternative 1 (Baseline)		Alternative 2			Alternative 3		
	# of Cattle	Est. 10-year Net Revenue	% Change in Total AUMs over 10 Years	10-year \$ Impact	% Change in Est. 10-year Net Revenue	% Change in Total AUMs over 10 Years	10-year \$ Impact	% Change in Est. 10-year Net Revenue
Dougal FFR	88	\$543,080	0%	\$0	0%	0%	-\$405,902	-75%
Lequerica FFR	8	\$2,279,950	0%	-\$1,698,775	-75%	0%	-\$30,067	-1%
Mckay FFR	20	\$123,580	0%	\$0	0%	0%	-\$95,212	-77%
Sheep Creek	34	\$198,340	0%	\$90,200	45%	0%	-\$120,267	-56%
South Dougal	102	\$536,220	0%	\$315,702	59%	0%	\$25,056	5%

Allotment	Alternative 1 (Baseline)		Alternative 2			Alternative 3		
	# of Cattle	Est. 10-year Net Revenue	% Change in Total AUMs over 10 Years	10-year \$ Impact	% Change in Est. 10-year Net Revenue	% Change in Total AUMs over 10 Years	10-year \$ Impact	% Change in Est. 10-year Net Revenue
South Mountain	647	\$3,964,050	0%	-\$15,033	0%	-45%	-\$1,895,076	-48%
Wilson Creek FFR	77	\$475,450	0%	\$0	0%	0%	-\$355,791	-75%

**Table SOCE-12 (Continued):** Impact on expected 10-year net revenue for each alternative by allotment

Allotment	Alternative 4			Alternative 5		
	% Change in Total AUMs over 10 Years	10-year \$ Impact	% Change in Est. 10-year Net Revenue	% Change in Total AUMs over 10 Years	10-year \$ Impact	% Change in Est. 10-year Net Revenue
Dougal FFR	0%	-\$175,390	-28%	-100%	-\$413,024	-76%
Lequerica FFR	0%	-\$250,557	-11%	-100%	-\$1,750,481	-77%
Mckay FFR	0%	-\$60,134	-49%	-100%	-\$94,010	-76%
Sheep Creek	-18%	-\$56,406	-28%	-100%	-\$149,257	-75%
South Dougal	-24%	-\$122,379	-23%	-100%	-\$394,965	-74%
South Mountain	-61%	-\$2,344,814	-59%	-100%	-\$3,010,795	-76%
Wilson Creek FFR	0%	-\$155,345	-33%	-100%	-\$361,629	-76%

<sup>1</sup>Analyses of Alternative 4 for the Dougal FFR, Wilson Creek FFR, and Lequerica allotments assume cattle number of 300, since the alternative allows up to 300 cattle; analysis of Alternative 4 for the Mckay FFR allotment assumes cattle number of 200, since the alternative allows up to 200 cattle

### 3.2.7.2 Environmental Consequences of Alternative 1 Common to All Allotments

The AUMs and grazing schedule authorized in the no-action alternative for five of the seven allotments are the same as in the current permit. For these allotments, there would be no change in livestock management, operations would continue with business as usual, and there would be no additional socioeconomic impact to the ranches. In the other two allotments (South Mountain and Lequerica FFR), AUMs are the same as in the current permit, but cattle numbers for Alternative 1 to reflect a current situation that is different from the permit. All of the ranches would continue contributing to employment and the purchase and sale of goods and services in the counties where they are located.

### 3.2.7.3 Environmental Consequences of Alternative 2 Common to All Allotments

Appendix C-1 and Section 3.2.1.3 in the Upland Vegetation/Noxious Weeds section describe the management changes on the allotments for Alternative 2. Table SOCE-12 in Section 3.2.8.1 shows the differences in 10-year net revenue on each of the allotments for Alternative 2, compared to the estimated 10-year net revenue for Alternative 1. Alternative 2 differs from Alternative 1 in only two allotments, South Mountain and Sheep Creek; impacts from these changes will be discussed in Section 3.3 below.

### 3.2.7.4 Environmental Consequences of Alternative 3 Common to All Allotments

Appendix C-1 and Section 3.2.1.3 in the Upland Vegetation/Noxious Weeds section describe the management changes on the allotments for Alternative 3. Table SOCE-12 in Section 3.2.8.1 shows the

differences in 10-year net revenue on each of the allotments for Alternative 3, compared to the estimated 10-year net revenue for Alternative 1. Grazing dates in Alternative 3 are based on a similar season of use and pasture days that the permittees submitted (see Alternative 2 for each allotment in Section 2.4), but with additional consideration for resource constraints. Impacts from any changes will be described in Section 3.3 below.

### **3.2.7.5 Environmental Consequences of Alternative 4 Common to All Allotments**

Appendix C-1 and Section 3.2.1.3 in the Upland Vegetation/Noxious Weeds section describe the management changes on the allotments for Alternative 4. Table SOCE-12 in Section 3.10.2 shows the differences in 10-year net revenue on each of the allotments for Alternative 4, compared to the estimated 10-year net revenue for Alternative 1. Alternative 4 incorporates more rest on some pastures every 1 in 3 years on three of the seven allotments, with AUM reductions of 18 to 61 percent on these allotments. This means that the ranch operators would need to either feed the animals on the ranch or move them to other private, State, or Federal grazing lands during the time these pastures are rested, if other pastures in the allotment cannot be used. This could have a substantial impact on the ranch operators and the local economy, as noted in Section 3.2.8.1. The management changes in Alternative 4 are intended to provide for improvement in vegetation conditions across the landscape, which could, in turn, provide for long-term improvement in forage for livestock.

### **3.2.7.6 Environmental Consequences of Alternative 5 Common to All Allotments**

This alternative would cancel all authorized use AUMs on the allotment for a period of 10 years, after which applications for grazing permits would be accepted. Table SOCE-12 in 3.2.8.1 shows the differences in 10-year net revenue on the allotment for Alternative 5, compared to the estimated 10-year net revenue for Alternative 1. This would likely have a substantial socioeconomic impact on the ranch operators, the people they employ, the businesses where the operators purchase supplies, and the communities that are supported by livestock operation activities (see Section 3.2.8.1 for a discussion of some specific impacts). The ranchers would have to relocate their livestock to other private or State land, possibly outside of Owyhee County; sell their livestock; and/or close the ranch completely. The ranchers already likely purchase supplies from stores closer to the new grazing locations, so income from taxes and sales in these communities would drop, and the income from the livestock sales would go to the counties where the base ranches are located. The people previously employed by the ranches would have to look for new jobs if any of the ranches closed; the agricultural sector in both counties is large enough that they may not have much trouble finding similar work elsewhere, but they may have to relocate or commute long distances, which could be costly. Finding work in other sectors may be difficult because unemployment is so high. The greatest loss to the local communities as a result of ranch closures would be the loss of social cohesion. As noted above, researchers have found that ranchers have more social networks throughout the community, and closing a ranch can lead to a disruption in these networks.

However, not all socioeconomic impacts could be negative. Land on the allotments could be more available for recreational opportunities, which could bring more money to the stores, restaurants, and hotels that provide goods and services for people from the Treasure Valley who come to hunt, fish, camp, boat, and watch wildlife throughout the Owyhee Mountains. This could also provide more employment opportunities in other sectors throughout the county. However, as noted in the ORMP EIS (USDI BLM, 1999b), the number of businesses that provide recreational goods and services in Owyhee County is minimal. Most residents, as well as those visiting from other counties, purchase their goods outside of Owyhee County. Thus, although some recreation fees could be collected, the influx of recreation to the county would not add much to the revenue from sales or taxes there and could actually negatively affect the financial resources of the county through additional requests for help in the backcountry. In addition, the management changes in Alternative 5 are intended to provide for improvement in vegetation

conditions across the landscape, which could, in turn, provide for long-term improvement in forage for livestock.

### **3.2.8 Cultural Resources**

#### **3.2.8.1 Environmental Consequences Common to All Grazing Alternatives**

Direct impacts that may occur as a result of livestock grazing and can affect cultural resources include breakage and modification to artifacts and features, vertical and horizontal displacement, and toppling and modification of standing objects (Coddington, 2008) (Broadhead, 1999) (U.S. Army, 1990). Indirect effects include biomass reduction that can increase the potential for erosion of the site matrix, looting due to greater visibility from vegetation removal, and soil compaction. The presence and magnitude of these impacts are used to analyze the effects of livestock, if any, to cultural properties. Damage or loss of artifacts and features can affect important attributes that qualify a site as eligible for the National Register of Historic Places (NRHP). The effects caused by livestock to sites can be exacerbated by soil composition, soil moisture, and animal concentration. Areas of congregation such as salting locations, troughs, springs, reservoirs, and other watering spots have the greatest potential to realize these impacts. Sites at or in close proximity to these areas may be monitored and, if necessary, protective measures would be instigated. Generally, ground disturbances less than 10 centimeters deep will have no effect upon buried cultural deposits. Mitigation measures may include, but are not limited to, enclosure fencing; removal or relocation of range improvements; decommissioning of facilities to eliminate animal congregating; removal of natural attractants; suspension of grazing; changes in the seasons of grazing; or other actions deemed suitable to protect the resource by the land manager and in consultation with the State Historic Preservation Office (SHPO). Typically, the greater the dispersion of livestock and other grazing animals across the landscape, the less likely a site will experience any significant negative effects.

#### **Paleontological Resources**

The effects to paleontological resources are similar to those discussed for cultural resources. Breakage, displacement, and the consequences related to biomass reduction are the primary areas of concern. Due to the absence of any recorded paleontological sites and the lack of fossil-bearing strata underlying the allotment group, there would be no effects to paleontological resources. No further discussion will be afforded this resource for the remainder of this document.

#### **3.2.8.2 Environmental Consequences of Alternative 1 Common to All Allotments**

Alternative 1 would renew the grazing permit under the present terms and conditions of the expiring permit. This alternative would apply to all seven allotments. Stocking levels and seasons of use would remain the same as currently permitted and no range improvements or other projects are proposed. In general, any unmitigated, grazing-related impacts to sites would continue, but are more likely to occur during the spring when soil moisture is higher and can facilitate compaction, transport, and other disturbances to artifacts and features. Allotment specific effects and any mitigation or protection measures for cultural resources are discussed in Section 3.3.

#### **3.2.8.3 Environmental Consequences of Alternative 2 Common to All Allotments**

The consequences of the applicants' proposed alternative can vary depending on what changes are offered and in which allotment. Alterations to stocking levels and seasons of use can positively or negatively affect cultural resources. Impacts to resources can be the same as those discussed in 3.2.11.1 and 3.2.11.2. Allotment specific effects and any mitigation or protection measures for cultural resources are discussed in Section 3.3.

#### **3.2.8.4 Environmental Consequences of Alternative 3 Common to All Allotments**

This alternative will vary depending on the allotment. Stocking rates and seasons of use can differ with individual conditions. Effects to historic properties can be the same as those discussed in 3.2.11.1 and 3.2.11.2. Allotment specific effects and any mitigation or protection measures for cultural resources are discussed in Section 3.3.

#### **3.2.8.5 Environmental Consequences of Alternative 4 Common to All Allotments**

This alternative has the potential to reduce the risk of negative effects to cultural resources by decreasing the numbers of livestock and/or the length of the grazing season within the allotment. This alternative will vary for individual allotments. Effects to historic properties can be the same as those discussed in 3.2.11.1 and 3.2.11.2. Allotment specific effects and any mitigation or protection measures for cultural resources are discussed in Section 3.3.

#### **3.2.8.6 Environmental Consequences of Alternative 5 Common to All Allotments**

The no-grazing alternative would remove the possibility of livestock effects to known and undiscovered cultural sites. Sites would still be subject to weather, wildlife, fire, and other natural processes, but these types of impacts have been occurring since the sites were first formed and are generally minor in their overall effects. Artifact collecting and other human-caused disturbances would continue, but if ground cover increased from the lack of foraging and trampling, cultural material could be better hidden and protected. No historic properties would be affected by this alternative.

### ***3.3 Allotment Specific Affected Environment and Environmental Consequences***

#### **3.3.1 Dougal FFR Allotment**

##### **3.3.1.1 Dougal FFR Allotment Affected Environment**

###### ***3.3.1.1.1 Vegetation, including Noxious Weeds***

A Rangeland Health Assessment, Evaluation, and Determination Report was completed for the Dougal FFR Allotment in 2013. This report identified juniper encroachment as a condition that prevents the allotment from meeting the Idaho Standards for Rangeland Health Standard 4 – Native Plant Communities, but the Determination did not identify current livestock management practices as a contributing factor (Appendix F). Juniper encroachment is an issue within pastures 1, 3, 4, and 8, which have not burned in the past several decades<sup>35</sup>. Juniper presence on BLM-administered lands within pastures 5, 6, 7, and 9 is not outside of reference condition. Areas in pastures 3 and 8 are also not meeting due to invasive grasses.

#### **Ecological Sites**

The Dougal FFR allotment is composed of three major ecological sites (Table VEGE-2). They include a Shallow Claypan low sagebrush/Idaho fescue site, a Loamy mountain big sagebrush/bluebunch wheatgrass-Idaho fescue site, and a very shallow stony loam low sagebrush/Sandberg bluegrass-bluebunch wheatgrass site.

**Table VEGE-2:** BLM lands mapped by Ecological Sites in the Dougal FFR allotments

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<sup>35</sup> For purposes of this EA BLM Idaho fire perimeter history contains records from approximately 1960 through 2012.

Ecological Site	Dominant Species Expected	Acres	Percent of Allotment
Shallow claypan 12-16" ARAR8/FEID	low sagebrush, Idaho fescue	399	48%
Loamy 13-16" ARTRV/PSSPS-FEID	mountain big sagebrush, bluebunch wheatgrass, Idaho fescue	190	23%
Very shallow stony loam 10-14" ARAR8/POSE-PSSPS	low sagebrush, Sandberg bluegrass, Bluebunch wheatgrass	132	16%
Dry meadow 25-39" PONE3-PHAL2	Nevada bluegrass, alpine timothy	16	2%
Unknown/No Data		91	11%
Loamy bottom 12-16" ARTRT/LECI4	basin big sagebrush, basin wildrye	<1	<1%
Total		828	100%

The ecological sites show that under natural disturbance regime, the Dougal FFR allotment should be dominated by sagebrush/bunchgrass communities. Other vegetation types such as western juniper, basin big sagebrush, and riparian areas are expected to occur as unmapped inclusions within the larger ecological sites, and each should make up only a small percentage of the area.

### Current Vegetation<sup>36</sup>

Current vegetation is discussed at two scales: cover type (overstory vegetation) and understory species composition (rangeland health assessments, trend, etc.). Current overstory vegetation, based on mapping done by the Pacific Northwest National Laboratory (PNNL) from 2000/2001 Landsat satellite imagery in the Dougal FFR allotment, is shown in Table VEGE-3. Ecological site and PNNL mapping were done at different scales (PNNL at a somewhat finer scale), so precise matching is not possible, but gross changes in plant community structure are apparent. None the less, the changes that result from comparing the two tables (Table VEGE-2 and Table VEGE-3) are considered an indication of departure from ecological site potential.

**Table VEGE-3:** Cover Types based on PNNL data for BLM managed lands within Dougal FFR allotment

Vegetation Cover Type	Acres	Percent of Allotment
Low sagebrush	235	28%
Mountain big sagebrush	205	25%
Bunchgrass	105	13%
Juniper	78	9%
Big sagebrush	53	6%
Exotic annuals	53	6%
Miscellaneous others	43	5%
Wet meadow	28	3%
Agriculture	22	3%
Mountain shrub	6	<1%

<sup>36</sup> Note that these data (specifically rangeland health indicators) are primarily qualitative rather than quantitative, so the following discussion uses non-numerical comparative terms.

PNNL mapping shows a cover class of exotic annuals and juniper, neither of which are present within any of the plant community types. Although juniper can be present within unmapped inclusions in the allotment, its presence to the degree mapped by the PNNL indicates a shift away from reference condition. The presence of exotic annuals reinforces this departure from reference condition. While both the shallow clay soils with low sagebrush (pastures 1 and 8) and the deeper loamy soils of the mountain big sagebrush community type (pastures 1 and 3) appear to have juniper levels greater than reference condition. Those sites with the greatest deviation from reference condition, in terms of juniper increase, are located in the mountain big sagebrush community type. This type of vegetation mapping does not show changes in the understory, but information from the 2001 rangeland health field assessment indicates a shift in species composition noted by the reduction of deep-rooted bunchgrasses and the presence of invasive plants (juniper, cheatgrass, and bulbous bluegrass). The shift in species composition towards more grazing tolerant species is likely due to past livestock grazing. Aerial imagery (ESRI, 2013) displays a strong presence of juniper, which also supports this altered community type away from reference condition.

#### **Rangeland Health Standard 4**

Rangeland health field assessments for the Dougal FFR allotment were conducted in 2001. In 2013, the previous assessment was amended with additional information that was used to issue the 2013 determination (Appendix F). Standard 4 is not being met in portions of pastures 1, 3, 4, 7, and 8 due to past grazing management and an altered fire regime resulting in subsequent juniper invasion. Descriptions for the ecological sites present in these pastures (loamy 13-16" and shallow claypan 12-16") identify juniper as an invasive species that when dominant, results in a new state requiring management inputs to restore ecological function of the reference site sagebrush/bunchgrass state. Areas in pastures 3 and 8 are also not meeting due to invasive grasses as documented in the assessment. No trend data is available for the Dougal FFR allotment.

#### **Utilization and Actual Use**

Information on utilization and timing of use has its limitations as it has only been reported at the allotment level. Utilization is limited to pasture 8 in 2011. Little to no utilization was recorded at the time with one stop noting use at 4 percent and none at the other two stops. In addition, one site was noted to have an average residual stubble height of 24 inches. Timing of livestock use has occurred during the active growing season in 8 of the last 11 years, with use occurring in 2 of those years late in the growing season (post June 15) and for a short duration. According to records, no years of rest have been implemented in this allotment.

#### **Weeds**

No noxious weeds have been mapped in the Dougal FFR allotment. However, other invasive (but not noxious) non-native plants present include bulbous bluegrass, which is often co-dominant with native bunchgrasses. Cheatgrass and other annual weeds are scattered throughout the allotment, generally in localized disturbed areas but seldom dominant. In general, the plant communities in the Dougal FFR allotment are dominated by native species, with little influence of non-natives other than bulbous bluegrass.

#### **Biological Soil Crusts**

Microbiotic crusts are present, but not extensive in the Dougal FFR allotment. At two of the four rangeland health field assessment sites, microbiotic crusts were reported to be reduced and lower than expected at site potential. Of the seven sage-grouse habitat assessments done within the allotment 5, sites reported microbiotic crusts were not present, and two sites reported the presence of microbiotic crusts. The departure in microbiotic crusts may be due to the shift in species composition and subsequent decreased diversity in plant diversity. Microbiotic crust are important for increasing soil stability and capturing nutrients, and can affect vascular plant species composition (Wicklow-Howard, Serpe, Orm,

Stockes, & Rosentreter, 2003). Without them, the vegetation community has greater susceptibility to invasive plants.

## Conclusion

To summarize, the Dougal FFR allotment is not meeting Standard 4 for Native Plant Communities because juniper encroachment into vegetation communities that should not include juniper (in excess of a few scattered trees) is competing with native perennial shrub, bunchgrass, and forb species. Past grazing and an extended fire frequency from natural disturbance regimes contribute to juniper invasion and, subsequently, not meeting the Standard. In addition, pastures 3 and 8 are not meeting due to invasive grasses. The depressed ecological condition (imbalance of deep-rooted to shallow-rooted native bunchgrasses) of Dougal FFR allotment is largely a product of grazing management practices in the late 1800s and early 20<sup>th</sup> century (National Research Council, 1994). Even though vegetation communities have shifted to a greater dominance of shallow-rooted native perennial bunchgrass species and non-native annuals and a decline in larger deep-rooted native perennial bunchgrasses, remnant vegetation communities in portions of the allotment not dominated by juniper encroachment or subject to invasive grasses retain an adequate composition of native perennial species to conclude that proper nutrient cycling, hydrologic cycling, and energy flow are provided.

### 3.3.1.1.2 Soils

The allotment meets the land health standard for watersheds. Soils in the analysis area are stable. Soils in the Dougal FFR allotment are a complex of loamy, claypan, and shallow stony sites too intricate to map at a useful scale. Approximately 6 percent of the soils on BLM-administered public land in the allotment have a high erosion hazard (USDI BLM, 1999a). Indicators of soil instability are either not apparent or only slightly visible. Vegetative cover and plant vigor are adequate for a functional watershed. An area in pasture eight, northwest of Foster Reservoir, has developed a layer of moderately compacted soil approximately 2 inches below the surface. The area of compacted soil is likely the result of repetitive livestock congregation, as animals move between the waters of Foster Reservoir and forage producing sites on nearby uplands of pasture eight. Table SOIL-1 summarizes the field assessment of soil/site stability and watershed function at four representative locations in the allotment.

**Table SOIL-1:** Summary of soil stability and hydrologic function indicators for field assessments in the Dougal FFR allotment

Ecological Site	Departure of Soil & Watershed Function Indicators from Reference Condition (%) <sup>1</sup>				
	none-to-slight	slight-to-moderate	moderate	moderate-to-extreme	extreme
Loamy 13-16	43	38	19	-	-
Shallow Claypan 12-16	43	47	10	-	-
Shallow Claypan 12-16	74	26	-	-	-
Loamy 13-16	71	29	-	-	-

<sup>1</sup> Details are available in the 2013 RHA and Determination documents in the project file

Although the plant community has shifted away from reference conditions in some areas, the watershed still supports a plant community able to interrupt overland flow, cycle nutrients, and provide pathways for energy flow. The risk of deteriorating soil and watershed conditions will increase if the amount of deep-rooted perennial bunchgrasses continues to decrease and juniper trees are allowed to encroach. Juniper trees are scattered on the landscape but juniper encroachment is not evident in pasture five.

### 3.3.1.1.3 Riparian/Water Quality

A general, common to all allotments, description of the affected environment can be found above in section 3.1.3.

**Existing Condition**<sup>37</sup>

Standards 2 and 3 are not being met in pasture 8 of the Dougal FFR allotment. A negligible (0.1 mile) segment of Cherry Creek occurs within pasture 4 of the allotment. Two reaches (0.6 mile) of an unnamed creek that feed Dougal Reservoir also occur within pasture 4; however, they do not appear to support riparian vegetation (USDA FSA, 2011), and the PFC protocol was not applied. Pasture 6 is private land.

Pasture 8 contains 0.2 mile of Cherry Creek (Table RIPN-13, Map RIPN-1) that supports riparian vegetation and was rated functioning-at-risk (FAR) in 2013. The reach is associated with the outflow from Dougal reservoir that may have breached at one time. The channel is deeply incised with eroding banks and inadequate deep-rooted riparian species. The floodplain is not accessed by spring flows and riparian vegetation is sparse and has low vigor. Because the short reach of channel is influenced by the reservoir and other flow modifications, current livestock grazing was not identified as the causal factor for not meeting the Standard.

**Table RIPN-13:** Dougal FFR allotment riparian condition

Stream Name	Allotment & Pasture Stream Miles & Condition	Assessment Issues/Impacts Identified	Total Miles
Cherry Creek	Dougal – 08 0.2 (FAR- 2013)	deeply incised channel and altered morphology/ outflow of reservoir and flow has low energy/ reach may dry/ banks are eroding/ floodplain is not accessible	0.2

For IDEQ water quality information associated with the Dougal FFR allotment, see table RIPN-3.

**3.3.1.1.4 Special Status Plants**

**Standards for Rangeland Health**

Two special status plants that occur within the Dougal FFR allotment, Bach’s calicoflower and thinleaf goldenhead, the latter of which bridges Dougal FFR allotment and the South Dougal allotment. The population of thinleaf goldenhead will be described as a whole. Both occurrences of these special status plants are meeting Standard 8. The Rangeland Health Assessments contain additional detail related to the condition of special status plants, as originally compiled in 2006, and supplemented in 2013. Background details regarding the information presented in the current EA can be found in the assessment, evaluation, and determination documents. The BLM used information in those documents to address the Allotment Specific Affected Environment.

***Dougal FFR & South Dougal - Allotment thinleaf goldenhead***

The occurrence of thinleaf goldenhead that spans across Dougal FFR and pasture 1 of South Dougal was visited in May 2013. The 2013 survey extended the known occurrence to the eastside of the reservoir in Dougal FFR, and it is likely that additional undiscovered occurrences are present throughout the FFR allotment on public and private lands. Although the native plant community (Standard 4) is not being

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<sup>37</sup> For additional details on the current condition of the allotment, see the *Supplemented Rangeland Health Assessments, Evaluation Reports and Determinations, for the Dougal FFR (0456), South Dougal (0536), and Sheep Creek (0559) Allotments* document in the project record or available from the Owyhee Field Office

maintained in pasture 4, due to altered fire regime and subsequent juniper invasion, and in pasture 1, due to a sagebrush die-off, recent influx of bulbous bluegrass, and juniper invasion, Standard 8 is being met for this species in this pasture. The sagebrush die-off is not present in the vicinity of the occurrence and the intact plant community surrounding the occurrence had low cover of bulbous bluegrass. Juniper invasion is the only factor that may be a threat in the distant future to this occurrence as a causal factor in habitat fragmentation and altering the hydrology of swales where this species occurs. The recent observations suggest that current grazing management is not significantly impacting thinleaf goldenhead occurrences, presumably because the utilization levels for these pastures are not exceeding 10 percent. This light level of use would not likely impact the species and, if this is typical, may be why grazing management does not appear to be significantly impacting thinleaf goldenhead. Also, this plant's growing points are at or below ground level, making it somewhat resilient to grazing and trampling effects after seed set.

#### ***Dougal FFR – Bach's calicoflower***

Observations on grazing and trampling effects on Bach's calicoflower in this allotment are lacking. It is unknown if the population is extinct or if livestock are presently having any impacts on the plants or habitat. Cattle are typically drawn to this habitat type since it is a water source. Livestock impacts to this genus have been documented elsewhere as a result of trampling when the soil was wet, although plants can apparently persist in areas subjected to some trampling, at least in the short term. This occurrence has a potential future threat of livestock trampling in the case of increased stocking rates or annual livestock use during the active growing season.

### ***3.3.1.1.5 Wildlife and Special Status Animals***

#### **Affected Environment**

In addition to the general overview of the Affected Environment for Wildlife Resources in the South Mountain allotments presented above (Section 3.1.5), descriptions of the current condition of species and their habitats within the Dougal FFR allotment are based on the 2013 Rangeland Health Assessment and Evaluation Report (USDI BLM, 2013) and Determination (Appendix E), affected environments of the Rangeland Vegetation and Water and Riparian Resources within this EA (Sections 3.1.1 and 3.1.3, respectively), recent personal observations, current element occurrences in IFWIS (IDFG, 2011), and consultation with local wildlife professionals.

#### **Wildlife Habitat**

The entire Dougal FFR allotment encompasses the Owyhee Uplands and Canyons Level IV Ecoregion discussed previously (Map GEN-2). Within the allotment, this ecoregion is characterized by rolling shrub steppe uplands interrupted by juniper woodlands, low hills, rocky outcrops, and flat tablelands. Currently, the expansion of juniper into former shrub communities has transformed much of the area into woodlands ranging from open, savanna-like conditions to denser canopy forest (Section 3.3.1.1.1). These denser woodlands cover the relatively low profile flanks of the upper elevations of the mountain (Map WDLF-2). Riparian areas occur throughout the upper and mid-elevation pastures along many perennial streams (Section 3.3.1.1.3). Wildlife habitats within the Dougal FFR allotment include juniper woodlands, low and big sagebrush steppe, grasslands, wet meadow complexes, riparian areas, springs and seeps (Table VEGE-3). A detailed discussion of upland and riparian vegetation within the allotment can be found in Sections 3.3.1.1.1 and 3.3.1.1.3.

No federally listed Threatened or Endangered animals are known to occur in Dougal FFR allotment. One Candidate species, the greater sage-grouse, is known to occur within the allotment and a second Candidate species; the Columbia spotted frog could potentially inhabit the allotment. As many as 9 mammal, 13 bird, 1 amphibian and 4 reptile species with BLM special status (including Watch List

Species) potentially may occur within the allotment. Special status species that have been documented in the Idaho Fish and Wildlife Information System within the allotment include ferruginous hawk, white-faced ibis, white-headed woodpecker, and Western toad. Brewer's sparrow, a BLM sensitive species, has been identified within one mile of the allotment.

### ***Uplands***

Upland wildlife habitats within the allotment and their associated functional groups have slight to moderate departure from what is expected for the site and were likely to be providing habitat that was marginally adequate for the needs of most upland-dependent special status and other wildlife species. A Rangeland Health Assessment, Evaluation, and Determination Report was completed for the Dougal FFR allotment in 2013. Data and site visits indicated uplands were functioning and providing the overall structural needs for special status animal species. Escape and thermal cover, as well as herbaceous components, are largely present. However, juniper has increased and is close to being a causal factor leading to a reduction in habitat quality. Many of the pastures visited had adequate forb cover and diversity, deep-rooted grasses, and sagebrush as expected for the site. Five sage-grouse habitat assessments revealed marginal breeding habitat largely due to site potential.

Based primarily on interpretations of data gathered in support of Standards 2 and 4, along with five sage-grouse breeding habitat assessments in four pastures, Standard 8 is being met for special status animal species.

Although the increase in juniper cover may have benefited some woodland-associated special status wildlife species such as northern goshawks and Lewis' woodpeckers, these woodland habitats are unsuitable for and have come at the expense of sagebrush-obligate and shrub-dependent special status species such as greater sage-grouse, pygmy rabbits, Brewer's sparrows, loggerhead shrikes, and sage sparrows. Although juniper woodlands currently make up only 9 percent of the allotment, if their densities continue to increase, sagebrush-obligate species will be impacted.

### ***Riparian***

A segment of Cherry Creek flows through one parcel of public land for approximately 0.2 miles in pasture 8 and was rated as functioning-at-risk in 2013. Assessment on the adjacent allotment up to the southern boundary indicates the creek is intermittent with 20 percent being riparian like. A second segment of Cherry Creek is along the boundary line of BLM and if on public land would be shorter than 0.1 miles. Two reservoirs, Foster and Dougal, occur partly on private and public lands. Cherry Creek has been diverted via irrigation canals into the reservoirs. Therefore, Cherry Creek stream flows have been altered by diversions. This would have an adverse effect on Cherry Creek riparian area and dependent special status species and other wildlife, at least seasonally. The reservoirs and shores create a unique habitat for amphibians, shore birds and other waterfowl, and sage-grouse. The Owyhee Resource Management Plan (USDI BLM, 1999) (RMP) Table RIPN-1 does not list Cherry Creek as having riparian or fish habitat.

Riparian areas were found to not be meeting Standard 2, and current livestock grazing management practices are not significant factors. However, the lengths of stream are short and other wetland areas in the allotment provide for the needs of wildlife. Although riparian areas are a concern and were not meeting the Standard, a wet meadow and margins of two reservoirs are providing for the needs of riparian-dependent special status animal species. Surveys for Columbia spotted frogs (a Federal candidate species) have failed to locate any individuals

## **Focal Special Status Animal Species**

### **Greater sage-grouse**

Historically, a majority of the allotment provided suitable habitat for sage-grouse and supported significant populations (USDI BLM, 1969). Currently, sage-grouse PPH and PGH occurs throughout all of the Dougal FFR allotment (Map WDLF-1). The most recent revision to the PPH model incorporates additional information including a sagebrush component and a restoration potential component (version 2) (Makela & Major, 2012). Within the allotment, PPH includes two subcategories (i.e., sagebrush, and conifer encroachment areas; Table WDLF-1; Map WDLF-1). However, there are substantial areas of PGH in pastures 1, 2, 3, 4, 5, 7, 8, and 9. In addition, extensive areas of juniper encroachment occur in pastures 1 and 2, and to a lesser degree in the remaining pastures (Map WDLF-1). Since the 1960's only one portion of a recorded fire has burned in Dougal FFR allotment in the southeast corner of pasture 3 (Map FIRE-1). In general, the amount and extent of sagebrush vegetation communities in the allotment are restricted. Sage-grouse breeding habitat is largely limited due to site potential as low sagebrush is the most common habitat type while other areas are compromised by juniper expansion.

Currently, most of the allotment affords sage-grouse habitat for some part of the bird's life history, whether breeding or early or late brood-rearing. Little is known about sage-grouse winter-use areas in Dougal FFR; however, most birds probably migrate to lower elevations in Oregon to spend the winter. The Conservation Plan for Greater Sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee, 2006) identifies juniper encroachment as a serious threat to sage-grouse habitat. Sage-grouse use in areas with junipers is probably limited due to the increased predation risk trees impart (trees provide perches and cover for avian and terrestrial predators). Restoration of sage-grouse breeding habitat within portions of these pastures may require a considerable amount of time and money, unless wildfires remove Phase I and II juniper that have expanded across the allotment. Prescribed fires or mechanical treatments would be required to restore big sagebrush in the allotment. Although wildfire has also been cited as a substantial threat to sage-grouse habitat (Idaho Sage-grouse Advisory Committee, 2006) primarily due to loss of sagebrush nesting cover for a considerable period of time (Nelle, Reese, & Connelly, 2000) (Hess & Beck, 2012) and an increased risk of invasion by cheatgrass in low elevation Wyoming big sagebrush communities (Chambers, Roundy, Blank, Meyer, & Whittaker, 2007), research in mountain big sagebrush communities has documented return to pre-burn conditions by 15 years post-burn in some locations (Bunting, Kilgore, & Bushey, 1987) and non-random selection by brooding sage-grouse in areas < 10 years post-burn (Thacker, 2010). Nevertheless, these results should be viewed with some caution as site-specific results could vary and additional research has been advised to assess the effects of burning and demographic responses of sage-grouse across all sagebrush habitats (Beck, Connelly, & Wambolt, 2012).

**Table WDLF-1: Sage-grouse habitat acreage within Dougal FFR allotment, 2013**

Pasture	Preliminary Priority Habitat (PPH)			Preliminary General Habitat (PGH)			Habitat Total
	Sagebrush	Conifer	Total	Sagebrush	Conifer	Total	-
1	143	846	989	0	157	157	1146
2	185	45	230	0	38	38	268
3	305	0	305	0	0	0	305
4	199	0	199	0	46	46	245
5	134	0	134	0	0	0	135
6	162	0	162	0	0	0	162
7	414	0	414	0	206	206	620
8	183	0	183	0	207	207	390
9	539	0	539	0	144	144	683
Total (% of allotment)	2264 (57.2%)	891 (22.5%)	3155 (79.7%)	0 (0%)	799 (20.2%)	799 (20.2%)	3954 (100%)

Areas of usable PPH sagebrush are present within the allotment and to some degree occur in all pastures in Dougal FFR allotment (Map WDLF-1). Preliminary priority habitat-sagebrush within pastures 1 and 2 is adjacent to areas of juniper encroachment, as well as on the periphery of large contiguous areas of PPH sagebrush to the west including core areas in Oregon (Map WDLF-1). Within pasture 1, PPH sagebrush is limited to the western portion of the pasture. Due to limited acreage of PPH sagebrush, proximity of juniper, and land ownership; pastures 1 and 2 were not assessed for breeding habitat suitability. Both pastures afford sage-grouse late brood-rearing habitat on private lands adjacent to riparian areas, but no such habitats exist on public lands. Likewise, pasture 3 contains breeding and brood-rearing habitats, although late brood-rearing habitat only exists on private lands. Breeding habitat conditions within the pasture are currently rated as marginally suitable. Limitations are primarily due to site potential and juniper encroachment. Brood-rearing habitat conditions within pasture 2 are currently rated as suitable for early brood-rearing and as previously noted, unrated for late brood-rearing because of land ownership (Appendix F). Juniper occurrence is currently light and patchy in pasture 2, but if unchecked, would degrade brood-rearing habitat.

**Table WDLF-2:** Dougal FFR sage-grouse assessments – summary

Pasture	Year	No. of Assessments	Season Assessed	Suitability
3	2013	1	Breeding	Marginal
4	2013	1	Breeding	Marginal
5	2013	1	Breeding	Marginal
8	2012	3	Upland Late Brood-Rearing	Marginal
8	2013	1	Breeding	Marginal

Most of pasture 4 is also classified as PPH sagebrush (Map WDLF-1). Pasture 4 is located entirely around Dougal reservoir and as such provides late brood-rearing habitat. A recent sage-grouse breeding habitat assessment (2013) conducted within pasture 4 indicated that sagebrush and deep-rooted perennial grass canopy cover is limited and not appropriate for the site; overall conditions are marginal due primarily to this factor and inadequate grass and forb height. Sagebrush height and growth form, forb canopy cover, and preferred forb abundance and diversity were all suitable for the site. A greater abundance of short-statured bluegrasses than expected also contributes to the marginal breeding habitat conditions (Appendix F). Brood-rearing habitat is limited to the shallow swales that direct ephemeral water courses into Dougal Reservoir during spring run-off. These swales retain mesic conditions for brood-rearing habitat longer than surrounding areas in pasture 4; however, the majority of brood-rearing habitat is supplied by Dougal Reservoir.

Pasture 5 contains a limited amount of public land; however, due to the lands being within PPH, a breeding assessment was conducted there in 2013. Sagebrush, perennial grass, and forb canopy cover limited the habitat to marginal suitability. Sagebrush height and growth form, grass and forb height, and preferred forb abundance and diversity were all rated as suitable in pasture 5. Early brood-rearing habitat is suitable on public lands due to forb abundance and diversity as well as marginal, but adequate sagebrush cover. Late brood-rearing habitat exists on private lands in the pasture with ephemeral drainages and irrigated pasturelands.

Breeding and summer habitat assessments were conducted on pasture 8, respectively in 2013 and 2012 (Table WDLF-3). The pasture contains PPH and PGH habitats for breeding (Table WDLF-2) and contains Forster Reservoir, which supplies brood-rearing habitat along the margins. Sage-grouse breeding habitat was rated marginal because of limited sagebrush and perennial grass canopy cover and low grass and forb heights. Sagebrush height and growth form, forb canopy cover, and forb abundance and diversity were all rated suitable. Summer habitat assessments rated the pasture as marginal due primarily to limited sagebrush cover and low forb species abundance. However, these sites largely function as escape cover

for late brood-rearing sage-grouse utilizing the reservoir. During drought years suitability of even reservoir margins is limited as the reservoir has been observed dry.

No leks are known to occur within the allotment. The closest active lek to Dougal FFR allotment is located 4 miles northwest, just inside Oregon. This lek is 5.5 miles from the nearest public-land PPH, located in pastures 3 and 4. The Oregon lek was active in 2012 with 25 attending males. Information for the lek is available back to 2001, disclosing a high attendance in 2005 of 49 males and a low of 14 males in 2008. Approximately 80 percent of nesting sage-grouse hens does so within 4 miles of the lek they attended (Doherty, et al. 2011). None the less, hens may travel from the Oregon lek to Dougal FFR to nest. Only a few acres of PPH, on private land, fall within the 75 percent breeding bird density (BBD) buffer (4 miles) of the lek and no other leks reach the allotment with their 75 percent BBD (Map WDLF-1). The 75 percent BBD buffer is highly correlated to breeding habitat surrounding the lek and corresponds to the high abundance (or population) component of the PPH area (Makela & Major, 2012). Even a 100 percent BBD (5.3 miles) only overlay 44 acres of PPH on public land, all of which is PPH-conifer encroachment.

#### Columbia spotted frog

Various agencies and researchers have surveyed potential spotted frog habitat throughout the Owyhee Mountains and Uplands since 1994 (Munger, et al., 1994) (Munger, Ames, & Barnett, 1997) (Owyhee Columbia Spotted Frog Working Group, 2007) (La Fayette, 2010) (Lohr & Haak, 2009) (Lohr, 2011). Although occurrence information available from IFWIS (IDFG, 2011) has not documented spotted frogs within the allotment, they have been observed in South Mountain Area allotment on Corral Creek. Spotted frog surveys just south of Dougal FFR allotment have not revealed Columbia spotted frogs. Surveys have been limited due to the large percentage of private land in the allotment. Most potential habitat for the species exists on private land in the form of streams, meadows, and ponds. However, public land portions of Dougal and Forster reservoirs serve as potential Columbia spotted frog habitat.

#### Pygmy rabbit

A coarse-level predictive occurrence model created by Idaho BLM in 2009 suggests that most pastures of Dougal FFR allotment have a moderate likelihood of core habitat presence; however, pastures 6, 7, and 8 have none on public lands. Additionally, vegetation type in the majority of the allotment is unsuitable for pygmy rabbits; only 25-31 percent of the allotment is classified as having the appropriate cover type the species prefers (i.e., big sagebrush and friable soils; Table VEGE-3). No pygmy rabbit surveys have been conducted within the allotment nor have any individuals been documented. The 2013 Tank Fire burned on a few acres of public land in Pasture 3 and will benefit pygmy rabbit habitat by removing junipers and in time increase sagebrush.

#### Columbia River redband trout

Redband trout are not known to occupy Cherry Creek (0.3 miles) on public land in pastures 4 or 8 nor has it been identified or modeled as potential habitat (Map WDLF-3).

#### ***Migratory Birds, Raptors, and other Birds (including Special Status Species)***

In addition to the general discussion of migratory birds, raptors, and other bird species and their habitats in Section 3.1.5, a variety of bird species have the potential to occur or have been documented within and in the vicinity of Dougal FFR allotment (Appendix G). The juniper woodlands and riparian areas within the allotment are either known to or potentially could provide nesting and foraging habitat for many special status and migratory birds. As discussed above, the juniper woodland habitat that currently occupies ecological sites that otherwise would be dominated by the expected sagebrush habitats in the absence of juniper encroachment presently has augmented the population of woodland birds that would be minor component of the area's overall bird community. Junipers and mountain shrubs provide nesting and

foraging substrate for foliage and bark gleaning species such as black-throated gray and yellow-rumped warblers, mountain bluebird, Townsend's solitaire, hairy woodpecker, and red-naped sapsucker. Ground gleaning species within woodland habitats include American robin, black-billed magpie, chipping sparrow, and dark-eyed junco. In addition, juniper woodlands provide habitat for owl and raptor species such as flammulated owl, long-eared owl, northern saw-whet owl, northern goshawk, and red-tailed hawk.

Riparian habitat along Cherry Creek in the Dougal FFR allotment potentially hosts a variety of obligate and dependent bird species. Riparian-obligate species, like yellow warbler, and dependent species such as black-capped chickadee, black-headed grosbeak, house wren, and warbling vireo have been documented in or have the potential to occur within the South Mountain area including Dougal FFR allotment. These species prefer the structural diversity found in riparian areas with aspen and willow canopies and herbaceous understories along streambanks. The absence of disturbance associated with livestock grazing within these riparian communities has been demonstrated to result in high-quality breeding habitat (i.e., high nest success, low brood parasitism rates) for many of these species (Heltzel & Earnst, 2006). Even without grazing, stream segments in the allotment may not reach their potential due to altered flow regimes.

Shrub steppe habitats dominated by mountain and low sagebrush provide vital nesting and foraging habitat for obligate species such as Brewer's and sage sparrows and dependent species including loggerhead shrike and sage thrasher. Direct loss, fragmentation, and degradation of sagebrush habitats connected with the spread of invasive plants, altered disturbance regimes, and the associated state transitions from stable native vegetation communities are some of the most important factors affecting long-term and regional population dynamics of these species (Knick & Rotenberry, 1995) (Knick & Rotenberry, 2000) (Knick & Rotenberry, 2002) (Knick, et al., 2003) (Knick, Holmes, & Miller, 2005). Passerine species like vesper sparrow, horned lark, western meadowlark, and rock wren, and raptors such as golden eagle, prairie falcon, ferruginous and rough-legged hawks, and burrowing and short-eared owls have also been documented in the area's shrub steppe vegetation communities.

### ***Big Game and other Mammals (including Special Status Species)***

In addition to the general discussion of big game and other mammal species and their habitats in Section 3.1.5, various big game and special status mammal species use a variety of habitats in the Dougal FFR allotment for some or all of their seasonal needs. Big game species are limited to elk, pronghorn, and mule deer. No California bighorn sheep Population Management Units (PMU) or extant populations occur within Dougal FFR allotment; however, the Owyhee Front PMU is located immediately to the south (Map WDLF-4).

The woodland and riparian habitats within the allotment provide summer habitat for elk and mule deer. Although mule deer may be present year-round within the area, most winter habitat for both species occurs at lower elevations in Oregon and south along the Owyhee River. Pronghorn use within the allotment is limited and primarily concentrated on private land near the reservoirs.

#### ***3.3.1.1.6 Social and Economic Values***

See Section 3.1.9 above.

#### ***3.3.1.1.7 Cultural Resources***

One previously recorded cultural site is within the Dougal FFR allotment and no potential livestock congregation areas identified. Because the site is not in proximity to a possible congregation area and has no reported livestock effects, BLM cultural resources staff did not make a monitoring visit. Staff did not conduct any new surveys.

### **3.3.1.2 Dougal FFR Allotment Environmental Consequences**

#### **3.3.1.2.1 *Alternative 1***

##### **3.3.1.2.1.1 Vegetation, including Noxious Weeds**

Current livestock grazing management is not identified to be a significant casual factor for not meeting Standard 4. This allotment is currently not meeting due to juniper encroachment, invasive species and an altered native plant community stemming from past grazing. Implementation of Alternative 1 (continuation of current grazing management) would be expected to maintain upland vegetative resources in their current condition, which is degraded due to past livestock grazing. The Dougal FFR allotment would be stocked at the same 90 AUMs and stocking rate of 10 acres/AUM for all alternatives.

The current permit allows for season-long grazing, and actual use data was reported on an allotment level showing 8 of the past 11 years having use mid-June through mid-July. Available utilization data is restricted to 1 year in pasture 8 and was measured at slight (3 percent). AUMs reported for that year was one-third of the permitted AUMs for the allotment; therefore, this utilization level is not reflective of what created the current condition. Repetitive use during the critical growth period is not recommended to improve or maintain vegetation resources (see Appendix F). Because current livestock grazing management was not a causal factor for not meeting Standard 4, the current situation appears to have evolved from light utilization in respective years that allowed for individual plants to grow or regrow after such use and maintain adequate health and vigor for maintenance.

Livestock grazing seasons of use and livestock numbers authorized in the allotment with implementation of Alternative 1 would not contribute to either improvement or continued failure to meet Standard 4 in areas where the Standard is not being met due to juniper encroachment into sagebrush steppe vegetation communities. Other than the indirect effect from removal of fine fuels that support the spread of wildfire, recent livestock grazing has had little influence on juniper encroachment.

The effects of Alternative 1 on biological soil crusts are expected to be similar to those on vegetation in general. Under the proposed grazing AUMs and seasons of use, biological soil crusts are generally expected to be maintained.

No noxious weed occurrences have been recorded in this allotment. Invasive annual grasses are present in the allotment, but they do not dominate in any areas. Alternatives 1 through 4 all authorize 90 AUMs; therefore, the risk of spreading weed seed is equivalent for all alternatives except Alternative 5, the no grazing alternative.

Under Alternative 1, livestock grazing management would not be a contributor to not meeting Standard 4 for native plant communities. However, invasive grasses, past and current livestock grazing management practices, and juniper encroachment, would continue to limit opportunity for improvement and, potentially, maintenance over the long term (greater than 10 years). This alternative is not expected to either improve or deteriorate vegetation at its reduced state in the short term (less than 10 years). The ORMP management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition would continue to not be met due to juniper encroachment, invasive species and an altered native plant community stemming from past grazing.

##### **3.3.1.2.1.2 Soils**

Seasonal use patterns would continue to fluctuate from year to year, with at least some season-long use in some pastures. Adherence to range readiness criteria would limit the adverse physical effects of trampling during saturated soil conditions, but some trampling of wet soils would be dispersed since spring

precipitation would continue after turn-out. Areas of compacted soil in pasture eight (along areas north and west of Foster Reservoir) and in pasture four along the margins of Dougal Reservoir for example, would persist over the long term. The indirect effects of grazing to soils pertain to utilization of vegetation. The permitted use, along with utilization terms and conditions, would leave adequate amounts of residual vegetation for watershed health. Bare ground would continue to be scattered in small, unconnected patches throughout allotment. Biological soil crusts would continue to inhabit some plant interspaces because livestock appear to move between pastures in the allotment and are not left in a single pasture for entire grazing seasons.

The allotment would continue to meet Standard 1 and the ORMP soil objective for maintenance of adequate soil condition. Localized areas of accelerated erosion continue around water developments. Although soil/ site stability and hydrologic function are less than ideal in some areas of the allotment, the watershed would continue to support a plant community ability to interrupt overland flow, cycle nutrients, and provide pathways for energy flow.

#### **3.3.1.2.1.3 Riparian/Water Quality**

Under Alternative 1 (for details, see sections 2.2.1 and 2.4.1.1), the Dougal FFR allotment would be available to grazing year-round annually without rest or growing season deferment (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 1.5 mile of intermittent/ ephemeral stream, and one spring would be affected by the impacts associated with all seasons of grazing. Recent actual use reported (Appendix B) indicates that the FFR has primarily been used during the summer; therefore, the impacts of summer grazing would likely continue to be most prevalent under Alternative 1. Pastures 4 and 8 contain the riparian areas.

The Dougal FFR allotment is not meeting the standards associated with the riparian-wetland resources under current management. However, because the streams and reservoir that occur on BLM lands within the allotment have an altered flow regime, the causal factor was not attributed to current livestock. Although conditions would be maintained, the pastures within the allotment that contain the riparian areas (4 and 8) would continue to not meet the riparian-wetland standards under this alternative. The management that led to the current condition is what defines this alternative and will form the baseline for comparison to the other alternatives.

#### **3.3.1.2.1.4 Special Status Plants**

Alternative 1 would maintain existing conditions (Section 3.3.1.1.4) that are allowing thinleaf goldenhead and Bach's calicoflower (only known to occur in pasture 4) to meet Standard 8. Current grazing management does not appear to be negatively impacting special status plants in this pasture. Standard 8 and the ORMP objective for special status plants are currently being met for both species and would continue to be under this alternative.

The surrounding plant community is currently imbalanced with plant composition consisting of lower than expected deep-rooted perennial bunchgrasses and higher than expected shallow-rooted perennial bunchgrasses, invasive grasses, and juniper. This condition manifested through past improper grazing management and continues to leave the allotments vulnerable to further invasion expansion of invasive species. Deferment from spring use in this allotment is approximately every 3.6 years based on actual use, which has been maintaining the current upland vegetation condition. However, if spring use is continued in the same manner, and accompanied by disturbance or drought, over the long term (greater than 10 years) a slight decrease in condition of upland vegetation resources is expected and would be observable in the expansion of invasive species.

Direct effects of summer grazing on thinleaf goldenhead are inconsequential because cows enter the pasture largely after flowering and seed set, so seed would mostly be dispersed. The plant's subterranean growing points are would not be at risk from grazing, and by late July or August the plant will be dormant so leaf removal will not affect photosynthetic production for the year. Direct trampling effects would be similar, with very minor trampling impacts expected on the buried root crown, except perhaps at localized high use areas around some springs. Conversely, spring grazing during the June growing/flowering period for this species would have some trampling effects. This grazing would remove photosynthetic capability and flower heads, reducing the vigor of grazed plants and their reproductive capacity. These effects are not expected to substantially reduce the viability of the occurrences in this allotment because this species is not generally targeted by livestock due to minimal palatability. Direct trampling effects on thinleaf goldenhead would be similarly low in an annual year but would compound over repeated years of use with minimal deferment. Trampling may break off some flowering stems and leaves, thus reducing reproduction and photosynthesis somewhat, but effects are not expected to be substantial because the subterranean growing point is not particularly vulnerable to trampling.

Direct effects of grazing and trampling on harlequin calicoflower are also expected for spring grazing, similar to thinleaf goldenhead. Seeds will be germinating and plants flowering during the April through June season of use, and some individuals are likely to be destroyed by trampling (more likely) and grazing (less likely, assuming grasses are generally preferred over forbs). However, effects on the occurrence as a whole is unlikely to be substantial because cows have better distribution during the cooler temperatures of the spring (rather than summer) and are not expected to congregate for long periods at reservoir/pond edges during the late spring/early summer use, limiting the amount of disturbance to the mudflat edge. Surviving plants would be expected to set sufficient seed to maintain the occurrence after cattle leave the allotment.

Direct effects from summer grazing and trampling on harlequin calicoflower would likely occur as cattle congregate on the mudflat habitat in the heat of July and August. Trampling effects would likely be more detrimental than direct grazing. Trampling would dislodge a portion of individuals of these shallow-rooted plants and kill them, reducing seed set for the population. This may cause a gradual long-term (decades) decline in the health of this occurrence.

In the short term (less than 10 years), this alternative meets Standard 4 and the ORMP objective for special status species as they would be maintain at the current condition.

#### **3.3.1.2.1.5 Wildlife and Special Status Animals**

Under Alternative 1, the Dougal FFR allotment would be available to grazing year-round annually without rest or growing season deferment. Seasonal use patterns would continue to fluctuate from year to year, with at least some season-long use in some pastures. Little improvement, if any, would occur to wildlife habitats as the same grazing management practices would be employed as in the past. Standard 8 for special status animal species was determined to be meeting rangeland health standards in 2013; however, sage-grouse habitat was rated as marginal and several components of the habitat (e.g., average grass and forb height) would continue to only be maintained and not improve. Unaltered, grazing use would continue in the hot summer season and compound effects of flow modifications on Dougal FFR streams.

Boise District permit terms and conditions would contribute towards maintaining existing conditions in Dougal FFR allotment. Range readiness criteria would limit the adverse physical effects of trampling during saturated soil conditions and reduce impacts to upland plant species by avoiding most of the critical growth period of upland vegetation. The permitted use, along with utilization terms and conditions, would leave adequate amounts of residual vegetation for wildlife and their upland habitats.

The allotment would continue to meet Standard 8 and maintain habitat conditions to meet ORMP objective WLDF-1.

Livestock grazing that has occurred under Alternative 1 has led to the current condition for upland and contributed to riparian wildlife habitats, and it serves as the baseline for comparison to the other alternatives. Historic grazing management has contributed to an increase in invasive grass species that compete with native perennial grass species, reducing special status and common wildlife species habitat quality. In addition, juniper encroachment into the allotment has greatly reduced habitat quality for sagebrush-dependent wildlife species. Juniper expansion is more a result of fire suppression than current livestock grazing, so Alternative 1 would have little effect on slowing juniper expansion in the allotment.

### **Focal Special Status Animal Species**

#### Greater sage-grouse

Although some general positive effects to sage-grouse from livestock grazing have been documented (e.g., vegetative growth stimulation and greater availability of food forbs with light grazing) (Beck & Mitchell, 2000), they appear to be neutralized or outweighed by the negative effects (e.g., trampling eggs, nest desertion, and deteriorated wet meadow hydrology) (Connelly, Braun, Schroeder, & Hagen, 2007). Under Alternative 1, effects of spring livestock grazing on sage-grouse and their habitat could be realized in all pastures and effects could include trampling of eggs, nest desertion, and continuation of marginal nesting cover (i.e., sagebrush and perennial bunchgrass canopy cover and heights) during the breeding season. In addition, effects to sage-grouse brood-rearing habitat in pastures 4 and 8 from grazing under Alternative 1 would include continued deteriorated wet meadow hydrology and invasion of xeric species, low abundance and diversity of forbs, and little herbaceous vegetation (that provide forage and concealment directly and more insect prey indirectly) in riparian-wetland areas. Effects in upland sage-grouse habitats would be expected for the term of the permit, while effects in riparian-wetland habitats could persist for several decades.

A review of the literature suggests that 40 to 45 percent utilization (i.e., moderate *sensu* (Holechek, Baker, Boren, & Galt, 2006)) will maintain the health and vigor of bunchgrasses and other rangeland vegetation, and 30 to 35 percent utilization (i.e., conservative *sensu* (Holechek, Baker, Boren, & Galt, 2006)) is needed to improve the health and vigor of bunchgrasses and other rangeland vegetation (Holechek, Gomez, Molinar, & Galt, 1999). Under Alternative 1, perennial grass utilization levels in all pastures would be authorized at 50 percent. Under this stocking rate and resultant moderate utilization levels, perennial bunchgrass and rangeland vegetation will probably be static over the term of the permit, and the conditions of upland sage-grouse nesting habitats will remain similar to current conditions that are only supplying marginal habitat in pastures 3, 4, 5, and 8.

As discussed above, grazing under Alternative 1 would not result in improvements to sage-grouse brood-rearing habitat in pastures 4 and 8. Riparian-wetlands would continue to remain in a degraded state due to continued compacted hydric soils and upstream influences from Dougal Reservoir and other flow modifications (Section 3.3.1.2.1.2).

#### Columbia spotted frog

Potential habitat for spotted frogs would continue to be impacted by soil compaction around Dougal and Forster reservoirs; likewise, herbaceous vegetation on stream segments in pasture 4 would remain status quo. Healthy and viable populations of spotted frogs depend on properly functioning wetland and riparian areas. Effects would be long term (10 years) and riparian habitat would continue to be degraded as it has been under current management.

#### Pygmy rabbit

Under Alternative 1, conditions in upland habitats would remain similar to current conditions. However, increased juniper encroachment would continue to degrade pygmy rabbit habitat by reducing forage and big sagebrush cover. In addition, the effects of grazing under Alternative 1 would continue as in the past and similarly effect many small to medium herbivores, including pygmy rabbits.

#### Columbia River redband trout

No habitat for redband trout exists on public lands in Dougal FFR allotment and will not be discussed under alternative effects analysis.

#### ***Migratory Birds, Raptors, and other Birds (including Special Status Species)***

Grazing management under Alternative 1 is expected to maintain upland habitat conditions. However, riparian habitats would remain in a degraded condition for many bird species in the allotment including special status species such as calliope hummingbird and willow flycatcher. Birds generally do not respond to the presence of grazing livestock but to the effects on vegetation from grazing (Bock & Webb, 1984). Research has shown that livestock grazing can cause a decline in habitat for bird species by altering vegetative structure and habitat complexity, reducing cover, diversity, native vegetation, and forage, and spreading weeds and undesirable annuals (Mosconi & Hutto, 1982) (Taylor D. M., 1986) (Bock, Saab, Rich, & Dobkin, 1993) (Riparian Habitat Joint Venture, 2004). The loss of canopy structure at various heights affects nesting habitat and increases the likelihood of predation and nest parasitism. The loss of grasses and forbs affects species that forage on seeds and insects.

Research has demonstrated that riparian area grazing has an effect on migratory bird species richness; for many species, as grazing increases, species richness decreases (Taylor D. M., 1986) (Krueper, Bart, & Rich, 2003) (Earnst, Ballard, & Dobkin, 2005). An evaluation of the effects of moderate levels of grazing on migratory birds' breeding in riparian areas found positive effects for Brewer's blackbird and Lewis' woodpecker, negative effects for calliope hummingbird and willow flycatcher, and mixed or uncertain response by red-naped sapsucker (Bock, Saab, Rich, & Dobkin, 1993). Grazing effects on riparian habitat specialists tend to be greater than on habitat generalists (Bock, Saab, Rich, & Dobkin, 1993). Maintenance of and improvements in structural diversity and herbaceous understory cover in riparian-wetland areas are not expected to occur under the heavy utilization levels that are expected in these areas under Alternative 1. The continuation of the current poor conditions in riparian areas could result in lower nesting densities and success, higher rates of nest parasitism, and decreased foraging habitat.

Species preferring woodland habitat would continue to benefit from the abundant woodlands and would be affected little by grazing management within the allotment under Alternative 1. However, woodland species that also forage in grass, shrub, or riparian-wetland habitats would be affected accordingly by impacts to those habitats, as discussed above. In addition, as juniper woodlands attain later seral stages of development (i.e., phase 3), soils become drier and understory forbs, shrubs, and grasses decline, reducing suitable habitat and habitat diversity for birds (Miller, Bates, Svejcar, Pierson, & Eddleman, 2005).

Raptor species that prefer forest habitat such as northern goshawk and flammulated owl may benefit from increasing juniper until expansion resulted in a decrease in prey numbers. Effects of grazing on raptors would mainly result from effects to habitat of prey species. Conditions for prey species in upland habitats are expected to neither improve nor deteriorate from current conditions, and prey species populations, more than likely, would remain relatively static.

#### ***Big Game and other Mammals (including Special Status Species)***

The proposed timing and level of grazing under Alternative 1 would maintain current levels of forage in riparian areas, while neither improving nor deteriorating conditions in the uplands. Riparian areas are extremely important for deer and elk foraging particularly in the fall, and as fawning and calving habitat

in the spring. In general, livestock grazing is a competitive action with other herbivores that reduces available forage and reduces cover and habitat structure needed by smaller herbivores (Medin & Clary, 1989) (Schulz & Leininger, 1990) (Hayward, Heske, & Painter, 1997). A reduction in cover could expose fawns and elk calves to greater predation and increase mortality rates. Abundant hiding cover for big game species in the allotment exists however, as juniper woodlands have greatly expanded in the last 100 plus years. In addition, population numbers for deer and elk probably have been affected to some degree by poor habitat conditions due to historic grazing practices. Because elk have the competitive advantage over mule deer, effects to deer populations probably would be greater (Mule Deer Working Group, 2004).

As discussed above, grazing under Alternative 1 would continue to maintain current upland habitat conditions. Riparian-wetlands would continue to remain in a degraded state due to continued compacted hydric soils and upstream influences from Dougal Reservoir and other flow modifications.

#### **3.3.1.2.1.6 Social and Economic Values**

See Section 3.2.8.2 above.

#### **3.3.1.2.1.7 Cultural Resources**

No known historic properties would be affected under this alternative.

### **3.3.1.2.2 Alternative 2**

#### **3.3.1.2.2.1 Vegetation, including Noxious Weeds**

Alternative 2 for pastures 1-7 and 9 has identical AUMs, stocking rate, and season-long grazing as in Alternative 1; however, impacts from livestock grazing would vary as maximum flexibility would be applied in alternative 2 versus alternative 1 (where specific dates of grazing from actual use were used to decipher impacts). Pasture 8 grazing would occur in the critical growth period with the first year from 4/1 to 6/14 and the second year from 6/15 to 8/31, alternating every other year.

First year use of pasture 8 would occur for two weeks in the beginning of the critical growth period, and second year use for the four weeks towards the end of this period. According to the Grazing Response Index (Reed, Roath, & Bradford, 1999), the number of days of use within the critical growing season is in excess of the recommended number of days of use needed to maintain current vegetation condition. Continued grazing at this frequency during the critical growth period is detrimental to the most palatable species such as deep-rooted bunchgrasses as it decreases opportunity for bunchgrasses to grow or regrow, especially when soil moisture post grazing is lacking (Reed, Roath, & Bradford, 1999). The compounding stress of repetitive grazing for a minimum of 30 days during the critical growth period would decrease upland vegetation health and vigor over the short term (less than 10 years), which would decrease resiliency of the community over time.

As identified in Appendix F, critical growing season use has the greatest potential to impact health and vigor of bunchgrass species as compared to use during periods outside the active growing season. Scheduled critical growing season use every year in pasture 8, and in pastures 1 through 7 and 9 the potential misuse of the flexibility in the grazing schedule allowing for active growing season use in all years at a moderate utilization level, places much of this allotment at risk of failing to meet the ORMP vegetation objectives and further failing to meet Standard 4. In the absence of actions to reduce stressors (season of use &/or utilization levels) to biotic function of the upland vegetation brought on by livestock management practices, a downward trend would be anticipated, particularly in those pastures currently not meeting due to invasive species. Further stressors induced by climate change (primarily altered precipitation and temperature regimes) would be exacerbated by livestock management practices identified above. In addition, invasive species (juniper and annual grasses) may have further opportunity

to expand in those years of climatic strain. For the reasons described above livestock grazing management would be a contributor to not meet Standard 4 and the ORMP management objective in the short term (less than 10 years) throughout the allotment when livestock grazing during the critical growing season use is implemented in all years.

#### **3.3.1.2.2.2 Soils**

Effects to soils in pastures 1-7 would be similar to but potentially slightly more adverse than those described under Alternative 1 because pastures would likely receive slightly greater utilization in order to accommodate the deferred rotation grazing system in pasture 8. Areas of bare ground in pastures 1-7 would be slightly larger and more connected while litter amounts would decrease slightly, relative to alternative 1. Soil conditions in pasture 8 could improve slightly and slowly. Spring deferment of pasture eight would reduce the potential for physical trampling in saturated soils every other year, relative to Alternative 1. However, late season use would continue to have adverse effects to soils around the margins of Foster Reservoir each year.

The allotment would continue to meet Standard 1, and ORMP soil objectives localized areas of accelerated erosion would continue for the same reasons discussed in Alternative 1. Although soil/ site stability and hydrologic function are less than ideal in some localized areas of the allotment, such as around Foster Reservoir, the watershed portion inside the allotment would continue to interrupt overland flow and cycle nutrients and provide pathways for energy flow.

#### **3.3.1.2.2.3 Riparian/Water Quality**

Under Alternative 2 (for details, see sections 2.2.2 and 2.4.1.2), the permittee proposes to graze pastures 1-7 and 9 of the Dougal FFR allotment year-round annually without rest or growing season deferment. Pasture 8 would be open to grazing during the spring of 1 year, and during the summer the second year of a 2-year rotation (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Pastures 4 and 8 contain the riparian areas that occur on BLM lands within the allotment.

Under Alternative 2, the permittee requests the same terms as the current situation for pasture 4; therefore, the impacts would be the same as those described above under Alternative 1 (section 3.3.1.2.1.3), and the standards would continue to not be met. Since Pasture 8 would be managed under a defined 2-year rotational grazing system that incorporates 1 year of growing season deferment, the riparian impacts in pasture 8 would be minimized 5 of the 10 years of the permit. However, the effects from the flow alterations and the reservoir would still be present, and the Standard would continue to not be met. For both pastures 4 and 8, current livestock grazing was not identified as the causal factor for not meeting the standards, and although the proposed grazing management would continue to not meet standards, it would not be due to current livestock grazing. The ORMP objectives for all streams and springs to be in PFC would not be attained over the 10-year permit because the flows and thus the morphology of the drainage system has been altered, and changes in livestock use are only one component of solving the issues.

#### **3.3.1.2.2.4 Special Status Plants**

Alternative 2 for pasture 4 has identical AUMs, stocking rate, and season-long grazing as in Alternative 1; however, impacts from livestock grazing would vary as maximum flexibility would be applied in Alternative 2 verses Alternative 1 (where specific dates of grazing from actual use were used to decipher impacts).

The surrounding plant community is currently imbalanced with plant composition consisting of lower than expected deep-rooted perennial bunchgrasses and higher than expected shallow-rooted perennial bunchgrasses, invasive grasses, and juniper. This condition manifested through past improper grazing management and continues to leave the allotments vulnerable to further invasion expansion of invasive

species. When maximum flexibility is utilized for growing season use in every year, and accompanied by disturbance or drought, the condition of upland vegetation resources is expected to decline and would be observable in the expansion of invasive species.

Spring grazing during the June growing/flowering period for thinleaf goldenhead would have some trampling effects. This grazing would remove photosynthetic capability and flower heads, reducing the vigor of grazed plants and their reproductive capacity. Because this species is not generally targeted by livestock due to minimal palatability, these effects are not expected to substantially reduce the viability of the occurrences unless repeated annually. If repeated annually, then the compounding effects would negatively impact the vigor of the population. Direct trampling effects on thinleaf goldenhead would be similarly low in an annual year but also would compound over-repeated years of use with minimal deferment. Trampling may break off some flowering stems and leaves, thus reducing reproduction and photosynthesis somewhat, but effects are not expected to be substantial because the subterranean growing point is not particularly vulnerable to trampling.

Direct effects of grazing and trampling on harlequin calicoflower are also expected for spring grazing, similar to thinleaf goldenhead. Seeds will be germinating and plants flowering during the April through June season of use, and some individuals are likely to be destroyed by trampling (more likely) and grazing (less likely, assuming grasses are generally preferred over forbs). However, effects on the occurrence as a whole is unlikely to be substantial because cows have better distribution during the cooler temperatures of the spring (rather than summer) and are not expected to congregate for long periods at reservoir/pond edges during the late spring/early summer use, limiting the amount of disturbance to the mudflat edge. Surviving plants would be expected to set sufficient seed to maintain the occurrence after cattle leave the allotment.

When livestock grazing is implemented during the critical growing season in all years, this alternative would not meet Standard 8 and the ORMP objective for special status species in the short term (less than 10 years).

#### **3.3.1.2.2.5 Wildlife and Special Status Animals**

Under Alternative 2 (for details, see sections 2.2.2 and 2.4.1.2), the permittee proposes to graze pastures 1-7 and 9 of the Dougal FFR allotment year-round annually without rest or growing season deferment. Pasture 8 would be open to grazing during the spring of 1 year, and during the summer the second year of a 2-year rotation.

For terrestrial special status species and general upland wildlife species, effects would be the same as Alternative 1 for pastures 1-7 and 9. Consequently, upland wildlife habitat for these pastures could potentially be affected by impacts associated with all seasons of grazing use. Pasture 8 would have a more defined grazing period and schedule than Alternative 1, scheduling a deferred grazing system with set use dates and a limit of 45 cattle. Season-long use would be an option for all pastures except 8. Because spring use (the most detrimental season of use to upland vegetation resources in comparison to other seasons) every year is an option with this alternative, but this alternative is unlikely to maintain the current condition of upland vegetation resources. Because the grazing schedule for Alternative 2 for pasture 8 specifically designates grazing during the critical growth period, a long-term decline would occur to upland wildlife habitat. While the allotment would still not meet or make significant progress toward meeting Standard 4 in the short term (less than 10 years) because of limitations from causal factors (past livestock grazing that reduced large bunchgrasses, invasive plants), this would be compounded by a long term (greater than 10 years) addition of the declining upland vegetation resources from continuous critical growing season use in all years. For pastures 1-7 and 9, this alternative would meet the ORMP WLDF-1 objective to maintain the condition, abundance structural stage, and distribution of the plant communities since Standard 8 was determined to being met in 2013. For pasture 8, a decline

in upland habitat conditions for wildlife species would occur over the long term (greater than 10 years) due to grazing during the critical growth period. This prescription would lead to ORMP WLDF-1 not being met over the long term.

Under Alternative 2, the permittee requests the same terms as the current situation for pasture 4; therefore, the impacts would be the same as those described above under Alternative 1 (section 3.3.1.2.1.3), and the standards would continue to not be met. Since Pasture 8 would be managed under a defined 2-year rotational grazing system that incorporates 1 year of growing season deferment, the riparian impacts in pasture 8 would be minimized 5 of the 10 years of the permit. However, the effects from the flow alterations and the reservoir would still be present, and the Standard would continue to not be met. For both pastures 4 and 8, current livestock grazing was not identified as the causal factor for not meeting the standards, and although the proposed grazing would continue to not meet standards, it would not be due to current livestock grazing. The ORMP objectives for all streams and springs to be in PFC would not be attained over the 10-year permit because the flows and thus the morphology of the drainage system has been altered, and changes in livestock use are only one component of solving the issues.

### **Focal Special Status Animal Species**

#### Greater sage-grouse

For pastures 1-7 and 9, effects to sage-grouse from livestock grazing under Alternative 2 are similar to those identified in Alternative 1. The permittee would have latitude to graze during any season of the year and for any number of days, providing AUMs are not exceeded and that Boise District terms and conditions are adhered to during the year. The primary term and conditions affecting sage-grouse is a limit to not exceed 50 percent utilization of current year's growth and adherence to range readiness criteria.

Pasture 8 would be grazed differently under Alternative 2 than Alternative 1. In Year 1, grazing would occur in early-spring (4/1 to 6/14), and in Year 2, grazing would occur in late-spring/early-summer (6/15 to 8/31). Short term negative effects would likely occur in pasture 8 as breeding habitat would be directly affected due to grazing when nests need vertical cover to reduce sighting from ground predators. The act of grazing in the early-spring 1 year would reduce standing crop of forbs that hens use to attain breeding condition and limit height of herbaceous plant species that provide the vertical structure. Likewise, grazing in late-spring/early-summer would reduce vertical herbaceous structure used for nest shielding and limit available forbs for hens and newly hatched chicks. Another direct effect to sage-grouse is the potential for nest trampling with grazing occurring during the nesting season. Long-term effects (greater than 10 years) would result from grazing largely during the critical growth period for grasses and forbs. Over time, herbaceous species are expected to decline due to being grazed every year during the critical growth period. Although a deferred grazing system is built into the pasture prescription, the prescription is weighted too heavily in the early-season and does little to avoid the critical growth period. The grazing prescription for pasture 8 would however show benefits for sage-grouse late brood-rearing habitat by avoiding hot summer grazing at least 1 year in two, minimizing livestock concentration on riparian/wetland areas and allowing for regrowth of riparian plant species.

#### Columbia spotted frog

Effects to spotted frogs from livestock grazing under Alternative 2 are similar to those identified in Alternative 1 (see 3.3.1.2.1.5 and 3.3.1.2.2.3), with the following differences: Direct impacts would occur to Columbia spotted frog (CSF) breeding habitat with early-season grazing in pasture 8 every other year. Additionally, grazing during this period introduces the possibility of egg trampling during the breeding season. The potential negative effects to spotted frogs and their habitat need to be tempered by the fact that surveys have failed to find frogs in the allotment, and public lands in the allotment are not

within a CSF occupied watershed. However, Western toads are known to occupy the allotment, and similar impacts can be expected for the species.

#### Pygmy rabbit

Effects to pygmy rabbits and associated upland species would be similar to Alternative 1 effects (3.3.1.2.1.5). Season-long use would be an option for all pastures except 8. Consequently, upland vegetation for these pastures could potentially be affected by impacts associated with all seasons of grazing use. Pasture 8 would receive a deferred grazing prescription that would have negative long-term effects for pygmy rabbits because of concentrated livestock grazing during the critical growth period for herbaceous plant species on which they depend. The effects of grazing on pasture 8 under Alternative 2 would initiate habitat deterioration for many small to medium herbivores including pygmy rabbits.

#### Columbia River redband trout

No habitat for redband trout exists on public lands in Dougal FFR allotment and will not be discussed under alternative effects analysis.

#### ***Migratory Birds, Raptors, and other Birds (including Special Status Species)***

Effects to birds from livestock grazing under Alternative 2 are similar to those identified in Alternative 1. However, effects for ground nesting birds in pasture 8 would occur at a greater magnitude under Alternative 2 because many species dependent on herbaceous ground cover for nesting and/or foraging are negatively affected by moderate to heavy levels of livestock grazing (Bock, Saab, Rich, & Dobkin, 1993). Riparian nesting migratory birds in pasture 8 would benefit over the long term because of avoidance of hot-season grazing every other year. Riparian areas in pasture 4 would realize the same effects as Alternative 1.

#### ***Big Game and other Mammals (including Special Status Species)***

Grazing effects to big game and other mammals under Alternative 2 would be similar to those identified in Alternative 1; however, the grazing prescription for pasture 8 would provide mixed long-term results. Spring grazing every other year would lead to direct competition between livestock and big game for critical early-spring protein-rich grasses and forbs. Grazing use levels in pasture 8 under Alternative 2 also would increase resource partitioning and probably result in spatial displacement of deer and elk from areas used by cattle (Stewart, Bowyer, Kie, Cimon, & Johnson, 2002). Conversely, by avoiding hot season livestock use, riparian and upland browse species will have reduced browse levels and provide more available forage for big game during late fall and winter seasons.

#### **3.3.1.2.2.6 Social and Economic Values**

See Section 3.2.8.3 above. The new pasture rotation and shorter grazing season for pasture 8 may result in increased labor and feed costs.

#### **3.3.1.2.2.7 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

#### **3.3.1.2.3 Alternative 3**

##### **3.3.1.2.3.1 Vegetation, including Noxious Weeds**

Alternative 3 retains the same AUMs, stocking rate, and livestock numbers of the current situation (Alternative 1) but differs by defining a 3-year rotation for each pasture with specific seasons of use. Because the alternative 3 upland vegetation resource constraint has been applied, all pastures have no more than 1 in 3 years of critical growth period use. Throughout the allotment, repetitive grazing during

this critical time for upland vegetation is avoided providing the most productive and palatable forage species opportunity to maintain adequate photosynthetic material to increase carbohydrate production for reproduction. This would provide bunchgrasses throughout the allotment, especially the remnant native perennial grasses adversely affected by past grazing, additional vigor for reproduction and competition and a slow increase towards reference site condition. Over the long term (greater than 10 years), the grazing schedule provides greater resilience of the plant communities to better combat further invasion of juniper and invasive grasses (Appendix F). All pastures would benefit from the rotational grazing system, which would allow time for recovery between grazing events and improve health and vigor of upland vegetation resources.

Due to fixed seasons of use in all pastures of the allotment, Alternative 3 would allow for the native vegetation in this allotment to improve in vigor, health, and resilience and help move the vegetation closer the reference site condition in the short term (less than 10 years) by eliminating repetitive critical growing season use. Although the allotment would still not meet or make significant progress toward meeting Standard 4 because of limitations from causal factors (past livestock grazing that reduced large bunchgrasses, invasive plants), improvement in upland vegetation conditions would be expected in the long term (greater than 10 years). This alternative would meet the ORMP vegetation management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition.

#### **3.3.1.2.3.2 Soils**

Effects to soils would be similar to but slightly less adverse than those described for alternative 1. By deferring grazing every third year until March 1 at the earliest, the grazing schedule prevents repetitive use during periods of soil saturation. Livestock would still trample wet soils 2 years out of 3, but physical trampling effects would begin to diminish, relative to alternative 1, in the third year. This would translate into slightly less severe soil trampling than alternative 1 over the life of the permit. The indirect effects of grazing on soils over the short term would be the same as those described for alternative one, but soil conditions could improve slightly over the long term because deep-rooted perennial bunchgrass plants would become more vigorous as a result of the grazing schedule. The allotment would continue to meet Standard 1 and ORMP soil objectives.

#### **3.3.1.2.3.3 Riparian/Water Quality**

Under Alternative 3 (for details, see sections 2.2.3 and 2.4.1.3), pasture 4 would be open to grazing during the summer for, and the fall only for the third year; and pasture 8 would be available during the spring for 2 years, and during the summer for the third year of a 3-year rotation (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 1.5 miles of intermittent/ ephemeral stream, and one spring would be affected by the impacts associated with the spring, summer, and fall seasons of grazing alternately over the course of a 3-year rotation (see Table RIPN-10). Pastures 4 and 8 contain the riparian areas that occur on BLM lands within the allotment.

The Dougal FFR allotment is not meeting the standards associated with the riparian-wetland resources under current management (Alternative 1/year-round). However, because the streams and reservoir that occur on BLM lands within the allotment have an altered flow regime, the causal factor was not attributed to current livestock. However, the allotment would be managed under a defined 3-year rotation with 1 out of 3 years of growing season deferment in the pastures that contain riparian areas (4 and 8). In the short term, benefits from this alternative would not be realized due to the altered flow regime; however, improvement would occur slowly over the long term. However, the ORMP objectives for all streams and springs to be in PFC would not be attained over the 10-year permit because the flows and thus the morphology of the drainage system has been altered, and changes in livestock use are only one component of solving the issues.

#### **3.3.1.2.3.4 Special Status Plants**

Special status plants and their habitats are expected to benefit from the defined seasons of use within the 3-year grazing rotation that defers livestock grazing 2 years of the 3. Critical growing season use is limited in this alternative, providing undisturbed growth and development that aid in the health and vigor of upland herbaceous species, including special status plants. Impacts of spring livestock use are similar to those described in Alternative 1 (see Section 3.3.1.2.1.4). Trampling effects on both species would be decreased from current condition because deferment would decrease the number of days livestock are grazing during the critical growth period when soils are moist and seedlings would be present and susceptible to dislodging. The effects of fall livestock use to thinleaf goldenhead and harlequin calicoflower would be virtually eliminated, since cattle use would occur after both plants had gone dormant. Minor trampling effects on thinleaf goldenhead would be possible, but would be unlikely to be at a level sufficient to cause a decline in the occurrence.

Additionally, upland herbaceous vegetation would improve in the long term (greater than 10 years), providing competition against invasive species such as juniper and bulbous bluegrass. This alternative would continue to meet Standard 8 for special status plants and would meet the ORMP objective to maintain special status plants and their habitats.

#### **3.3.1.2.3.5 Wildlife and Special Status Animals**

Alternative 3 retains the stocking levels of the current situation (Alternative 1) but differs by defining a 3-year rotation for each pasture with specific seasons of use. Because the alternative 3 upland vegetation resource constraint has been implemented, all pastures have no more than 1 in 3 years of critical growth period use. For terrestrial special status animal species and general upland wildlife species, grazing effects would benefit wildlife over the long term by avoiding the critical growth period of vegetation 1 year in 3, from April 1 to June 30. This season of use change would make progress towards improving wildlife habitat components that were identified as limiting or marginal in 2013. Although the standard for special status animal species was determined as being met, measures to improve vegetation would benefit upland species and the habitat on which they depend.

For riparian/wetland habitats under Alternative 3, pasture 4 would be open to grazing during the summer for 2 years, and the fall only for the third year; and pasture 8 would be available during the spring for 2 years, and during the summer for the third year of a 3-year rotation. Consequently, within the allotment, 1.5 miles of intermittent/ephemeral stream and one spring would be affected by the impacts associated, with the spring, summer, and fall seasons of grazing alternately over the course of a 3-year rotation. These prescriptions would benefit riparian-dependent wildlife species including special status animal species. Streams in Dougal FFR allotment are influenced by factors other than livestock grazing and as such would limit improvement of riparian habitats under this alternative. Under Alternative 3, Standard 8 would continue to be met, and ORMP objecting WLDF-1 would be achieved.

#### **Focal Special Status Animal Species**

##### Greater sage-grouse

For pastures 3-6 and 8-9, under Alternative 3, negative effects to sage-grouse from livestock grazing would be reduced due to the early-season grazing limitation by the sage-grouse constraint. This limitation would improve herbaceous vegetation height 1 year in 3, benefitting sage-grouse nest screening and subsequently sage-grouse populations. Additionally, the soil's constraint of no grazing March 1 to May 31 in no more than 2 years in 3 would benefit sage-grouse hens by providing increased forb biomass and by providing early protection to herbaceous species that contribute to nest shielding. These constraints and their associated benefits to sage-grouse would be realized in the short term (less than 10 years). Late-brood-rearing habitat for sage-grouse would benefit in pastures 4 and 8 by the addition of the riparian constraint, with no use 1 year in every 3 from July 1 to September 30. This constraint would provide a

limited amount of relief from grazing when sage-grouse broods are concentrated on wetlands for succulent forbs. As with upland improvement, benefits to late brood-rearing habitat would see benefits over the short term and make slow improvement over the long term. These improvements would make progress towards improving the marginal sage-grouse nesting and late brood-rearing habitat in Dougal FFR allotment.

#### Columbia spotted frog

Effects to spotted frogs from livestock grazing under Alternative 3 would be reduced from Alternative 1. Early-season grazing in pastures 4 and 8 would be limited due to the soil's constrain protecting breeding habitat 1 year in 3. With no grazing during this time period, the possibility of egg trampling during the breeding season would be eliminated 1 year in 3. The potential negative effects to spotted frogs and their habitat need to be tempered by the fact that surveys have failed to find frogs in the allotment and public lands in the allotment are not within a CSF occupied watershed. However, Western toads are known to occupy the allotment and similar impacts can be expected for the species.

#### Pygmy rabbit

Impacts to pygmy rabbits and their associated upland wildlife species from livestock grazing would be less than Alternative 1 effects. With the application of soil and vegetation constraints in all pastures (except pasture 2) and the addition of sage-grouse constraints in pastures 3-6, 8, and 9; pygmy rabbit habitat would see improvement in the short and long term. Herbaceous plant species that pygmy rabbits depend on during the spring and early summer for food would not be grazed during their critical growth period 1 year in 3. This short-term benefit may not be realized all period long in a particular pasture the same year, but in the long term, improvement to the habitat will be realized.

#### Columbia River redband trout

No habitat for redband trout exists on public lands in Dougal FFR allotment and will not discussed under alternative effects analysis.

#### ***Migratory Birds, Raptors, and other Birds (including Special Status Species)***

Effects to birds from livestock grazing under Alternative 3 would be less than those identified in Alternative 1. With the application of soil and vegetation constraints in all pastures (except pasture 2) and the addition of sage-grouse constraints in pastures 3-6, 8, and 9, ground nesting bird habitat would see improvement in the short and long term. Likewise, riparian nesting migratory birds in pastures 4 and 8 would benefit over the long term because of avoidance of hot-season grazing every year. Riparian areas in pasture 4 and 8 would have the riparian constraint applied 1 year in 3 under Alternative 3. In the short term, benefits would not be realized 2 out of every 3 years, which would carry over to the long term; habitat improvement would occur, making progress towards standards, but would be slow and limited for both upland and riparian habitats. Again, Standard 8 was being met for special status animal species; however, individual habitat components would be improved under Alternative 3.

#### ***Big Game and other Mammals (including Special Status Species)***

Grazing effects to big game and other mammals under Alternative 3 would be less than those identified in Alternative 1. With the application of soil and vegetation constraints in all pastures (except pasture 2) and the addition of sage-grouse constraints in pastures 3-6, 8, and 9, mammal habitat would see improvement in the short and long term. Likewise, riparian areas in pastures 4 and 8 would benefit over the long term because of avoidance of hot-season grazing every year. Riparian areas in pastures 4 and 8 would have the riparian constraint applied 1 year in 3 under Alternative 3, which would benefit mammals.

#### **3.3.1.2.3.6 Social and Economic Values**

See Section 3.2.8.4 above. The new pasture rotations and shorter grazing seasons for all pastures may result in increased labor and feed costs.

#### **3.3.1.2.3.7 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

#### **3.3.1.2.4 Alternative 4**

##### **3.3.1.2.4.1 Vegetation, including Noxious Weeds**

Alternative 4 grazing schedule provides defined seasons of use similar to Alternative 3, but greater definition in the number of days within the defined season use can occur. Refinement of the grazing schedule in this manner decreases the number of days of use within the critical growing season in 1 pasture, eliminates critical growing season use in 5 of the 9 pastures, maintains it in 1 pasture, and adds a 2-week interval of grazing in 1 pasture. An overall decrease in impacts to upland vegetation resources is expected from this grazing schedule. Decreasing use during the active growing season would be better than in Alternative 3 but only over the long term (greater than 10 years). A decrease in the number of days of livestock use during the active growing season allows time for individual plants to grow or regrow within the same season. In addition, deferment of critical growing season use allows native perennial species to complete the annual growth cycle in the absence of removal of photosynthetic material by livestock grazing, which provides time for recovery of plant health and vigor. Movement between pastures would disperse livestock and decrease livestock concentrations in any given year.

Effects of Alternative 4 are expected to be similar or slightly better for the upland vegetation resources in comparison to Alternative 3. Although the allotment would still not meet or make significant progress toward meeting Standard 4 because of limitations from causal factors (past livestock grazing that reduced large bunchgrasses, invasive plants), improvement in upland vegetation conditions would be expected in the long term (greater than 10 years). This alternative would meet the ORMP vegetation management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition.

##### **3.3.1.2.4.2 Soils**

Implementing the 3-year deferred rotation in pastures 1-4 and 8, along with seasonal deferment in pastures 5-7, would have similar but less adverse effects to soils compared to those described under alternative 1. This alternative limits the physical effects of livestock trampling on wet soils by limiting spring grazing. Given that this alternative avoids spring use in pastures 1, and 4-7 and provides for spring use only in year 1 of each 3-year grazing cycle in pastures 3, 8, and 9, physical trampling effects to wet soils would be less than any other grazing alternative, though still visible.

Indirect adverse effects of grazing on soil stability and watershed condition would be similar to but reduced from those described for alternative 1. Although livestock grazing would continue to remove vegetation that would otherwise promote soil health, this alternative could improve soil conditions relative to alternative 1 because the grazing schedule would improve the condition of the upland vegetation. The proposal would ensure Standard 1 and ORMP soil objectives continue to be met over the long term.

##### **3.3.1.2.4.3 Riparian/Water Quality**

Under Alternative 4 (for details, see sections 2.2.4 and 2.4.1.4), pasture 4 of the Dougal FFR allotment would be open to grazing during the summer for 1 year, and the fall for 2 years; and pasture 8 would be available during the spring for 1 year, during the summer for 1 year, and during the fall the third year of a 3-year rotation (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the two pastures that contain riparian areas, 1.5 miles of intermittent/ ephemeral stream, and one spring would be

affected by the impacts associated with the summer, and fall seasons of grazing alternately over the course of a 3-year rotation (see Table RIPN-11). Pastures 4 and 8 contain the riparian areas that occur on BLM lands within the allotment.

The Dougal FFR allotment is not meeting the standards associated with the riparian-wetland resources under current management (Alternative 1/ year-round). However, because the streams and reservoir that occur on BLM lands within the allotment have an altered flow regime, the causal factor was not attributed to current livestock. Since the allotment would be managed under a defined 3-year rotation with at least 2 out of 3 years of growing season deferment in the pastures that contain riparian areas (4 and 8), short term, benefits from this alternative would not be realized due to altered flow regime; however, improvement would occur over the long term. However, the ORMP objective for all streams and springs to be in PFC would not be attained because the flows and thus the morphology of the drainage system have been altered, and changes in livestock use are only one component of solving the issues.

#### **3.3.1.2.4.4 Special Status Plants**

Alternative 4 offers the most benefit to upland vegetation resources and therefore special status plants within pasture 4 by defining seasons of use and decreasing the intensity of livestock use and, therefore, impacts by 14 percent over the 10-year permit.

The deferred rotation has the same impacts as Alternative 3 to special status plants but with less intensity. Deferment would occur in the form of 2 years fall use for the same number of days but a slightly lower stocking rate. Spring use would occur for the same amount of days as Alternative 3 but also at a lower stocking rate benefiting the health and vigor of special status plants by decreasing trampling impacts and allowing greater success at maintaining their habitats. Additionally, upland herbaceous vegetation would improve in the long term (greater than 10 years) providing competition against invasive species such as juniper and bulbous bluegrass. This alternative would continue to meet Standard 8 for special status plants and would meet the ORMP objective to maintain special status plants and their habitats.

#### **3.3.1.2.4.5 Wildlife and Special Status Animals**

Alternative 4 grazing schedule provides defined seasons of use similar to Alternative 3, but greater definition in the number of days within the defined season use can occur. For terrestrial special status animal species and general upland wildlife species, grazing effects would benefit wildlife over the long term by avoiding the critical growth period of vegetation 2 years in 3, from April 1 to June 30. This season of use change would make progress towards improving wildlife habitat components that were identified as limiting or marginal in 2013. Although the Standard for special status animal species was determined as being met, measures to improve vegetation would benefit upland species and the habitat on which they depend.

For riparian/wetland habitats under Alternative 4, pasture 4 of the Dougal FFR allotment would be open to grazing during the summer for 1 year, and the fall for 2 years; and pasture 8 would be available during the spring for 1 year, during the summer for 1 year, and during the fall the third year of a 3-year rotation. Consequently, within the two pastures that contain riparian areas, 1.5 miles of intermittent/ ephemeral stream, and one spring would be affected by the impacts associated with the summer, and fall seasons of grazing alternately over the course of a 3-year rotation. These prescriptions continue to meet Standard 8 and would benefit riparian-dependent wildlife species including special status animal species. Streams in Dougal FFR allotment are influenced by factors other than livestock grazing and as such would limit improvement of riparian habitats under this alternative.

#### **Focal Special Status Animal Species**

Greater sage-grouse

For pastures 3-6 and 8-9 under Alternative 4, negative effects to sage-grouse from livestock grazing would be reduced over Alternative 1 due to the early-season grazing limitation by the sage-grouse constraint 2 of every 3 years. This limitation would improve herbaceous vegetation height 2 years in 3, benefitting sage-grouse nest screening and subsequently sage-grouse populations. Additionally, the soil's constraint of no grazing March 1 to May 31 in no more than 1 year in 3 would benefit sage-grouse hens by providing increased forb biomass and by providing early protection to herbaceous species that contribute to nest shielding. These constraints and their associated benefits to sage-grouse would be realized in the short term (less than 10 years). Late-brood-rearing habitat for sage-grouse would benefit in pastures 4 and 8 by the addition of the riparian constraint with no use 1 year in every three from July 1 to September 30. This constraint would provide a limited amount of relief from grazing when sage-grouse broods are concentrated on wetlands for succulent forbs. As with upland improvement, benefits to late brood-rearing habitat would see benefits over the short term and make improvement over the long term. These improvements would make progress towards improving marginal sage-grouse nesting and late brood-rearing habitat in Dougal FFR.

#### Columbia spotted frog

Effects to spotted frogs from livestock grazing under Alternative 4 would be reduced from Alternative 1. Early-season grazing in pastures 4 and 8 would be limited due to the soil's constraint protecting breeding habitat 2 years in 3, improving spring habitat conditions over the short term. With no grazing during this time period, the possibility of egg trampling during the breeding season would be eliminated 2 years in 3. No livestock use 2 out of 3 years between July 1 and September 30 would offer limited improvement in spotted frog wetland habitat over the long term. The potential negative effects to spotted frogs and their habitat need to be tempered by the fact that surveys have failed to find frogs in the allotment and public lands in the allotment are not within a Columbia spotted frog occupied watershed. However, Western toads are known to occupy the allotment and similar impacts can be expected for that species.

#### Pygmy rabbit

Impacts to pygmy rabbits and their associated upland wildlife species from livestock grazing would be less than Alternative 1 and 3 effects. With the application of soil and vegetation constraints in all pastures (except pasture 2) and the addition of sage-grouse constraints in pastures 3-6, 8, and 9; pygmy rabbit habitat would see improvement in the short and long term. Herbaceous plant species that pygmy rabbits depend on during the spring and early summer for food would not be grazed during their critical growth period 2 years in 3. This short term benefit may not be realized all period long in a particular pasture the same year, but in the long term, improvement to the habitat will be realized.

#### Columbia River redband trout

No habitat for redband trout exists on public lands in Dougal FFR allotment and will not be discussed under alternative effects analysis.

#### ***Migratory Birds, Raptors, and other Birds (including Special Status Species)***

Effects to birds from livestock grazing under Alternative 4 would be less than those identified in Alternatives 1 and 3. With the application of soil and vegetation constraints in all pastures (except pasture 2) and the addition of sage-grouse constraints in pastures 3-6, 8, and 9; ground nesting bird habitat would see improvement in the short and long term. Likewise, riparian nesting migratory birds in pastures 4 and 8 would benefit over the long term because of avoidance of hot-season grazing every year. Riparian areas in pasture 4 and 8 would have the riparian constraint applied 2 years in 3 under Alternative 3 offering some protection to wetlands. In the short term, benefits would not be realized 1 out of every 3 years, which would carry over to the long term; habitat improvement would occur, making progress towards standards, but would be slow and limited for both upland and riparian habitats. Again, Standard 8 was being met for

special status animal species; however, individual habitat components would be improved under Alternative 4.

### ***Big Game and other Mammals (including Special Status Species)***

Grazing effects to big game and other mammals under Alternative 4 would be less than those identified in Alternative 1. With the application of soil and vegetation constraints in all pastures (except pasture 2) and the addition of sage-grouse constraints in pastures 3-6, 8, and 9; mammal habitat would see improvement in the short and long term. Likewise, riparian areas in pastures 4 and 8 would benefit over the long term because of avoidance of hot-season grazing every year. Riparian areas in pasture 4 and 8 would have the riparian constraint applied 2 years in 3 under Alternative 4. In the short term, benefits would not be realized 1 out of every 3 years that would slow progress over the long term; habitat improvement would occur, making progress towards standards, but would be slow and limited for both upland and riparian habitats.

#### **3.3.1.2.4.6 Social and Economic Values**

See Section 3.2.8.5 above. The new pasture rotations, deferred grazing, and shorter grazing seasons for all pastures may result in increased labor and feed costs.

#### **3.3.1.2.4.7 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

### ***3.3.1.2.5 Alternative 5***

#### **3.3.1.2.5.1 Vegetation, including Noxious Weeds**

The effects of not grazing livestock on upland vegetation resources for a 10-year period are described in section 3.2.1.6.

#### **3.3.1.2.5.2 Soils**

The effects to soils of not grazing livestock for a 10-year period are described in section 3.2.2.6.

#### **3.3.1.2.5.3 Riparian/Water Quality**

See the impacts described for all allotments under Alternative 5 in section 3.2.3.6.

#### **3.3.1.2.5.4 Special Status Plants**

Alternative 5 is expected to meet Standard 8 for special status plants because rest from grazing for a 10-year period would produce conditions conducive for long-term (10 years and beyond) special status plant occurrence health.

There would be no direct effects from domestic livestock grazing or trampling on special status plants. No livestock trampling would degrade habitat or displace seedlings or perennial plant crowns. Thus, reproduction would not be limited.

Indirect grazing effects from impacts to native pollinators or weed increases would not occur. This would result in increased long-term (greater than 10 years) health to the special status plant occurrences and their surrounding plant communities. Lack of grazing would result in increased perennial grass cover, potentially increasing competition with thinleaf goldenhead or Back's calicoflower. These effects are expected to be negligible.

#### **3.3.1.2.5.5 Wildlife and Special Status Animals**

See the impacts described for all allotments under Alternative 5 in section 3.2.5.6.

**3.3.1.2.5.6 Social and Economic Values**

See Section 3.2.8.6 above.

**3.3.1.2.5.7 Cultural Resources**

Under this alternative, no livestock grazing would occur and there would be no effects to cultural resources from this activity.

**3.3.2 Lequerica FFR Allotment**

**3.3.2.1 Lequerica FFR Allotment Affected Environment**

**3.3.2.1.1 Vegetation, including Noxious Weeds**

A Rangeland Health Assessment, Evaluation, and Determination Report was completed for the Lequerica FFR allotment in 2013. This report identified invasive grasses and juniper encroachment as reason for the allotment not meeting the Idaho Standards for Rangeland Health Standard 4 – Native Plant Communities, but the Determination did not identify current livestock management practices as a contributing factor (Appendix F). The assessment shows juniper encroachment is an issue throughout the BLM managed acres. In addition invasive grasses are a concern in further compromising biological sustainability.

**Ecological Sites**

The Lequerica FFR allotment is composed of two major ecological sites (Table VEGE-4). They include a loamy mountain big sagebrush/bluebunch wheatgrass-Idaho fescue site and a very shallow stony loam low sagebrush/Sandberg bluegrass-bluebunch wheatgrass site.

**Table VEGE-4:** BLM lands mapped by Ecological Sites in the Lequerica FFR allotment

<b>Ecological Site</b>	<b>Dominant Species Expected</b>	<b>Acres</b>	<b>Percent of Allotment</b>
Loamy 13-16” ARTRV/PSSPS-FEID	mountain big sagebrush, bluebunch wheatgrass, Idaho fescue	54	78%
Very shallow stony loam 10-14” ARAR8/POSE-PSSPS	low sagebrush, Sandberg bluegrass, Bluebunch wheatgrass	14	20%

The ecological sites show that under natural disturbance regime, the Lequerica FFR allotment should be dominated by sagebrush/bunchgrass communities. Other vegetation types such as western juniper, basin big sagebrush, and riparian areas are expected to occur as unmapped inclusions within the larger ecological sites, and each should make up only a small percentage of the area.

**Current Vegetation<sup>38</sup>**

Current vegetation is discussed at two scales: cover type (overstory vegetation) and understory species composition (rangeland health assessments, trend, etc.). Current overstory vegetation, based on mapping

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<sup>38</sup> Note that these data (specifically rangeland health indicators) are primarily qualitative rather than quantitative, so the following discussion uses non-numerical comparative terms.

done by the Pacific Northwest National Laboratory (PNNL) from 2000/2001 Landsat satellite imagery in the Lequerica FFR allotment, is shown in Table VEGE-5. Ecological site and PNNL mapping were done at different scales (PNNL at a somewhat finer scale) so precise matching is not possible, but gross changes in plant community structure are apparent. None the less, the change between the current vegetation (Table VEGE-5) and the expected vegetation (Table VEGE-4) is indicated by comparing the two tables.

**Table VEGE-5:** Cover Types based on PNNL data for BLM managed lands within Lequerica FFR allotment

Vegetation Cover Type	Acres	Percent of Allotment
Juniper	26	38%
Mountain shrub	25	36%
Mountain big sagebrush	16	23%
Low sagebrush	3	4%
Wet meadow	1	2%

PNNL mapping shows a cover class of ‘Juniper’ that is not present within any of the plant community types. Although juniper can be present within unmapped inclusions in the allotment, its presence to the degree mapped by the PNNL indicates a shift away from reference condition. Photos associated with the 2000 assessment indicate a diverse age class of juniper and, therefore, concern for continued invasion. The aerial imagery (ESRI, 2013) supports the presence of juniper through, mainly on loamy 13-16” ecological sites (up to 78 percent of the BLM-administered lands). This type of vegetation mapping does not show changes in the understory, but information from the 2000 rangeland health field assessment indicates a shift in species composition noted by the reduction of deep-rooted bunchgrasses and the presence of invasive plants (juniper, cheatgrass, and bulbous bluegrass). The shift in species composition towards more grazing tolerant species is likely due to past livestock grazing.

#### **Rangeland Health Standard 4**

Rangeland health field assessments for the Lequerica FFR allotment were conducted in 2000. In 2013, the previous assessment was amended with additional information that was used to issue the 2013 determination (Appendix F). Standard 4 is not being met mainly due to an altered fire regime resulting in subsequent juniper invasion in conjunction with past grazing management. Descriptions for the loamy 13-16” ecological site, where the assessment was performed and juniper is the most dominant, identifies juniper as an invasive species that when dominant, results in a new state requiring management inputs to restore ecological function of the reference site sagebrush/bunchgrass state. Invasive grasses are also of a concern in further compromising future biological sustainability.

#### **Utilization and Actual Use**

No utilization measurements have been taken in this allotment. Timing of use has occurred generally through the fall every year from 2005 to present, with 1 year of summer and fall use (Appendix B). This information documents the majority of use after the active growing season of plants when they have greater resilience to grazing.

#### **Weeds**

No noxious weeds have been mapped in the Lequerica FFR allotment. However, other invasive (but not noxious) non-native plants present include bulbous bluegrass and cheatgrass. These species are generally in localized disturbed areas and not dominant. In general, the plant communities in the Lequerica FFR allotment are dominated by native species, with little influence of non-natives.

#### **Biological Soil Crusts**

No information on microbiotic crust information is available for the Lequerica FFR allotment.

## Conclusion

To summarize, the Lequerica FFR allotment is not meeting Standard 4 for Native Plant Communities because juniper encroachment into vegetation communities that should not include juniper (except for sparse representation) is competing with native perennial shrub, bunchgrass, and forb species. Past grazing and an extended fire frequency from natural disturbance regimes contribute to juniper invasion and, subsequently, not meeting the Standard. In addition, the determination noted the shift from deep-rooted perennial grasses to shallow-rooted perennial grasses and a concern for invasive grasses. This depressed ecological condition of Lequerica FFR allotment is largely a product of grazing management practices in the late 1800s and early 20<sup>th</sup> century (National Research Council, 1994). Even though vegetation communities have shifted to a greater dominance of shallow-rooted native perennial bunchgrass species and non-native annuals and a decline in larger deep-rooted native perennial bunchgrasses, remnant vegetation communities in portions of the allotment not dominated by juniper encroachment or subject to invasive grasses retain an adequate composition of native perennial species to conclude that proper nutrient cycling, hydrologic cycling, and energy flow are provided.

### 3.3.2.1.2 Soils

Current livestock grazing management practices are not significant factors for this allotment’s failure to meet the land health standard for watersheds. Current livestock management is compatible with attainment of Standard 1 for the Lequerica FFR allotment. Juniper tree encroachment is reducing effective precipitation in the watershed directly by intercepting precipitation and indirectly by shading out those plant assemblages that would otherwise provide for water entry pathways. As a result, less water is available for photosynthesis, and the potential for energy flow is reduced. Although evidence of accelerated erosion is not apparent, juniper age class distribution, invasive plants, and decadent native bunchgrasses indicate high potential for downward trend for hydrologic function in the future. Table SOIL-2 summarizes field assessment of soil/site stability and watershed function at a representative location in the allotment.

**Table SOIL-2:** Summary of soil stability and hydrologic function indicators for field assessments in the Lequerica FFR allotment

Ecological Site	Departure of Soil & Watershed Function Indicators from Reference Condition (%) <sup>1</sup>				
	none-to-slight	slight-to-moderate	moderate	moderate-to-extreme	extreme
Loamy 13-16	100	-	-	-	-

<sup>1</sup> Details are available in the 2013 RHA and Determination documents in project file

Recent use has been limited to autumn, well after the period when understory herbaceous species are most vulnerable to adverse grazing effects. Historic grazing pressure may have promoted juniper encroachment indirectly if season-long grazing removed enough fine fuel each year to alter the fire regime. None of the soils on BLM-administered public land in the allotment have a high erosion hazard (USDI BLM, 2012a).

### 3.3.2.1.3 Riparian/Water Quality

A general, common to all allotments, description of the affected environment can be found above in section 3.1.3.

### Existing Condition<sup>39</sup>

Standards 2 and 3 are not being met in the Lequerica FFR allotment because approximately 0.3 mile of a tributary of Juniper Creek was assessed functioning-at-risk (FAR) in 2013. The tributary is an intermittent reach, the floodplain has been compacted, and the run-off occurs quickly, adding to erosion. Spring flows have created unnatural meander bends where erosion is occurring and the sinuosity has been altered. Riparian-wetland species are sparse within the riparian area and upland species are more dominant (Table RIPN-14, Map RIPN-1).

Current livestock grazing management practices were not identified as the significant causal factors for not meeting standards because in recent years, the allotment has been used for short durations during the fall months. Issues identified through the assessment were likely caused by historic grazing that occurred during the summer months and/or year-round.

**Table RIPN-14:** Lequerica FFR allotment riparian condition

Stream Name	Allotment & Pasture Stream Miles & Condition	Assessment Issues/ Impacts Identified	Total Miles
Trib to Juniper Creek	Lequerica – 01, 0.3 (FAR- 2013)	Floodplain is compacted and run-off occurs; quickly/eroding meander turns have altered morphology/riparian; vegetation is sparse; and upland vegetation is encroaching.	0.3

For IDEQ water quality information associated with the Lequerica allotment, see table RIPN-3.

#### 3.3.2.1.4 Special Status Plants

No known special status plants are on BLM managed lands within this allotment.

#### 3.3.2.1.5 Wildlife and Special Status Animals

In addition to the general overview of the Affected Environment for Wildlife Resources in the South Mountain allotments presented above (Section 3.1.5), descriptions of the current condition of species and their habitats within the Lequerica FFR allotment are based on the 2013 Rangeland Health Assessment and Evaluation Report (USDI BLM, 2013) and Determination (Appendix E), affected environments of the Rangeland Vegetation and Water and Riparian Resources within this EA (Sections 3.1.1 and 3.1.3, respectively), recent personal observations, current element occurrences in IFWIS (IDFG, 2011), and consultation with local wildlife professionals.

#### Wildlife Habitat

The entire Lequerica FFR allotment encompasses the Owyhee Uplands and Canyons Level IV Ecoregion discussed previously (Map GEN-2). Within the allotment, this ecoregion is characterized by rolling shrub steppe uplands interrupted by juniper woodlands, low hills, rocky outcrops, and flat tablelands. Currently, the expansion of juniper into former shrub communities has transformed much of the area into woodlands ranging from open, savanna-like conditions to denser canopy forest (Section 3.3.2.1.1). These denser woodlands cover the relatively low profile flanks of the upper elevations of South Mountain. Riparian areas occur throughout the upper and mid-elevation pastures along many perennial streams (Section

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<sup>39</sup> For additional details on the current condition of the allotment, see the *Lequerica FFR (0473) Initial Allotment and Permit/Lease Review and Rangeland Health Assessment* document in the project record or available from the Owyhee Field Office

3.3.2.1.3). Wildlife habitats within the Lequerica FFR allotment include juniper woodlands, low and big sagebrush steppe, grasslands, wet meadow complexes, riparian areas, springs, and seeps (Table VEGE-5). A detailed discussion of upland and riparian vegetation within the allotment can be found in Sections 3.3.1.1.1 and 3.3.1.1.3.

No federally listed Threatened or Endangered animals are known to occur in Lequerica FFR allotment. One candidate species, the Columbia spotted frog, could potentially occur in the allotment, as surveys have never been conducted in the allotment and potential habitat does exist on BLM and private lands. A second candidate species, the greater sage-grouse, has no designated preliminary priority habitat (PPH) in the allotment, and preliminary general habitat (PGH) is limited to private lands only in the very northern portion of the allotment and the area west of Juniper Creek. As many as 11 mammal, 20 bird, 2 amphibian, 3 fish, and 3 reptile species with BLM special status (including Watch List Species) potentially occur within the allotment. No special status species that have been documented in the Idaho Fish and Wildlife Information System (IDFG, 2011) within the allotment; however, redband trout are known to occur in Juniper Creek on private land. In fact, western toads and Columbia spotted frogs are the only other special status species that have been documented within three miles of Lequerica FFR allotment.

### ***Uplands***

Upland habitats were found to not be meeting Standard 4; however, it was determined that livestock grazing management practices were not significant factors leading to the determination. Livestock grazing has occurred late in the growth cycle for grasses and forbs, after the critical growth period. The prevalence of juniper and other invasive species have degraded the habitat through time and reduced habitat quality for sagebrush dependent species. Some special status species may benefit from juniper existence, such as bat species that can use the area for roosting sites. However, diminished understories of sagebrush, perennial forbs, and perennial bunch-grasses, compared to what would be expected in the Potential Natural Community condition for ecological sites on this allotment, have a negative effect on other animal species. The evaluation and determination for special status animals (Standard 8) was based on evaluations for Standards 1, 2, 3, and 4, as their analyses directly reflect conditions of wildlife habitat in the allotment. Standard 8 was determined to not be meeting the Standard, but current livestock grazing management was not a significant factor in reaching this determination. Conversion of sagebrush habitats to juniper woodlands is the primary limiting factor on public lands in Lequerica FFR allotment. Although the increase in juniper cover may have benefited some woodland-associated special status wildlife species such as northern goshawks and Lewis' woodpeckers, these woodland habitats are unsuitable for and have come at the expense of sagebrush-obligate and shrub-dependent special status species such as greater sage-grouse, pygmy rabbits, Brewer's sparrows, loggerhead shrikes, and sage sparrows. Although juniper woodlands currently make up 38 percent of the allotment (all ownerships), if their densities continue to increase, sagebrush-obligate species will be further impacted.

### ***Riparian***

Riparian habitat standards were not being met in the Lequerica FFR allotment in 2013 because approximately 0.3 mile of a tributary of Juniper Creek was assessed functioning-at-risk (FAR). The tributary is an intermittent reach, the floodplain has been compacted, and the run-off occurs quickly, adding to erosion. Spring flows have created unnatural meander bends where erosion is occurring and the sinuosity has been altered. Riparian-wetland species are sparse within the riparian area, and upland species are more dominant. Current livestock grazing management practices were not identified as the significant causal factors for not meeting Standard 2 because in recent years the allotment has been used for short durations during the fall months. Issues identified through the assessment were likely caused by historic grazing that occurred during the summer months and/or year-round.

### **Focal Special Status Animal Species**

### Greater sage-grouse

Historically, a majority of the allotment provided suitable habitat for sage-grouse and supported significant populations (USDI BLM, 1969). Currently, only sage-grouse PGH occurs in portions of the Lequerica FFR allotment, and of that, only 1 percent exists on public lands (Map WDLF-1). Extensive areas of juniper encroachment occur in pastures 1 and 2 of the allotment (Map WDLF-1). Since the 1960's no wildfires have been recorded in Lequerica FFR allotment (Map FIRE-1). In general, the amount and extent of sagebrush vegetation communities in the allotment are restricted to 23 percent big sagebrush and 4 percent low sagebrush (Table WDLF-3). Sage-grouse habitat is largely limited due to juniper expansion and as no PPH and only three acres of PGH exists on public lands in Lequerica FFR (Table WDLF-3); as such, sage-grouse will not be further discussed in this analysis.

**Table WDLF-3:** Sage-grouse habitat acreage within Lequerica FFR allotment, 2013

Pasture	Preliminary Priority Habitat (PPH)			Preliminary General Habitat (PGH)			Habitat
	Private	BLM	Total	Private	BLM	Total	Total
1	0	0	0	235	3	238	238
2	0	0	0	0	0	0	0
Total (% of allotment)	0 (0%)	0 (0%)	0 (0%)	235 (24.4%)	3 (0.3%)	238 (24.7%)	238 (24.7%)

### Columbia spotted frog

Various agencies and researchers have surveyed potential spotted frog habitat throughout the Owyhee Mountains and Uplands since 1994 (Munger, et al., 1994) (Munger, Ames, & Barnett, 1997) (Owyhee Columbia Spotted Frog Working Group, 2007) (La Fayette, 2010) (Lohr & Haak, 2009) (Lohr, 2011). Although occurrence information available from IFWIS (IDFG, 2011) has not documented spotted frogs within the allotment, they have been observed in South Mountain Area allotment on Corral Creek. Spotted frog surveys 1 mile south of Lequerica FFR allotment on Cabin Creek and 3 miles south on Juniper Creek have not revealed Columbia spotted frogs. Surveys have been limited due to the large percentage of private land in the allotment. Most potential habitat for the species exists on private land in the form of streams, meadows, and springs. A 0.3 mile tributary of Juniper Creek exists on public land in pasture 1 and could potentially serve as spotted frog habitat since Lequerica FFR allotment is within a Columbia spotted frog occupied watershed (Map WDLF-3).

### Pygmy rabbit

A coarse-level predictive occurrence model created by Idaho BLM in 2009 suggests that portions of Lequerica FFR allotment have a moderate likelihood of core habitat presence. However, habitat in the majority of the allotment is unsuitable for pygmy rabbits; only 10 percent of the allotment is classified as having the appropriate cover type the species prefers (i.e., big sagebrush and friable soils; Table WDLF-1). Suitable sagebrush habitat and soils are mostly absent or now dominated by junipers in pastures 1 and 2. Of the 10 percent modeled habitat (all ownership), only 2 acres exist on public land, and those lands have been converted to juniper woodland. No pygmy rabbit surveys have been conducted within the allotment nor have any been documented. Due to the lack of current suitable pygmy rabbit habitat, no further analysis for the species will occur for Lequerica FFR allotment.

### Columbia River redband trout

Within the allotment, redband trout have been documented in Juniper Creek in pasture 1 (Map WDLF-3). Redband trout are not known to occupy the ephemeral stream (0.3 miles) on public land within pasture 1. Overall, habitat for redband trout is degraded due to grazing effects in riparian areas and juniper

encroachment (Section 3.3.2.1.3). Because no habitat exists on public lands in this allotment, no further analysis will be discussed for Lequerica FFR allotment.

#### ***Migratory Birds, Raptors, and other Birds (including Special Status Species)***

In addition to the general discussion of migratory birds, raptors, and other bird species and their habitats in Section 3.3.1.5, a variety of bird species have the potential to occur or have been documented within and in the vicinity of the Lequerica FFR allotment (Appendix G). The juniper woodlands and riparian areas within the allotment are either known to or potentially could provide nesting and foraging habitat for many special status and migratory birds. As discussed above, the expansive juniper woodland habitat that currently occupies ecological sites that otherwise would be dominated by the expected sagebrush habitats in the absence of juniper encroachment presently has augmented the population of woodland birds that would be a far minor component of the area's overall bird community. Under natural disturbance regimes, juniper woodland bird species would be limited to widely scattered, solitary old-growth junipers or small stands that would be expected to occur on shallow, rocky soils as restricted inclusions within sagebrush or mountain shrub ecological sites (USDA NRCS, 2010). Junipers and aspen provide nesting and foraging substrate for foliage and bark gleaning species such as black-throated gray and yellow-rumped warblers, mountain bluebird, Townsend's solitaire, hairy woodpecker, and red-naped sapsucker. Ground gleaning species within woodland habitats include American robin, black-billed magpie, chipping sparrow, and dark-eyed junco. In addition, juniper woodlands provide habitat for owl and raptor species such as flammulated owl, long-eared owl, northern saw-whet owl, northern goshawk, and red-tailed hawk.

Riparian habitat along the perennial stream in the Lequerica FFR allotment potentially hosts a variety of obligate and dependent bird species. Riparian-obligate species, like yellow warbler, and dependent species, such as black-capped chickadee, black-headed grosbeak, house wren, and warbling vireo, have been documented in the South Mountain area. These species prefer the structural diversity found in riparian areas with aspen and willow canopies and herbaceous understories along streambanks. The absence of disturbance associated with livestock grazing within these riparian communities has been demonstrated to result in high-quality breeding habitat (i.e., high nest success, low brood parasitism rates) for many of these species (Heltzel & Earnst, 2006).

Shrub steppe habitats dominated by mountain and low sagebrush provide vital nesting and foraging habitat for obligate species such as Brewer's and sage sparrows and dependent species including loggerhead shrike and sage thrasher. Direct loss, fragmentation, and degradation of sagebrush habitats connected with the spread of invasive plants, altered disturbance regimes, and the associated state transitions from stable native vegetation communities are some of the most important factors affecting long-term and regional population dynamics of these species (Knick & Rotenberry, 1995) (Knick & Rotenberry, 2000) (Knick & Rotenberry, 2002) (Knick, et al., 2003) (Knick, Holmes, & Miller, 2005). Passerine species like vesper sparrow, horned lark, western meadowlark, and rock wren, and raptors such as golden eagle, prairie falcon, ferruginous and rough-legged hawks, and burrowing and short-eared owls have also been documented in the area's shrub steppe vegetation communities.

#### ***Big Game and other Mammals (including Special Status Species)***

In addition to the general discussion of big game and other mammal species and their habitats in Section 3.1.5, various big game and special status mammal species use a variety of habitats in the Lequerica FFR allotment for some or all of their seasonal needs. Big game species are limited to elk, pronghorn, and mule deer. No California bighorn sheep Game Management Units or populations occur within or adjacent to Lequerica FFR allotment.

The woodland and mountain shrub habitats within pastures 1 and 2 provide summer habitat for elk and mule deer. Although mule deer may be present year-round within the area, most winter habitat for both species occurs at lower elevations in Oregon. Pronghorn use within the allotment is highly restricted and limited to the lower areas along and adjacent to Juniper (pasture 1).

#### **3.3.2.1.6 Social and Economic Values**

See Section 3.1.9 above.

#### **3.3.2.1.7 Cultural Resources**

No previously recorded cultural sites are within the Lequerica FFR allotment, and no potential livestock congregation areas are identified on BLM land. Staff conducted no new surveys and did no site monitoring visits.

There is no paleontological stratum beneath the allotment and no fossil sites on record.

### **3.3.2.2 Lequerica FFR Allotment Environmental Consequences**

#### **3.3.2.2.1 Alternative 1**

##### **3.3.2.2.1.1 Vegetation, including Noxious Weeds**

This allotment is currently not meeting Standard 4 due to juniper encroachment, invasive species and an altered native plant community stemming from past grazing. Current livestock grazing management is not identified to be a significant casual factor for not meeting. Continuation of current grazing management (Alternative 1) would maintain to slightly improve the current condition of upland vegetation that is degraded due to past livestock grazing.

Actual use data was reported on an allotment level showing consistent fall use since 2003 with an average duration of 3 weeks. 1 year reports limited growing season use with a duration of less than one week. Lequerica FFR allotment will be stocked at the same rate for all alternatives, i.e., 11 AUMs. Utilization data for this allotment is not available. A continuation of the deferred season of use (limited use during the active growing period) for bunchgrasses would support the 50 percent utilization term and condition.

In areas where the Standard is not being met due to juniper encroachment into sagebrush steppe communities, livestock grazing seasons of use and AUMs are not likely to contribute to either improvement or continued failure to meet Standard 4.

The effects of Alternative 1 on biological soil crusts are expected to be similar to those on vegetation in general. Under the proposed level and seasons of use, biological soil crusts are expected to be maintained as livestock movements from pasture to pasture would decrease livestock concentrations.

No noxious weed occurrences have been recorded in the Lequerica FFR allotment. Invasive annual grasses are present in the allotment, but they do not dominate in any areas. Alternatives 1 through 4 all authorize 11 AUMs; therefore, the risk of spreading weed seed is equivalent for all alternatives except Alternative 5, the no grazing alternative.

Alternative 1 would be expected in the short term (less than 10 years) to maintain existing upland bunchgrasses in the Lequerica FFR because deferred grazing provides for increased health and vigor of bunchgrasses by limiting defoliation during the critical growth period when plants are most susceptible to livestock impacts. The effects from past grazing (reduction of large bunchgrasses) and the presence of invasive species (annual grasses and juniper) would still be part of the vegetation community and cause

the allotment to not meet Standard 4. Based on the lack of growing season use, over the long term (greater than 10 years) large bunchgrasses would likely have slow recovery and invasive species are expected to be stable. The ORMP vegetation objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas would be met.

#### **3.3.2.2.1.2 Soils**

The current grazing system would continue and there would be no evidence of accelerated erosion over the long term. The direct effects of livestock trampling on wet soils would continue to be avoided to the extent that the operator continues to avoid spring grazing. Indirectly, the amount of utilization would continue to provide amounts of residual vegetation each season to keep patches of bare ground small and discontinuous. Deep-rooted perennial bunchgrasses that benefit watershed function would persist to the extent that the operator continues to avoid use during the critical growing season.

The proposal would not prevent the allotment from meeting Standard one and ORMP objectives. Juniper would continue to encroach, increasing the risk of depressed watershed function and accelerated erosion, preventing the allotment from meet Standard 1 over the long term. The proposed level of livestock grazing would have no effect on the rate of encroachment.

#### **3.3.2.2.1.3 Riparian/Water Quality**

Under Alternative 1 (for details, see sections 2.2.1 and 2.4.2.1), the Lequerica FFR allotment would be open to grazing during the fall months, annually (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 0.8 mile of intermittent stream would be affected by the impacts associated with the fall season of grazing. Recent actual use reported (Appendix B) indicates that the FFR has primarily been used during the fall months; thus, the impacts of fall grazing have been most prevalent.

The Lequerica FFR allotment is not meeting the standards associated with the riparian-wetland resources under current management. However, current livestock use was not identified as the causal factor because the allotment has been used for short durations during the fall months according to recent actual use. The indicators identified for not meeting are associated with season-long use. Under Alternative 1, with a defined grazing schedule, the allotment would be used during the fall season. Therefore, the allotment would maintain the riparian resources in their current condition under this alternative. The management that led to the current condition is what defines this alternative and will form the baseline for comparison to the other alternatives.

#### **3.3.2.2.1.4 Special Status Plants**

Not applicable.

#### **3.3.2.2.1.5 Wildlife and Special Status Animals**

Lequerica FFR allotment is currently not meeting upland habitat standards due to juniper encroachment, invasive grasses and an altered native plant community stemming from past grazing. The allotment is not meeting riparian standards either, but in both cases it was determined current livestock grazing was not a significant factor leading to the determinations. Likewise, for special status animal species it was determined the standard was not being met, but livestock grazing was not a significant factor leading to the determination. Under Alternative 1, the Lequerica FFR allotment would be available to grazing during late-summer and early-fall from 9/1 to 10/12 annually without specified rest or growing season deferment. Upland habitats would remain the same as the current situation, but grazing is after the critical growth period for perennial grasses and forbs so only dry matter cover would be removed.

If adhered to, the Boise District permit terms and conditions would contribute towards maintaining existing conditions in Lequerica FFR allotment. Permitted use dates would limit the adverse physical effects of trampling during saturated soil conditions, and reduce impacts to upland plant species by avoiding the critical growth period of upland vegetation. The permitted use, along with utilization terms and conditions, would leave adequate amounts of residual vegetation for wildlife and their upland habitats. The allotment would continue to not meet Standard 8 for upland-dependent species and maintain habitat conditions to meet ORMP objective WLDF-1. In the absence of prescribed fire or wildfire or without mechanical juniper removal, conditions would not improve in the allotment for upland habitats or the wildlife species that depend on them.

Recent actual use reports show that the limited riparian habitat on public lands in pasture 1 (0.3 miles) have been grazed in the fall season. Under Alternative 1, with a defined grazing schedule, the allotment would be used during the fall season. Therefore, the allotment would maintain the riparian resources in their current condition under this alternative. With the lack of riparian improvement, wetland-dependent wildlife species would not realize any benefits under this alternative. The management that led to the current condition is what defines this alternative and will form the baseline for comparison to the other alternatives.

#### **3.3.2.2.1.6 Social and Economic Values**

See Section 3.2.8.2 above.

#### **3.3.2.2.1.7 Cultural Resources**

No known historic properties would be affected under this alternative.

### **3.3.2.2.2 Alternative 2**

#### **3.3.2.2.2.1 Vegetation, including Noxious Weeds**

The permittees proposal under alternative 2 differs from Alternative 1 by providing an open season of use but with the same AUMs and stocking rate. The effects of season-long grazing to upland vegetation would result in a decline in deep-rooted bunchgrasses and forbs. This would result in the vigor and productivity to decline compared to Alternative 1, which allows for fall use only.

As identified in Appendix F, critical growing season use has the greatest potential to impact health and vigor of bunchgrass species as compared to use during periods outside the active growing season. Uplands adjacent to water along the unnamed tributary of 0.8 miles of intermittent stream would be affected the most due to livestock congregating near the water source. Maximum flexibility provided in the grazing schedule allows for use of the allotment at the permittees discretion with potential for critical growing season use in all years at a moderate utilization level placing much of this allotment at risk of failing to meet the ORMP vegetation objectives and further failing to meet Standard 4. In the absence of actions to reduce stressors (season of use and/or utilization levels) to biotic function of the upland vegetation brought on by livestock management practices, a downward trend would be anticipated, particularly in those pastures currently not meeting due to invasive species. Further stressors induced by climate change (primarily altered precipitation and temperature regimes) would be exacerbated by livestock management practices identified above. In addition, invasive species (juniper and annual grasses) may have further opportunity to expand in those years of climatic strain. For the reasons described above, upland vegetation is unlikely to meet Standard 4 and the ORMP management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition in the short term (less than 10 years) throughout the allotment when livestock grazing during the critical growing season use is implemented in all years.

#### **3.3.2.2.2 Soils**

The direct trampling effects and indirect effects to soils under this alternative would be the same as those described under alternative one, to the extent that the permittee elected to continue his current use pattern. In this case grazing management would not prevent the allotment from meeting land health standard one and ORMP soil objectives. However, if spring grazing were employed repetitively, physical trampling would become more severe than alternative 1 over the short term, and changes to the vegetation would cause further indirect adverse effects to soil over the long term. In that case, the allotment would not meet land health standard one or the ORMP soil objectives. Regardless of when the allotment is grazed, juniper encroachment would continue to increase the risk of depressed watershed function and accelerated erosion, preventing the allotment from meeting Standard 1 over the long term. The proposed level of livestock grazing would have no effect on the rate of encroachment.

#### **3.3.2.2.3 Riparian/Water Quality**

Under Alternative 2 (for details, see sections 2.2.2 and 2.4.2.2), the permittee application proposes the same grazing management that is reflected on the current permit. Thus, the Lequerica FFR allotment would be open to grazing year-round without rest or growing season deferment (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 0.8 mile of intermittent stream would be affected by the impacts associated with all seasons of grazing. Recent actual use reported (Appendix A) indicates that the FFR has primarily been used during the fall months; thus, the impacts of fall grazing are likely most prevalent.

Under current management, the Lequerica FFR allotment is not meeting the standards associated with the riparian-wetland resources. However, current livestock use was not identified as the causal factor because the allotment has been used for short durations during the fall months according to recent actual use. Under Alternative 2, without a defined grazing schedule, the allotment could be used season-long at the discretion of the permittee. Therefore, the allotment would continue to not meet the riparian-wetland standards under this alternative.

#### **3.3.2.2.4 Special Status Plants**

Not applicable.

#### **3.3.2.2.5 Wildlife and Special Status Animals**

Under Alternative 2 (for details, see sections 2.2.2 and 2.4.2.2), the permittee application proposes the same grazing management that is reflected on the current permit. Thus, the Lequerica FFR allotment would be open to grazing year-round without rest or growing season deferment. Upland vegetation could be grazed during the critical growth period, precipitating a decline in habitat conditions. Special status animal species and wildlife in general, dependent on these habitats, would see a reduction in herbaceous cover and height during the nesting season for birds. Likewise, small mammals, big game, and other terrestrial species would see a decline in cover and available standing biomass during the critical spring and summer seasons versus Alternative 1.

In riparian habitats within the allotment, 0.3 miles of BLM-administered intermittent stream would be affected by the impacts associated with all seasons of grazing. Recent actual use reported (Appendix B) indicates that the FFR has primarily been used during the fall months; thus, the impacts of fall grazing are likely most prevalent.

Under current management, the Lequerica FFR allotment is not meeting the standards associated with the riparian-wetland resources. However, current livestock use was not identified as the causal factor because the allotment has been used for short durations during the fall months according to recent actual use. Under Alternative 2, without a defined grazing schedule, the allotment could be used season-long;

therefore, the allotment would continue to not meet the riparian-wetland standards under this alternative. Wildlife dependent on riparian habitats would not see improvement in pasture 1 and would realize the same impacts as they are currently experiencing. Additionally, the intermittent stream flowing into Juniper Creek would produce additional runoff increasing impacts on Columbia redband trout habitat by adding sediment that covers redds (spawning nests).

#### **3.3.2.2.6 Social and Economic Values**

See Section 3.2.8.3 above. The ability to use the allotment year-round could result in additional labor costs and reduced off-allotment feed costs.

#### **3.3.2.2.7 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

#### **3.3.2.2.3 Alternative 3**

##### **3.3.2.2.3.1 Vegetation, including Noxious Weeds**

Alternative 3 defines specific seasons of use in a 3-year rotation with the same AUMs and stocking rate as Alternative 1. As opposed to Alternative 1, which has total deferment in all years, this alternative would be deferred 2 out of 3 years (1 year use during the critical growth period). This schedule follows the upland vegetation resource constraint of a minimum of 2 years deferment for every year of active growing season use. This constraint provides the necessary time between grazing events to allow for recovery after a grazing event ultimately enhancing the health and vigor of upland plant communities. See Section 2.2.3 for Alternative 3 resource constraints and rationale.

Alternative 3 would be expected in the short term (less than 10 years) to maintain and potentially over the long term (greater than 10 years) improve existing upland bunchgrasses in the Lequerica FFR because deferred grazing provides for increased health and vigor of bunchgrasses by limiting defoliation during the critical growth period when plants are most susceptible to livestock impacts. The effects from past grazing (reduction of large bunchgrasses) and the presence of invasive species (annual grasses and juniper), would still be part of the vegetation community and cause the allotment to not meet Standard 4. Based on the decrease of growing season use, over the long term (greater than 10 years) large bunchgrasses would likely have slow recovery and invasive species are expected to be stable. The ORMP vegetation objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas would be met.

##### **3.3.2.2.3.2 Soils**

The effects to soils would be similar to those described under alternative one. Distributing use between two operators would not appreciably affect soils due to the small amount of use proposed and the context of BLM-administered public lands relative to the more abundant private lands in each pasture. The adverse physical effects of livestock trampling wet soils would be slightly greater under this alternative compared to Alternative 1 due to at least one, and possibly two, spring-use periods during each 3-year grazing cycle. The grazing management would not prevent the allotment from meeting ORMP objectives over the long term because the use schedule would eliminate the potential for repetitive spring use. The indirect effects of grazing to upland soils would be virtually the same as alternative one because differences in the amount of residual vegetation left each year, relative to alternative one would be too small to detect.

The proposal would not prevent the allotment from meeting Standard 1 and ORMP objectives. Juniper would continue to encroach, increasing the risk of depressed watershed function and accelerated erosion,

preventing the allotment from meet Standard 1 over the long term. The proposed level of livestock grazing would have no effect on the rate of encroachment.

#### **3.3.2.2.3.3 Riparian/Water Quality**

Under Alternative 3 (for details, see sections 2.2.3 and 2.4.2.3), the Lequerica FFR allotment would be open to grazing during the spring for 1 year; during the spring, summer, and fall for 1 year; and during the fall for the third year of a 3-year rotation (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). The 1 year of fall use and 1 year of spring use would allow the 0.8 mile of intermittent streams growing season deferment from the impacts associated with grazing year-round. The remaining year would continue to be affected by the impacts associated with use during the spring and summer months.

The Lequerica FFR allotment is not meeting the standards associated with the riparian-wetland resources under current management (see Alternative 1). Although the recent actual use for the allotment indicates it has primarily been used during the fall months, the assessment captures issues that were likely caused by season-long grazing that occurred historically, and the determination did not identify livestock as the causal factor for not meeting the standards. Alternative 3 proposes to define the grazing schedule and incorporate 2 years of growing season deferment as compared to the flexibility that would remain part of the permit under Alternative 1. Short-term benefits from this alternative would not be realized due to the altered condition of riparian habitat from past grazing practices; however, improvement in the riparian condition over the long term would occur.

#### **3.3.2.2.3.4 Special Status Plants**

Not applicable.

#### **3.3.2.2.3.5 Wildlife and Special Status Animals**

For upland dependent special status animal species and wildlife in general, Alternative 3 would attain slight improvement in their habitats over the long term. Alternative 3 differs from Alternative 1 by defining a 3-year rotation with specific seasons of use. As opposed to Alternative 1, which has total deferment in all years, this alternative would be deferred 2 out of 3 years (1 year use during the critical growth period). This schedule follows the upland vegetation resource constraint of a minimum of 2 years deferment for every year of active growing season use. This constraint provides the necessary time between grazing events to allow for recovery after a grazing event, ultimately enhancing the health and vigor of upland plant communities. Ground nesting birds would have adequate cover at least two of every 3 years, and small mammals would likewise be supplied necessary cover and forage during the spring. Additionally, Boise District terms and conditions would require no more than 50 percent utilization on upland herbaceous species. These prescriptions would make slow progress towards meeting Standard 8 for upland special status animal species and would meet ORMP objective WDLF-1.

For riparian dependent wildlife species, Alternative 3 would make progress towards meeting the riparian Standards 2 and 3 and improve habitat for wetlands. Alternative 3 proposes to define the grazing schedule and incorporate 2 years of growing season deferment as compared to the flexibility that would remain part of the permit under Alternative 1. Subsequently, the alternative would make progress towards meeting Standard 8 for riparian dependent species; however progress would be slow. The allotment has no habitat on public lands for Columbia redband trout.

#### **3.3.2.2.3.6 Social and Economic Values**

See Section 3.2.8.4 above. The new pasture rotations and different grazing seasons for all pastures may result in increased labor and feed costs.

#### **3.3.2.2.3.7 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

#### **3.3.2.2.4 Alternative 4**

##### **3.3.2.2.4.1 Vegetation, including Noxious Weeds**

Alternative 4 is virtually identical to Alternative 1 aside from having a rotation with defined seasons of use. The designated seasons of use are the same as the reported actual use in Alternative 1, after the critical growth period for upland vegetation. For this reason, Alternative 4 impacts are the same as Alternative 1 impacts.

AUMs, the utilization term and condition, stocking rate, and season of use for Alternative 4 are identical to Alternative 1; therefore, so are the impacts (Section 3.3.1.2.1.1). Alternative 4 would be expected in the short term (less than 10 years) to maintain and potentially over the long term (greater than 10 years) improve existing upland bunchgrasses in the Lequerica FFR because deferred grazing provides for increased health and vigor of bunchgrasses by limiting defoliation during the critical growth period when plants are most susceptible to livestock impacts. The effects from past grazing (reduction of large bunchgrasses) and the presence of invasive species (annual grasses and juniper) would still be part of the vegetation community and cause the allotment to not meet Standard 4. Based on the lack of growing season use, over the long term (greater than 10 years) large bunchgrasses would likely have slow recovery and invasive species are expected to be stable at best. The ORMP vegetation objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas would be met.

##### **3.3.2.2.4.2 Soils**

Livestock grazing effects on soils would be similar to but less than those described under alternative 1. By omitting spring grazing altogether, both the magnitude and extent of surface degradation from livestock trampling wet soils would be lower than any of the other grazing alternatives. Some surface degradation would still occur however, as autumn precipitation patterns overlap the proposed grazing periods. The indirect effects of grazing to upland soils would be the same as Alternative 1 because the same overall amount of use is proposed.

The proposal would not prevent the allotment from meeting Standard 1 and ORMP objectives. Juniper would continue to encroach, increasing the risk of depressed watershed function and accelerated erosion, preventing the allotment from meet Standard 1 over the long term. The proposed level of livestock grazing would have no effect on the rate of encroachment.

##### **3.3.2.2.4.3 Riparian/Water Quality**

Under Alternative 4 (for details, see sections 2.2.4 and 2.4.2.4), the Lequerica FFR allotment would be open to grazing during the summer and fall for 1 year and during the fall for 2 years of a 3-year rotation (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). The 2 years of fall use would allow the 0.8 mile of intermittent streams growing season deferment from the impacts associated with grazing year-round. The remaining year would continue to be affected by the impacts associated with use during the summer months.

The Lequerica FFR allotment is not meeting the standards associated with the riparian-wetland resources under current management (see Alternative 1). Although the recent actual use for the allotment indicates it has primarily been used during the fall months, the assessment captures issues that were likely caused by season-long grazing that occurred in the past, and the determination did not identify livestock as the causal factor for not meeting the standards. Alternative 4 proposes to define the grazing schedule and incorporate 2 years of growing season deferment as compared to the flexibility that would remain part of the permit under Alternative 1. Short-term benefits from this alternative would not be realized due to the

altered condition of riparian habitat from past grazing practices; however, improvement in the riparian condition over the long term would occur.

#### **3.3.2.2.4.4 Special Status Plants**

Not applicable.

#### **3.3.2.2.4.5 Wildlife and Special Status Animals**

Environmental consequences to special status animal species and wildlife in general for Alternative 4 would be similar to those for Alternative 1. Upland habitats would be assured of no livestock grazing during the critical growth period for herbaceous plant species, benefiting plant cover for ground nesting birds and small mammals. Significant progress would be made towards meeting Standard 8 and would meet ORMP objective WDLF-1. Likewise, wetland-dependent wildlife species would benefit under this alternative. Alternative 4 proposes to define the grazing schedule and incorporate 2 years of growing season deferment for intermittent streams/wetlands as compared to the flexibility that would remain part of the permit under Alternative 1. Therefore, the allotment would make progress toward meeting Standard 8 for special status animal species.

#### **3.3.2.2.4.6 Social and Economic Values**

See Section 3.2.8.5 above. The new pasture rotations and deferred grazing for both pastures may result in increased labor and feed costs.

#### **3.3.2.2.4.7 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

### **3.3.2.2.5 Alternative 5**

#### **3.3.2.2.5.1 Vegetation, including Noxious Weeds**

The effects of not grazing livestock on upland vegetation resources for a 10-year period are described in section 3.2.1.6.

#### **3.3.2.2.5.2 Soils**

The effects to soils of not grazing livestock for a 10-year period are described in section 3.2.2.6.

#### **3.3.2.2.5.3 Riparian/Water Quality**

See the impacts described for all allotments under Alternative 5 in section 3.2.3.6.

#### **3.3.2.2.5.4 Special Status Plants**

Not applicable.

#### **3.3.2.2.5.5 Wildlife and Special Status Animals**

See the impacts described for all allotments under Alternative 5 in section 3.2.5.6

#### **3.3.2.2.5.6 Social and Economic Values**

See Section 3.2.8.6 above.

#### **3.3.2.2.5.7 Cultural Resources**

Under this alternative, no livestock grazing would occur and there would be no effects to cultural resources by this activity.

### 3.3.3 McKay FFR Allotment

#### 3.3.3.1 McKay FFR Allotment Affected Environment

##### 3.3.3.1.1 Vegetation, including Noxious Weeds

A Rangeland Health Assessment, Evaluation Report and Determination document was completed for the Lequerica FFR allotment in 2013. The Rangeland Health Assessment and Evaluation Report for the allotment completed in 2013 (Appendix F) identified juniper encroachment as reason for the allotment not meeting the Idaho Standards for Rangeland Health Standard 4 – Native Plant Communities. In addition, this site should be dominated by Idaho fescue and bluebunch wheatgrass at reference condition, but, conversely, Idaho fescue (highly palatable) was reported to be greatly reduced from the site. The Determination did not identify current livestock management practices as a contributing factor. Juniper encroachment is an issue throughout the BLM managed acres that have not burned in the past several decades<sup>40</sup>.

#### Ecological Sites

The McKay FFR allotment is composed of two major ecological sites (Table VEGE-6). They include a Loamy mountain big sagebrush/bluebunch wheatgrass-Idaho fescue site and a shallow claypan low sagebrush/Idaho fescue site.

**Table VEGE-6:** BLM lands mapped by Ecological Sites in the McKay FFR allotment

Ecological Site	Dominant Species Expected	Acres	Percent of Allotment
Loamy 13-16” ARTRV/PSSPS-FEID	mountain big sagebrush, bluebunch wheatgrass, Idaho fescue	206	79%
Shallow claypan 12-16” ARAR8/FEID	low sagebrush, Idaho fescue	54	21%

The ecological sites show that under natural disturbance regime the McKay FFR allotment should be dominated by sagebrush/bunchgrass communities. Other vegetation types such as western juniper, basin big sagebrush, and riparian areas are expected to occur as unmapped inclusions within the larger ecological sites, and each should make up only a small percentage of the area.

#### Current Vegetation<sup>41</sup>

Current vegetation is discussed at two scales: cover type (overstory vegetation) and understory species composition (rangeland health assessments, trend, etc.). Current overstory vegetation, based on mapping done by the Pacific Northwest National Laboratory (PNNL) from 2000/2001 Landsat satellite imagery in the McKay FFR allotment, is shown in Table VEGE-7. Ecological site and PNNL mapping were done at different scales (PNNL at a somewhat finer scale) so precise matching is not possible, but gross changes in plant community structure are apparent. None the less, the change between the current vegetation (Table VEGE-7) and the expected vegetation (Table VEGE-6) is indicated by comparing the two tables.

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<sup>40</sup> For purposes of this EA BLM Idaho fire perimeter history contains records from approximately 1960 through 2012.

<sup>41</sup> Note that these data (specifically rangeland health indicators) are primarily qualitative rather than quantitative, so the following discussion uses non-numerical comparative terms.

**Table VEGE-7: Cover Types based on PNNL data for BLM managed lands within Mckay FFR allotment**

Vegetation Cover Type	Acres	Percent of Allotment
Juniper	111	43%
Mountain shrub	56	22%
Mountain big sagebrush	54	21%
Low sagebrush	23	9%
Wet meadow	7	3%
Bunchgrass	6	2%
Big sagebrush	2	<1%
Exotic annuals	2	<1%
Bitterbrush	1	<1%

PNNL mapping shows a cover class of ‘Juniper’ that is not present within any of the plant community types. Although juniper can be present within unmapped inclusions in the allotment, its presence to the degree mapped by the PNNL indicates a shift away from reference condition. Photos associated with the 2001 assessment indicate a diverse age class of juniper and, therefore, concern for continued invasion. The aerial imagery (ESRI, 2013) supports the presence of juniper through, mainly on loamy 13-16” ecological sites (up to 79 percent of the BLM-administered lands). This type of vegetation mapping does not show changes in the understory, but information from the 2001 rangeland health field assessment indicates a shift in species composition (departure from reference condition) noted by the heavy reduction of Idaho fescue and biological soil crusts and an increase of Sandberg bluegrass and juniper. This shift in species composition towards more grazing tolerant species is likely due to past livestock grazing. Although in low percentage, the PNNL mapping does identify a cover type of ‘Exotic annuals’, which further illustrates a departure from reference condition.

**Rangeland Health Standard 4**

Rangeland health field assessments for the Mckay FFR allotment were conducted in 2001. In 2013, the previous assessment was amended with additional information that was used to issue the 2013 determination (Appendix F). Standard 4 is not being met mainly due to an altered fire regime resulting in subsequent juniper invasion and in conjunction with past grazing management. Descriptions for the loamy 13-16” ecological site, where juniper invasion is the greatest issue, identify juniper as an invasive species that when dominant, results in a new state requiring management inputs to restore ecological function of the reference site sagebrush/bunchgrass state.

**Utilization and Actual Use**

Precise actual use dates of current livestock grazing are unknown; however, the permit currently allows for year round grazing. No utilization data is available.

**Weeds**

No noxious weeds have been mapped in the Mckay FFR allotment. Bulbous bluegrass was the only identified non-native invasive species. It was reported to be common in the allotment and dominant under junipers.

**Biological Soil Crusts**

Microbiotic crusts were reported in the rangeland health assessments to be present in the allotment but reduced from what would be expected at site potential. This departure in microbiotic crusts is somewhat expected due to the shift in species composition and the associated decreased diversity in plant diversity. Microbiotic crusts are important for increasing soil stability and capturing nutrients, and can affect vascular plant species composition (Wicklow-Howard, Serpe, Orm, Stockes, & Rosentreter, 2003). Without them, the vegetation community has greater susceptibility to invasive plants.

### 3.3.3.1.2 Soils

Current livestock grazing management practices are not significant factors for this allotment’s failure to meet the land health standard for watersheds. Soils on the BLM-administered public land in the allotment are dominated by the Snell-Sharesnout complex (USDA NRCS, 2003). Soils in the allotment are a complex of loamy, claypan, and shallow stony sites. Rock and gravel constitute major soil stabilizers on the BLM-administered public land of this allotment. Hillsides and ridges are well armored by rock in the claypan and shallow stony soils. None of the soils on BLM-administered public land in the allotment have a high erosion hazard. Indicators of soil instability on loamy sites were more apparent on loamy soils, where water flow patterns, pedestals, and bare ground indicate a slight acceleration of erosion in localized areas. Table SOIL-3 summarizes field assessment of soil/site stability and watershed function at a representative location in the allotment.

**Table SOIL-3:** Summary of soil stability and hydrologic function indicators in the McKay FFR allotment

Ecological Site	Departure of Soil & Watershed Function Indicators from Reference Condition (%) <sup>1</sup>				
	none-to-slight	slight-to-moderate	moderate	moderate-to-extreme	extreme
Loamy 13-16	40	60	-	-	-

<sup>1</sup> Details are available in the 2013 RHA and Determination documents in project file

Multiple age classes of juniper indicate a potential for downward trend in hydrologic function in the future. Juniper mortality is much less apparent than juniper recruitment, indicating an increasing population. The age-class distribution and location of juniper trees on this landscape suggest young trees establishing in the open sagebrush covered hillsides, possibly from the older and denser juniper stands along draws and ridges. Overall hydrologic function is diminished by the over-abundance of juniper trees and under-representation of large-statured bunchgrass species. Although evidence of accelerated erosion is only slightly, to moderately greater than reference conditions, juniper age class distribution and areas of high bare ground indicate a potential for downward trend in the future.

### 3.3.3.1.3 Special Status Plants

No known special status plants are on BLM lands within this allotment.

### 3.3.3.1.4 Wildlife and Special Status Animals

In addition to the general overview of the Affected Environment for Wildlife Resources in the South Mountain, allotments presented above (Section 3.1.5) and descriptions of the current condition of species and their habitats within the McKay FFR allotment are based on the 2013 Rangeland Health Assessment and Evaluation Report (USDI BLM, 2013) and Determination (Appendix E), affected environment of the Rangeland Vegetation within this EA (Section 3.3.3.1.1), recent personal observations, current element occurrences in IFWIS (IDFG, 2011), and consultation with local wildlife professionals.

#### Wildlife Habitat

The entire McKay FFR allotment encompasses the Owyhee Uplands and Canyons Level IV Ecoregion discussed previously (Map GEN-2). Within the allotment, this ecoregion is characterized by rolling shrub steppe uplands interrupted by juniper woodlands, steep to low hills, and rocky outcrops. Currently, the expansion of juniper into former shrub communities has transformed much of the area into woodlands ranging from open, savanna-like conditions to denser canopy forest (Section 3.3.1.1.1). These denser woodlands cover the relatively low profile flanks of the upper elevations of South Mountain. A riparian area occurs throughout the allotment on private land. Wildlife habitats within the McKay FFR allotment include juniper woodlands, low and big sagebrush steppe, grasslands, wet meadow complexes, riparian

areas, and seeps (Table VEGE-7). A detailed discussion of upland vegetation within the allotment can be found in Section 3.3.3.1.1.

No federally listed Threatened or Endangered animals are known to occur in McKay FFR allotment. One candidate species, the Columbia spotted frog, could potentially occur in the allotment, as surveys have never been conducted in the allotment and potential habitat does exist on private lands. A second candidate species, the greater sage-grouse, has no designated Preliminary Priority Habitat (PPH) in the allotment, but the majority of the allotment west of Juniper Creek is designated Preliminary General Habitat. As many as 11 mammal, 20 bird, 2 amphibian, 2 fish and 3 reptile species with BLM special status (including Watch List Species) potentially occur within the allotment. No special status species have been recorded in the Idaho Fish and Wildlife Information System within the allotment; however, redband trout are known to occur on private land in Juniper Creek, and western toads were discovered nearby on BLM land in 2013. In fact, white-faced ibis, white-headed woodpecker, ferruginous hawk, and sage thrasher are the only other special status species that have been documented within 3 miles of McKay FFR allotment.

### ***Uplands***

Upland habitats were found to not be meeting Standard 4; however, it was determined that livestock grazing management practices were not significant factors leading to the determination. Dates of when grazing has occurred in recent years is unknown since actual use data is lacking and the permit is open to grazing year-round. The prevalence of juniper and an increase in bulbous bluegrass have degraded the habitat through time and reduced habitat quality for sagebrush dependent species. Some special status species may benefit from juniper existence, such as bat species that can use the area for roosting sites. However, diminished understories of sagebrush, perennial forbs, and perennial bunch-grasses, compared to what would be expected in the Potential Natural Community condition for ecological sites on this allotment, have a negative effect on other animal species. Standard 8 was determined to not be meeting the Standard, but current livestock grazing management was not a significant factor in reaching this determination. Conversion of sagebrush habitats to juniper woodlands is the primary limiting factor on public lands in McKay FFR allotment. Although the increase in juniper cover may have benefited some woodland-associated special status wildlife species such as northern goshawks and Lewis' woodpeckers, these woodland habitats are unsuitable for and have come at the expense of sagebrush-obligate and shrub-dependent special status species such as greater sage-grouse, pygmy rabbits, Brewer's sparrows, loggerhead shrikes, and sage sparrows. Juniper woodlands currently make up 43 percent of the allotment (all ownerships), and if their densities continue to increase, sagebrush-obligate species will be further impacted.

### ***Riparian***

No riparian habitat exists on public lands in McKay FFR allotment, however Juniper Creek runs through pastures 1 and 2 on private lands.

## **Focal Special Status Animal Species**

### **Greater sage-grouse**

Historically, a majority of the allotment provided suitable habitat for sage-grouse and supported significant populations (USDI BLM, 1969). Currently, only sage-grouse PGH occurs in portions of the McKay FFR allotment and of that, only 27 percent exists on public lands (Map WDLF-1). Extensive areas of juniper encroachment occur in pastures 1 and 2 of the allotment (Map WDLF-1). Since the 1960's no wildfires have been recorded in McKay FFR allotment (Map FIRE-1). In general, the amount and extent of sagebrush vegetation communities in the allotment are restricted to 21 percent big sagebrush and 4 percent low sagebrush (Table WDLF-1). Sage-grouse habitat is largely limited due to juniper

expansion and as no PPH and only 246 acres of PGH exists on public lands in McKay FFR (Table WDLF-4); sage-grouse will have limited analysis in this document.

**Table WDLF-4: Sage-grouse habitat acreage within McKay FFR allotment, 2013**

Pasture	Preliminary Priority Habitat (PPH)			Preliminary General Habitat (PGH)			Habitat Total
	Private	BLM	Total	Private	BLM	Total	-
1	0	0	0	429	246	675	675
2	0	0	0	193	0	193	193
3	0	0	0	39	0	39	39
Total (% of allotment)	0 (0)	0 (0)	0 (0)	661 (61)	246 (23)	906 (84)	906 (84)

#### Columbia spotted frog

Various agencies and researchers have surveyed potential spotted frog habitat throughout the Owyhee Mountains and Uplands since 1994 (Munger, et al., 1994) (Munger, Ames, & Barnett, 1997) (Owyhee Columbia Spotted Frog Working Group, 2007) (La Fayette, 2010) (Lohr & Haak, 2009) (Lohr, 2011). Although occurrence information available from IFWIS (IDFG, 2011) has not documented spotted frogs within the allotment, they have been observed in South Mountain Area allotment on Corral Creek. Spotted frog surveys two miles south of McKay FFR allotment on Juniper Creek and 1.4 miles southeast on Cabin Creek have not revealed Columbia spotted frogs. Surveys have been limited due to the large percentage of private land in the allotment. All potential habitats for the species exist on private land in the form of streams and meadows. Although the allotment exists in an occupied Columbia spotted frog watershed, since no potential habitat exists on public lands, the species will not be analyzed further in this document for McKay FFR allotment (Map WDLF-3).

#### Pygmy rabbit

A coarse-level predictive occurrence model created by Idaho BLM in 2009 suggests that portions of McKay FFR allotment have a moderate likelihood of core habitat presence. However, habitat in the majority of the allotment is unsuitable for pygmy rabbits; only 21 percent of the allotment is classified as having the appropriate cover type the species prefers (i.e., big sagebrush and friable soils; Table VEGE-7). Suitable sagebrush habitat and soils are mostly absent or now dominated by junipers in pastures 1 and 2. Of the 21 percent modeled habitat (all ownership), only a fraction exists on public land and those lands have been converted to juniper woodland. No pygmy rabbit surveys have been conducted within the allotment nor have any been documented. Due to the lack of current suitable pygmy rabbit habitat, no further analysis for the species will occur for McKay FFR allotment.

#### Columbia River redband trout

Within the allotment, redband trout have been documented in Juniper Creek in pastures 1 and 3 (Map WDLF-3). Redband trout habitat does not exist on public lands in McKay FFR allotment.

#### ***Migratory Birds, Raptors, and other Birds (including Special Status Species)***

In addition to the general discussion of migratory birds, raptors, and other bird species and their habitats in Section 3.3.1.5, a variety of bird species have the potential to occur or have been documented within and in the vicinity of the McKay FFR allotment (Appendix G). The juniper woodlands within the allotment are either known to or potentially could provide nesting and foraging habitat for many special status and migratory birds. As discussed above, the expansive juniper woodland habitat that currently occupies ecological sites that otherwise would be dominated by the expected sagebrush habitats in the

absence of juniper encroachment presently has augmented the population of woodland birds that would be a far minor component of the area's overall bird community. Under natural disturbance regimes, juniper woodland bird species would be limited to widely scattered, solitary old-growth junipers or small stands that would be expected to occur on shallow, rocky soils as restricted inclusions within sagebrush or mountain shrub ecological sites (USDA NRCS, 2010). Junipers and aspen provide nesting and foraging substrate for foliage and bark gleaning species such as black-throated gray and yellow-rumped warblers, mountain bluebird, Townsend's solitaire, hairy woodpecker, and red-naped sapsucker. Ground gleaning species within woodland habitats include American robin, black-billed magpie, chipping sparrow, and dark-eyed junco. In addition, juniper woodlands provide habitat for owl and raptor species such as flammulated owl, long-eared owl, northern saw-whet owl, northern goshawk, and red-tailed hawk.

Riparian habitat along the perennial stream in the McKay FFR allotment potentially hosts a variety of obligate and dependent bird species. All riparian habitats in McKay FFR allotment exist on private lands.

Shrub steppe habitats dominated by mountain and low sagebrush provide vital nesting and foraging habitat for obligate species such as Brewer's and sage sparrows and dependent species including loggerhead shrike and sage thrasher. Direct loss, fragmentation, and degradation of sagebrush habitats connected with the spread of invasive plants, altered disturbance regimes, and the associated state transitions from stable native vegetation communities are some of the most important factors affecting long-term and regional population dynamics of these species (Knick & Rotenberry, 1995) (Knick & Rotenberry, 2000) (Knick & Rotenberry, 2002) (Knick, et al., 2003) (Knick, Holmes, & Miller, 2005). Passerine species like vesper sparrow, horned lark, western meadowlark, and rock wren, and raptors such as golden eagle, prairie falcon, ferruginous and rough-legged hawks, and burrowing and short-eared owls have also been documented in the area's shrub steppe vegetation communities. Currently, on public lands, the allotment is not meeting the needs of sagebrush obligate migratory birds. Woodland species however, have an abundance of habitat.

### ***Big Game and other Mammals (including Special Status Species)***

In addition to the general discussion of big game and other mammal species and their habitats in Section 3.1.5, various big game and special status mammal species use a variety of habitats in the McKay FFR allotment for some or all of their seasonal needs. Big game species are limited to elk, pronghorn, and mule deer. No California bighorn sheep Game Management Units or populations occur within or adjacent to McKay FFR allotment.

The woodland and mountain shrub habitats within pastures 1 and 2 provide summer habitat for elk and mule deer. Although mule deer may be present year-round within the area, most winter habitat for both species occurs at lower elevations in Oregon. Pronghorn use within the allotment is highly restricted and limited to the lower areas along and adjacent to Juniper Creek (pasture 1). Pronghorn are likely restricted to private land in the allotment. Currently, on public lands, the allotment is not meeting the needs of sagebrush obligate mammals or Standard 8 as most of the habitat has been converted to juniper woodlands. Woodland habitats are in abundance supplying cover for mule deer and elk.

#### ***3.3.3.1.5 Social and Economic Values***

See Section 3.1.9 above.

#### ***3.3.3.1.6 Cultural Resources***

No previously recorded cultural sites are within the McKay FFR allotment, and no potential livestock congregation areas are identified on BLM-administered land. Staff made no site monitoring visits and conducted no new surveys.

### **3.3.3.2 McKay FFR Allotment Environmental Consequences**

#### **3.3.3.2.1 *Alternative 1***

##### **3.3.3.2.1.1 Vegetation, including Noxious Weeds**

Current livestock grazing management is not identified to be a significant casual factor for not meeting Standard 4. However, this allotment is currently not meeting due to juniper encroachment and an altered native plant community stemming from past grazing. Implementation of Alternative 1 (continuation of current grazing management) would be expected to maintain upland vegetative resources in their current condition that is degraded due to past livestock grazing.

The McKay FFR allotment will be stocked at the same AUMs and stocking rate for all alternatives, 20 AUMs and 13.5 acres/AUM. Even though actual use and utilization data are not available for the McKay allotment the determination identified current livestock management to be in compliance with the Idaho Standards for Rangeland Health. Those areas outside of juniper encroachment contain the necessary assemblage of plants that provide for proper nutrient cycling, hydrologic cycling and energy flow even though the community is compromised from past grazing. It is likely a pasture rotation was utilized in the current management that provides appropriate rest/deferment combined with an appropriate utilization level that would maintain the plant community at hand. Based on this information meeting the ORMP objective of no greater than 50 percent utilization has been and likely would be in the future.

Livestock grazing seasons of use and livestock numbers authorized in the allotment with implementation of Alternative 1 would not contribute to either improvement or continued failure to meet Standard 4 in areas where the Standard is not being met due to juniper encroachment into sagebrush steppe vegetation communities.

The effects of Alternative 1 on biological soil crusts are expected to be similar to those on vegetation in general. Under the proposed level and seasons of use, biological soil crusts are expected to be maintained as livestock movements from pasture to pasture would decrease livestock concentrations.

No noxious weed occurrences have been recorded in this allotment. Bulbous bluegrass, an invasive species, is present in the allotment, but it does not dominate in any area. Alternatives 1 through 4 all authorize 20 AUMs; therefore, the risk of spreading weed seed is equivalent for all alternatives except Alternative 5, the no grazing alternative.

In the case current management is continued that provides for the necessary health and vigor of the vegetative community, Alternative 1 would be expected to maintain existing upland bunchgrasses in the McKay FFR over the short term (less than 10 years). The effects from past grazing (reduction of large bunchgrasses) and the presence of invasive species (annual grasses and juniper) in some pastures, would still be part of the vegetation community and cause the allotment to continue to not meet Standard 4.

##### **3.3.3.2.1.2 Soils**

The discretionary use afforded under this alternative means that grazing could occur at any time, so long as range readiness criteria were met. Direct physical effects to soil would occur to the extent that the operator uses the allotment when soils are near saturation. In such a case, soil structure alterations would be adverse and areas of soil degradation would be likely. Adverse effects to soil structure would be avoided to the extent that the operator defers use until after spring (March 31). Rocks and gravels would continue to be major components of soil stability.

The proposed grazing management would maintain current soil conditions. The allotment would continue to fail meeting the watershed Standard due to the effects of juniper encroachment on soil/site stability and hydrologic function. Evidence of accelerated erosion would be limited in extent and severity over the short term. However, juniper tree cover would continue to increase slowly, along with the potential for larger and more continuous patches of bare ground, decreasing infiltration, and increasing runoff. Juniper encroachment is not addressed by management activities of this alternative.

#### **3.3.3.2.1.3 Special Status Plants**

Not applicable.

#### **3.3.3.2.1.4 Wildlife and Special Status Animals**

McKay FFR allotment is currently not meeting upland habitat standards due to juniper encroachment and invasive grasses. For the allotment, it was determined current livestock grazing was not a significant factor leading to the determination. Likewise, for special status animal species it was determined the Standard was not being met, but livestock grazing was not a significant factor leading to the determination. Under alternative 1, BLM would renew the livestock grazing permit for the use in the McKay FFR allotment in accordance with the current permit and the current situation that led to conditions on the ground. Alternative 1 for the McKay FFR allotment would allow grazing 365 days a year, every year, without specified rest or growing season deferment. Boise District terms and conditions would limit utilization of current year's growth to 50 percent. Upland habitats would remain the same as the current situation. Under Alternative 1 the allotment would continue to not meet Standard 8 for upland-dependent species and maintain current habitat conditions to meet ORMP objective WLDF-1. In the absence of prescribed fire or wildfire; or without mechanical juniper removal, conditions will not improve in the allotment for upland habitats or the wildlife species that depend on them.

#### **3.3.3.2.1.5 Social and Economic Values**

See Section 3.2.8.2 above.

#### **3.3.3.2.1.6 Cultural Resources**

No known historic properties would be affected under this alternative.

### **3.3.3.2.2 Alternative 2**

#### **3.3.3.2.2.1 Vegetation, including Noxious Weeds**

The permittees proposal under Alternative 2 is identical to Alternative 1 for the amount of AUMs and the season of use; therefore, impacts between the two alternatives would also be the same (see Section 3.3.3.2.1.1). Upland vegetation would be expected to be maintained in its current condition.

#### **3.3.3.2.2.2 Soils**

The effects to upland soils from the proposed action would be identical to those described in alternative 1 because both the amount of use (i.e., AUMs) and the season of use are identical to Alternative 1. The differences between this permit's terms and conditions and those offered under alternative 1 would not affect upland soils. The allotment would not meet the watershed Standard for the same reasons discussed in Alternative 1.

#### **3.3.3.2.2.3 Special Status Plants**

Not applicable.

#### **3.3.3.2.2.4 Wildlife and Special Status Animals**

Under alternative 2, BLM would renew the livestock grazing permit for the use in the McKay FFR allotment in accordance with the application received from the LU ranch (for details, see sections 2.2.2 and 2.4.3.2. The application received would authorize use unchanged from the current permit. Under Alternative 2, impacts would be the same as described under Alternative 1. The allotment would continue to not meet Standard 8 for upland-dependent species, but would maintain habitat conditions to meet ORMP objective WLDF-1.

#### **3.3.3.2.5 Social and Economic Values**

See Section 3.2.8.3 above.

#### **3.3.3.2.6 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

#### **3.3.3.2.3 Alternative 3**

##### **3.3.3.2.3.1 Vegetation, including Noxious Weeds**

For pasture 1 Alternative 3 differs from Alternative 1 in that a specific season of use is defined in a 3-year pasture rotation. This schedule follows the upland vegetation resource constraint of a minimum of 2 years deferment for every year of active growing season use. This season of use constraint provides upland vegetation adequate time between grazing events to allow for recovery after a grazing event, ultimately allowing for maintenance or potential improvement of the health and vigor of upland plant communities. See Section 2.2.3 for Alternative 3 resource constraints and further rationale. The 1 acre of BLM managed lands in Pasture 2 has the same season of use, AUMs, and stocking rate as Alternative 1 and, therefore, would have the same impacts from livestock grazing (see Section 3.3.3.2.1.1) as Alternative 1.

AUMs, the utilization term and condition, and stocking rate for Alternative 3 in pasture 1 are identical to Alternative 1. Season of use is defined in Alternative 3 providing reassurance that upland vegetation would have time for recovery between annual grazing events ensuring maintenance and potentially long-term improvements in the health and vigor of bunchgrasses. Considering plant vigor recovery post-grazing can take upwards of 10 years (Anderson L. D., Bluebunch wheatgrass defoliation: Effects & recovery, 1991), it is unlikely this alternative would noticeably improve current upland vegetation beyond the current condition in the life of the permit. For this reason, aside from the long-term trend, impacts from livestock grazing would be similar to Alternative 1 (Section 3.3.3.2.1.1).

Alternative 3 would be expected in the short term (less than 10 years) to maintain and potentially over the long term (greater than 10 years) improve existing upland bunchgrasses in the McKay FFR because deferred grazing 2 out of 3 years provides assurance for increased health and vigor of bunchgrasses by limiting defoliation during the critical growth period when plants are most susceptible to livestock impacts. The effects from past grazing (reduction of large bunchgrasses) and the presence of invasive species (annual grasses and juniper) in some pastures would still be part of the vegetation community and cause the allotment to not meet Standard 4. Based on the lack of growing season use, over the long term (greater than 10 years) large bunchgrasses would likely have slow recovery and invasive species are expected to be stable at best. The ORMP vegetation objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas would be met.

##### **3.3.3.2.3.2 Soils**

The grazing schedule proposed for pasture 1 would potentially benefit upland soils in pasture 1 for two reasons. Firstly, the schedule permits livestock for one spring season during a 3-year grazing cycle, limiting the potential for livestock to cause physical effects to wet soils. Secondly, by scheduling a use period in pasture 1, this alternative ensures 272 days (25 percent) more rest days than Alternative 1 for the

same 3-year grazing cycle. The grazing schedule would reduce the potential for adverse physical effects to wet soils from animal hoofs in pasture 1. The effects to an acre of upland soils in pasture 2 from the proposed action would be identical to those described in Alternative 1 because both the amount of use (i.e., AUMs) and the season of use are identical to those proposed in Alternative 1. The differences between this permit's terms and conditions and those offered under Alternative 1 would not affect upland soils.

Livestock grazing would not prevent the allotment from meeting Standard 1 and ORMP objectives. Although soil conditions under this proposal could improve slightly relative to Alternative 1, juniper would continue to encroach, increasing the risk of depressed watershed function and accelerated erosion. Ultimately, juniper encroachment, not livestock grazing, would prevent the allotment from meeting Standard 1 and ORMP objectives over the long term. The proposed level of livestock grazing would have no effect on the rate of encroachment.

#### **3.3.3.2.3.3 Special Status Plants**

Not applicable.

#### **3.3.3.2.3.4 Wildlife and Special Status Animals**

Under Alternative 3, the BLM would renew grazing on the McKay FFR allotment using resource constraints and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and ORMP objectives as described in the description of proposed action and alternatives (Section 2.2.3). This alternative developed a 3-year rotational grazing system that authorizes livestock use based on soil, and vegetation resource issues. For upland dependent special status animal species and wildlife in general, Alternative 3 would attain improvement in their habitats over the long term. Alternative 3 retains all aspects of the current situation (Alternative 1) but differs by defining a 3-year rotation with specific seasons of use. As opposed to Alternative 1, which offers no deferment, this alternative would be deferred 2 out of 3 years (the third year could be grazed during the critical growth period). This schedule follows the upland vegetation resource constraint of a minimum of 2 years deferment for every year of active growing season use. This constraint provides the necessary time between grazing events to allow for recovery after a grazing event, ultimately enhancing the health and vigor of upland plant communities. Ground nesting birds would have adequate cover at least 2 of every 3 years and small mammals would likewise be supplied necessary cover and forage during the spring. Additionally, Boise District terms and conditions would assure no more than 50 percent utilization on upland herbaceous species. These prescriptions would make progress towards meeting Standard 8 for upland special status animal species. Under this alternative short term, benefits from this alternative would not be realized due to altered condition of wildlife habitat due to past grazing however improvement over the long term would occur and would meet the ORMP objective WDLF-1.

#### **3.3.3.2.3.5 Social and Economic Values**

See Section 3.2.8.4 above. The new pasture rotations and shorter grazing seasons for all pastures may result in increased labor and feed costs.

#### **3.3.3.2.3.6 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

### ***3.3.3.2.4 Alternative 4***

#### **3.3.3.2.4.1 Vegetation, including Noxious Weeds**

In Alternative 4 all scheduled use would occur outside of the critical growth period for upland vegetation, as opposed to Alternative 3, which also has a defined season of use but with 1 year of growing season use. The lack of scheduled growing season use would potentially have additional benefit to the upland vegetation resources but in the long term. Alternative 3 and 4 have commonality in adhering to the upland vegetation resource constraint that was designed to ensure maintenance of the upland vegetation environment. Refer to Section 3.3.3.2.3.1 for livestock grazing impacts relevant to Alternative 3. Livestock grazing management would not contribute to this allotment not meeting Standard 4.

#### **3.3.3.2.4.2 Soils**

The effects to soils in pasture 1 would be similar to but less adverse than those described for Alternative 1. This alternative would benefit soils compared to Alternative 1 because the schedule permits no spring use, dramatically reducing the potential for livestock to cause physical effects to wet soils in pasture 1. The use period would ensure 765 days (70 percent) more rest days than Alternative 1 for the same 3-year grazing cycle.

Livestock grazing would not prevent the allotment from meeting Standard 1 and ORMP objectives. Although soil conditions under this proposal could improve moderately relative to Alternative 1, juniper would continue to encroach, increasing the risk of depressed watershed function and accelerated erosion. Ultimately, juniper encroachment, not livestock grazing, would prevent the allotment from meeting Standard 1 and ORMP objectives over the long term. The proposed level of livestock grazing would have no effect on the rate of encroachment.

#### **3.3.3.2.4.3 Special Status Plants**

Not applicable.

#### **3.3.3.2.4.4 Wildlife and Special Status Animals**

Under Alternative 4, the BLM would renew grazing on the McKay FFR allotment using resource constraints and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and ORMP objectives as described in the description of proposed action and alternatives and added emphasis on high value resources (Section 2.2.4). This alternative developed a 3-year rotational grazing system that authorizes livestock use based on soil and vegetation resource constraints.

Environmental consequences to special status animal species and wildlife in general for Alternative 4 would be similar to those for Alternative 3; however, deferment would occur every year in Pasture 1. Alternative 4 would attain improvement in upland wildlife habitats over the long term. As opposed to Alternative 1, which offers no deferment, this alternative would be deferred every year avoiding the critical growth period for upland plants. This schedule follows the upland vegetation resource constraint of a minimum of 2 years deferment for every year of active growing season use. Ground nesting birds would have adequate cover every year and small mammals would likewise be supplied necessary cover and forage during the spring. Additionally, Boise District terms and conditions would assure no more than 50 percent utilization on upland herbaceous species. These prescriptions would make progress towards meeting Standard 8 for upland special status animal species. Under this alternative short term, benefits from this alternative would not be realized due to altered condition of wildlife habitat due to past grazing; however, improvement over the long term would occur faster than Alternative 3 and this alternative would meet the ORMP objective WDLF-1.

#### **3.3.3.2.4.5 Social and Economic Values**

See Section 3.2.8.5 above. The new pasture rotations, shorter grazing seasons, and deferred grazing for all pastures may result in increased labor and feed costs.

#### **3.3.3.2.4.6 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

#### **3.3.3.2.5 Alternative 5**

##### **3.3.3.2.5.1 Vegetation, including Noxious Weeds**

The effects of not grazing livestock on upland vegetation resources for a 10-year period are described in section 3.2.1.6.

##### **3.3.3.2.5.2 Soils**

The effects to soils of not grazing livestock for a 10-year period are described in section 3.2.2.6.

##### **3.3.3.2.5.3 Special Status Plants**

Not applicable.

##### **3.3.3.2.5.4 Wildlife and Special Status Animals**

See the impacts described for all allotments under Alternative 5 in section 3.2.5.6

##### **3.3.3.2.5.5 Social and Economic Values**

See Section 3.2.8.6 above.

##### **3.3.3.2.5.6 Cultural Resources**

Under this alternative, no livestock grazing would occur and there would be no effects to cultural resources by this activity.

### **3.3.4 Sheep Creek Allotment**

#### **3.3.4.1 Sheep Creek Allotment Affected Environment**

##### **3.3.4.1.1 Vegetation, including Noxious Weeds**

A Rangeland Health Assessment, Evaluation Report and Determination document was completed for the Sheep Creek allotment in 2013. The Rangeland Health Assessment and Evaluation Report for the allotment completed in 2013 (Appendix F) identified a shift in plant composition as the reason for the allotment not meeting the Idaho Standards for Rangeland Health Standard 4 – Native Plant Communities, but the Determination did not identify current livestock management practices as a contributing factor. Plant composition has been altered from site potential with a reduction in deep-rooted native perennial bunchgrasses accompanied by increased dominance of invasive grasses and increasing juniper. Juniper encroachment is an issue throughout the BLM managed acres that have not burned in the past several decades<sup>42</sup>.

#### **Ecological Sites**

The Sheep Creek allotment (pasture 1 only) is composed of two major ecological sites (Table VEGE-8). They include a shallow claypan low sagebrush/Idaho fescue site and a loamy mountain big sagebrush/bluebunch wheatgrass-Idaho fescue site.

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<sup>42</sup> For purposes of this EA BLM Idaho fire perimeter history contains records from approximately 1960 through 2012.

**Table VEGE-8:** BLM lands mapped by Ecological Sites in the Sheep Creek allotments

Ecological Site	Dominant Species Expected	Acres	Percent of Allotment
Shallow claypan 12-16" ARAR8/FEID	low sagebrush, Idaho fescue	519	84%
Loamy 16+" ARTRV/FEID	mountain big sagebrush, Idaho fescue	97	16%

The ecological sites show that under natural disturbance regime, the Sheep allotment should be dominated by a low sagebrush/Idaho fescue community. Other vegetation types such as western juniper, basin big sagebrush, and riparian areas are expected to occur as unmapped inclusions within the larger ecological sites, and each should make up only a small percentage of the area.

### Current Vegetation<sup>43</sup>

Current vegetation is discussed at two scales: cover type (overstory vegetation) and understory species composition (rangeland health assessments, trend, etc.). Current overstory vegetation, based on mapping done by the Pacific Northwest National Laboratory (PNNL) from 2000/2001 Landsat satellite imagery in the Sheep Creek allotment, is shown in Table VEGE-9. Ecological site and PNNL mapping were done at different scales (PNNL at a somewhat finer scale) so precise matching is not possible, but gross changes in plant community structure are apparent. None the less, the change between the current vegetation (Table VEGE-9) and the expected vegetation (Table VEGE-8) is indicated by comparing the two tables.

**Table VEGE-9:** Cover Types based on PNNL data for BLM-administered lands within Sheep Creek allotment

Vegetation Cover Type	Acres	Percent of Allotment
Mountain big sagebrush	225	37%
Juniper	195	32%
Mountain shrub	112	18%
Low sagebrush	30	5%
Wet meadow	24	4%
Bunchgrass	11	2%
Big sagebrush	11	2%
Exotic annuals	4	<1%
Bitterbrush	3	<1%

PNNL mapping shows a cover class of 'Juniper' that is not present within any of the plant community types. Although juniper can be present within unmapped inclusions in the allotment, its presence to the degree mapped by the PNNL indicates a departure from reference condition. Photos monitoring shows a diverse age class of juniper and, therefore, concern for continued invasion. Aerial imagery (ESRI, 2013) displays a strong presence of juniper that also supports this altered community type away from reference condition. This type of vegetation mapping does not show changes in the understory, but information from the 2001 rangeland health assessment indicates a shift in species composition (departure from reference condition) noted by the higher than expected presence of Sandberg bluegrass and invasive

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<sup>43</sup> Note that these data (specifically rangeland health indicators) are primarily qualitative rather than quantitative, so the following discussion uses non-numerical comparative terms.

species (bulbous bluegrass, cheatgrass, and juniper) and a reduction in biological soil crusts and an increase of Sandberg bluegrass and juniper. The shift in species composition towards more grazing tolerant species is likely due to past livestock grazing. Although in low percentage, the PNNL mapping does identify a cover type of 'Exotic annuals', which further illustrates a departure from reference condition.

#### **Rangeland Health Standard 4**

Rangeland health field assessments for the Sheep Creek allotment were conducted in 2001. In 2013, the previous assessment was amended with additional information that was used to issue the 2013 determination (Appendix F). Standard 4 is not being met due to species composition changes and invasive species (juniper, bulbous bluegrass, and cheatgrass) in the deeper loamy soils (approximately 16 percent of the allotment), with portions of the shallow clay soils supporting a higher than expected amount of juniper. Descriptions for the ecological sites present in these pastures (loamy 13-16" and shallow claypan 12-16") identify juniper as an invasive species that when dominant results in a new state requiring management inputs to restore ecological function of the reference site sagebrush/bunchgrass state. No trend data is available for the Sheep Creek allotment.

#### **Utilization and Actual Use**

Information on utilization has its limitations as it has only been reported for 2011 and 2012. During this time no individual site exceeded 33 percent, which is below the 50 percent allotted in the ORMP (USDI BLM, 1999). In 2011, stubble height was collected and bluebunch wheatgrass averaged 19 inches. Timing of use has occurred after the critical growing season in all years reported and 1 year of rest was incorporated since 2005.

#### **Weeds**

No noxious weeds have been mapped in the Sheep Creek allotment. Bulbous bluegrass is scattered throughout the allotment but more common on the deeper loamy soils. Cheatgrass is present on the deeper loamy ecological sites. In general, the plant communities in the Sheep Creek allotment are dominated by native species, with little influence of non-natives other than bulbous bluegrass.

#### **Biological Soil Crusts**

Microbiotic crusts were reported in the rangeland health field assessments to be present in the allotment but reduced from what would be expected in these vegetation types. This departure in microbiotic crusts may be due to the shift in species composition and the associated decreased diversity in plant diversity. Microbiotic crust are important for increasing soil stability and capturing nutrients, and can affect vascular plant species composition (Wicklow-Howard, Serpe, Orm, Stockes, & Rosentreter, 2003).

#### **3.3.4.1.2 Soils**

Soil conditions in the allotment meet the land health standard for watersheds. Soils in pasture 1 of the allotment can be categorized generally as either loamy or claypan. The loamy soils occur in swales, along drainages and toe-slopes. The claypan soils occur along hillsides and near ridgetops. Soils are generally stable, and signs of accelerated erosion are either not evident or slightly visible. On loamy soils, live vegetation and litter constitute the dominant soil stabilizing agents in the allotment, although rock and gravel are also present. On claypan soils, rocks and gravels stabilize soils to a greater extent than loamy soils, although live vegetation and litter are still important stabilizing agents. Fluctuations in both the amount and distribution of bare ground over time depend more on seasonal precipitation and utilization than in claypan soils, where rocks and gravels persist regardless. None of the soils on BLM-administered public land in the allotment have a high erosion hazard (USDI BLM, 1999a).

In most cases, bare ground has fluctuated within a reasonable range, given the ecological site potential. A field assessment in 2000 documented moderately high levels of bare ground along a toe-slope, south-facing hillside, Loamy 13-16 ecological site. The same field assessment also documented a general under-representation of deep-rooted perennial bunchgrasses. Soil and watershed conditions in other locations of loamy soil were near potential. Table Soil-4 summarizes field assessment of soil/site stability and watershed function at representative locations in the allotment.

**Table SOIL-4:** Summary of soil stability and hydrologic function indicators for field assessments in the Sheep Creek allotment

Ecological Site	Departure of Soil & Watershed Function Indicators from Reference Condition (%) <sup>1</sup>				
	none-to-slight	slight-to-moderate	moderate	moderate-to-extreme	extreme
Loamy 13-16	43	48	9	-	-
Loamy 13-16	100	-	-	-	-
Shallow Claypan 12-16	71	29	-	-	-

<sup>1</sup> Details are available in the 2013 RHA and Determination documents in project file

Bare ground and plant assemblages in the loamy soils indicate some toe-slopes display a slight decrease in the potential for water infiltration compared to loamy sites higher up on the slope and claypan sites. Despite this relatively small distinction in hydrologic function between sites, indicators of accelerated erosion are within a reasonable range the watershed is functional. The loamy soils on BLM-administered public lands in the allotment are at risk of deteriorating watershed conditions if juniper trees are allowed to encroach, bare ground persists, and deep-rooted perennial bunchgrasses become scarce. Photograph monitoring depicts a relatively stable assemblage of plants on loamy soils since at least 2001.

### 3.3.4.1.3 Riparian/Water Quality

A general, common to all allotments, description of the affected environment can be found above in section 3.1.3.

#### Existing Condition<sup>44</sup>

Standards 2 and 3 are not being met in pasture 1 of the Sheep Creek allotment because approximately 1.3 miles of Sheep Creek that occurs in the pasture were assessed FAR. Issues identified relating to the condition of the riparian-wetland areas included a lack of a diverse age class of riparian vegetation, bank instability, heavy livestock use of riparian vegetation, the presence of deposition and erosion, over-wide and shallow channel, a poorly defined stream channel, and channel incision (Table RIPN-15, Map RIPN-1).

**Table RIPN-15:** Sheep Creek allotment riparian condition

Stream Name	Allotment & Pasture Stream Miles & Condition	Assessment Issues/ Impacts Identified	Total Miles

<sup>44</sup> For additional details on the current condition of the allotment, see the *Supplemented Rangeland Health Assessments, Evaluation Reports and Determinations, for the Dougal FFR (0456), South Dougal (0536), and Sheep Creek (0559) Allotments* document in the project record or available from the Owyhee Field Office

Sheep Creek	Sheep Creek- 01, 1.3 (NF- 2000)	channel poorly defined, overwide and shallow channel, unstable banks, erosion and deposition occurring	1.3
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For IDEQ water quality information associated with the Sheep Creek allotment, see table RIPN-3.

#### **3.3.4.1.4 Special Status Plants**

No known special status plants are on BLM-administered lands within this allotment.

#### **3.3.4.1.5 Wildlife and Special Status Animals**

In addition to the general overview of the Affected Environment for Wildlife Resources in the South Mountain allotments presented above (Section 3.1.5), descriptions of the current condition of species and their habitats within the Sheep Creek allotment are based on the 2013 Rangeland Health Assessment and Evaluation Report (USDI BLM, 2013) and Determination (Appendix E), affected environments of the Rangeland Vegetation and Water and Riparian Resources within this EA (Sections 3.3.4.1.1 and 3.3.4.1.3, respectively), recent personal observations, current element occurrences in IFWIS (IDFG, 2011), and consultation with local wildlife professionals.

The entire Sheep Creek allotment encompasses the Owyhee Uplands and Canyons Level IV Ecoregion discussed previously (Map GEN-2). Within the allotment, this ecoregion is characterized by juniper woodlands interrupted by rolling shrub steppe uplands, steep hills, and rocky outcrops. Currently, the expansion of juniper into former shrub communities has transformed much of the area into woodlands ranging from open, savanna-like conditions to denser canopy forest (Section 3.3.4.1.1). These denser woodlands cover the relatively low profile flanks of South Mountain. A riparian area runs through the upper and mid-elevations of pasture 1 (Section 3.3.4.1.3). Wildlife habitats within the Sheep Creek allotment include juniper woodlands, low and big sagebrush steppe, grasslands, wet meadow complexes, riparian areas, springs and seeps (Table VEGE-9). A detailed discussion of upland and riparian vegetation within the allotment can be found in Sections 3.3.4.1.1 and 3.3.4.1.3.

No federally listed Threatened or Endangered animals are known to occur in Sheep Creek allotment. One Candidate species, the greater sage-grouse, is known to occur within the allotment and a second Candidate species; the Columbia spotted frog could potentially inhabit the allotment. As many as seven mammal, 17 bird, one amphibian, and four reptile species with BLM special status (including Watch List Species) potentially occur within the allotment. Although the allotment has been modeled to have a moderate likelihood of core habitat for pygmy rabbits; encroachment by juniper woodlands and steep topography limit the habitat potential. In fact, western toads and white-headed woodpeckers are the only other special status species that have been documented within four miles of Sheep Creek allotment (IDFG, 2011).

#### **Uplands**

Upland habitats were found to not be meeting Standard 4; however, it was determined that livestock grazing management practices were not significant factors leading to the determination. Results of Standard 4 directly correlate with upland wildlife species habitat conditions. Livestock grazing has occurred late in the growth cycle for grasses and forbs, after the critical growth period. The prevalence of juniper and other invasive species have degraded the habitat through time and reduced habitat quality for sagebrush dependent species. Some special status animal species may benefit from juniper existence, such as bat species that can use the area for roosting sites. However, diminished understories of sagebrush, perennial forbs, and perennial bunch-grasses, compared to what would be expected in the Potential Natural Community condition for ecological sites on this allotment, have a negative effect on other animal species. Standard 8 likewise was determined to not be meeting the Standard, but current livestock

grazing management was not a significant factor in reaching this determination for upland species. Conversion of sagebrush habitats to juniper woodlands is the primary limiting factor on public lands in Sheep Creek allotment. Although the increase in juniper cover may have benefited some woodland-associated special status wildlife species such as northern goshawks and Lewis' woodpeckers, these woodland habitats are unsuitable for and have come at the expense of sagebrush-obligate and shrub-dependent special status species such as greater sage-grouse, pygmy rabbits, Brewer's sparrows, loggerhead shrikes, and sage sparrows. Although juniper woodlands currently make up 32 percent of the allotment (all ownerships), if their densities continue to increase, sagebrush-obligate species will be further impacted.

**Riparian**

Riparian habitat standards were not being met in the Sheep Creek allotment in 2013 because approximately 1.3 miles of Sheep Creek was assessed functioning-at-risk (FAR). Issues identified relating to the condition of the riparian-wetland areas included concerns with the lack of a diverse age class of riparian vegetation, bank instability, and heavy livestock use of riparian vegetation. Riparian plant species have not been allowed sufficient time to re-grow and achieve or maintain healthy properly functioning conditions. Livestock use along streams has not provided sufficient residual vegetation to improve, restore, or maintain healthy riparian functions. Current livestock grazing management practices were identified as the significant causal factors for not meeting Standard 2. These conditions have reduced habitat quality for riparian-dependent wildlife species along Sheep Creek. The lack of a diverse age class, herbaceous riparian vegetation use and streambank trampling by livestock have reduced nesting substrate, protective cover, and foraging areas for many riparian-dependent migratory birds and special status wildlife species such as northern goshawks, calliope hummingbirds, willow flycatchers, and some special status bat species like fringed myotis.

**Focal Special Status Animal Species**

Greater sage-grouse

Historically, a majority of the allotment provided suitable habitat for sage-grouse and supported significant populations (USDI BLM, 1969). Currently, only sage-grouse PPH exists in Sheep Creek allotment and pasture 2 does not contain public land (Map WDLF-2). An extensive area of juniper encroachment (conifer) occurs in pasture 1 of the allotment. Of the 617 acres of sage-grouse PPH in pasture 1, only 31 acres (5 percent) are sagebrush dominated (Table WDLF-5: Table WDLF-6). The majority (95 percent) of the pasture's sage-grouse habitat has been encroached by juniper woodlands. Since the 1960's no wildfires have been recorded in Sheep Creek allotment (Map FIRE-1).

**Table WDLF-5:** Sage-grouse habitat acreage by vegetation class within Sheep Creek allotment, 2013 (all ownerships)

Pasture	Preliminary Priority Habitat (PPH)			Preliminary General Habitat (PGH)			Habitat Total
	Sagebrush	Conifer	Total	Sagebrush	Conifer	Total	
1	105	636	742	0	0	0	742
2	488	321	808	0	0	0	808
Total (% of allotment)	593 (38)	957 (62)	1550 (100)	0 (0)	0 (0)	0 (0)	1550 (100)

**Table WDLF-6:** Sage-grouse habitat acreage within Sheep Creek allotment, 2013

Pasture	Preliminary Priority Habitat (PPH)			Preliminary General Habitat (PGH)			Habitat Total
	Private	BLM	Total	Private	BLM	Total	
							-

Pasture	Preliminary Priority Habitat (PPH)			Preliminary General Habitat (PGH)			Habitat Total
	Private	BLM	Total	Private	BLM	Total	-
1	125	617	742	0	0	0	742
2	808	0	808	0	0	0	808
Total (% of allotment)	933 (60)	617 (40)	1550 (100)	0 (0)	0 (0)	0 (0)	1550 (100)

#### Columbia spotted frog

Various agencies and researchers have surveyed potential spotted frog habitat throughout the Owyhee Mountains and Uplands since 1994 (Munger, et al., 1994) (Munger, Ames, & Barnett, 1997) (Owyhee Columbia Spotted Frog Working Group, 2007) (La Fayette, 2010) (Lohr & Haak, 2009) (Lohr, 2011). Although occurrence information available from IFWIS (IDFG, 2011) has not documented spotted frogs within the allotment, both pastures are within an occupied watershed. Columbia spotted frog surveys within 2 miles of Sheep Creek allotment to the north on Lone Tree Creek have not revealed spotted frogs. The limited amount of potential habitat for the species exists on private land in pasture 1 along a lower gradient portion of Sheep Creek with associated meadows, and springs. A 1.3 mile length of Sheep Creek does exist on public land in pasture 1, but has limited potential due to steep gradient and its incised nature (Map WDLF-4).

#### Pygmy rabbit

A coarse-level predictive occurrence model created by Idaho BLM in 2009 suggests that most of Sheep Creek allotment have a moderate likelihood of core habitat presence. However, habitat in the majority of the allotment is unsuitable for pygmy rabbits; only 37 percent of the allotment is classified as having the appropriate cover type the species prefers (i.e., big sagebrush and friable soils, Table WDLF-1). No pygmy rabbit surveys have been conducted within the allotment nor have any individuals been documented. Due to the lack of current suitable pygmy rabbit habitat, no further analysis for the species will occur for Sheep Creek allotment.

#### Columbia River redband trout

Redband trout are not known to occupy the incised stream (1.3 miles) on public land within pasture 1 nor has it been identified or modeled as potential habitat (Map WDLF-3).

#### ***Migratory Birds, Raptors, and other Birds (including Special Status Species)***

In addition to the general discussion of migratory birds, raptors, and other bird species and their habitats in Section 3.3.1.5, a variety of bird species have the potential to occur or have been documented within and in the vicinity of the Sheep Creek allotment (Appendix G). The juniper woodlands and riparian areas within the allotment are either known to or potentially could provide nesting and foraging habitat for many special status and migratory birds. As discussed above, the expansive juniper woodland habitat that currently occupies ecological sites that otherwise would be dominated by the expected sagebrush habitats in the absence of juniper encroachment presently has augmented the population of woodland birds that would be a far minor component of the area's overall bird community. Under natural disturbance regimes, juniper woodland bird species would be limited to widely scattered, solitary old-growth junipers or small stands that would be expected to occur on shallow, rocky soils as restricted inclusions within sagebrush or mountain shrub ecological sites (USDA NRCS, 2010). Junipers and aspen provide nesting and foraging substrate for foliage and bark gleaning species such as black-throated gray and yellow-rumped warblers, mountain bluebird, Townsend's solitaire, hairy woodpecker, and red-naped sapsucker. Ground gleaning species within woodland habitats include American robin, black-billed magpie, chipping sparrow, and

dark-eyed junco. In addition, juniper woodlands provide habitat for owl and raptor species such as flammulated owl, long-eared owl, northern saw-whet owl, northern goshawk, and red-tailed hawk.

Riparian habitat along Sheep Creek in the Sheep Creek allotment potentially hosts a variety of obligate and dependent bird species. Riparian-obligate species, like yellow warbler, and dependent species, such as black-capped chickadee, black-headed grosbeak, house wren, and warbling vireo, have been documented in the South Mountain area. These species prefer the structural diversity found in riparian areas with aspen and willow canopies and herbaceous understories along streambanks. The absence of disturbance associated with livestock grazing within these riparian communities has been demonstrated to result in high-quality breeding habitat (i.e., high nest success, low brood parasitism rates) for many of these species (Heltzel & Earnst, 2006).

Shrub steppe habitats dominated by mountain and low sagebrush provide vital nesting and foraging habitat for obligate species such as Brewer's and sage sparrows and dependent species including loggerhead shrike and sage thrasher. Direct loss, fragmentation, and degradation of sagebrush habitats connected with the spread of invasive plants, altered disturbance regimes, and the associated state transitions from stable native vegetation communities are some of the most important factors affecting long-term and regional population dynamics of these species (Knick & Rotenberry, 1995) (Knick & Rotenberry, 2000) (Knick & Rotenberry, 2002) (Knick, et al., 2003) (Knick, Holmes, & Miller, 2005). Passerine species like vesper sparrow, horned lark, western meadowlark, and rock wren, and raptors such as golden eagle, prairie falcon, ferruginous and rough-legged hawks, and burrowing and short-eared owls have also been documented in the area's shrub steppe vegetation communities.

### ***Big Game and other Mammals (including Special Status Species)***

In addition to the general discussion of big game and other mammal species and their habitats in Section 3.1.5, various big game and special status mammal species use a variety of habitats in the Sheep Creek allotment for some or all of their seasonal needs. Big game species are limited to elk, pronghorn, and mule deer. No California bighorn sheep Game Management Units or populations occur within or adjacent to Sheep Creek allotment (Map WDLF-4).

The woodland and riparian habitats within pastures 1 provide summer habitat for elk and mule deer. Although mule deer may be present year-round within the area, most winter habitat for both species occurs at lower elevations in Oregon. Pronghorn use within the allotment is highly restricted and limited to the lower areas along and adjacent to Sheep Creek on private land in pasture 2. Currently, on public lands, the allotment is meeting the needs of sagebrush obligate mammals and Standard 8 as much of the public lands have yet to be converted to closed canopy juniper woodlands. Most mammals, including big game, are more tolerant of low-density juniper than sage-grouse. Woodland habitats are in abundance supplying cover for mule deer and elk.

#### ***3.3.4.1.6 Social and Economic Values***

See Section 3.1.9 above.

#### ***3.3.4.1.7 Cultural Resources***

No recorded cultural resources sites are within the Sheep Creek allotment and no potential livestock congregation areas are identified on BLM-administered land. Staff made no site monitoring visits and conducted no new surveys.

### **3.3.4.2 Sheep Creek Allotment Environmental Consequences**

#### ***3.3.4.2.1 Alternative 1***

#### **3.3.4.2.1.1 Vegetation, including Noxious Weeds**

With implementation of Alternative 1, conditions would continue as they currently are, as described in the affected environment. The effects of summer and fall grazing are less detrimental than spring grazing to most perennial grass and forb species. A deferred season of use provides for livestock grazing after most of the upland species have reached the growth stage of late seed development and replenished carbohydrate reserves. This alternative includes no rest for an entire year, only summer/fall use that allows for undisturbed regrowth during nearly all of the growing season.

Utilization levels up to 50 percent would be allowed (Boise District term and condition). Based on 1 year of 2011 data at 30 percent utilization (this was captured when AUMs were 46 (33 percent less than the maximum allowable)), maintaining a level below 50 percent would be attainable. This alternative's stocking rate is moderate compared to other current South Mountain Group allotments (6 to 13.5 acres/AUM) and is appropriate based on vegetation. Livestock distribution is highly influenced by the availability of water being restricted to Sheep Creek. Livestock distribution would generally be limited to the riparian area and surrounding uplands in the summer when it is hot, with better distribution as temperatures cool into the fall. With no change in livestock intensity or distribution, concentrated use areas would continue. The potential for weed seed introduction (based on the number of livestock) would also be maintained. Trampling effects on biological soil crusts are generally more destructive in dry seasons, such as summer and fall, because organisms are dry, brittle, and not metabolically active resulting in decreased ability to recover versus when soils are moist (Belnap & Eldridge, 2003). However, limited distribution of livestock in the summer due to minimal points of watering would concentrate any detrimental effects on biological soil crusts.

In the Sheep Creek allotment, Alternative 1 would be expected in the short term (less than 10 years) and the long term (greater than 10 years) to maintain existing upland bunchgrasses because deferred grazing provides for increased health and vigor of bunchgrasses by limiting defoliation during the critical growth period when plants are most susceptible to livestock impacts. The effects from past grazing (reduction of large bunchgrasses) and the presence of invasive species (annual grasses and juniper) in the allotment would still be part of the vegetation community and cause the allotment to not meet Standard 4. Based on the lack of growing season use, over the long term (greater than 10 years) large bunchgrasses are likely to show some recovery and invasive species are expected to be stable. The ORMP vegetation objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas would be met.

#### **3.3.4.2.1.2 Soils**

Continuation of current use is expected to yield effects on soils similar to those described in the affected environment section. Soils would remain stable and retain adequate structure. Physical effects of trampling on wet soil would be minor in the uplands, but generally more apparent on loamy soil than claypan soils. Similarly, bare ground would be scattered in small patches throughout the claypan sites, with some more continuous patches along loamy toe-slopes and drainages where livestock tend to congregate and trail. Overall, the allotment would support a plant community that promotes infiltration and limits runoff. However, the lack of deep-rooted bunchgrasses and over-abundance of juniper along bands of loamy soils that follow drainage contours, particularly on south slopes would persist.

The allotment would continue to meet Standard 1 and ORMP soil objectives. In the absence of future wildfire or similar disturbance, juniper tree cover would increase slowly. The risk accelerated erosion and deteriorating watershed conditions would increase to the extent that juniper tree cover increases. Juniper encroachment is not addressed by management activities of this alternative.

#### **3.3.4.2.1.3 Riparian/Water Quality**

Under Alternative 1, (for details, see sections 2.2.1 and 2.4.4.1) the Sheep Creek allotment would be available to grazing during the summer and fall annually (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 1.3 miles of intermittent stream would be affected by the impacts associated with the summer and fall seasons of grazing. Recent actual use reported (Appendix B) indicates that the allotment has been used during the same seasons as proposed, and Standards 2 and 3 are not being met.

The Sheep Creek allotment is not meeting the standards associated with the riparian-wetland resources under current management. Since the alternative proposes the same seasons of use and other terms, the allotment would continue to not meet the riparian-wetland standards under Alternative 1. The management that led to the current condition is what defines this alternative and will form the baseline for comparison to the other alternatives.

#### **3.3.4.2.1.4 Special Status Plants**

Not applicable.

#### **3.3.4.2.1.5 Wildlife and Special Status Animals**

Under alternative 1, BLM would renew the livestock grazing permit for the use in the Sheep Creek allotment in accordance with the current permit and the current situation that led to conditions on the ground. Median actual use the past 16 years (1997-2012) has been at 60 AUMs, and 68 AUMs and 34 cattle. Because past use is close to the exiting permitted AUMS (68 AUMs) and season of use, alternative 1 would authorize grazing in the Sheep Creek allotment consistent with the current permit (2003).

The Sheep Creek allotment would be available to grazing during the summer and early-fall annually without changes in season of use or rest. The effects of summer and fall grazing are less detrimental than spring grazing to most perennial grass and forb species at appropriate utilization levels. A deferred season of use provides for livestock grazing after most of the upland species have reached the growth stage of late seed development and replenished carbohydrate reserves. Standard 8 for special status animal species was determined as not being met; however, current livestock grazing management practices are not significant factors in this determination. The Sheep Creek allotment was not meeting the standards associated with the riparian-wetland resources either under current management. Upland habitat components such as perennial grass cover, herbaceous species height, and abundance and variety of forbs were all suitable for wildlife and special status animal species. Juniper invasion and an increase in invasive grass species are limiting factors for upland-dependent wildlife habitat. Alternative 1 would continue to make progress towards meeting the needs of upland animal species and obtaining the Standard; however, juniper encroachment will continue to limit habitat quality.

For riparian and wetland dependent animal species, under Alternative 1, the Sheep Creek allotment would be available to grazing during the summer and fall annually without rest. Consequently, within the allotment, 1.3 miles of intermittent stream would be affected by the impacts associated with the summer and fall seasons of grazing. Recent actual use reported indicates that the allotment has been used during the same seasons as proposed, and standards are not being met. Since the allotment would continue to be grazed during the same season and with the same terms and conditions, the allotment would continue to not meet the riparian-wetland standards under this alternative. The management that led to the current condition is what defines this alternative and will form the baseline for comparison to the other alternatives. Because Standard 8 is not being met (primarily because of riparian habitats), nesting birds, small mammals, big game, amphibians, and other wildlife species that utilize the habitat would be impacted. Alternative 1 would not make progress towards meeting Standard 8 nor achieve ORMP objective WDLF-1.

#### **3.3.4.2.1.6 Social and Economic Values**

See Section 3.2.8.2 above.

#### **3.3.4.2.1.7 Cultural Resources**

No known historic properties would be affected under this alternative.

#### **3.3.4.2.2 Alternative 2**

##### **3.3.4.2.2.1 Vegetation, including Noxious Weeds**

Alternative 2 for the Sheep Creek allotment has comparable AUMs and stocking rate, but with an increase in livestock numbers by 34 percent (34 cattle to 52 cattle), a season of use confined to summer verses summer and fall in Alternative 1, and a decrease in the number of days of use from 61 days to 40 days reflecting a 34 percent decrease in the duration of livestock grazing. The decrease in duration of grazing would not strongly benefit upland vegetation because it would occur after the critical growth period when upland bunchgrasses have entered senescence and are less susceptible to negative impacts from defoliation. Biological soil crusts would have greater impacts due to higher livestock numbers (more hooves). However, high temperatures would decrease distribution and increase livestock concentrations in the riparian area, creating localized impacts and decreasing broad impacts to biological soil crust within the allotment in general. The spread of weed seed would be greater due to higher numbers of livestock to transport seed but, again, would also be more concentrated to the riparian area than the allotment as a whole.

The effects from past grazing (reduction of large bunchgrasses) and the presence of invasive species (annual grasses and juniper) in the allotment would still be part of the vegetation community and cause the allotment to not meet. Alternative 2 would be expected to maintain upland vegetation resources over the life of the permit (10 years) and improve in the long term (greater than 10 years) because summer grazing occurs after seed-set and promotes plant vigor, seed production, seedling establishment, root production, and litter accumulation for herbaceous plants in the upland ecosystem. Based on the lack of growing season use, over the long term (greater than 10 years) large bunchgrasses would have some recovery and invasive species are expected to be stable. The ORMP vegetation objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas would be met.

##### **3.3.4.2.2.2 Soils**

The proposed grazing schedule would continue to result in relatively stable soils with some minor differences compared to Alternative 1. Shortening the grazing season without reducing AUMs means concentrating more livestock use towards the summer, with a corresponding reduction in the autumn shoulder season. This shift would have two minor effects to soils in the pasture. Firstly, it would reduce the severity of direct physical trampling effects to wet soils compared to Alternative 1 because the odds of significant precipitation during the use period would be lower. Secondly, in what might be considered a trade-off with Alternative 1, livestock would be more likely to seek out the shade of juniper trees and loamy soils of the drainages and toe-slopes. This increased potential for disproportionate use along toe-slopes and drainages would be more adverse for soil stability and hydrologic function over the long term than Alternative 1 because bare ground would increase slightly and deep-rooted perennial bunchgrasses would not recover. Meanwhile, use could be shifted away slightly from claypan sites higher on the slope, where soil conditions would remain stable or improve slightly.

The allotment would continue to meet Standard 1 and ORMP objectives over the short term but may begin to show signs of deterioration on toe-slopes and drainages that prevent long-term attainment of Standard 1. In the absence of future wildfire or similar disturbance, juniper tree cover would increase slowly. The risk of accelerated erosion and deteriorating watershed conditions would increase to the

extent that juniper tree cover increases. Juniper encroachment is not addressed by management activities of this alternative.

#### **3.3.4.2.2.3 Riparian/Water Quality**

Under Alternative 2 (for details, see sections 2.2.2 and 2.4.4.2), the permittee proposes to graze the Sheep Creek allotment during the summer and fall annually (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 1.3 miles of intermittent stream would be affected by the impacts associated with the summer and fall seasons of grazing. Recent actual use reported (Appendix B) indicates that the allotment has been used during the summer and fall, and Standards 2 and 3 are not being met.

The Sheep Creek allotment is not meeting the standards associated with the riparian-wetland resources under current management. Although Alternative 2 proposes the same seasons of use, there would be 35 percent less days total and 15 days of use during the riparian constraint period as compared to the 45 days used in the current situation. Therefore, the allotment would make progress toward meeting the riparian-wetland standards under the Alternative.

#### **3.3.4.2.2.4 Special Status Plants**

Not applicable.

#### **3.3.4.2.2.5 Wildlife and Special Status Animals**

Under alternative 2, BLM would renew the livestock grazing permit for use in the Sheep Creek allotment in accordance with the application and grazing system received from the Larrusea Cattle Co. Livestock use would occur from August 16 to September 24, with 40 days of use with 52 cattle. The allotment would be permitted at 68 AUMs, which would result in no change in permitted AUMs over the 10-year permit. Based on the 3-year grazing system, the permittee would graze 204 AUMs. For upland animal species including sage-grouse, the prescription avoids grazing during the critical growth period of herbaceous plant species every year, much the same as alternative 1. Although grazing under alternative 2 is for a shorter duration of time with more cattle, the effects to upland special status animal species are the same. Both alternatives avoid the critical growth period of upland plants, avoid sage-grouse nesting season, and avoid migratory bird nesting season for ground nesting birds. Alternative 2 would make progress towards meeting Standard 8 for upland wildlife species. In spite of the progress the alternative may achieve, until junipers are removed from the community, sage-grouse habitat will be limited due to extent of sagebrush.

The Sheep Creek allotment is not meeting the standards associated with the riparian-wetland resources under current management (see Alternative 1). Under Alternative 2, the allotment would have a defined 3-year grazing schedule with fewer days of use annually in pasture 1, with more livestock. Because season of livestock use would not change appreciably, effects to riparian habitat and the wildlife species that depend on them would be the same as Alternative 1. Riparian/wetland dependent species would be impacted under alternative 2 by a reduction in hydric and woody species. Therefore, the riparian-wetland standards would not make progress towards being met under this alternative. For these reasons, Alternative 2 would not make progress for riparian wildlife species towards meeting Standard 8 nor achieve ORMP objective WDLF-1.

#### **3.3.4.2.2.6 Social and Economic Values**

See Section 3.2.8.3 above. The shorter grazing season may require additional labor and feed costs.

#### **3.3.4.2.2.7 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

### **3.3.4.2.3 Alternative 3**

#### **3.3.4.2.3.1 Vegetation, including Noxious Weeds**

Alternative 3 differs from Alternative 1 with the implementation of a 3-year rotation but has the same AUMs and stocking rates. This alternative balances the allotment for each resource while following the prescribed constraint (see Section 2.2.3 for Alternative 3 resource constraint descriptions). Years of the rotation would occur for 40 days in each of the following season: fall (year 1), summer/fall (year 2), spring (year 3). Additionally, on average there is a 34 percent decrease in the number of days of use from Alternative 1.

During the 1 year of critical growing season use, the proposed schedule has no grazing pressure the last 2 weeks (7/1-7/15 in most years), which would allow some bunchgrasses to set and disperse seed for reproduction. The schedule would also allow herbaceous plants several weeks of growth before grazing providing time to photosynthesize and store carbohydrates for improved health and vigor in the following 2 years of deferment. The 2 years of deferment to summer and/or fall would provide the necessary time between grazing events to allow for recovery, ultimately providing maintenance and improvement to the health and vigor of upland plant communities.

The effects from past grazing (reduction of large bunchgrasses) and the presence of invasive species (annual grasses and juniper) in the allotment would still be part of the vegetation community and cause the allotment to not meet. Alternative 3 would be expected to maintain upland vegetation resources over the life of the permit (10 years) and improve them in the long term (greater than 10 years) because the 2 years of deferment from critical growing season use would promote plant vigor, seed production, seedling establishment, root production and litter accumulation for herbaceous plants in the upland ecosystem. The ORMP vegetation objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas would be met.

#### **3.3.4.2.3.2 Soils**

Shifting the seasons of use between summer and autumn while limiting the use period by 20 days and maintaining AUMs would result in minor differences to soils compared to Alternative 1. In 2 years of the 3-year grazing cycle, the effects to soils would be similar to Alternative 1. However, the odds of physical trampling on wet soils would be greater under this alternative than Alternative 1 because the use period could extend to November 9th in 2 years of the 3-year grazing cycle and precipitation is more likely during this period of time. However, the late-season use proposed under this alternative means that the trampling effects would be distributed differently. Livestock would be more likely to disperse into the claypan soils of hillsides and ridges because extreme heat would not force them to shade of the toe-slopes and drainages. There would be more physical effects of trampling on wet claypan soils and less trampling of loamy soils under this alternative than Alternative 1. The early summer use period would also benefit loamy soils more than Alternative 1 for the same reason, extreme heat is less likely during this time of year and upland forage is more palatable.

The allotment would continue to meet Standard 1 and ORMP objectives over the short term and the grazing schedule would promote long-term attainment of the Standard and ORMP objectives. In the absence of future wildfire or similar disturbance, juniper tree cover would increase slowly. The risk accelerated erosion and deteriorating watershed conditions could be offset by the benefits to soil stability and hydrologic function afforded by this alternative. Juniper encroachment is not addressed by management activities of this alternative.

#### **3.3.4.2.3.3 Riparian/Water Quality**

Under Alternative 3 (for details, see sections 2.2.3 and 2.4.4.3), the Sheep Creek allotment would be available to grazing during the spring and early summer 1 year, and during the summer and early fall for 2 years of a 3-year rotation (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 1.3 mile of intermittent stream would be affected by the impacts associated with the spring, summer, and fall seasons of grazing. Recent actual use reported (Appendix B) indicates that the allotment has been used during the summer and fall seasons every year and Standards 2 and 3 are not being met.

The Sheep Creek allotment is not meeting the standards associated with the riparian-wetland resources under current management (Alternative 1). Under Alternative 3, the allotment would have a defined 3-year grazing schedule with growing season deferral incorporated 2 of the 3 years within the pasture that contains the riparian areas. Therefore, the riparian-wetland standards would make progress towards being met by increasing the composition of hydric species and reducing the amount of woody browse, improving the riparian area condition.

#### **3.3.4.2.3.4 Special Status Plants**

Not applicable.

#### **3.3.4.2.3.5 Wildlife and Special Status Animals**

In 2013 it was determined that Standard 8 for special status animal species was not being met and livestock grazing management was a contributing factor. The determination was based primarily on riparian conditions in the allotment and their effect on riparian-dependent animal species. Uplands were also determined to not be meeting standards, but due to increases in junipers and short-rooted perennial grasses unrelated to current livestock grazing.

Under Alternative 3, the BLM would renew grazing on the Sheep Creek allotment using resource constraints and constraints on seasons, intensities, duration, and frequency of grazing use to a degree necessary to meet or make significant progress toward meeting all land health standards and ORMP objectives as described in the description of proposed action and alternatives (Section 2.2.3). This alternative developed a 3-year rotational grazing system that would authorize livestock use based on soil, vegetation, riparian, and wildlife/special status animal resource issues while still permitting use similar to the permittee application and past use. Alternative 3 would allow grazing 1 year in 3 during the sage-grouse nesting season, which would limit herbaceous height and cover during the year. Because herbaceous components of sage-grouse nesting habitat were largely intact, Alternative 3 would not degrade habitat for nesting sage-grouse, ground nesting birds, big game, and small mammals that are dependent on upland habitats in spring and early summer seasons. Two years in 3, grazing would be allowed after the critical growth period of upland herbaceous plant species, preserving suitable conditions that presently exist in the allotment. Again, the primary limiting factor for upland wildlife species habitat was an increase in juniper cover.

Under Alternative 3, riparian habitats for wildlife would be grazed during the hot summer season 1 year in 3. During the two remaining years of the 3-year rotation, 1 year would prescribe grazing during the spring and the other year would be grazed post-hot season. Spring grazing would allow for regrowth of herbaceous riparian vegetation while utilization of woody vegetation would be lower because livestock would feed on herbaceous vegetation during that season. Additionally, livestock are less concentrated on riparian areas during cooler seasons of the year. Post-hot season grazing would occur when livestock are less concentrated on riparian areas and have fewer effects than hot season grazing. These seasons of use restrictions would make significant progress towards meeting Standard 8 and achieving ORMP objective WDLF-1. Riparian-dependent special status animal species such as Western toad and migratory birds would benefit from this alternative. Although rest is not incorporated into the grazing prescription as in

Alternative 4, significant progress would still be made. When compared to Alternative 1, Alternative 3 would make significant progress towards meeting Standard 8 and would provide benefits to both upland and riparian wildlife species.

#### **3.3.4.2.3.6 Social and Economic Values**

See Section 3.2.8.4 above. The shorter grazing season and required spring grazing (instead of fall grazing) 1 in 3 years may result in increased labor and feed costs.

#### **3.3.4.2.3.7 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

#### **3.3.4.2.4 Alternative 4**

##### **3.3.4.2.4.1 Vegetation, including Noxious Weeds**

Alternative 4 again has the same AUMs and stocking rate but a defined rotation that varies from Alternative 3 with the incorporation of rest in 1 year and a shorter duration of use in the summer and spring. Alternative 4 resource constraints were applied (Section 2.2.4) that provide greater restriction on riparian resource values that have been identified as high value for this allotment. For this reason the rotation avoids hot season use 2 out of 3 years with 1 rest year, 1 year spring use, and 1 year summer of summer use (hot season use). This rotation still accommodates necessary upland vegetation requirements for maintenance and potential improvement. In comparison to Alternative 1, 2, and 3, the addition of a rest year and a decrease in the duration of use allows Alternative 4 to have the greater benefits to all resources at hand.

Deferment from critical growth use would occur for 2 years of the 3-year rotation, in the form of summer use and rest (33 percent decrease in use from Alt 1). Summer use would limit livestock distribution due to warmer temperatures in the uplands pushing livestock to the cooler temperatures in the riparian area. Spring use would occur but for a shorter period of time than in Alternative 3, giving bunchgrasses additional pre-grazing growth (beginning 5/31) and still allowing for 2 weeks of regrowth post-grazing (7/1 to 7/15). The 1 year of rest has a 100 percent reduction in duration and intensity from all alternatives. The rest year would provide additional time for upland herbaceous root growth and associated carbohydrate storage in the absence of livestock defoliation helping to mitigate the 1 year of growing season effects. This rest year allows for maintenance of upland vegetation resources that increases resilience in years of drought. Wildlife, riparian, and soil resources also benefit from this rest in the upland vegetation resources. See Appendix F for additional impacts/benefits of summer use, spring use, and rest.

The Sheep Creek allotment would continue to not meet Standard 4, but current livestock grazing would not be a causal factor because use would occur in concert with Alternative 4 resource constraints that provide for, at a minimum, maintenance of current condition of all resources. The application of resource constraints is reflected in an overall 42 percent reduction of AUMs over the life of the 10-year permit, which is mostly attributed to the addition of 1 year of rest in the 3-year rotation. The addition of rest provides the vegetation resources with greater resilience and therefore ability to recover from disturbance regimes or drought.

The effects from past grazing (reduction of large bunchgrasses) and the presence of invasive species (annual grasses and juniper) in the allotment would still be part of the vegetation community and cause the allotment to not meet Standard 4. In the short term, Alternative 4 would be expected to maintain upland vegetation resources with biological soil crusts and invasive species remaining stable. Over the long term (greater than 10 years), large bunchgrasses would improve and make progress towards meeting

the Standard. The ORMP vegetation objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas would be met.

#### **3.3.4.2.4.2 Soils**

The adverse effects to soils would be similar to those described for Alternative 1, but would be less severe and less extensive for two reasons. The 12 AUM (17 percent) reduction is achieved by shortening the use period. Firstly, the potential for physical trampling effects on wet soils is less under this alternative than under Alternative 1 because the schedule avoids use into the autumn. Secondly, this alternative provides for an entire season of rest every third year. The rest year would provide time for soils to recover from the minor adverse effects occurring from the previous 2 years. Although effects to soils would be similar to Alternative 1 over the short term, the rest period would slowly improve soil conditions over the long term more than any other grazing alternative due primarily to the year of rest. The amount of bare ground would decrease. The distribution of deep-rooted perennial bunchgrasses in loamy sites along toe-slopes and drainages would likely improve over the long term, with corresponding improvement in infiltration and reductions in runoff.

The allotment would continue to meet Standard 1 and ORMP soil objectives over the short term, and the grazing schedule would ensure long-term attainment of the Standard and ORMP objectives. Juniper tree cover would increase slowly. The risk accelerated erosion and deteriorating watershed conditions would be offset by the benefits to soil stability and hydrologic function afforded by this alternative. Juniper encroachment is not addressed by management activities of this alternative.

#### **3.3.4.2.4.3 Riparian/Water Quality**

Under Alternative 4 (for details, see sections 2.2.4 and 2.4.4.4), the Sheep Creek allotment would be available to grazing during the spring and early summer 1 year, during the summer for 1 year, and rested for the third year of a 3-year rotation (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 1.3 mile of intermittent stream would be affected by the impacts associated with the spring and summer seasons of grazing alternately over the course of 3 years. Recent actual use reported (Appendix B) indicates that the allotment has been used during the summer and fall seasons every year and Standards 2 and 3 are not being met.

The Sheep Creek allotment is not meeting the standards associated with the riparian-wetland resources under current management (see Alternative 1). Under Alternative 4, the allotment would have a defined 3-year grazing schedule with growing season deferment incorporated two of the 3 years. Additionally, the change in season of use would result in a 42 percent reduction in active AUMs over the 10-year permit. Therefore, the riparian-wetland standards as well as the ORMP objectives would be met under this alternative when compared to the other alternatives because the presence and composition of hydric species would increase and the woody browse would decrease, improving the riparian area condition.

#### **3.3.4.2.4.4 Special Status Plants**

Not applicable.

#### **3.3.4.2.4.5 Wildlife and Special Status Animals**

When compared to Alternative 1, Alternative 4 would make the greatest progress of any alternative towards meeting Standard 8 and would provide benefits to both upland and riparian wildlife species and their habitats. In 2013 it was determined that Standard 8 for special status animal species was not being met and livestock grazing management was a contributing factor. The determination was based primarily on riparian conditions in the allotment and their effect on riparian-dependent animal species. Uplands were also determined to not be meeting standards, but due to increases in junipers and short-rooted perennial grasses unrelated to current livestock grazing.

Alternative 4 would allow grazing 1 year in 3 during the sage-grouse nesting season in pasture 2, which is more use than alternative 1. Because herbaceous components of sage-grouse nesting habitat were largely intact, Alternative 4 would not degrade habitat for nesting sage-grouse, ground nesting birds, big game, and small mammals that are dependent on upland habitats in spring and early summer seasons. For at 2 years in 3, grazing would be either allowed after the critical growth period of upland herbaceous plant species or rested (not grazed), preserving suitable conditions that presently exist in the allotment. The early-season grazing during 1 year would occur during the nesting period of sage-grouse; however, it is very late in the nesting season and rest on the third year is a greater benefit to wildlife habitats than the one week of impact to sage-grouse nesting 1 year out of 3. Again, the primary limiting factor for upland wildlife species habitat was an increase in juniper cover.

Under Alternative 4, riparian habitats for wildlife would be grazed during the hot summer season only 1 year in 3. In pasture 2, rest would be provided 1 year during the 3-year grazing cycle and hot season use would only occur 1 year in 3. Additionally, the change in season of use would result in a 42 percent reduction in active AUMs over the 10-year permit. These seasons of use and grazing rest would make significant progress towards meeting Standard 8 and benefit habitat for wildlife greater than any alternative because the presence and composition of hydric species would increase and the woody browse would improve, improving the riparian area condition. Additionally, the benefits would achieve ORMP objective WDLF-1. Riparian-dependent special status animal species such as Western toad, willow flycatchers, and migratory birds would benefit from this alternative.

#### **3.3.4.2.4.6 Social and Economic Values**

See Section 3.2.8.5 above. The shorter grazing season, required spring grazing 1 in 3 years, and required rest 1 in 3 years may result in increased labor and feed costs.

#### **3.3.4.2.4.7 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

#### **3.3.4.2.5 Alternative 5**

##### **3.3.4.2.5.1 Vegetation, including Noxious Weeds**

The effects of not grazing livestock on upland vegetation resources for a 10-year period are described in section 3.2.1.6.

##### **3.3.4.2.5.2 Soils**

The effects to soils of not grazing livestock for a 10-year period are described in section 3.2.2.6.

##### **3.3.4.2.5.3 Riparian/Water Quality**

See the impacts described for all allotments under Alternative 5 in section 3.2.3.6.

##### **3.3.4.2.5.4 Special Status Plants**

Not applicable.

##### **3.3.4.2.5.5 Wildlife and Special Status Animals**

See the impacts described for all allotments under Alternative 5 in section 3.2.5.6.

##### **3.3.4.2.5.6 Social and Economic Values**

See Section 3.2.8.6 above.

### 3.3.4.2.5.7 Cultural Resources

Under this alternative, no livestock grazing would occur and there would be no effects to cultural resources by this activity.

## 3.3.5 South Dougal Allotment

### 3.3.5.1 South Dougal Allotment Affected Environment

#### 3.3.5.1.1 Vegetation, including Noxious Weeds

A Rangeland Health Assessment, Evaluation, and Determination Report was completed for the South Dougal allotment in 2013. This report identified invasive species (bulbous bluegrass, juniper) as the reason for the allotment not meeting the Idaho Standards for Rangeland Health Standard 4 – Native Plant Communities, but the Determination did not identify current livestock management practices as a contributing factor (Appendix F). The native plant community is currently recovering from sagebrush die-off with most perennial grasses being maintained and an influx of invasive grass species and encroachment of juniper.

#### Ecological Sites

The South Dougal allotment is composed of three major ecological sites (Table VEGE-10). They include a Shallow Claypan low sagebrush/Idaho fescue site, very shallow stony loam low sagebrush/Sandberg bluegrass-bluebunch wheatgrass site, and a Loamy mountain big sagebrush/bluebunch wheatgrass-Idaho fescue site.

**Table VEGE-10:** BLM lands mapped by Ecological Sites in the South Dougal allotment

Ecological Site	Dominant Species Expected	Acres	Percent of Allotment
Shallow claypan 12-16" ARAR8/FEID	low sagebrush, Idaho fescue	2006	48%
Very shallow stony loam 10-14" ARAR8/POSE-PSSPS	low sagebrush, Sandberg bluegrass, Bluebunch wheatgrass	1602	38%
Loamy 13-16" ARTRV/PSSPS-FEID	mountain big sagebrush, bluebunch wheatgrass, Idaho fescue	190	23%
Loamy 10-13" ARTRW8/PSSPS	Wyoming big sagebrush, bluebunch wheatgrass	63	2%

The ecological sites show that under natural disturbance regime, the South Dougal allotment should be dominated by sagebrush/bunchgrass communities. Other vegetation types such as western juniper, basin big sagebrush, and riparian areas are expected to occur as unmapped inclusions within the larger ecological sites, and each should make up only a small percentage of the area.

#### Current Vegetation<sup>45</sup>

Current vegetation is discussed at two scales: cover type (overstory vegetation) and understory species composition (rangeland health assessments, trend, etc.). Current overstory vegetation, based on mapping

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<sup>45</sup> Note that these data (specifically rangeland health indicators) are primarily qualitative rather than quantitative, so the following discussion uses non-numerical comparative terms.

done by the Pacific Northwest National Laboratory (PNNL) from 2000/2001 Landsat satellite imagery in the South Dougal allotment, is shown in Table VEGE-11. Ecological site and PNNL mapping were done at different scales (PNNL at a somewhat finer scale) so precise matching is not possible, but gross changes in plant community structure are apparent. None the less, the change between the current vegetation (Table VEGE-11) and the expected vegetation (Table VEGE-10) is indicated by comparing the two tables.

**Table VEGE-11:** Cover Types based on PNNL data for BLM-administered lands within Dougal FFR allotment

Vegetation Cover Type	Acres	Percent of Allotment
Low sagebrush	1971	28%
Mountain big sagebrush	847	25%
Bunchgrass	389	13%
Juniper	236	9%
Big sagebrush	430	6%
Exotic annuals	292	6%
Big sagebrush mix	6	
Miscellaneous others	43	5%
Wet meadow	6	3%
Bitterbrush	1	
Greasewood	2	
Mountain shrub	2	<1%

PNNL mapping shows a cover class of ‘Juniper’ and ‘Exotic Annuals’, both of which are not present within any of the plant community types. The presence of juniper and exotic annuals in current condition indicates a departure away from reference condition. Aerial imagery (ESRI, 2013) shows the presence of juniper, mainly on loamy 13-16” ecological sites (up to 23 percent of the allotment), that is likely outside of the reference condition. This type of vegetation mapping does not show changes in the understory, but information from the 2001 rangeland health assessment indicates a shift in species composition noted by the massive influx of bulbous bluegrass since the late 90’s early 2000s in concert with a considerable reduction in sagebrush. Native perennial grasses appear to be maintaining.

#### **Rangeland Health Standard 4**

Rangeland health field assessments for the South Dougal allotment were conducted in 2001. In 2013, the previous assessment was amended with additional information that was used to issue the 2013 determination (Appendix F). A widespread sagebrush die-off occurred in the late nineties and continued until 2007, at which time sagebrush frequency became static. This loss was mirrored by an extreme influx of bulbous bluegrass. The loss of a dominant species such as sagebrush from a plant community could increase community invasibility by increasing resource availability to the advantage of exotic invaders (Prevéy, Germino, & Huntly, 2010). However, the native perennial grasses in the area of sagebrush die-off appear to be maintaining vigor with a relatively static trend from 1998 to 2011. The juniper invasion in the South Dougal allotment does not have the extent or densities such that of other allotments in the South Mountain Group project area; however, where juniper has expanded it is greater than what would be expected at reference condition. A GIS exercise comparing aerial imagery with ecological site descriptions identified that juniper invasion is generally confined to loamy 13-16” ecological sites that constitutes less than a quarter of the land are in the allotment. The description for the loamy 13-16” ecological sites identifies juniper as an invasive species that when dominant, results in a new state requiring management inputs to restore ecological function of the reference site sagebrush/bunchgrass state. More specific details by pasture are outlined in the 2013 Rangeland Health Assessment, Evaluation, and Determination.

### **Utilization and Actual Use**

Upland utilization for 2007, 2008, and 2012 has been below 40 percent. Utilization from past grazing in 1997 was measured at 57 percent. This high utilization may have decreased resilience of the already stressed plant community as it coincides with the sagebrush die-off and massive invasion of bulbous bluegrass. From 1997 through 2007, actual use data has not been accurate enough to identify if the permittee followed the Allotment Management Plan (AMP), so a long-term trend is not possible. However, from 2008 through 2012 both pastures have been provided deferment (as required in the AMP) during the critical growth period at least 2 years out of 5. Active AUMs on the 10-year permit are 374 and average actual use has been 356 AUMs. Effects from the most recent livestock grazing (2008-2012) do not seem to be causing any additional negative effects to the native vegetation. This is based on the utilization remaining below 40 percent, both pastures being provided some deferment, and the stocking rate generally being maintained at 10 acres/AUM (pasture 1 at 17 acres/AUM).

### **Weeds**

The only recorded Scotch thistle infestation in this allotment has been treated, and it is monitored and treated on a regular basis. No other noxious weeds have been mapped in the South Dougal allotment; however, other invasive (but not noxious) non-native plants present include bulbous bluegrass, which is often co-dominant with native bunchgrasses. Cheatgrass and other annual weeds are also scattered throughout the allotment, generally in localized disturbed areas but seldom dominant. In general, the plant communities in the South Dougal allotment are dominated by native species, with little influence of non-natives other than bulbous bluegrass.

### **Biological Soil Crusts**

Microbiotic crusts are present, but not extensive in the South Dougal allotment. At both rangeland health field assessment sites microbiotic crusts were reported to be reduced with minimal representation. Of the two sage-grouse habitat assessments done within the allotment, 1 site reported the presence of microbiotic crusts and the other reported a lack of microbiotic crusts. The reduction of microbiotic crusts in the allotment may be a result of the shift in species composition, decreased diversity, and invasion of bulbous bluegrass. Biological soil crusts are important for increasing soil stability and capturing nutrients, and can affect vascular plant species composition (Wicklów-Howard, Serpe, Orm, Stokes, & Rosentreter, 2003).

### **Conclusion**

To summarize, the South Dougal allotment is not meeting the Standard for Native Plant Communities (Standard 4) because of invasive species (juniper and bulbous bluegrass) currently competing with native perennial shrub, bunchgrass, and forb species. A massive sagebrush die-off and simultaneous invasion of bulbous bluegrass are the main contributors for not meeting Standard 4, with juniper encroachment of less significance. Past grazing from the late 1800s and early 20<sup>th</sup> century is largely responsible for major shifts in vegetation structural-functional groups from deep-rooted perennials to shallow-rooted perennials (National Research Council, 1994). This disturbance event was also a time for weed invasion. The die-off of sagebrush provided a prime opportunity for bulbous bluegrass invasion; however, the resident native perennial bunchgrass have maintained over the last 23 years. Even though vegetation communities have shifted to a greater dominance of shallow-rooted native perennial bunchgrass species and a decline in larger deep-rooted native perennial bunchgrasses with an influx of bulbous bluegrass, the native vegetation appears to be retaining an adequate composition to conclude that proper nutrient cycling, hydrologic cycling, and energy flow are provided.

#### **3.3.5.1.2 Soils**

The allotment partially meets the watershed Standard, but areas of decadent and deceased shrub stands prevent the entire allotment from meeting the Standard. Plant communities in the allotment include substantial areas of dead or decadent sagebrush stands in both pastures, although they are more common in pasture 1 than 2. The most apparent area of shrub die-off appears to have occurred in the northeastern portion of pasture 1. Approximately 8 percent of the soils on BLM-administered public land in the allotment have a high erosion hazard (USDI BLM, 2012a).

Long-term trend data suggest maintenance of the deep-rooted perennial grass group. Decreases in bare ground and the continued presence of non-persistent litter further suggest that residual vegetation is left each year to decompose in place, aiding soil stability and watershed function. Despite areas of low shrub cover and bulbous bluegrass invasion, qualitative evaluations in 2001 and 2013 demonstrate no accelerated erosional processes for the dominant ecological sites in the allotment. Table Soil-5 summarizes field assessment of soil/site stability and watershed function at representative locations in the allotment.

**Table SOIL-5:** Summary of soil stability and hydrologic function indicators for field assessments in the South Dougal allotment

Ecological Site	Departure of Soil & Watershed Function Indicators from Reference Condition (%) <sup>1</sup>				
	none-to-slight	slight-to-moderate	moderate	moderate-to-extreme	extreme
Very Shallow Stony Loam 10-14 (pasture 1)	52	48	-	-	-
Very Shallow Stony Loam 10-14 (pasture 2)	30	70	-	-	-
Shallow Claypan 12-16 (pasture 1)	30	70	-	-	-

<sup>1</sup> Details are available in the 2013 RHA and Determination documents in project file

The majority of water for this area comes from winter snow and subsequent spring runoff. Without sagebrush, the watershed’s potential to capture and retain blowing snow is depressed. By mid-August, as herbaceous plants go dormant, photosynthesis declines where sagebrush is absent, so energy flow is also depressed. The effects of nutrient cycling in watersheds where sagebrush has been largely removed are less clear, although a negative inference is reasonable here too, since sagebrush represents a sub-dominant plant group in this watershed under reference conditions. Increasing levels of bulbous bluegrass raise the prospect of some reduction in water storage and energy flow potential, but only to the extent that bluegrass excludes deep-rooted perennial bunchgrasses and/or prevent shrub stands from regenerating.

The watershed in this allotment cycles nutrients and provides pathways for energy flow, although depressed in the autumn and winter due to the absence of sagebrush—a sub-dominant vegetative group—in some areas. The level of depressed function has promoted no physical soil instabilities in the watershed. Accelerated erosion is not apparent. However, with a healthy shrub component, the watershed in this allotment would capture and retain more moisture, provide for greater energy flow, and better nutrient cycling.

### 3.3.5.1.3 Riparian/Water Quality

A general, common to all allotments, description of the affected environment can be found above in section 3.1.3.

**Existing Condition**<sup>46</sup>

Standard 2 is not being met in pasture 2 of the South Dougal allotment. Cherry Creek is the main drainage that traverses the allotment. Although the stream is intermittently riparian, it was assessed and rated NF. Riparian-wetland vegetation with deep-rooted, binding ability was largely missing and not sufficient to stabilize streambanks. The riparian vegetation had low vigor, and the composition, age class, and structural diversity were not appropriate (Table RIPN-16, Map RIPN-1).

Standard 3 is not being met in pasture 2 of the South Dougal allotment. Cherry Creek was rated non-functioning (NF), and the stream segment was classified as a Rosgen B3c on 25 to 35 percent of the segment (Rosgen, 1996). The stream had poorly defined banks, and vegetation with deep, binding root masses occurred on less than 64 percent of the stream causing bank instability. Although the reach is also affected by flow alteration associated with the reservoir, the PFC indicators identify direct impacts associated with grazing.

BLM has not assessed any of the intermittent streams that occur in pasture 1; however, the reaches in the northern portion of the allotment appear to support riparian vegetation (USDA FSA, 2011).

**Table RIPN-16:** South Dougal allotment riparian condition

Stream Name	Allotment & Pasture Stream Miles & Condition	Assessment Issues/ Impacts Identified	Total Miles
Cherry Creek	South Dougal- 01, 1.2 (NF-2000)	High use of veg, lack of bank stabilizing species, bank & channel instability, presence of erosion and deposition	1.2

For IDEQ water quality information associated with the South Dougal allotment, see table RIPN-3.

**3.3.5.1.4 Special Status Plants**

**Standards for Rangeland Health**

South Dougal allotment has one known special status plant, thinleaf goldenhead, at one location. This location spans into Dougal FFR. The entire occurrence is meeting Standard 8. The Rangeland Health Assessments contain additional detail related to the condition of special status plants, as originally compiled in 2006, and supplemented in 2013 (Appendix E). Background details regarding the information presented in the current EA can be found in the assessment, evaluation, and determination documents. The BLM used information in those documents to address the ‘Allotment Specific Affected Environment’.

**South Dougal allotment thinleaf goldenhead occurrence**

See Section 3.3.1.1.4 for details on this occurrence that were described as a whole, with details by allotment.

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<sup>46</sup> For additional details on the current condition of the allotment, see the *Supplemented Rangeland Health Assessments, Evaluation Reports and Determinations, for the Dougal FFR (0456), South Dougal (0536), and Sheep Creek (0559) Allotments* document in the project record or available from the Owyhee Field Office

### ***3.3.5.1.5 Wildlife and Special Status Animals***

In addition to the general overview of the Affected Environment for Wildlife Resources in the South Mountain allotments presented above (Section 3.1.5), descriptions of the current condition of species and their habitats within the South Dougal allotment are based on the 2013 Rangeland Health Assessment and Evaluation Report (USDI BLM, 2013) and Determination (Appendix E), affected environments of the Rangeland Vegetation and Water and Riparian Resources within this EA (Sections 3.4.1.1 and 3.4.4.1, respectively), recent personal observations, current element occurrences in IFWIS (IDFG, 2011), and consultation with local wildlife professionals.

#### **Wildlife Habitat**

The South Dougal allotment encompasses two of three Level IV Ecoregions discussed previously (Map GEN-2). The Owyhee Uplands and Canyons ecoregion covers all of pasture 1 and less than one-half of pasture 2. The majority of pasture 2 is located in the Dissected High Lava Plateau ecoregion. Table VEGE-11 shows major wildlife habitat cover types for the allotment and the percentage of a type in the allotment.

No federally listed Threatened or Endangered animals are known to occur in South Dougal allotment. One Candidate species, the greater sage-grouse, is known to occur within the allotment and a second Candidate species; the Columbia spotted frog could potentially inhabit the allotment. As many as 7 mammal, 22 bird, 1 amphibian and 4 reptile species with BLM special status (including Watch List Species) potentially may occur within the allotment. Special status species that have been documented in the Idaho Fish and Wildlife Information System or within 1 mile of the allotment include spotted bat, white-headed woodpecker, ferruginous hawk, western toad, long-legged myotis, Yuma myotis, and white-faced ibis.

#### ***Uplands***

Data, along with site visits to the allotment, found upland areas to have lost much of the shrub component and has seen an increase in invasive grasses. However, deep-rooted perennial grasses still maintain a foothold in the allotment and native perennial forbs are diverse and abundant. Additionally, western juniper is encroaching into the allotment, displacing more desirable vegetation. The needs of upland-dependent special status species are not being met due to low amounts of shrubs that serve as insect producers, nesting substrate, escape cover, and thermal cover. Currently the native plant community in this allotment is recovering from sagebrush die-off, with most perennial grasses being maintained and an influx of invasive grass species; in particular, the high frequency of bulbous bluegrass and short-term increase of cheatgrass are of concern. The loss of a dominant species such as sagebrush from a plant community could increase community invisibility by increasing resource availability to the advantage of exotic invaders. A Rangeland Health Assessment, Evaluation, and Determination Report was completed for the South Dougal allotment in 2013. Two sage-grouse breeding habitat assessments, one for each pasture, revealed marginal to unsuitable breeding habitat largely due to sagebrush die-off.

Additionally, juniper encroachment has resulted in the dominance of juniper woodland habitat and an underrepresentation of sagebrush species and dominant deep-rooted, tall perennial bunchgrass species in 9 percent of the allotment (i.e., bluebunch wheatgrass, Idaho fescue, Thurber's needlegrass). Healthy, productive, and diverse populations of native perennial grasses, forbs, and shrubs are not maintained with increasing juniper encroachment (Huxman, et al., 2005) (Rowland, Suring, Tausch, Greer, & Wisdom, 2008), and what remains in the juniper-dominated areas of the allotment does not provide for proper nutrient cycling, hydrologic cycling, and energy flow (USDI BLM, 2013).

Although the increase in juniper cover may have benefited some woodland-associated special status wildlife species such as northern goshawks and Lewis' woodpeckers, these woodland habitats are

unsuitable for and have come at the expense of sagebrush-obligate and shrub-dependent special status species such as greater sage-grouse, pygmy rabbits, Brewer's sparrows, loggerhead shrikes, and sage sparrows. Although juniper woodlands currently make up only 9 percent of the allotment, if their densities continue to increase, sagebrush-obligate species will be impacted.

### ***Riparian***

A segment of Cherry Creek flows through pasture 2 on public land for approximately 1.2 miles and was rated as non-functioning in 2000 and confirmed in 2013. Riparian-wetland vegetation with deep-rooted, binding ability was largely missing and not sufficient to stabilize streambanks. The riparian vegetation had low vigor, and the composition, age class, and structural diversity were not appropriate. The Owyhee Resource Management Plan (USDI BLM, 1999) (RMP) Table RIPN-1 does not list Cherry Creek as having riparian or fish habitat.

Riparian areas were found to not be meeting Standard 2, and current livestock grazing management practices were a significant factor. Riparian and wetland habitats accessible to livestock grazing are not meeting the habitat requirements for dependent wildlife species due to a lack of hydric vegetation, limited quantity and structural diversity of woody species, and soil instability along streambanks and in wet meadows (Section 3.4.4.1). Typically, for the reaches of stream that are not in proper functioning condition, inadequate riparian-wetland vegetation is present to protect streambanks and dissipate energy during high flows, and plant communities are often not comprised of the expected deep-rooted bank stabilizing hydric species. Heavy woody and herbaceous riparian vegetation use and streambank trampling by livestock have reduced nesting substrate, protective cover, and foraging areas for many riparian-dependent migratory birds and special status wildlife species such as northern goshawks, calliope hummingbirds, willow flycatchers, and some special status bat species like fringed myotis. Heavy use and trampling in riparian areas also have increased stream temperatures, channel width-to-depth ratios, and sediment loads, which degrade and limit suitable habitat for aquatic special status species such as Columbia spotted frogs, western toads, common garter snakes, and redband trout. In addition to the effects of livestock grazing, juniper encroachment is threatening riparian areas and aspen stands and limiting the amount of nesting and foraging habitat many riparian-dependent migratory birds and special status species require. Based on these existing poor riparian habitat conditions, the allotment currently is not meeting Standard 8 (Threatened and Endangered Plants and Animals) for many special status animal species due to the effects of current hot-season livestock grazing practices in riparian-wetland habitats.

### **Focal Special Status Animal Species**

#### Greater sage-grouse

Historically, a majority of the allotment provided suitable habitat for sage-grouse and supported significant populations (USDI BLM, 1969). Currently, sage-grouse PPH and PGH occurs throughout all of the South Dougal allotment (Map WDLF-1). The most recent revision to the PPH model incorporates additional information including a sagebrush component and a restoration potential component (version 2) (Makela & Major, 2012). Within the allotment, PPH includes two subcategories (i.e., sagebrush, and conifer encroachment areas; Table WDLF-7; Map WDLF-1). However, there are substantial areas of PGH in pastures 1 and 2, and additionally areas of juniper encroachment occur in both pastures (Map WDLF-1). Since the 1960's no recorded fire has burned in South Dougal (Map FIRE-1). In general, the amount and extent of sagebrush vegetation communities in the allotment are restricted. Sage-grouse breeding habitat is largely limited due to site potential as low sagebrush is in about equal proportions to big sagebrush while other areas are compromised by juniper expansion.

Currently, most of the allotment affords sage-grouse habitat for some part of the bird's life history whether breeding or early or late brood-rearing. Little is known about sage-grouse winter-use areas in South Dougal; however, most birds probably migrate to lower elevations in Oregon to spend the winter.

Both landscape importance and greater sage-grouse persistence modeling (constituent parts of PPH) place Dougal FFR allotment in lower categories, indicating the area’s relative value to sage-grouse. The Conservation Plan for Greater Sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee, 2006) identifies juniper encroachment as a serious threat to sage-grouse habitat. Sage-grouse use in areas with junipers is probably limited due to the increased predation risk trees impart (trees provide perches and cover for avian and terrestrial predators). Restoration of sage-grouse breeding habitat within portions of these pastures may require a considerable amount of time and money, unless wildfires remove Phase I and II juniper that have expanded across the allotment. Prescribed fires or mechanical treatments would be required to restore big sagebrush in the allotment. Although wildfire has also been cited as a substantial threat to sage-grouse habitat (Idaho Sage-grouse Advisory Committee, 2006) primarily due to loss of sagebrush nesting cover for a considerable period of time (Nelle, Reese, & Connelly, 2000) (Hess & Beck, 2012) and an increased risk of invasion by cheatgrass in low elevation Wyoming big sagebrush communities (Chambers, Roundy, Blank, Meyer, & Whittaker, 2007), research in mountain big sagebrush communities has documented return to pre-burn conditions by 15 years post-burn in some locations (Bunting, Kilgore, & Bushey, 1987) and non-random selection by brooding sage-grouse in areas < 10 years post-burn (Thacker, 2010). Nevertheless, these results should be viewed with some caution as site-specific results could vary and additional research has been advised to assess the effects of burning and demographic responses of sage-grouse across all sagebrush habitats (Beck, Connelly, & Wambolt, 2012).

**Table WDLF-7: Sage-grouse habitat acreage within South Dougal allotment, 2013**

Pasture	Preliminary Priority Habitat (PPH)			Preliminary General Habitat (PGH)			Habitat Total
	Sagebrush	Conifer	Total	Sagebrush	Conifer	Total	
1	1315	391	1707	0	593	593	2299
2	425	0	425	328	1177	1505	1930
Total	1741	391	2132	328	1770	2098	4229
(% of allotment)	(41)	(9)	(50)	(8)	(42)	(50)	(100)

Areas of usable PPH-sagebrush are present within the allotment and occur in both pastures in South Dougal allotment (Map WDLF-1). Preliminary priority habitat-sagebrush within pastures 1 and 2 is adjacent to areas of juniper encroachment, as well as on the periphery of large contiguous areas of PPH-sagebrush to the west including core areas in Oregon (Map WDLF-1). Within pasture 1, PPH-sagebrush is limited to the far northern and southern portions of the pasture. Due to limited acreage of PPH-sagebrush, and proximity of juniper; pastures 1 and 2 have only one assessment each for breeding habitat suitability (Table WDLF-8). Pasture 1 was rated as unsuitable due to lack of sagebrush cover and unsuitability is not related to current livestock grazing. Pasture 2 was rated as marginally suitable with sagebrush again being the limiting factor. All other components of sage-grouse habitat were suitable in pasture 2. Pasture 1 affords late brood-rearing habitat and conditions are currently rated as unsuitable. No late brood-rearing habitat exists in pasture 2.

**Table WDLF-8: South Dougal Sage-grouse Assessments - Summary**

Pasture	Year	No. of Assessments	Season Assessed	Suitability
1	2013	1	Breeding	Unsuitable
2	2013	1	Breeding	Marginal

No leks are known to occur within the allotment. The closest active lek to South Dougal allotment is located over 4 miles northwest, just inside Oregon. The Oregon lek was active in 2012, with 25 attending males. Information for the lek is available back to 2001, disclosing a high attendance in 2005 of 49 males and a low of 14 males in 2008. Approximately 80 percent of nesting sage-grouse hens does so within 4 miles of the lek they attended (Doherty, Naugle, Copeland, Pocewicz, & Kiesecker, 2011). None the less, hens may travel from the Oregon lek to South Dougal to nest. No acres of PPH fall within the 75 percent

breeding bird density (BBD) buffer (4 miles) of the lek, and no other leks reach the allotment with their 75 percent BBD (Map WDLF-1). The 75 percent BBD buffer is highly correlated to breeding habitat surrounding the lek and corresponds to the high abundance (or population) component of the PPH area (Makela & Major, 2012). A 100 percent BBD (5.3 miles) overlays 636 acres of PPH-sagebrush on public land and 391 acres of PPH-conifer encroachment.

#### Columbia spotted frog

Various agencies and researchers have surveyed potential spotted frog habitat throughout the Owyhee Mountains and Uplands since 1994 (Munger, et al., 1994) (Munger, Ames, & Barnett, 1997) (Owyhee Columbia Spotted Frog Working Group, 2007) (La Fayette, 2010) (Lohr & Haak, 2009) (Lohr, 2011). Although occurrence information available from IFWIS (IDFG, 2011) has not documented spotted frogs within the allotment, they have been observed in South Mountain Area allotment on Corral Creek. Spotted frog surveys just outside of South Dougal allotment pasture 2 have not revealed Columbia spotted frogs. One occurrence near North Fork Owyhee River a mile south of pasture 2 was recorded in 1997. Most potential habitat for the species exists on private land in the form of streams, meadows, and ponds adjacent to the allotment and only small portions of the allotment are within Columbia Spotted Frog Occupied Watersheds (Map WDLF-3).

#### Pygmy rabbit

A coarse-level predictive occurrence model created by Idaho BLM in 2009 suggests that most of pasture 1 contains a moderate likelihood of core habitat presence. However, habitat in the majority of the allotment is unsuitable for pygmy rabbits; only 25 percent of the allotment is classified as having the appropriate cover type the species prefers (i.e., big sagebrush and friable soils; Table WDLF-1). Suitable sagebrush habitat and soils are largely absent or now dominated by junipers in pastures 1 and 2. To date, pygmy rabbit surveys have only been conducted in pasture 1. Pygmy rabbits have not been documented within the allotment, and the 2005 surveys did not reveal evidence of their presence (e.g., individuals, burrows, pellets).

#### Columbia River redband trout

No habitat exists for Columbia River redband trout in South Dougal allotment (Map WDLF-3). The nearest habitat is located 0.7 miles to the south in North Fork Owyhee River.

#### ***Migratory Birds, Raptors, and other Birds (including Special Status Species)***

In addition to the general discussion of migratory birds, raptors, and other bird species and their habitats in Section 3.3.1.5, a variety of bird species have the potential to occur or have been documented within and in the vicinity of the South Dougal allotment (Appendix G). The juniper woodlands and riparian areas within them are either known to or potentially could provide nesting and foraging habitat for many special status and migratory birds. As discussed above, the juniper woodland habitat that currently occupies ecological sites that otherwise would be dominated by the expected sagebrush habitats in the absence of juniper encroachment presently has augmented the population of woodland birds that would be a far minor component of the area's overall bird community. Under natural disturbance regimes, juniper woodland bird species would be limited to widely scattered, solitary old-growth junipers or small stands that would be expected to occur on shallow, rocky soils as restricted inclusions within sagebrush or mountain shrub ecological sites (USDA NRCS, 2010). Junipers provide nesting and foraging substrate for foliage and bark gleaning species such as black-throated gray and yellow-rumped warblers, mountain bluebird, Townsend's solitaire, hairy woodpecker, and red-naped sapsucker. Ground gleaning species within woodland habitats include American robin, black-billed magpie, chipping sparrow, and dark-eyed junco. In addition, juniper woodlands provide habitat for owl and raptor species such as flammulated owl, long-eared owl, northern saw-whet owl, northern goshawk, and red-tailed hawk. Sagebrush-steppe habitat for migratory bird nesting is severely compromised by sagebrush die-offs in both pastures of South

Dougal allotment. The limited (< 1%) mountain shrub community that integrate with open woodlands and sagebrush steppe provide breeding and foraging habitat and cover for aerial, bark, and foliage gleaners such as ash-throated and gray flycatchers, Brewer's blackbird, common poorwill, and northern flicker. Ground foraging species in these habitats include green-tailed towhee, mourning dove, Cassin's and house finches, and lark and white-crowned sparrows.

Riparian habitat along the perennial stream in the South Dougal allotment potentially hosts a variety of obligate and dependent bird species. Riparian-obligate species, like yellow warbler, and dependent species such as black-capped chickadee, black-headed grosbeak, house wren, and warbling vireo have been documented near the South Mountain group. These species prefer the structural diversity found in riparian areas with aspen and willow canopies and herbaceous understories along streambanks. The absence of disturbance associated with livestock grazing within these riparian communities has been demonstrated to result in high-quality breeding habitat (i.e., high nest success, low brood parasitism rates) for many of these species (Heltzel & Earnst, 2006). Most of the habitat features required for riparian nesting species are limited due to the non-functioning condition on Cherry Creek.

### ***Big Game and other Mammals (including Special Status Species)***

In addition to the general discussion of big game and other mammal species and their habitats in Section 3.3.1.5, various big game and special status mammal species use a variety of habitats in the South Dougal allotment for some or all of their seasonal needs. Big game species including elk, mule deer, and pronghorn, occur within the allotment seasonally. The Owyhee Front Population Management Unit (PMU) for California bighorn sheep contains approximately 1,150 acres in pasture 2. Currently, no bighorn sheep are known to exist in the allotment, but Idaho Department of Fish and Game goals are to expand the population within the PMU. The closest known extant population is west in Oregon.

The woodland, big sagebrush, and bunchgrass habitats within pastures 1 and 2 provide abundant summer habitat for elk and mule deer. Although mule deer may be present year-round within the allotment, most winter habitat for both species occurs at lower elevations in Oregon or the nearby canyons of the Owyhee River and its tributaries. Summer pronghorn habitat occurs in the rolling shrub steppe communities west of the allotment and adjacent to meadows on nearby private land.

#### ***3.3.5.1.6 Social and Economic Values***

See Section 3.1.9 above.

#### ***3.3.5.1.7 Cultural Resources***

Two previously recorded sites are within the South Dougal allotment, 10OE1160 and 10OE1161, both lithic scatters. Site records make no mention of any type of disturbance at either location. Even though the site is not in proximity to a potential congregation area, cultural resources staff made a monitoring visit to 10OE1160. Because the given location of the site, recorded in 1976, is inexact, staff surveyed a wide area covering nearly four acres of where the site is reported to be. The inventory discovered a total of two lithic flakes, but no concentrations of material or any tools. The surveyed area is not affected by livestock grazing.

All 24 potential livestock congregation areas identified for the allotment received survey coverage that resulted in three new site recordings. The sites, temporary numbers 13-O-04S1, 13-O-04S2 and 13-O-04S3, are prehistoric locations and have not been formally evaluated for NRHP eligibility. Two of the sites have minor trampling, less than 5 centimeters deep, and the third has trails 8 to 10 centimeters deep. The livestock disturbances at all three locations are not affecting any characteristic that would lessen the sites' potential for NRHP eligibility.

### **3.3.5.2 South Dougal Allotment Environmental Consequences**

#### **3.3.5.2.1 *Alternative 1***

##### **3.3.5.2.1.1 Vegetation, including Noxious Weeds**

With Alternative 1, conditions would continue as they currently are, as described in the affected environment. This two-pasture deferred rotation grazing system includes use in the spring and summer. Utilization levels up to 50 percent would be allowed, and based on recent years' data would be expected to generally be no greater than 30 percent on key forage species. The duration of use during the critical growth period allows for substantial growth before grazing occurs. The year of deferment allows for nearly undisturbed regrowth during nearly all of the growing season providing the desirable bunchgrasses opportunity to regain vigor and health for future growth, productivity, and sustainability.

Effects from livestock trailing/crossing would include minor trampling and negligible utilization. Because trailing would occur along an existing road with ongoing motorized vehicle travel that may disperse weeds, any additional weed spread as a result of livestock trailing is expected to be negligible. If weeds are detected along the trailing route in the future, easy access would be available for treatment. Livestock would be required to trail within 100 yards from the center line of the road and would two days per year. Range readiness would be required and would minimized effects of trampling plants and soils.

Upland vegetation resources would remain stable over the short term (less than 10 years), and livestock grazing management would continue to not be a contributing factor in not meeting Standard 4. The overall ecological balance of the allotment would remain slightly depressed due to changes in vegetation composition stemming from sagebrush die-off, coupled with bulbous bluegrass invasion. Juniper encroachment continues to be an issue in approximately 25 percent of the allotment. Standard 4 would continue to not meet for upland vegetation resources as these issues would still be part of the vegetation community. Over the long term (greater than 10 years), vegetation resources would maintain health and vigor of bunchgrasses by limiting defoliation during the critical growth period when plants are most susceptible to livestock impacts. Overall, biological soil crusts and invasive species are expected to be stable. Over the long term, the ORMP vegetation objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas would be met.

##### **3.3.5.2.1.2 Soils**

The two-pasture deferred rotation grazing system would continue. Using up to 187 animal units to graze approximately 187 AUMs in each of the allotment's two pastures, each season totals up to 1,122 AUMs of livestock use per pasture during a 3-year grazing cycle. Livestock would be utilizing each pasture for up to 100 days during a typical 3-year grazing cycle. Applying that level of use during the proposed schedule would continue to limit adverse direct physical effects to wet soil from livestock trampling because the schedule avoids spring grazing each year. Minor amounts of bare ground would be distributed in small and discontinuous patches throughout the allotment, with larger and more continuous patches of bare ground limited to areas surrounding water, dietary supplement, roads, and trails. Patches of bare ground could become slightly smaller throughout the majority of the allotment—if precipitation nears average each season—because litter would continue to accumulate and cover bare soil areas providing slightly greater soil surface stability over the long term. Limiting utilization to 50 percent of current year's growth would ensure minimal but adequate amounts of vegetative material remains after each grazing season for soil stability and watershed health. Avoiding the critical growing season every other year would indirectly promote good upland watershed function over the long term because plants capable of supporting good watershed function would persist.

Although soils would remain stable, hydrologic function, energy flow, and nutrient cycling would remain slightly depressed over the short term, and could remain so over the long term to the extent that sagebrush does not recover. The allotment would not meet the land health standard for watersheds. The proposed grazing system would have no effect on this allotment's ability to meet the watershed land health standard because grazing would neither promote nor inhibit sagebrush recovery.

#### **3.3.5.2.1.3 Riparian/Water Quality**

Under Alternative 1 (for details, see sections 2.2.1 and 2.4.5.1), the South Dougal allotment would be available to grazing during the summer annually without rest or growing season deferment (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 0.5 mile of perennial and 12.4 miles of intermittent/ephemeral stream would be affected by the impacts associated with the summer season of grazing. Recent actual use reported (Appendix B) indicates that the allotment has primarily been used during the summer months, and standards are not being met.

The South Dougal allotment is not meeting the standards associated with the riparian-wetland resources under current management. Since the allotment would continue to be grazed during the same season and with the same terms and conditions, the allotment would continue to not meet the riparian-wetland standards under this alternative. The management that led to the current condition is what defines this alternative and will form the baseline for comparison to the other alternatives.

#### **3.3.5.2.1.4 Special Status Plants**

Alternative 1 would maintain existing conditions (Section 3.3.5.1.4), which are allowing thinleaf goldenhead (only known to occur in pasture 1) to meet Standard 8. The 2-year deferred rotation in pasture 1 allows for spring and summer use. Current grazing management does not appear to be negatively impacting this species. Sagebrush die-off within the pasture, and noted in the vegetation section 3.3.5.2.1.1, is not in the vicinity of the thinleaf goldenhead occurrence. However, a diverse age-class of juniper is on the periphery of the occurrence.

Direct effects of summer grazing on thinleaf goldenhead are inconsequential because cows enter the pasture largely after flowering and seed set, so seed would mostly be dispersed. The plant's subterranean growing points are would not be at risk from grazing, and by late July or August the plant will be dormant so leaf removal will not affect photosynthetic production for the year. Direct trampling effects would be similar, with very minor trampling impacts expected on the buried root crown, except perhaps at localized high use areas around some springs. Conversely, spring grazing during the June growing/flowering period for this species would have some trampling effects. This grazing would remove photosynthetic capability and flower heads, reducing the vigor of grazed plants and their reproductive capacity. These effects are not expected to substantially reduce the viability of the occurrences in this allotment because this species is not generally targeted by livestock due to minimal palatability. Direct trampling effects on thinleaf goldenhead would be similarly low. Trampling may break off some flowering stems and leaves, thus reducing reproduction and photosynthesis somewhat, but effects are not expected to be substantial because the subterranean growing point is not particularly vulnerable to trampling.

Indirect effects on special status plants from non-native weed increase as a result of grazing may occur in high use areas such as along roads, watering sources, salt grounds, and livestock congregation areas. Grazing can cause weed increase by creating more bare ground (from reduced bunchgrass and biological soil crust cover) favoring weed dominance (Reisner 2011) (Wicklow-Howard, Serpe, Orm, Stockes, & Rosentreter, 2003). Cattle may also carry in and disperse weed seed. An increase of weeds, particularly exotic annual grasses, can negatively affect rare plants (Rosentreter, 1992).

Similar to other upland vegetation resources, special status plants would remain stable over the short term (less than 10 years), and livestock grazing management would continue to not be a contributing factor in not meeting Standard 8 for special status plants. The overall ecological balance of the allotment would remain slightly depressed due to changes in vegetation composition stemming from sagebrush die-off, coupled with bulbous bluegrass invasion. Juniper encroachment continues to be an issue in approximately 25 percent of the allotment. These issues would continue to be a threat to special status plants as they would continue to be part of the vegetation community. Improvements in upland vegetation resources over the long term (greater than 10 years) (see Section 3.3.5.2.1.1 Alternative 1 Vegetation including Noxious Weeds) would indirectly benefit special status plants by increasing the health and vigor of surrounding herbaceous vegetation and decreasing opportunity for invasive species expansion. Overall, special status plants are expected to remain stable in the short term with potential long-term benefits as upland vegetation improves in the long term. This alternative meets Standard 8 and the ORMP special status species objective in the short term and long term.

#### **3.3.5.2.1.5 Wildlife and Special Status Animals**

Under alternative 1, BLM would renew the livestock grazing permit for use in the South Dougal allotment in accordance with the current permit and the current situation that led to the current conditions. Current livestock grazing management includes following the 1984 allotment management plan that authorized a deferred grazing system with use occurring July 16 through August 15 with flexibility in season of use and livestock numbers. The South Dougal allotment would be available to grazing during the summer annually without rest or growing season deferment. Standard 8 for special status animal species was determined as not being met. A lack of sagebrush cover due to die-off was the primary reason for upland habitats not meeting the Standard, but in this instance current livestock grazing management was not a significant factor. The South Dougal allotment was not meeting the standards associated with the riparian-wetland resources under current management. Other upland habitat components such as perennial grass cover, herbaceous species height, and abundance and variety of forbs were all suitable for wildlife and special status animal species. Alternative 1 would make progress towards meeting the needs of upland animal species and obtaining the Standard.

For riparian and wetland dependent animal species, under Alternative 1, the South Dougal allotment would be available to grazing during the summer annually without rest or growing season deferment. Consequently, within the allotment, 0.5 mile of perennial and 12.4 miles of intermittent/ephemeral stream would be affected by the impacts associated with the summer season of grazing. Recent actual use reported indicates that the allotment has primarily been used during the summer months, and standards are not being met. Since the allotment would continue to be grazed during the same season and with the same terms and conditions, the allotment would continue to not meet the riparian-wetland standards under this alternative. The management that led to the current condition is what defines this alternative and will form the baseline for comparison to the other alternatives. Because Standard 8 is not being met, primarily because of riparian habitats; nesting birds, small mammals, big game, amphibians, and other wildlife species that utilize the habitat would be impacted. Alternative 1 would not make progress towards meeting Standard 8 nor achieve ORMP objective WDLF-1.

#### **3.3.5.2.1.6 Social and Economic Values**

See Section 3.2.8.2 above.

#### **3.3.5.2.1.7 Cultural Resources**

No known historic properties would be affected under this alternative.

#### **3.3.5.2.2 Alternative 2**

#### **3.3.5.2.2.1 Vegetation, including Noxious Weeds**

Alternative 2 would be less beneficial to upland resources than Alternative 1. Even though the same number of AUMs and livestock would be anticipated, the proposed 3-year pasture rotation would have greater use during the critical growth period on an annual basis as outlined in the allotment management plan. These effects would be mildly different between pastures 1 and 2.

Pasture 1 would incur spring use every year with year 1 being grazed for 4 weeks; and years 2 and 3 being grazed for a 2-week duration. Two of the 3 years would result in less of an impact to herbaceous vegetation because the period of use during the critical growth season would be limited to 2 weeks versus 4 weeks. The third year would have the greatest use during the critical growth period but would still allow for some regrowth after use allowing some plants to complete their annual growth cycle. Herbaceous plants are most susceptible to grazing impacts during active growth, especially when repeated on an annual basis. The proposed spring use occurs during seed formation and seed stalk elongation, the most sensitive time in the life cycle of grasses due to the high requirements for carbohydrate from remaining plant material and photosynthesis. In this scenario, opportunities for regrowth and completing of the annual growth cycle are limited in every year. However, recent utilization has been no greater than 30 percent on key forage species. If this is maintained then upland vegetation would be maintained in its current condition.

Impacts on upland vegetation for pasture 2 would be greater in comparison to pasture 1 due to a longer duration of spring use in 2 out of 3 years. This would decrease upland vegetation conditions in the short term (less than 10 years) by decreasing the amount of time to complete the annual life cycle and reducing recovery herbaceous plants may be able to make in the already annually limited timeframe.

The noxious weed Scotch thistle is not expected to increase in the short term because it would be kept in check with ongoing noxious weed treatment. In pasture 2, an increase of bulbous bluegrass and other annual weeds would be expected as the health and vigor of native herbaceous vegetation decreases providing opportunity for expansion of non-desirables with decreased competition. Biological soil crusts are expected to remain static at best considering slightly less damage could incur annually because greater amounts of use would occur when soils are potentially moist (spring) rather than dry (summer/fall). Therefore, effects from livestock trailing/crossing would be minor (see Section 3.3.5.2.1.1).

Pasture 1 upland vegetation would be maintained in the short term with a 30 percent utilization that is reflective of current use patterns. The negligible increase in spring grazing use in pasture 1 would not attribute to the allotment not meeting Standard 4. Pasture 2 vegetation resources would decline in the short term.

On an overall allotment level, Alternative 2 would cause a decrease in current upland vegetation resources in the short term (less than 10 years) and would contribute to not meeting Standard 4. The increase in spring grazing use on an annual basis in pasture 2 decreases the recovery time of herbaceous vegetation between grazing events and dampens resilience to disturbance and drought, impeding maintenance or improvement of upland vegetation. The effects from invasive species (juniper and bulbous bluegrass) and the ecological imbalance from sagebrush die-off in the allotment would still be part of the vegetation community and contribute to the allotment not meeting Standard 4. Over the long term (greater than 10 years), the condition of herbaceous vegetation would continue to decline, and a potential for increased spread of invasive species could occur due to ecological fatigue. The ORMP vegetation objective to improve unsatisfactory and maintain satisfactory vegetation health/condition would not be met.

#### **3.3.5.2.2.2 Soils**

Limiting utilization to 50 percent of current year's growth throughout the allotment would have the same effects to soils as Alternative 1. Distributing the use seasons between pastures 1 and 2 differently while keeping the same number of animal units would have slightly different effects to soils than those described under Alternative 1. The benefits to soils in the uplands of pasture 1 would be diminished. Although the overall number of animals in the allotment would be the same as Alternative 1, the use period in pasture 1 would be extended. Increasing the total number of use-days in pasture 1 by 16 during the typical 3-year grazing cycle corresponds to using 91 (6 percent) more AUMs than Alternative 1. The adverse physical effects of livestock on wet soils would be similar to but slightly greater than Alternative 1 because up to 187 animal units would be trailed across pasture 1. The adverse effects of trailing on soils would be minimized to the extent that trailing occurs toward the latter half of the proposed date range because soils tend to be drier in June than April. Overall effects to soils in pasture 1 would be similar to those described for Alternative 1, but litter amount and extent would decrease slightly with corresponding increases in bare ground amount and continuity over the long term.

Soil conditions in the uplands of pasture 2 could improve slightly relative to Alternative 1 over the short term but would decline over the long term due to indirect effects of grazing. Decreasing the total number of use days in pasture 2 by 16 during the typical 3-year grazing cycle corresponds to 107 (19 percent) fewer AUMs than Alternative 1. Although this decrease would slightly increase the potential for litter to accumulate and decompose in place relative to Alternative 1, the benefit would only occur over the short term. This benefit would diminish over the long term because livestock would begin grazing during the critical growing season of plant species key to good hydrologic function in the uplands. Eventual declines in key plant species' condition would more than offset initial benefits of less overall use. The adverse physical effects to wet soils from grazing in pasture 2 would be the same as described for Alternative 1 because this alternative also avoids wet soil season grazing.

Minor changes in the grazing schedule would benefit soils in pasture 2 over the short term at the detriment of long-term conditions. Although soils would remain stable initially, hydrologic function, energy flow, and nutrient cycling would become depressed over the long term, to the extent that sagebrush does not recover and key plant species are exhausted. Pasture 2 of the allotment would not meet ORMP objectives or Standard 1 because hydrologic function and soil stability in the uplands would be compromised over the life of the permit. The grazing schedule would cause detrimental effects to soils and vegetation that would lead to an eventual failure of the allotment to meet Standard 1.

#### **3.3.5.2.2.3 Riparian/Water Quality**

Under Alternative 2 (for details, see sections 2.2.2 and 2.4.5.2), the permittee proposes to graze pasture 1 of the South Dougal allotment during the summer annually without rest or growing season deferment, but for fewer days. Pasture 2 would be open to grazing during the spring for 2 years, and during the summer for the third year of a 3-year grazing schedule (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 0.5 mile of perennial and 12.4 miles of intermittent/ephemeral stream would be affected by the impacts associated with the spring and summer seasons of grazing. Recent actual use reported (Appendix D) indicates that the allotment has been used during the summer season every year, and Standards 2 and 3 are not being met.

The South Dougal allotment is not meeting the standards associated with the riparian-wetland resources under current management (see Alternative 1). Under Alternative 2, the allotment would have a defined 3-year grazing schedule with fewer days of use annually in pasture 1 and growing season deferment incorporated 2 of the 3 years in pasture 2. Therefore, the riparian-wetland standards would make progress towards being met under this alternative.

#### **3.3.5.2.2.4 Special Status Plants**

As opposed to Alternative 1, every year of the 3-year grazing rotation has spring use in Alternative 2, but to varying degrees. The effects from 1 year of use during the critical growth period (6/10-7/9) would be the same as those described for thinleaf goldenhead in Alternative 1 (Section 3.3.5.2.1.1). The other 2 of the 3 years with spring use would be limited to a 2-week period at the end of the critical growing period. While effects of trampling and herbivory are of concern during this period of use, the majority of plants would have completed their life cycle and, therefore, been provided the opportunity to reproduce. Additionally, livestock are not generally drawn to thinleaf goldenhead as forage, so herbivory would be negligible. Summer impacts from livestock grazing would also be similar to Alternative 1 (Section 3.3.5.2.1.1).

The Alternative 2 grazing rotation would maintain the thinleaf goldenhead occurrence at its current condition for the short term (less than 10 years). In the long term, the negative effect of varying degrees of spring grazing in every year on the surrounding bunchgrasses, which are targeted forage, would indirectly affect habitat maintenance for the special status plants in the pasture by providing opportunity for invasive species expansion. Indirect effects from changes to pollinators and weeds would be similar to those described in Alternative 1. Overall, this pasture would meet Standard 8 and the ORMP objective for special status plants in the short term.

#### **3.3.5.2.2.5 Wildlife and Special Status Animals**

Under Alternative 2, the BLM would renew the livestock grazing permit for the use in the South Dougal allotment in accordance with the application and 3-year deferred grazing system received from Frankie Dougal. Livestock use would occur from June 12 to September 30 with 60 days of use with 187 cattle. A 3-year grazing system would be established, with use occurring between June 10 and August 8 on a rotational basis. For upland animal species including sage-grouse, the prescription avoids grazing during the critical growth period of herbaceous plant species 2 of every 3 years. This prescription additionally allows for grass and forb species to attain the majority of their annual growth to provide nesting cover and insect production for sage-grouse and other ground nesting birds. One year in 3 allows for grazing between June 10 and early July, which is within the sage-grouse nesting period but largely avoids the season. Alternative 2 would make progress towards meeting Standard 8 for upland wildlife species. In spite of the progress the alternative may achieve, until sagebrush returns to the community, sage-grouse habitat will be marginal to unsuitable.

The South Dougal allotment is not meeting the standards associated with the riparian-wetland resources under current management (see Alternative 1). Under Alternative 2, the allotment would have a defined 3-year grazing schedule with fewer days of use annually in pasture 1 and growing season deferment incorporated 2 of the 3 years in pasture 2. Therefore, the riparian-wetland standards would make progress towards being met under this alternative. Riparian/wetland dependent species would benefit from the alternative; however, progress in reestablishing healthy wildlife habitat would be slow as grazing would occur 1 of every 3 years in pasture 2. None the less, progress towards meeting Standard 8 for riparian-dependent species and the Standard on a whole would be made and would meet the ORMP objective WDLF-1. Alternative 2 would make progress faster than Alternative 1 for riparian species and the allotment in total.

#### **3.3.5.2.2.6 Social and Economic Values**

See Section 3.2.8.3 above. The season of use would be the same, but the pasture rotations would be different, which may lead to additional labor costs.

#### **3.3.5.2.2.7 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

### **3.3.5.2.3 Alternative 3**

#### **3.3.5.2.3.1 Vegetation, including Noxious Weeds**

This allotment is on the cusp of 5,000-foot elevation, which is a tipping point for the length of the active growing season in the resource constraints for Alternative 3 (see Section 2.2.3 for full constraint review). Constraints for above 5,000 feet were applied, making the end date of the active growing season 2 weeks longer than the below 5,000 foot constraint (7/15 versus 7/1). With the proposed 2 out of 3 years of growing season use (verses 1 out of 3), implementation of the greater than 5,000-foot resource constraint requires the terms and conditions of 30 or fewer days use and a maximum of 40 percent utilization at the end of the active growing season. Both pastures meet these requirements.

Alternative 3 has the same AUMs, stocking rate, and livestock numbers as Alternative 1. However, this alternative has greater benefit than Alternatives 1 and 2 by decreasing the number of days of use during the critical growing season, which aids in the long-term health and vigor of herbaceous vegetation. In the short term both pastures would maintain with possible improvements in herbaceous vegetation in both pastures.

The noxious weed Scotch thistle is not expected to increase in the short term because it would be kept in check with ongoing noxious weed treatment. Bulbous bluegrass would continue to dominate extensive areas throughout the allotment. The health and vigor of native herbaceous vegetation would be maintained or improved providing competition against invasive species (juniper and bulbous bluegrass). Biological soil crusts are expected to remain static at best. Effects from livestock trailing/crossing would be minor (see Section 3.3.5.2.1.1).

On an overall allotment level, Alternative 3 would improve upland vegetation resources in the short term (less than 10 years) over Alternatives 1 and 2. The health and vigor of upland herbaceous vegetation would benefit from fewer days of critical growing season use and more deferment. The effects from invasive species (juniper and bulbous bluegrass) and the ecological imbalance from sagebrush die-off in the allotment would still be part of the vegetation community and contribute to the allotment not meeting Standard 4. Over the long term (greater than 10 years), the condition of herbaceous vegetation would improve under normal disturbance and climatic years. The invasive species would likely remain static in the short and long term. The ORMP vegetation objective to improve unsatisfactory and maintain satisfactory vegetation health/condition would not be met.

#### **3.3.5.2.3.2 Soils**

Grazing the same number of animal units during the proposed season of use would have virtually the same effects to soils as those described under Alternative 1. Earlier season of use in 1 year during each 3-year cycle could disperse direct physical effects to soils from trampling because extreme heat is less likely in June than July, reducing the likelihood of livestock concentration. However, these benefits would be offset in year 3 of the proposed grazing cycle because the season of use then shifts to July, making livestock congregation more likely in the third year relative to Alternative 1. This type of concentration is expected along Cherry Creek in pasture 1, and springs and ephemeral drainages in pasture 1 and 2. Limiting utilization to 40 percent of current year's growth would have similar but slightly more beneficial effects to soils as Alternative 1, but only to the extent that the operator actually maximizes use. Since the conditions have resulted from recent use (2007, 2008, and 2012) levels at or below 40 percent, the effects to soils under this alternative would be unchanged from those described under Alternative 1. Any differences in the effects to soils attributable to the season of use between this alternative and Alternative 1 are negligible.

Although soils would remain stable, hydrologic function, energy flow, and nutrient cycling would remain slightly depressed over the short term, and could remain so over the long term to the extent that sagebrush does not recover. The allotment would not meet the land health standard for watersheds. The proposed grazing system would have no effect on this allotment's ability to meet the watershed land health standard because grazing would neither promote nor inhibit sagebrush recovery.

#### **3.3.5.2.3.3 Riparian/Water Quality**

Under Alternative 3 (for details, see sections 2.2.3 and 2.4.5.3), the South Dougal allotment would be available to grazing during the spring 1 year, and during the summer for 2 years of a 3-year rotation (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 0.5 mile of perennial and 12.4 miles of intermittent/ephemeral stream would be affected by the impacts associated with the spring and summer seasons of grazing. Recent actual use reported (Appendix B) indicates that the allotment has been used during the summer season every year, and Standards 2 and 3 are not being met.

The South Dougal allotment is not meeting the standards associated with the riparian-wetland resources under current management (see Alternative 1). Under Alternative 3, the allotment would have a defined 3-year grazing schedule with growing season deferment incorporated 1 of the 3 years. Other mandatory terms and conditions of the permit under this alternative would include measures that would reduce impacts (stubble height, woody browse, and bank alteration) associated with the riparian areas condition. Monitoring would be required in pastures 1 and 2 the years they are used during the riparian constraint period, and would add assurances that standards would make progress. Therefore, the riparian-wetland standards would make progress towards being met under this alternative.

#### **3.3.5.2.3.4 Special Status Plants**

Alternative 3 would have similar effects to Alternative 2 but with less spring use. The 3-year rotation of summer, spring, spring/summer has even fewer days of spring use with livestock presence being concentrated to summer. Summer livestock impacts would be the same as described in Alternative 1 (Section 3.3.5.2.1.1) for thinleaf goldenhead. Spring livestock impacts would also be similar to Alternative 1 but dampened because the only spring use would occur 1 year out of 3, for 2 weeks at the end of the growing season when the majority of plants have already completed their life cycle and set seed. This alternative has more benefit than Alternatives 1 and 2 because during all but 2 weeks every 3 years thinleaf goldenhead would complete its lifecycle in the absence of livestock, aiding in better vigor and health of the population. This alternative would meet Standard 8 and the ORMP objective for special status plants in the short and long term (less than 10 years and greater than 10 years, respectively).

#### **3.3.5.2.3.5 Wildlife and Special Status Animals**

In 2013 it was determined that Standard 8 for special status animal species was not being met and livestock grazing management was a contributing factor. The determination was based primarily on riparian conditions in the allotment and their effect on riparian-dependent animal species. Uplands were also determined to not be meeting standards, but due to sagebrush die-off unrelated to livestock grazing.

Alternative 3 would allow grazing 1 year in 3 during the sage-grouse nesting season, which would limit herbaceous height and cover during the year. Because herbaceous components of sage-grouse nesting habitat were largely intact, Alternative 3 would not degrade habitat for nesting sage-grouse, ground nesting birds, big game, and small mammals that are dependent on upland habitats in spring and early summer seasons. Two years in 3, grazing would be allowed primarily after the critical growth period of upland herbaceous plant species, preserving suitable conditions that presently exist in the allotment. Again, the limiting factor for upland wildlife species habitat was a general lack of sagebrush cover.

Under Alternative 3, riparian habitats for wildlife would be grazed during the hot summer season 2 years in 3. However, a limit would be placed on herbaceous riparian grazing that would require 6 inches or better height remaining at the end of the grazing period. Additionally, when grazing use occurs from late-June/early-July to the end of September, browse use on riparian shrubs would be limited to 30 percent or less. These seasons of use and utilization restrictions would make slow progress towards meeting Standard 8 and achieving ORMP objective WDLF-1. Riparian-dependent special status animal species such as Western toad, Columbia spotted frog, and migratory birds would benefit from this alternative. When compared to Alternative 1, Alternative 3 would make progress towards meeting Standard 8 by improving both upland and riparian wildlife habitats and wildlife species.

#### **3.3.5.2.3.6 Social and Economic Values**

See Section 3.2.8.4 above. The new pasture rotations and some different grazing seasons for all pastures may result in increased labor and feed costs.

#### **3.3.5.2.3.7 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

### **3.3.5.2.4 Alternative 4**

#### **3.3.5.2.4.1 Vegetation, including Noxious Weeds**

Relative to the current situation (Alternative 1) Alternative 4 would have the greatest benefit for upland vegetation with an overall decrease of 35 percent AUMs, 23 percent less livestock, and a higher stocking rate (17.4 acres/AUM versus 11 acres/AUM in Alternative 1). The added rest to the rotation in pasture 2 takes the greatest responsibility for reductions even though AUM reductions are present among all pastures in all years.

Pasture 1 has a 3-year deferred rotation allowing for livestock grazing after most of the upland species have reached the growth stage of late seed development and replenished carbohydrate reserves (see Section 2.4.5.2 Table ALT-54 for specific dates). In years when use is deferred to the summer, the majority of herbaceous species will have completed their life cycle providing assurance for vigor and reproduction. Fall deferment would increase reproductive success further (see Appendix F).

The pasture 2 rotation consists of summer, rest, and spring use. Summer deferment provides recovery time for herbaceous species to complete growth without defoliation. The 1 year of rest has a 100 percent reduction in duration and intensity. The rest year would provide time for upland herbaceous root growth and associated carbohydrate storage in the absence of livestock defoliation helping to mitigate the 1 year of growing season effects. This rest year also allows for maintenance of upland vegetation resources that increases resilience in years of drought.

Critical growing season use in pasture 2 falls in line with the recommendation from many sources to limit the intensity of grazing use of bluebunch wheatgrass during the active growing season and limiting active growing season use with periodic deferment or year-long rest (Stoddart, 1946); (Blaisdell & Pechanec, 1949); (Mueggler W. F., 1972); (Mueggler W. F., 1975); (Miller, Seufert, & Haferkamp, 1994); (USDA NRCS, 2012); (Burkhardt & Sanders, 2010); (Anderson L. D., 1991). Some of these sources suggest this deferment or rest occur as frequent as 2 of every 3 years or more often. See Appendix F for additional impacts/benefits of summer use, rest, and spring use.

Overall impacts to upland vegetation under this alternative would be less than Alternatives 1, 2, or 3. The substantial reductions in AUMs and incorporation of rest outweigh the adverse effects of one season of use during the critical growing period. Although the Standard would not meet due to preexisting

conditions (sagebrush die-off, bulbous bluegrass, and juniper), the condition of the native perennial upland vegetation would improve in the short term as more plants over a greater period of time complete their entire life cycle in the absence of defoliation, in turn, building greater health and vigor for competition against invasive species and resilience against disturbance and drought. Over the long term (greater than 10 years), the condition of herbaceous vegetation would improve, invasive species would likely remain static, and biological soil crusts would slightly improve. This alternative would meet ORMP vegetation objective to improve unsatisfactory and maintain satisfactory vegetation health/conditions.

#### **3.3.5.2.4.2 Soils**

Grazing 43 (23 percent) fewer animal units, shifting the grazing season, and providing a year of rest in pasture 2 would affect soils differently than Alternative 1. The differences are generally beneficial, except for slightly greater potential of trampling effects on wet soils under this proposal. Reducing animal units while keeping the number of use-days the same in pasture 1 effectively reduces the AUMs by 108 (19 percent) compared to Alternative 1 and 199 (30 percent) compared to alternative 2 for a 3-year grazing cycle. This decrease would directly reduce the extent and magnitude of physical soil trampling effects in pasture 1 compared to Alternative 1. However, use into the autumn could increase the potential for trampling to cause physical adverse effects on wet soils in 2 years of each 3-year cycle because precipitation is more likely than the Alternative 1 schedule. The proposed use amount would yield less indirect adverse effects to soils because the decrease would result in more biomass being left to decompose in place each season compared to Alternative 1. Litter would accumulate more rapidly, with greater benefits to soil stability and nutrient cycling over the long term.

Soil conditions in pasture 2 would improve relative to Alternative 1 because fewer animals would use the same area for less time. Reducing animal units while keeping the number of use-days the same in pasture 2 effectively reduces the AUMs by 295 (59 percent) compared to Alternative 1 and 188 (50 percent) compared to alternative two for a 3-year grazing cycle. As with pasture 1, the likelihood of wet or saturated soils in pasture 2 during the grazing period would result in some adverse effects from livestock. However, the use schedule for pasture 2 shoulders the 'wet soil season' for only 2 weeks for each 3-year grazing cycle. The schedule provides an entire season of rest for pasture 2, allowing adverse soil effects to dissipate relative to other grazing alternatives.

Overall soil effects under this alternative would be less adverse than any of the other grazing alternatives. Benefits from the substantial reductions in AUMs and the year of rest proposed in pasture 2 far outweigh the potential for livestock to adversely affect wet soils by trampling. Although soils would remain stable, hydrologic function, energy flow, and nutrient cycling would remain slightly depressed over the short term, and could remain so over the long term to the extent that sagebrush does not recover. The allotment would meet ORMP objectives and will likely begin making progress towards meeting Standard 1 because soil stability would be maintained or improved, and sagebrush stands are likely to show at least some recovery over the life of the permit.

#### **3.3.5.2.4.3 Riparian/Water Quality**

Under Alternative 4 (for details, see sections 2.2.4 and 2.4.5.4), pasture 1 of the South Dougal allotment would be available to grazing during the summer 1 year, and during the fall for 2 years of a 3-year rotation. Pasture 2 would be open during the summer for 1 year, during the spring for 1 year, and rested for the third year (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 0.5 mile of perennial and 12.4 miles of intermittent/ephemeral stream would be affected during alternating years by the impacts associated with the spring, summer, and fall seasons of grazing. Recent actual use reported (Appendix B) indicates that the allotment has been used during the summer season every year and Standards 2 and 3 are not being met.

The South Dougal allotment is not meeting the standards associated with the riparian-wetland resources under current management (Alternative 1). Under Alternative 4, the allotment would be managed under a defined 3-year grazing schedule with rest and/or growing season deferment incorporated 2 of the 3 years. Additionally, the changes in season of use would result in a 35 percent reduction in active AUMs over the 10-year permit. Therefore, the riparian-wetland standards as well as the ORMP objectives would be met more quickly under this alternative compared to the other alternatives because the presence, and composition of hydric species would increase and woody browse would decrease, improving the riparian area condition.

#### **3.3.5.2.4.4 Special Status Plants**

The summer, fall, fall 3-year rotation with a 35 percent reduction in AUMs proposed in Alternative 4 would be the most beneficial alternative over Alternative 1, 2, or 3 for thinleaf goldenhead. Summer grazing effects to this species would be the same as identified in Alternative 1. During the 2 years of fall grazing, the direct effects to thinleaf goldenhead would be virtually eliminated, since livestock would occur after plants had gone dormant. Minor trampling effects on thinleaf goldenhead would be possible, but not to a level sufficient enough to cause a decline in the occurrence. Indirect effects from summer or fall grazing in this alternative may include a slight increase in perennial grass cover, which may increase competition with thinleaf goldenhead. These effects are likely to be inconsequential because thinleaf goldenhead is often found to be quite vigorous in high cover areas. Indirect effects from changes to pollinators and weeds would be similar to those described in Alternative 1. Overall, this pasture would meet Standard 8 and the ORMP objective for thinleaf goldenhead in the short term (less than 10 years) and long term (greater than 10 years).

#### **3.3.5.2.4.5 Wildlife and Special Status Animals**

When compared to Alternative 1, Alternative 4 would make the greatest progress of any alternative towards meeting Standard 8 and would provide benefits to both upland and riparian wildlife species and their habitats. In 2013 it was determined that Standard 8 for special status animal species was not being met and livestock grazing management was a contributing factor. The determination was based primarily on riparian conditions in the allotment and their effect on riparian-dependent animal species. Uplands were also determined to not be meeting standards, but due to sagebrush die-off unrelated to livestock grazing.

Alternative 4 would allow grazing 1 year in 3 during the sage-grouse nesting season in pasture 2, but would not allow grazing during that period in pasture 1. Because herbaceous components of sage-grouse nesting habitat were largely intact, Alternative 4 would not degrade habitat for nesting sage-grouse, ground nesting birds, big game, and small mammals that are dependent on upland habitats in spring and early summer seasons. For at least 2 years in 3, grazing would be allowed primarily after the critical growth period of upland herbaceous plant species, preserving suitable conditions that presently exist in the allotment. Again, the limiting factor for upland wildlife species habitat was a general lack of sagebrush cover.

Under Alternative 4, riparian habitats for wildlife would be grazed during the hot summer season only 1 year in 3. In pasture 2, rest would be provided 1 year during the 3-year grazing cycle and hot season use would only occur 1 year in 3. Additionally, the change in season of use would result in a 35 percent reduction in active AUMs over the 10-year permit. These seasons of use and grazing rest would make significant progress towards meeting Standard 8 by improving wildlife habitat greater than any alternative and would achieve ORMP objective WDLF-1. Riparian-dependent special status animal species such as Western toad, Columbia spotted frog, and migratory birds would benefit from this alternative.

#### **3.3.5.2.4.6 Social and Economic Values**

See Section 3.2.8.5 above. The new pasture rotation, some different grazing seasons, deferred grazing 1 in 3 years, and resting pasture 2 every 1 in 3 years may result in increased labor and feed costs.

#### **3.3.5.2.4.7 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

#### **3.3.5.2.5 Alternative 5**

##### **3.3.5.2.5.1 Vegetation, including Noxious Weeds**

The effects of not grazing livestock on upland vegetation resources for a 10-year period are described in section 3.2.1.6.

##### **3.3.5.2.5.2 Soils**

The effects to soils of not grazing livestock for a 10-year period are described in section 3.2.2.6.

##### **3.3.5.2.5.3 Riparian/Water Quality**

See the impacts described for all allotments under Alternative 5 in section 3.2.3.6.

##### **3.3.5.2.5.4 Special Status Plants**

Alternative 5 is expected to meet Standard 8 for thinleaf goldenhead because rest from grazing for a 10-year period would produce conditions conducive for long-term (10 years and beyond) special status plant occurrence health.

There would be no direct effects from domestic livestock grazing or trampling on this species. No livestock trampling would degrade habitat or displace seedlings or perennial plant crowns. Thus, reproduction would not be limited.

Indirect grazing effects from impacts to native pollinators or weed increases would not occur. This would result in increased long-term (10+ years) health to the special status plant occurrences and their surrounding plant communities. Lack of grazing would result in increased perennial grass cover, potentially increasing competition with thinleaf goldenhead. These effects are expected to be negligible.

##### **3.3.5.2.5.5 Wildlife and Special Status Animals**

See the impacts described for all allotments under Alternative 5 in section 3.2.5.6.

##### **3.3.5.2.5.6 Social and Economic Values**

See Section 3.2.8.6 above.

##### **3.3.5.2.5.7 Cultural Resources**

Under this alternative, no livestock grazing would occur and there would be no effects to cultural resources by this activity.

### **3.3.6 South Mountain Area Allotment**

#### **3.3.6.1 South Mountain Area Allotment Affected Environment**

##### **3.3.6.1.1 Vegetation, including Noxious Weeds**

A Rangeland Health Assessment, Evaluation, and Determination Report was completed for the South Mountain Area allotment in 2013 (Appendix E). Juniper invasion and current livestock management are

the causal factors for not meeting the Idaho Standards for Rangeland Health Standard 4 – Native Plant Communities (Appendix F). This report identified juniper invasion as the cause for not meeting Standard 4 in pastures 1, 3, and 4 of the allotment. Past and current livestock management and juniper invasion are the causal factors for not meeting in pasture 2 of the allotment. In general, plant diversity has decreased and there is an imbalance of desirable deep-rooted to shallow-rooted grasses that is being exacerbated by juniper invasion and current livestock management.

### Ecological Sites

The South Mountain Area allotment is composed of three major ecological sites (Table VEGE-12). They include a shallow claypan low sagebrush/Idaho fescue site, a loamy mountain big sagebrush/bluebunch wheatgrass-Idaho fescue site, and a loamy mountain big sagebrush/Idaho fescue site.

**Table VEGE-12:** BLM-administered lands mapped by Ecological Sites in the South Mountain Area allotment

Ecological Site	Dominant Species Expected	Acres	Percent of Allotment
Shallow claypan 12-16" ARAR8/FEID	low sagebrush, Idaho fescue	1,304	22%
Loamy 13-16" ARTRV/PSSPS-FEID	mountain big sagebrush, bluebunch wheatgrass, Idaho fescue	2,682	45%
Loamy 16+" ARTRV/FEID	mountain big sagebrush, Idaho fescue	1,430	24%
Very shallow stony loam 10-14" ARAR8/POSE-PSSPS	low sagebrush, Sandberg bluegrass, Bluebunch wheatgrass	430	7%
Miscellaneous other		223	4%

The ecological sites show that under natural disturbance regime, the South Mountain Area allotment should be dominated by sagebrush/bunchgrass communities. Other vegetation types such as western juniper, basin/Wyoming big sagebrush, and riparian areas are expected to occur as unmapped inclusions within the larger ecological sites, and each should make up only a small percentage of the area.

### Current Vegetation<sup>47</sup>

Current vegetation is discussed at two scales: cover type (overstory vegetation) and understory species composition (rangeland health assessments, trend, etc.). Current overstory vegetation, based on mapping done by the Pacific Northwest National Laboratory (PNNL) from 2000/2001 Landsat satellite imagery in the South Mountain Area allotment, is shown in Table VEGE-13. Ecological site and PNNL mapping were done at different scales (PNNL at a somewhat finer scale) so precise matching is not possible, but gross changes in plant community structure are apparent. None the less, the change between the current vegetation (Table VEGE-13), and the expected vegetation (Table VEGE-12) is indicated by comparing the two tables.

**Table VEGE-13:** Cover Types based on PNNL data for BLM-administered lands within South Mountain Area allotment

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<sup>47</sup> Note that these data (specifically rangeland health indicators) are primarily qualitative rather than quantitative, so the following discussion uses non-numerical comparative terms.

Vegetation Cover Type	Acres	Percent of Allotment
Juniper	1969	33%
Mountain big sagebrush	1796	30%
Mountain shrub	1275	21%
Low sagebrush	527	9%
Aspen	151	3%
Wet meadow	119	2%
Conifer	60	1
Bunchgrass	49	<1%
Bitterbrush	29	<1%
Big sagebrush	25	<1%
Exotic annuals	5	<1%

PNNL mapping shows the dominant cover type as ‘Juniper’ that is not present within any of the plant community types. Although juniper can be present within unmapped inclusions in the allotment, its presence to the degree mapped by the PNNL indicates severe shift away from reference condition. Aerial imagery (ESRI, 2013) shows juniper invasion to be outside of reference condition on all dominant ecological sites. This type of vegetation mapping does not show changes in the understory, but information from the 2001 and 2003 rangeland health field evaluations indicates a general shift in species composition (departure from reference condition), including poor representation of deep-rooted perennial bunchgrasses, a strong increase of shallow-rooted perennial bunchgrasses, and invasive species scattered throughout (mainly juniper). This shift in species composition is likely due to past and present livestock grazing. Pasture 2 is not meeting standards in the semi-wet meadows due to past and current season-long livestock use combined with the current stocking rate for the allotment. In addition trend and photo plot data suggest recent detection of juniper seedlings and an underrepresentation of deep-rooted perennial grasses. Pastures 1, 2, 3, and 4 are not meeting the Standard due to past livestock grazing and altered fire regime leading to subsequent western juniper invasion. More specific details by pasture are outlined in the 2013 Rangeland Health Assessment, Evaluation, and Determination.

#### **Rangeland Health Standard 4**

Rangeland health field assessments for the South Mountain Area allotment were conducted in 2001 and 2003. In 2013, the previous assessment was amended with additional information that was used to issue the 2013 determination (Appendix F). Recent trend data are consistent with the rangeland health assessments and associated photos, both of which document a change in species composition away from reference condition. Throughout pastures 1 and 2 large bunchgrasses are below potential (either underrepresented or lacking), juniper is present or a dominant in the allotment, and annual invasive species are scattered throughout. Due to the hydrology of the semi-wet meadow site in pasture 2, it displays a slightly different shift in species. A dominant presence of invasive species (Kentucky bluegrass, ragwort, and Rocky Mountain iris) at this site indicates a degradation of the biotic integrity. A higher than normal presence of these species is often associated with overgrazing or a change in hydrology (Rocchio & Crawford, 2009). In areas with steep terrain, shallow soils, and juniper dominance, current livestock grazing management does not appear to be a significant factor. Sites located in gentle terrain or adjacent to riparian areas are receiving season-long livestock use; therefore, livestock grazing management is a significant factor. In such areas the native plant communities are compromised and not being maintained in a way that provides proper nutrient cycling, hydrologic cycling, and energy flow requirements. Where juniper has invaded species diversity and distribution has been altered, thereby changing ecological functions, and productivity and diversity of native plant species. More specific details by pasture are outlined in the 2013 Rangeland Health Assessment, Evaluation, and Determination (Appendix F).

#### **Utilization and Actual Use**

Utilization monitoring is limited to 2009, 2011, and 2012 for pastures 1 and 2. The information has its limitations due to the location of sites where data was collected. Sites reporting low utilization (4 percent or less) were taken in steep terrain and too far from water for livestock to reach; one site with 51 percent utilization was taken in a narrow draw where livestock are confined. Due to the rugged steep terrain in portions of the allotment, accessible areas may follow suit to higher utilization patterns while the areas of steeper terrain receive minimal use. Utilization monitoring beyond 50 percent identifies a strain on the vegetative community, therefore making current livestock management a concern. Currently season-long grazing (6/1-9/30) occurs in all pastures and is also a stressor that can negatively impact maintenance or improvement of the vegetative community in normal years and especially in years of drought or fire or in communities stressed by juniper invasion. Even in a community free of climatic or juniper invasion stressors, continued grazing during the active growing season coupled with excessive utilization leads to reduced vigor of the bunchgrasses and subsequent decline in vigor and recruitment. According to records, no years of rest have been implemented in this allotment.

The current management of continued season-long grazing (6/1-9/30) is of concern and does not conform with Guidelines for Livestock Grazing Management to provide periodic rest or deferment during the critical growth period to allow sufficient regrowth for maintenance and proper functioning of plant communities. In addition, this management is not in conformance with ORMP vegetation management actions and allocations that identify the requirement of grazing practices to improve or maintain native rangeland species to attain composition, density, foliar cover, and vigor appropriate to site potential. Pasture 2 was not in conformance with Guidelines for Livestock Grazing Management in the semi-wet meadow areas due to the lack of residual vegetation to improve and promote the interaction of the hydrologic cycle, nutrient cycle, and energy flow that will support the native plant community as appropriate for the site. In addition, under the current permit the allotment is stocked at 7.9 acres/AUM. Based on the reduced health of the native bunchgrass vegetation, season-long grazing, and the vegetation community already compromised by juniper invasion the potential for further reduction in upland vegetation, health is a concern at this stocking rate.

### **Weeds**

No noxious weeds have been mapped in the South Mountain Area allotment. Pastures 1, 2, and 4 have weed information; no information is available for pasture 3. Bulbous bluegrass and cheatgrass are scattered throughout the allotment with the greatest presence on the deeper loamy soils, especially in pastures 1 and 2.

### **Biological Soil Crusts**

Biotic soil crusts are present, but not extensive in the South Mountain Area allotment. Rangeland health field assessment sites report microbiotic crusts to be less than expected at reference condition. The only sage-grouse habitat assessment performed in 2012 reported a lack of microbiotic crusts. The influx of invasive species (grasses and juniper) vascular plant diversity decreases may be a contributor to the lack of microbiotic crusts. Biological soil crust are important for increasing soil stability and capturing nutrients, and can affect vascular plant species composition (Wicklow-Howard, Serpe, Orm, Stockes, & Rosentreter, 2003).

#### **3.3.6.1.2 Soils**

Current livestock grazing management practices are significant factors for this allotment's failure to meet the land health watershed Standard. Accelerated erosion is occurring in pastures 1 and 2 along the Lone Tree and Corral Creek stream terraces, respectively. Indicators of watershed dysfunction along the Corral Creek stream terrace include an extensive network of water flow patterns, high amounts of bare ground, pedestalled plants, and plant community alterations that limit infiltration and promote runoff. The stream terrace landforms associated with Lone Tree and Juniper Creek in pasture 1 are similar to Corral Creek in

pasture 2. Given that both pastures have similar stream terrace landforms and livestock utilization patterns, the inference of similar soil conditions along those stream terraces is reasonable. Table Soil-6 summarizes field assessment of soil/site stability and watershed function at representative locations in the allotment.

**Table SOIL-6:** Summary of soil stability and hydrologic function indicators for field assessments in the South Mountain Area allotment

Ecological Site	Departure of Soil & Watershed Function Indicators from Reference Condition (%) <sup>1</sup>				
	none-to-slight	slight-to-moderate	moderate	moderate-to-extreme	extreme
Very Shallow Stony Loam 10-14 (pasture 4)	80	20	-	-	-
Loamy 13-16 (pasture 2)	50	30	20	-	-
Loamy 13-16 (pasture 1)	50	20	30	-	-
Very Shallow Stony Loam 10-14 (pasture 2)	65	25	10	-	-
Shallow Claypan 12-16 (pasture 2)	75	25	-	-	-
Shallow Breaks 14-18 (pasture 2)	100	-	-	-	-
Semi-wet Meadow (pasture 2)	30	-	30	40	-
Loamy 16+ (pasture 2)	65	35	-	-	-

<sup>1</sup> Details are available in the 2013 RHA and Determination documents in project file

Livestock grazing in the uplands removed from stream terraces also contributes to depressed watershed function. Evidence of soil instability in uplands is more subtle than along stream terraces, but still visible. Juniper encroachment appears to be affecting soil stability in areas of loamy soil, in particular. Water flow patterns and pedestaled plants indicate accelerated erosion in these areas and current livestock grazing is contributing indirectly to unfavorable plant community conditions relative to infiltration and runoff. The repeated spring and summer grazing use pattern inhibits well-distributed and persistent populations of deep-rooted perennial bunchgrasses necessary for standard watershed function. In the uplands with loamy soils, current grazing contributes indirectly to juniper encroachment because season-long grazing can reduce the herb layer necessary to carry juniper-killing fires (Burkhardt & Tisdale, 1976) (Miller & Rose, 1999).

### 3.3.6.1.3 Riparian/Water Quality

A general, common to all allotments, description of the affected environment can be found above in section 3.1.3.

#### Existing Condition<sup>48</sup>

Standard 2 is not being met in pastures 1 and 2 of the South Mountain Area allotment, is being met in pasture 3, and is not applicable in pasture 4. Approximately 0.8 mile of Lone Tree Creek was assessed FAR in pasture 1 because the banks were unstable, the plant vigor was low, and the woody species did

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<sup>48</sup> For additional details on the current condition of the allotment, see the *Supplemented Rangeland Health Assessments, Evaluation Report and Determination, for the South Mountain Area (0561) Allotment* document in the project record or available from the Owyhee Field Office

not appear to be recruiting. Three MIM sites were established on Lone Tree, Cabin, and Corral Creeks within pasture 1. Both Lone Tree and Cabin Creek had a poor wetland site rating, and Corral Creek had a fair rating. Additionally, within pasture 1, one unnamed spring was rated FAR because the surface flow patterns had been altered by trampling, and there were very few riparian plant species present (Tables RIPN-17; Map RIPN-1).

Within pasture 2, 0.9 mile of Cabin Creek were most recently rated FAR, 1.8 miles of Cabin Creek were in PFC, 3.7 miles of Corral Creek's tributaries were rated FAR, 2.5 miles of Corral Creek were FAR, and 0.8 were PFC. Where streams were FAR, the issues included the presence of headcuts that threaten vertical stability, a lack of deep-rooted, bank stabilizing species, a lack of willow recruitment, and unstable banks. Additionally, three springs have been assessed in pasture 2; one was FAR, and two were NF. The unnamed spring (561B) that was FAR had invasive species present, the herbaceous vegetation had been utilized heavily, and the riparian soils had been altered by trampling. Unnamed spring 561T was NF because there was a lack of shrub regeneration, the stubble height was less than 2 inches, and the area was susceptible to erosion. Unnamed spring 561A was NF because both the herbaceous and woody species were heavily utilized, there was a lack of regeneration, and upland species were encroaching.

Functioning-at-risk stream segments of stream on this allotment are dominated by early seral, shallow-rooted species, such as Kentucky bluegrass and red top. These species reflect a shift from the deep-rooted, stabilizing hydric species, such as sedges and rushes, to those species more suited to a drier site and that are less capable of maintaining soil moisture and stabilizing streambanks. Disturbance induced community types are common. For these reasons, grazing is a significant factor in these vegetative shifts and is limiting the riparian areas ability to recover and rejuvenate. Age class and structure of the hydric vegetation are poor, with low percentages of young willows and other riparian shrubs. Typically, inadequate riparian-wetland vegetation is present to protect streambanks and dissipate energy during high flows. Riparian areas are not widening and vigor of plants is poor (Table RIPN-17).

**Table RIPN-17: South Mountain Area allotment riparian condition**

Stream Name	Allotment & Pasture Stream Miles & Condition			Assessment Issues/ Impacts Identified	Total Miles
	South Mnt Area 01	South Mnt Area 02	South Mnt Area 03		
Lone Tree Creek	0.8 (FARS-2000)			Unstable banks, lack of woody recruitment, poor plant vigor	0.8
Cabin Creek		0.9 (FARS-1997/ FAR-2007)		Unstable banks, lack of woody recruitment, poor plant vigor	0.9
Cabin Creek Tribs		1.8 (PFC- 1997)	0.7 (PFC-1997)	Headcuts present (vertical instability), unstable banks, lack of deep-rooted species, lack of woody species recruitment	2.5
Corral Creek Tribs		3.7 (FARS-1997)		Poor recruitment of willows, heavy browse, unstable banks	3.7
Corral Creek		2.5 FARS- 1997) 0.8 (PFC-1997)		Lack of willow recruitment, lack of deep-rooted stabilizing species, unstable banks	3.3

Stream Name	Allotment & Pasture Stream Miles & Condition			Assessment Issues/ Impacts Identified	Total Miles					
	South Mnt Area 01	South Mnt Area 02	South Mnt Area 03							
<b>MIM Site Metrics</b>										
Stream Name/ Pasture/ year	Median SH (inches)	Bank Alteration (%)	Woody Use (%)	Bank Stability (%)	Covered Bank (%)	% Mature	% Seedlings & young	Ecological Status	Greenline Stability Rating	Site Wetland Rating
Lone Tree Creek/ 1/ 2009	-	23	12.7	53	97	29	65	34- early	5.6- moderate	23- poor
Cabin Creek/1/ 2009	3.0	26	14	32	99	14	1	4.9- moderate	30- early	33- poor
Corral Creek/ 1/ 2009	3.5	18	5	56	100	33	30	6.8- high	68- late	48- fair
<b>Springs Assessed, Condition, &amp; Issues Identified</b>										
Spring Name	Pasture/ Assessment Year	PFC Condition	Assessment Issues/ Impacts Identified							
Unnamed Spring 561	1/ 2009	FAR	Surface flows altered by trampling & OHV use, very few riparian species,							
Unnamed Spring (poly) 561T	2/2003	NF	Invasive plants present, lack of shrub regeneration, high % of area altered by trampling, heavy use of forage (SH < 2")/susceptible to erosion							
Unnamed Spring 561A	2/2003	NF	Invasive plants present, heavy browse & lack of regeneration, high use of herbaceous veg, upland species invading							
Unnamed Spring 561B	2/2003	FAR	Invasive species present, heavy use of herbaceous, alteration caused by trampling							

For IDEQ water quality information associated with the South Mountain Area allotment, see table RIPN-3.

### 3.3.6.1.4 *Special Status Plants*

No known special status plants are on BLM-administered lands within this allotment.

### 3.3.6.1.5 *Wildlife and Special Status Animals*

In addition to the general overview of the Affected Environment for Wildlife Resources in the South Mountain allotments presented above (Section 3.1.5), descriptions of the current condition of species and their habitats within the South Mountain Area allotment are based on the 2013 Rangeland Health Assessment and Evaluation Report (USDI BLM, 2013) and Determination (Appendix E), affected environments of the Rangeland Vegetation and Water and Riparian Resources within this EA (Sections 3.1.1 and 3.1.3, respectively), recent personal observations, current element occurrences in IFWIS (IDFG, 2011), and consultation with local wildlife professionals.

### **Wildlife Habitat**

The entire South Mountain Area allotment encompasses the Owyhee Uplands and Canyons Level IV Ecoregion discussed previously (Map GEN-2). Within the allotment, this ecoregion is characterized by rolling shrub steppe uplands interrupted by juniper woodlands, low hills, rocky outcrops, and flat tablelands. Currently, the expansion of juniper into former shrub communities has transformed much of the area into woodlands ranging from open, savanna-like conditions to denser canopy forest (Section 3.3.6.1.1). These denser woodlands cover the relatively low profile flanks of the upper elevations of the mountain. Riparian areas occur throughout the upper- and mid-elevation pastures along many perennial streams (Section 3.3.6.1.3). Wildlife habitats within the South Mountain Area allotment include juniper woodlands, low and big sagebrush steppe, grasslands, wet meadow complexes, riparian areas, springs and seeps (Table VEGE-13). A detailed discussion of upland and riparian vegetation within the allotment can be found in Sections 3.3.6.1.1 and 3.3.6.1.3.

No federally listed Threatened or Endangered animals are known to occur in South Mountain Area allotment. Two Candidate species occur or have habitat in the allotment: the greater sage-grouse has PPH and GPH, while the Columbia spotted frog has been documented in the allotment. As many as 11 mammal, 17 bird, 2 amphibian, 4 reptile, and 1 fish species with BLM special status (including Watch List Species) potentially may occur within the allotment. Special status species within the allotment that have been documented in the Idaho Fish and Wildlife Information System (IDFG, 2011) are limited to the Columbia spotted frog. May, Writer, & Albeke (2012), in their Redband Trout Status Update and Summary, designated Juniper, Cabin, and Corral creeks as current range for redband trout. The only other species recorded in IFWIS within 2 miles of this remote area is the western toad.

### *Uplands*

Data, along with site visits to the allotment revealed a reduction in decreaser bunchgrasses, with increaser grasses being dominant at two of the six sites. Forb diversity ranges from low to fair, while forb abundance is low to fair at three of the six evaluation sites, and good at the remaining three sites. Shrub occurrence approximates site potential at all the evaluation sites but one, where it was higher than expected. While shrubs are providing good woody cover, structure, and forage for a diversity of songbirds, sage-grouse, pygmy rabbit, and others, the reduced occurrence of desirable bunchgrasses and reduced abundance and diversity of forbs are limiting herbaceous cover and forage for many of these same species and other ground nesting and foraging species. This includes a diversity of insects, rodents, birds, and others that are critical prey for most raptors and other predators.

Western juniper is scattered to dominant throughout the allotment, and while mature stands provide high quality habitat for a large diversity of birds, dense stands of young juniper support reduced diversity and abundance of birds (Sauder, 2002). Habitat also becomes less suitable for sage-grouse, pygmy rabbit, and other sagebrush obligates as juniper density increases. A Rangeland Health Assessment, Evaluation, and Determination Report was completed for the South Mountain Area allotment in 2013 (USDI BLM, 2013). The report determined that standards were not being met for upland special status animal species and that current livestock grazing management practices are significant factors. One sage-grouse late brood-rearing habitat assessment was completed in 2012 in pasture 1.

Additionally, juniper encroachment has resulted in the dominance of juniper woodland habitat and an underrepresentation of sagebrush species and dominant deep-rooted, tall perennial bunchgrass species in 33 percent of the allotment (i.e., bluebunch wheatgrass, Idaho fescue, Thurber's needlegrass) (Table VEGE-13). Healthy, productive, and diverse populations of native perennial grasses, forbs, and shrubs are not maintained with increasing juniper encroachment (Huxman, et al., 2005) (Rowland, Suring, Tausch, Greer, & Wisdom, 2008), and what remains in the juniper-dominated areas of the allotment does not provide for proper nutrient cycling, hydrologic cycling, and energy flow (USDI BLM, 2013).

Although the increase in juniper cover may have benefited some woodland-associated special status wildlife species such as northern goshawks and Lewis' woodpeckers, these woodland habitats are unsuitable for and have come at the expense of sagebrush-obligate and shrub-dependent special status species such as greater sage-grouse, pygmy rabbits, Brewer's sparrows, loggerhead shrikes, and sage sparrows. Because juniper woodlands currently make up 33 percent of the allotment and their densities continue to increase, sagebrush-obligate species are being impacted.

### ***Riparian***

Most of the 11.2 miles of stream riparian habitat that were surveyed in South Mountain Area allotment were found to be functioning-at-risk. Two areas assessed totaling 3.3 miles were found to be properly functioning on Corral Creek and tributaries of Cabin Creek (Table RIPN-17). Structural diversity, composition, and vigor of hydric vegetation are at least partially lacking in most of these stream reaches, resulting in habitat that is not adequately providing for the needs of dependent special status animals. Most stream reaches also lack adequate hydric vegetation to protect streambanks and dissipate energy, which leaves them at high risk of losing habitat to erosion. Willows are noticeably hedged- and umbrella-shaped, resulting in dramatically reduced cover, structure and forage.

It is indicative that livestock use levels are not conducive to improving riparian habitat conditions and are likely resulting in significant physical disturbance to habitats and populations. This disturbance can include: trampling of nests; more frequent flushing of nesting birds, which exposes eggs and nestlings to increased predation and parasitism; and trampling of amphibian breeding habitat, leading to possible destruction of eggs and/or pools.

Information is available on four known springs on public land in this allotment. It was noted that moderate to high impacts, in the form of trampling/pugging, occurred at two springs, and low to moderate impacts occurred at the other two springs. As with stream riparian habitats, heavy grazing and trampling results in significant reductions in forage, cover, and structure, and habitat that is generally not providing for the needs of most dependent wildlife special status species.

Riparian areas were found to not be meeting Standard 2, and current livestock grazing management practices were a significant factor in pastures 1 and 2; the Standard is being met in pasture 3, and is not applicable in pasture 4. Riparian and wetland habitats accessible to livestock grazing are not meeting the habitat requirements for dependent wildlife species due to a lack of hydric vegetation, limited quantity and structural diversity of woody species, and soil instability along streambanks and in wet meadows (Section 3.4.4.1). Typically, for the reaches of stream that are not in proper functioning condition, inadequate riparian-wetland vegetation is present to protect streambanks and dissipate energy during high flows, and plant communities are often not comprised of the expected deep-rooted bank stabilizing hydric species. Heavy woody and herbaceous riparian vegetation use and streambank trampling by livestock have reduced nesting substrate, protective cover, and foraging areas for many riparian-dependent migratory birds and special status wildlife species such as northern goshawks, calliope hummingbirds, willow flycatchers, and some special status bat species like fringed myotis. Heavy use and trampling in riparian areas also have increased stream temperatures, channel width-to-depth ratios, and sediment loads that degrade and limit suitable habitat for aquatic special status species such as Columbia spotted frogs, western toads, common garter snakes, and redband trout. In addition to the effects of livestock grazing, juniper encroachment is threatening riparian areas and aspen stands and limiting the amount of nesting and foraging habitat many riparian-dependent migratory birds and special status species require. Based on these existing poor riparian habitat conditions, the allotment currently is not meeting Standard 8 (Threatened and Endangered Plants and Animals) for many special status animal species due to the effects of current hot-season livestock grazing practices in riparian-wetland habitats.

### **Focal Special Status Animal Species**

### Greater sage-grouse

Historically, a majority of the allotment provided suitable habitat for sage-grouse and supported significant populations (USDI BLM, 1969). Currently, sage-grouse PPH and PGH occupies 46 percent of the South Mountain Area allotment for all land ownerships (Map WDLF-1); however, only 13 percent of the allotment is public land sage-grouse habitat. The most recent revision to the PPH model incorporates additional information including a sagebrush component and a restoration potential component (version 2) (Makela & Major, 2012). Within the allotment, PPH includes two subcategories (i.e., sagebrush, and conifer encroachment areas; Table WDLF-9; Map WDLF-1). There are substantial areas of PGH in pastures 1 and 2, and additionally, areas of juniper encroachment occurs in pasture 1 (Map WDLF-1). Since the 1960's only one recorded small fire has burned in South Mountain Area allotment at the north end of pasture 1 in 1986 (Map FIRE-1). In general, the amount and extent of sagebrush vegetation communities in the allotment that have not seen some degree of juniper encroachment are restricted. Sage-grouse breeding habitat is largely limited due to terrain steepness and areas compromised by juniper expansion.

Currently portions of the allotment affords sage-grouse habitat for some part of the bird's life history whether breeding, early or late brood-rearing. However, the allotment was surveyed twice (2012 and 2013) for potential breeding sites, and no areas on public land were large enough to assess. One site was assessed in pasture 1 for late brood-rearing habitat in 2012, and the habitat was classified as suitable. Little is known about sage-grouse winter-use areas in South Mountain Area; however, most birds probably migrate to lower elevations in Oregon or towards the Owyhee River to spend the winter. Both landscape importance and greater sage-grouse persistence modeling (constituent parts of PPH) place South Mountain Area allotment in lower categories, indicating the area's relative value to sage-grouse. The Conservation Plan for Greater Sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee, 2006) identifies juniper encroachment as a serious threat to sage-grouse habitat. Sage-grouse use in areas with junipers is probably limited due to the increased predation risk trees impart (trees provide perches and cover for avian and terrestrial predators). Restoration of sage-grouse breeding habitat within portions of these pastures may require a considerable amount of time and money, unless wildfires remove Phase I and II juniper that have expanded across the allotment. Prescribed fires or mechanical treatments would be required to restore big sagebrush in the allotment. Although wildfire has also been cited as a substantial threat to sage-grouse habitat (Idaho Sage-grouse Advisory Committee, 2006) primarily due to loss of sagebrush nesting cover for a considerable period of time (Nelle, Reese, & Connelly, 2000) (Hess & Beck, 2012) and an increased risk of invasion by cheatgrass in low elevation Wyoming big sagebrush communities (Chambers, Roundy, Blank, Meyer, & Whittaker, 2007), research in mountain big sagebrush communities has documented return to pre-burn conditions by 15 years post-burn in some locations (Bunting, Kilgore, & Bushey, 1987) and non-random selection by brooding sage-grouse in areas < 10 years post-burn (Thacker, 2010). Nevertheless, these results should be viewed with some caution as site-specific results could vary and additional research has been advised to assess the effects of burning and demographic responses of sage-grouse across all sagebrush habitats (Beck, Connelly, & Wambolt, 2012).

**Table WDLF-9:** Sage-grouse habitat acreage within South Mountain Area allotment (all ownerships), 2013

Pasture	Preliminary Priority Habitat (PPH)			Preliminary General Habitat (PGH)			Habitat Total
	Sagebrush	Conifer	Total	Sagebrush	Conifer	Total	-
1	472	3221	3693	0	245	3317	7017
2	0	0	0	0	32	985	985
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0

Total (% of allotment)	472 (2.7%)	3221 (19%)	3693 (21%)	0 (0%)	278 (1.6%)	4302 (2%5)	7995 (46%)
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The limited areas of potentially usable sage-grouse nesting habitat in PPH-sagebrush are located along the northwest boundary of pasture 1 (Map WDLF-1). Pasture 1 for late brood-rearing habitat was rated as suitable, but sagebrush and forb canopy covers were marginal, all other components of sage-grouse habitat were suitable (Table WDLF-10).

**Table WDLF-10:** South Mountain Area Late Brood-Rearing Sage-Grouse Assessment

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Average Sagebrush Canopy Cover		X	
Average Sagebrush Height	X		
Sagebrush Growth Form	X		
Average Grass and Forb Height	X		
Average Perennial Grass Canopy Cover	X		
Average Forb Canopy Cover		X	
Preferred Forb Abundance and Diversity	X		
<b>Overall Site Evaluation</b>	<b>X</b>		

No active sage-grouse leks are known to occur within South Mountain Area allotment. The closest active lek to the allotment is located 2 miles west, just inside Oregon. The Oregon lek was active in 2012 with 25 attending males. Information for the lek is available back to 2001, disclosing a high attendance in 2005 of 49 males and a low of 14 males in 2008. Approximately 80 percent of nesting sage-grouse hens does so within 4 miles of the lek they attended (Doherty, et al., 2011). Pasture 1 is well within the range that hens may travel from the Oregon lek to South Mountain Area to nest. No acres of PPH fall within the 75 percent breeding bird density (BBD) buffer (4 miles) of any leks located in Idaho. The Oregon lek is within reach of the allotment with its 75 percent BBD (Map WDLF-1). The 75 percent BBD buffer is highly correlated to breeding habitat surrounding the lek and corresponds to the high abundance (or population) component of the PPH area (Makela & Major, 2012). As previously written, the public land acres of potential nesting habitat in the allotment are steep and likely unusable.

#### Columbia spotted frog

Various agencies and researchers have surveyed potential spotted frog habitat throughout the Owyhee Mountains and Uplands since 1994 (Munger, et al., 1994) (Munger, Ames, & Barnett, 1997) (Owyhee Columbia Spotted Frog Working Group, 2007) (La Fayette, 2010) (Lohr & Haak, 2009) (Lohr, 2011). Spotted frogs have been documented in South Mountain Area allotment on Corral Creek in 2010 (IDFG, 2011). The survey also located larvae at the site indicating that the public land location is a breeding site. Other spotted frog surveys on public lands in South Mountain Area allotment have not encountered any individuals. However, potential habitat exists on private, state, and BLM-administered lands in all four pastures (Map WDLF-3).

#### Pygmy rabbit

A coarse-level predictive occurrence model created by Idaho BLM in 2009 suggests that most of the allotment contains a moderate likelihood of core habitat presence; no highly likelihood core habitat is modeled for the allotment. However, habitat in the majority of the allotment is unsuitable for pygmy rabbits; only 33 percent of the allotment is classified as having the appropriate cover type the species prefers (i.e., big sagebrush and friable soils, Table VEGE-13). Suitable sagebrush habitat and soils are

largely absent or now dominated by junipers in all pastures. To date, no pygmy rabbit surveys have been conducted in the allotment. Due to the lack of current suitable pygmy rabbit habitat, no further analysis for the species will occur for South Mountain Area allotment.

#### Columbia River redband trout

Habitat exists for Columbia River redband trout (RBT) on public lands in three streams in pastures 1 and 2 of South Mountain Area allotment (Map WDLF-3). However, a recent range-wide status update and conversations with IDFG fisheries biologists reveal that the number of streams formerly occupied by RBT has decreased over the last 10 years in the South Mountain Group watersheds (Middle Owyhee 4<sup>th</sup> level hydrologic unit) (May, Writer, & Albeke, 2012) (J.Kozfkay, pers. comm., 2013). Juniper Creek has a short (0.5 mile) reach of RBT occupied habitat in pasture 1 that has not been assessed for proper functioning condition. Pasture 2 contains a 0.9 mile stretch of RBT habitat in Cabin Creek that was rated as functioning at risk (FAR) in 1997 and 2007; the reach had unstable banks, a lack of woody recruitment, and poor plant vigor. Additionally, pasture 2 has 3.3 miles of RBT habitat in Corral Creek. The stream was rated as functioning at risk with static trend for 2.5 miles of its length and proper functioning for 0.8 miles. The FAR segment had a lack of willow recruitment, a lack of deep-rooted stabilizing species, and unstable banks (Table RIPN-17). No identified RBT streams are on public lands in pastures 3 or 4. The 2013 rangeland health assessment and determination (USDI BLM, 2013) found that grazing occurs late in the season, not allowing for regrowth of hydric vegetation. Current livestock grazing management practices are significant factors contributing to this determination. If grazing occurred earlier in the season and livestock were removed, regrowth of riparian-dependent vegetation could occur, allowing for bank-stabilizing vegetation to improve. Additionally, late-season grazing has affected willows and other riparian shrubs by reducing recruitment and producing a club-shaped growth form that reduces habitat structure for RBT.

#### ***Migratory Birds, Raptors, and other Birds (including Special Status Species)***

In addition to the general discussion of migratory birds, raptors, and other bird species and their habitats in Section 3.3.1.5, a variety of bird species have the potential to occur or have been documented within and in the vicinity of the South Mountain Area allotment (Appendix G). The juniper woodlands and riparian areas within them are either known to or potentially could provide nesting and foraging habitat for many special status and migratory birds. As discussed above, the juniper woodland habitat that currently occupies ecological sites that otherwise would be dominated by the expected sagebrush habitats in the absence of juniper encroachment presently has augmented the population of woodland birds that would be a far minor component of the area's overall bird community. Under natural disturbance regimes, juniper woodland bird species would be limited to widely scattered, solitary old-growth junipers or small stands that would be expected to occur on shallow, rocky soils as restricted inclusions within sagebrush or mountain shrub ecological sites (USDA NRCS, 2010). Junipers provide nesting and foraging substrate for foliage and bark gleaning species such as black-throated gray and yellow-rumped warblers, mountain bluebird, Townsend's solitaire, hairy woodpecker, and red-naped sapsucker. Ground gleaning species within woodland habitats include American robin, black-billed magpie, chipping sparrow, and dark-eyed junco. In addition, juniper woodlands provide habitat for owl and raptor species such as flammulated owl, long-eared owl, northern saw-whet owl, northern goshawk, and red-tailed hawk. Sagebrush-steppe habitat for migratory bird nesting is severely compromised by sagebrush die-offs in both pastures of South Mountain Area allotment. The mountain shrub community (21 percent) that integrates with open woodlands and sagebrush steppe provide breeding and foraging habitat and cover for aerial, bark, and foliage gleaners such as ash-throated and gray flycatchers, Brewer's blackbird, common poorwill, and northern flicker. Ground foraging species in these habitats include green-tailed towhee, mourning dove, Cassin's and house finches, and lark and white-crowned sparrows.

Riparian habitat along the perennial streams in the South Mountain Area allotment potentially hosts a variety of obligate and dependent bird species. Riparian-obligate species, like yellow warbler, and dependent species such as black-capped chickadee, black-headed grosbeak, house wren, and warbling vireo have been documented near the South Mountain group. These species prefer the structural diversity found in riparian areas with aspen and willow canopies and herbaceous understories along streambanks. The absence of disturbance associated with livestock grazing within these riparian communities has been demonstrated to result in high-quality breeding habitat (i.e., high nest success, low brood parasitism rates) for many of these species (Heltzel & Earnst, 2006). Most of the habitat features required for riparian nesting species are limited due to the functioning at risk conditions on Lone Tree, Cabin, and Corral creeks.

### ***Big Game and other Mammals (including Special Status Species)***

In addition to the general discussion of big game and other mammal species and their habitats in Section 3.3.1.5, various big game and special status mammal species use a variety of habitats in the South Mountain Area allotment for some or all of their seasonal needs. Big game species including elk, mule deer, and pronghorn, occur within the allotment seasonally.

The juniper woodland, big sagebrush, and mountain shrub habitats within the allotment provide abundant summer habitat for elk and mule deer. Although a few mule deer may be present year-round within the allotment, most winter habitat for both species occurs at lower elevations in Oregon or the nearby canyons of the Owyhee River and its tributaries. Summer pronghorn habitat occurs in the rolling shrub steppe communities west and south of the allotment and adjacent to meadows on private land in the allotment.

#### ***3.3.6.1.6 Visual Resources***

As mentioned above in section 3.1.6, the South Mountain allotment is almost entirely categorized as class II VRM (roughly 95 percent). A description of the class II management classification can be found in that section as well.

#### ***3.3.6.1.7 Social and Economic Values***

See Section 3.1.9 above.

#### ***3.3.6.1.8 Cultural Resources***

The South Mountain allotment contains one recorded site, 100E1631, a lithic scatter. The site record has no mention of any type of disturbance to its location, and because no potential livestock congregation areas are identified for the allotment, cultural resources staff did not make a site monitoring visit or conduct any new surveys.

### **3.3.6.2 South Mountain Area Allotment Environmental Consequences**

#### ***3.3.6.2.1 Alternative 1***

##### **3.3.6.2.1.1 Vegetation, including Noxious Weeds**

Alternative 1 would allow for season-long use (6/1-9/30) with no change in AUMs. This has resulted in pasture 2 of the South Mountain Area allotment not meeting Standard 4 due to current livestock management and juniper invasion. Pastures 1, 3, and 4 are not meeting due to juniper invasion. Current season-long grazing, consisting of repetitive years during the critical growing season, is a contributor to the allotment and specifically pasture 2 not meeting the Standard (see section 3.3.5.1.1 for discussion about current vegetation conditions). Continuation of use during the critical growing season every year

under this current grazing schedule would not allow for significant progress towards meeting Standard 4 and ORMP vegetation objectives because plant composition, diversity, and vigor would continue to decline in the short and long terms (see Section 3.3.6 for further utilization discussion) in pasture 2.

Also, sites located in gentle terrain or adjacent to riparian (semi-wet meadows) areas are receiving season-long livestock use resulting in greater impacts (higher utilization levels) in areas accessible to livestock, with decreasing use as accessibility declines (lower utilization). In these areas the native plant communities are not being maintained in a way that provides proper nutrient cycling, hydrologic cycling, and energy flow requirements. Areas not subject to juniper invasion and are relatively inaccessible would be maintained in their current condition, which is making significant progress towards meeting Standard 4.

Trampling of soils is a direct effect on biotic soil crusts, displacing soil lichen, moss, and bacteria assemblages. Alternatives 1 and 2 have the highest AUMs and, therefore, the highest impact of trampling on biotic soil crust cover.

Throughout the allotment, season-long use and a low stocking rate has reduced upland vegetation condition, which is currently not meeting standards due to livestock grazing and invasive species in pasture 2. In the absence of actions to reduce stressors (season of use &/or utilization levels) to biotic function of the upland vegetation brought on by livestock management practices, a downward trend would be anticipated in the short and long term, particularly in pasture 2, which is currently not meeting Standard 4. Further stress induced by climate change (primarily altered precipitation and temperature regimes) would be exacerbated by livestock management practices identified above. For these reasons upland vegetation would not meet Standard 4, and the ORMP management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition would not occur.

#### **3.3.6.2.1.2 Soils**

The June through September grazing system would permit up to 2,235 AUMs over a period of up to 366 days during the typical 3-year grazing cycle. The southern portion of the allotment (pastures 2, 3, and 4) would account for 1,398 AUMs, or 62 percent (Lequerica and Sons 95 AUMs and Craig and Ronda Brasher 184 AUMs) of the 3-year maximum and the northern portion (pasture 1) would provide for the remaining 837 AUMs or 38 percent (Corral Creek Grazing Association 300 AUMs and LU Ranch 166 AUMs). This pattern of use has resulted in the current soil conditions that would persist over the short term, and in some cases worsen over the long term. The direct effects of livestock trampling on wet soils would continue to be limited due primarily to the season of use and the inherently well-drained soils. However, areas of livestock congregation would be subject to a disproportionate amount of physical trampling effects, particularly those associated with stream terraces of Corral, Cabin, and Lone Tree creeks.

Throughout the allotment, the grazing system would not favor any recovery of the deep-rooted perennial bunchgrasses necessary for proper hydrologic function because the grazing system lacks seasonal deferment or rest, resulting in further indirect, long-term adverse effects to soil stability and watershed functionality. The use pattern in pasture 1 appears to be detrimental for soil stability because bare ground is increasing, while litter is decreasing. Bare ground along the uplands of the Lone Tree Creek drainage would remain static in places too steep for livestock to access, but in more accessible areas, like the loamy sites along toe-slopes less than 30 percent, bare ground would occupy up to 46 percent of the soil surface over the short term. That figure could increase over the long term, depending on precipitation patterns. Canopy cover and total basal vegetation cover would continue to decline in these areas, while persistent litter from shrubs would increase. These changes to ground cover attributes would be adverse for soil stability, increasing the risk of accelerated erosion to occur over the long term.

In the southern portions of the allotment (pastures two, three, and four), the use pattern would be detrimental for soil stability for similar reasons as those described in the northern (pasture 1). The use pattern would concentrate adverse soil effects in areas accessible to livestock. Indicators of accelerated erosion would remain slightly to moderately apparent in steep areas but would become very conspicuous in livestock congregation areas. Water flow patterns and bare ground would become more apparent in the semi-wet meadows along the terraces and toe-slopes of Corral Creek and similar landforms elsewhere in the pasture.

The allotment would fail to meet Standard 1 and ORMP objectives due to livestock grazing because the grazing system would not permit the accumulation of litter necessary to shield bare areas or provide for appropriate amounts and distributions of soil organic matter. Further, in areas of livestock congregation, the lack of rest or deferment provides no opportunity for recovery of the plant community necessary to provide these functions.

#### **3.3.6.2.1.3 Riparian/Water Quality**

Under Alternative 1 (for details, see sections 2.2.1 and 2.4.6.1), the South Mountain Area allotment would be available to grazing during the summer and early fall annually (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 9.0 miles of perennial stream, 11.4 mile of intermittent stream, and nine springs would be affected by the impacts associated with the summer and fall seasons of grazing. Recent actual use reported (Appendix B) indicates that the allotment has been primarily used during the summer and fall months. Therefore, the impacts associated with those seasons of use would likely continue to be most prevalent under Alternative 1.

The South Mountain Area allotment is currently not meeting the standards associated with the riparian-wetland resources under current management. Therefore, since the allotment would be open to livestock grazing during the same seasons, it would continue to not meet the riparian-wetland standards under this alternative. The management that led to the current condition is what defines this alternative and will form the baseline for comparison to the other alternatives.

#### **3.3.6.2.1.4 Special Status Plants**

Not applicable.

#### **3.3.6.2.1.5 Wildlife and Special Status Animals**

South Mountain Area allotment is currently not meeting upland habitat standards due to juniper encroachment, invasive grasses and an altered native plant community stemming from past grazing. Additionally, current livestock grazing management was determined to be a causal factor in pasture 2 (see section 3.3.6.2.1.1). The allotment is not meeting riparian standards and current livestock grazing was a significant factor leading to the determination (Appendix E). Likewise, for special status animal species it was determined the Standard was not being met; livestock grazing was a significant factor leading to the determination. Under alternative 1, BLM would renew four permits to graze livestock in the South Mountain Area allotment in accordance with the current permit and the current situation that led to resource conditions. South Mountain Area allotment would be available to grazing during spring, summer, and early-fall from 6/1 to 9/30 annually without specified rest or growing season deferment. Upland habitats would remain the same as the current situation as grazing is during the critical growth period for perennial grasses and forbs every year and current wildlife conditions discussed in Section 3.3.6.1.5 would not be expected to improve.

If adhered to, the Boise District permit terms and conditions would contribute towards maintaining existing conditions for uplands in South Mountain Area allotment with a 50 percent utilization limit on current year's plant growth. Conditions would not be expected to improve under this prescription, but

would be maintained. Although there are additional terms and conditions beyond the standard Boise District terms and conditions associated with the current permit and Alternative 1, they are primarily targeted towards riparian habitats and have not been achieved in previous years. Current permitted use would allow adverse physical effects such as trampling during saturated soil conditions that impacts upland plant species by not avoiding the critical growth period of upland vegetation, and not provide any deferment or rest to the area. Active growing season use every year would further decrease the condition of upland vegetation resources in areas accessible to livestock. Overall, the allotment would continue to not meet Standard 8 for upland-dependent species and not maintain habitat conditions to meet ORMP objective WLDF-1. The limited sage-grouse habitat in pastures 1 and 2 would not improve nor would habitat for any other upland wildlife species.

The South Mountain Area allotment is currently not meeting the standards associated with the riparian-wetland resources under current management nor are the needs of riparian/wetland-dependent special status and general wildlife species. Although alternative 1 allows grazing to begin in June, recent actual use reports indicate that the allotment has been primarily used during the summer and fall months. Hot-season grazing concentrates livestock on streams and wetlands where vegetation is still green and succulent. Therefore, the impacts associated with those seasons of use would likely continue to be most prevalent under Alternative 1. The management that led to the current condition is what defines this alternative and will form the baseline for comparison to the other alternatives.

#### **3.3.6.2.1.6 Visual Resources**

Continuation of the present grazing systems could potentially degrade visual conditions of the area. Areas within the allotment have been identified as not meeting standards due to livestock grazing. This is relevant due to the fact that within VRM class II, the goals of these areas are to retain or preserve the existing character of the landscape, and the levels of change to the characteristic of the landscape should be low. Not meeting standards indicates a downward trend in a particular area regarding upland and/or riparian vegetation, these types of impacts would have a direct effect on visual resources in these areas where the goal is to preserve the existing character.

#### **3.3.6.2.1.7 Social and Economic Values**

See Section 3.2.8.2 above.

#### **3.3.6.2.1.8 Cultural Resources**

No known historic properties would be affected under this alternative.

### **3.3.6.2.2 Alternative 2**

#### **3.3.6.2.2.1 Vegetation, including Noxious Weeds**

Under Alternative 2, the a proposed grazing was submitted that would uses natural boundaries and require the construction of fences on state and private land to create six pastures within the existing South Mountain allotment. Also included are terms and conditions for PFC monitoring and livestock herding off creeks from July to September.

Under the proposed grazing system, the current pasture 2 would be split by a new fence built on State land, creating two new pastures (Cabin Creek and Corral Creek). The proposed grazing system would also combine the current pastures 3 and 4 into the two new pastures (Cabin Creek and Corral Creek). The grazing system would permit 395 cattle with use varying from 44 to 58 days within the new pastures. This would result in approximately 50 percent reduction in days on the ground compared to 122 days in Alternative 1. The grazing system would also provide deferment during the critical growing season one out

of 2 years for both pastures. Also, less AUMs would be grazed within these two pastures (1,056 AUMs vs 1,398 AUMs Alternative 1) over a 3-year period compared to pasture 2 under Alternative 1. The reduction in days, the reduction in AUMs and implementing the deferred grazing system would allow for improved perennial grasses and forbs health, vigor, reproduction, and seedling establishment. Also these changes would reduce repeated defoliation in the same growing season that can be detrimental to plant vigor, productivity, and viability (Reed, Roath, & Bradford, 1999). The addition of herding livestock and not allowing for season-long grazing would improve semi-wet meadows because there would be less direct impacts from livestock congregation in these areas. The practice of herding would also decrease livestock concentration by redistributing livestock further from these areas, which would distribute livestock more evenly on upland vegetation. Increased use in the uplands away from these areas would be mitigated by the reduction in AUMs and the proposed grazing system rotation.

In pasture 1 the use of a natural barrier and a fence on private land would create 4 pastures (Lone Tree Creek North, Lone Tree Creek South, Buck Creek West and Buck Creek East). Under the grazing system, 248 cattle would graze within these pastures with use varying from 36 to 76 days. This would result in approximately 50 percent reduction in days on the ground compared to 122 days in Alternative 1. Also, the grazing system would provide 1 out of 2-year deferment during the critical growing season for all pastures. Similar AUMs would be grazed within these four pastures (808 AUMs vs. 837 AUMs Alternative 1) over a 3-year period compared to pasture 1 under Alternative 1. The reduction in days and implementing the deferred grazing system would allow for improved perennial grasses and forbs health, vigor, reproduction, and seedling establishment. Also, these changes would reduce repeated defoliation in the same growing season, which can be detrimental to plant vigor, productivity, and viability (Reed, Roath, & Bradford, 1999). The addition of herding livestock and not allowing for season-long grazing would improve semi-wet meadows because there would be less direct impacts from livestock congregation in these areas. The practice of herding would decrease livestock concentration by redistributing livestock further from these areas, which would distribute livestock more evenly on upland vegetation away from these areas. Increased use in the uplands away from these areas should be mitigated by the reduction in AUMs and the proposed grazing system.

This alternative would allow for fluctuating AUMs depending on if the allotment streams are PFC after 5 years. It is assumed that if the streams improve after 5 years upland vegetation would also improve. For this reason increasing AUM would be appropriate. Conversely if the streams are not PFC after 5 years a reduction would benefit upland vegetation as it is assumed that their health has declined.

Trampling effects to vegetation resources would be similar to Alternative 1, but slightly less due to a 15 percent decrease in livestock and shorter season of use. Potential spread of weeds would be less than Alternative 1 as livestock number would be less (756 max cattle Alternative 1 vs. 643 Alternative 2). Biological soil crusts are expected to remain static or improve as the defined seasons provide less use during months of moist soils compared to Alternative 1 where use during the moist soils of the critical growing season are available for livestock trampling.

In short term the bunchgrass vigor within the Lone Tree Creek North, Lone Tree Creek South, Buck Creek West and Buck Creek East are not expected to change much due to similar AUMs compared to alternative 1. In short term the bunchgrass vigor within the Corral Creek Cabin Creek pasture is expected to improve due to less AUMs compared to alternative 1. In all pastures deferment during the critical growth period, herding and PFC monitoring should allow for improved deep-rooted bunchgrass/sagebrush health, production, improved nutrient cycling, and energy flow requirements in the long term. Also the lack of season-long grazing would allow for improved vegetation health in areas around riparian areas. For this reason these pastures would make progress to meeting Standard 4 and ORMP objectives.

#### **3.3.6.2.2.2 Soils**

This proposal differs from alternative 1 in several ways. Noteworthy differences from a soils standpoint include the initial AUM reduction, more intensive management through allotment subdivision and pasture rotation, and herding livestock away from riparian areas during the hot season. By using 1,864 AUMs over a typical 3-year grazing cycle, this alternative reduces allotment-wide use by 371 AUMs (17 percent) relative to alternative 1. Of the total AUMs proposed, the pasture rotation distributes 1,056 AUMs in the southern portion of the allotment (formerly pastures 2, 3, and 4) over a 3-year period and 808 AUMs in the northern (formerly pasture 1) over a 3-year period, decreasing AUMs in those areas by 342 (24 percent) and 29 (3 percent), respectively. The vast majority of decreased use would be realized in the southern portion of the allotment managed as the Cabin Creek and Corral Creek pastures (formerly known as pastures 2, 3, and 4). In general, this alternative achieves AUM reductions by placing more animal units in the allotment for shorter durations than alternative 1.

The direct effects of livestock trampling on soils would be similar to but reduced from those described under alternative 1. Livestock would continue to trample soils, but the likelihood of trampling wet soils would be reduced because the use period would be shortened, particularly in the south. The pasture rotation in the northern part of the allotment would not reduce soil trampling effects to the extent of those in the southern portion because increasing animal units in the north nearly offsets the potential benefit of the shortened grazing period. However, the pasture rotation may offer some slight benefits to stream terrace areas throughout the allotment because hot season grazing would be largely avoided every other year. Herding livestock to uplands could further relieve stream terrace areas of grazing pressure during the hot season, diminishing the physical effects of soil trampling on stream terraces. Some of the relative decrease in physical trampling effects to soils that this alternative offers over alternative 1 would be diminished to the extent that AUMs are increased after the 5-year review. Conversely, upland soil benefits could be enhanced if AUMs are decreased.

Indirect affects to soils from the proposal would be similar to but less adverse than those described under alternative 1. Grazing animals would continue to consume the vegetation that would otherwise be left to benefit soil and watershed function by covering bare ground and decomposing in place. Short-term (< 5 years) differences in bare ground between this proposal and alternative 1 would be too small to observe or measure. However, this proposal could slightly decrease the amount and continuity of bare ground in southern portions of the allotment relative to Alternative 1 over the long term (5+ years). Indicators of accelerated erosion would continue to be evident in northern portions of the allotment but could begin to diminish in southern portions over the long term. Any relative decrease in bare ground that this alternative offers over alternative 1, would not be realized to the extent that AUMs are increased after the 5-year review of PFC conditions.

Differences in short-term effects would be difficult to observe or measure, particularly in northern portions of the pasture where use is very similar to Alternative 1. However, the allotment would begin to make progress towards Standard 1 and ORMP objectives in some areas over the long term because this alternative offers less use overall, a more intensive pasture rotation grazing system, and herding livestock away from streams (and presumably adjacent stream terraces) during the hot season, soil conditions would improve. Soils situated along stream terraces and toe-slopes of the Corral Creek and Cabin Creek drainages would progress more rapidly than those of the Lone Tree Creek drainage. The allotment would not make progress toward Standard 1 where juniper continues to encroach into sagebrush-steppe habitat. Livestock grazing would not measurably or observably affect the juniper encroachment rate. Juniper treatment projects are outside the scope of this EA.

#### **3.3.6.2.2.3 Riparian/Water Quality**

Under Alternative 2 (for details, see sections 2.2.2 and 2.4.6.2), the permittee proposes to graze the South Mountain Area allotment during the summer for 1 year, and during the summer early fall for the second year of a 2-year grazing rotation (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 9.0 miles of perennial stream, 11.4 miles of intermittent stream, and nine springs would be affected by the impacts associated with the summer and fall seasons of grazing. Recent actual use reported (Appendix B) indicates that the allotment has been primarily used during the summer and fall months every year, and the riparian-wetland standards are not being met.

The South Mountain Area allotment is not meeting the standards associated with the riparian-wetland resources under current management. Under Alternative 2, the allotment would be managed under a defined 2-year rotation with approximately 50 percent of the number of days available for grazing. Additionally, the changes in season of use would result in a potential maximum reduction of 23 percent active AUMs over the 10-year permit if the allotment is not meeting PFC. Additional terms and conditions of the permit identify that the permittees would be responsible to ride the allotment moving cattle off the creeks between July 15 and September 15. If cattle are moved consistently, impacts to the riparian areas would be reduced because the cattle use along the streams would be minimized. In addition, the permittees would be required to monitor streams within the allotment for PFC and reduce grazing (active AUMs) if the streams are not meeting PFC. With the combination of the reduction in active AUMs, a shorter use period, the creation of new pasture fences, and the long-term monitoring terms and conditions within pastures 1-3, the allotment would make progress towards meeting standards and ORMP objectives under this alternative.

#### **3.3.6.2.2.4 Special Status Plants**

Not applicable.

#### **3.3.6.2.2.5 Wildlife and Special Status Animals**

Under Alternative 2 (for details, see sections 2.2.2 and 2.4.6.2), the permittee application proposes several changes from the current permit (Alternative 1). Primary changes that would affect wildlife habitat are the initiation of a zoned deferred grazing system, several tools with the ones pertinent to public lands incorporated as terms and conditions, and a reduction of AUMs via the incorporated system. Thus, the South Mountain Area allotment would be deferred every other year allowing some relief for upland and riparian habitats. No rest is built into the system in any pasture. Upland vegetation would be grazed during the critical growth period every other year in each pasture, which would be less than prescribed in the current permit. Special status animal species and wildlife in general, dependent on these habitats, would see an increase in herbaceous cover and height during the nesting season for birds including sage-grouse every other year. Likewise, small mammals, big game, and other terrestrial species would see an increase in cover and available standing biomass during the critical spring and early-summer seasons versus Alternative 1. During the every other year of critical growing season use, a 50 percent limit on utilization of current year's growth would be in place that would afford some level of protection to sage-grouse and other ground nesting bird habitat. The only pastures in the permittees alternative that have sage-grouse PPH-sagebrush are Lone Tree Creek 1 and Lone Tree Creek 2. These pastures would receive the same benefits as just described and would slightly benefit sage-grouse nesting habitat. After July 15<sup>th</sup> every year, a term and condition of Alternative 2 requires active weekly herding to move livestock out of riparian areas to uplands. Although this term and condition is a positive management tool for riparian areas, it will induce some not previously realized impacts to upland habitats and springs. Overall however, Alternative 2 would make slow progress towards meeting Standard 8 for upland special status animal species and upland general wildlife species that Alternative 1 would not by incorporating defined use periods, slightly reducing AUMs, and deferring spring use every other year.

For riparian habitats and the animal species that depend on them, wetlands would improve slightly by affording some hot-season grazing relief and incorporating a term and condition that requires herding livestock away from streams after July 15. None the less, riparian areas will be grazed every year during the hot season when livestock tend to concentrate there for green forage and water. Additionally, by only moving livestock out of riparian areas once a week, they will probably return within a day or two, minimizing the benefit of the herding.

Under current management (Alternative 1), the South Mountain Area allotment is not meeting Standard 8 related to riparian-wetland resources that many special status animals depend on. Under Alternative 2, the allotment would be managed under a defined 2-year rotation with approximately 50 percent of the number of days available for use on riparian areas. Combined with the aforementioned AUM reduction and herding, progress would be made towards meeting Standard 8. Some benefits will occur for Columbia River redband trout habitat and Columbia spotted frog breeding habitat. Progress is expected to be made over the long term, but changes would not be realized for over 10 years. Additionally, ORMP objective WDLF-1 would be met because at the least, habitat conditions would be maintained.

#### **3.3.6.2.2.6 Visual Resources**

Alternative 2 would likely enhance visual resources throughout the allotment. A shorter period of use and a reduction in AUMs over the life of the 10-year permit, in combination with active monitoring and intensive livestock herding would be beneficial to upland and riparian vegetation throughout the allotment. As these areas improve over time, so too would the visual conditions, which would be in conformance with the class II VRM classification.

#### **3.3.6.2.2.7 Social and Economic Values**

See Section 3.2.8.3 above. This alternative divides the allotment into six pastures, rather than the two geographical areas used previously. This could result in additional labor costs associated with managing pasture rotations. In addition, the grazing season is slightly shorter, which may result in additional feeding costs.

#### **3.3.6.2.2.8 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

### **3.3.6.2.3 Alternative 3**

#### **3.3.6.2.3.1 Vegetation, including Noxious Weeds**

An allotment wide 49 percent reduction in AUMs over the 10-year period would provide greater amounts of residual litter and cover than alternative 1 allotment wide. By using 1,140 AUMs over a typical 3-year grazing cycle, this alternative reduces allotment-wide use by 1,095 AUMs (49 percent) relative to Alternative 1. Of the total AUMs proposed, the pasture rotation distributes 693 AUMs in the southern portion of the allotment (pastures 2, 3, and 4) and 507 AUMs in the northern (pasture 1), decreasing AUMs in those areas by 705 (50 percent) and 330 (39 percent), respectively.

The direct effect from this alternative would be an increase in litter and cover, which would be further enhanced by no-use during the critical growth period and a stocking rate of 16 to 20 acres/AUM versus 8 to 11 acres/AUM in Alternatives 1 and 2. Because all grazing would occur outside of the critical growing period for perennial grasses and forbs, improved health, vigor, reproduction, and seedling establishment is expected for herbaceous plants in all pastures (McLean & Wikeem, 1985) (Meays, Laliberte, & Doescher, 2000) outside of livestock concentration areas (see Appendix F for further information on deferred/summer/fall grazing impacts). Grazing during the spring and fall would improve distribution

throughout the allotment, especially in the spring due to increased water availability and more palatable/nutritious forage on the uplands (Clary & Webster, Managing grazing of riparian areas in the Intermountain region, 1989). During the summer month's livestock would tend to concentrate in riparian areas where it is cooler and closer to a water source. Because this alternative does not allow for season-long use; areas adjacent to riparian areas would receive less grazing pressure compared to Alternative 1. Less duration of use (46-58 days vs. 122 days) combined with periodic herding livestock away from the streams would allow for the vegetation to improve nutrient cycling, vigor, and health. The practice of herding would also decrease livestock concentration by redistributing livestock further from the water source, which would distribute livestock more evenly on upland vegetation away from riparian areas. Increased use in the uplands away from these areas should be mitigated by the reduction in AUMs and the proposed grazing system.

Trampling effects to vegetation resources allotment-wide would be similar to Alternative 1, but slightly less due to a lower stocking rate (13 to 20 acres/AUM versus 8 acres/AUM) and shorter season of use. Potential spread of weeds would be similar to Alternative 1 as livestock number would not change greater more than 1 percent.

The changes in management actions as described above would reduce livestock impacts on upland vegetation resources and semi-wet meadows, allowing the majority of herbaceous vegetation opportunity to complete its life cycle more frequently in the absence of defoliation. Remnant deep-rooted bunchgrasses (the dominant species at reference condition) in those areas most easily accessible to livestock would be provided opportunity to reproduce under this alternative. Long-term (greater than 10 years) improvements would occur in those years absent of other disturbances or climatic stress. Invasive species are expected to remain static in the short and long term.

Overall, implementation of livestock management in Alternative 3 would make significant progress towards meeting Standard 4. In the long term (>10 years), this alternative would make progress to meeting the ORMP vegetation management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition.

#### **3.3.6.2.3.2 Soils**

This proposal has some general similarities with Alternative 2 in that it would improve soil conditions relative to Alternative 1 by reducing AUMs, herding livestock away from riparian areas during the hot season, and employing a grazing system. What sets this alternative apart from Alternatives 1 and 2 in terms of soil conditions is the substantial reduction in use. By using 1,140 AUMs over a typical 3-year grazing cycle, this alternative reduces allotment-wide use by 1,095 AUMs (49 percent) relative to Alternative 1. Of the total AUMs proposed, the pasture rotation distributes 693 AUMs in the southern portion of the allotment (pastures 2, 3, and 4) and 507 AUMs in the northern (pasture 1), decreasing AUMs in those areas by 705 (50 percent) and 330 (39 percent), respectively.

The direct physical effect of livestock trampling on wet soil would be similar to Alternative 1, due to similar numbers of cattle, but substantially less extensive than those described for Alternative 1, due to less AUMs. The potential for trampling would be reduced throughout the entire allotment due primarily to the substantial use reduction. Trampling along stream terrace and toe-slope soils of Corral, Cabin, and Lone Tree creeks would be further limited relative to Alternative 1 due to the avoidance of hot-season use every third year and herding practices. In contrast to Alternative 2, the improvement would be assured over the long term, regardless of any changes in stream PFC during the life of the permit.

Indirect affects to soils from the proposal would be similar to but substantially less adverse than those described under Alternative 1. Decreasing AUMs would have similar effects to bare ground as that described for Alternative 2. However, the improvement offered under this alternative would occur more

rapidly and to a greater extent than Alternative 2 because the amount of use is substantially less. Short-term (< 5 years) differences in bare ground between this proposal and Alternative 1 would be too small to observe or measure. This proposal would decrease the amount and continuity of bare ground throughout the allotment relative to Alternative 1 over the long term (5+ years). Indicators of accelerated erosion would also begin to diminish in many areas of the allotment over the long term, except in areas where juniper encroachment has reduced the sagebrush steppe vegetation.

The allotment would begin to make progress towards Standard 1 and ORMP objectives in some areas over the long term. Soils situated along stream terraces and toe-slopes of the Corral and Cabin Creek drainages would progress more rapidly than under Alternative 1 or 2. The allotment would not make progress toward Standard 1 where juniper continues to encroach into sagebrush-steppe habitat. Livestock grazing would not affect the juniper encroachment rate. Juniper treatment projects are outside the scope of this EA.

#### **3.3.6.2.3.3 Riparian/Water Quality**

Under Alternative 3 (for details, see sections 2.2.3 and 2.4.6.3), the South Mountain Area allotment would be available to grazing during the summer for 2 years and during the fall only for 1 year of a 3-year rotation (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 9.0 miles of perennial stream, 11.4 mile of intermittent stream, and nine springs would be affected by the impacts associated with the summer and fall seasons of grazing. Recent actual use reported (Appendix B) indicates that the allotment has been primarily used during the summer and fall months every year, and the riparian-wetland standards are not being met.

The South Mountain Area allotment is not meeting the standards associated with the riparian-wetland resources under current management. Under Alternative 3, the allotment would be managed under a defined 3-year rotation with growing season deferral incorporated 1 in 3 years. Other mandatory terms and conditions of the permit under this alternative would include measures that would reduce impacts (stubble height, woody browse, and bank alteration) associated with the riparian areas condition. Monitoring would be required in all pastures (1-3) the years they are used during the riparian constraint period, and would add assurances that standards would make progress. Additionally, the changes in season of use would result in a 49 percent reduction in active AUMs over the 10-year permit. Therefore, the pastures that contain riparian areas within the allotment (pastures 1-3) would make progress towards meeting standards and ORMP objectives under this alternative.

#### **3.3.6.2.3.4 Special Status Plants**

Not applicable.

#### **3.3.6.2.3.5 Wildlife and Special Status Animals**

Under Alternative 3 (for details, see sections 2.2.3 and 2.4.6.3), the alternative proposes several changes from the current permit (Alternative 1). Primary changes that would affect wildlife habitat are the initiation of a 3-year deferred grazing system, terms and conditions, and a 34 percent reduction of average actual use AUMs (49 percent reduction in permitted AUM's) over the 10-year permit. For upland habitats, the South Mountain Area allotment would be deferred from grazing during the critical growth period 2 of every 3 years, allowing relief for upland habitats and the wildlife species that depend on them. Besides the benefits to herbaceous upland plant health and vigor, grazing would be absent during the sage-grouse nesting season, the migratory bird nesting season, and when small mammals are feeding on protein-rich vegetation. Special status animal species and wildlife in general, dependent on these habitats, would see an increase in herbaceous cover and height during the nesting season for ground nesting birds, including sage-grouse. Likewise, small mammals, big game, and other terrestrial species would see an increase in cover and available standing biomass during the critical spring and early-summer seasons

versus Alternative 1. During the year of critical growing season use, a 34 percent reduction in average actual use AUMs would be in place along with a 50 percent utilization limit on current year's growth that would afford some level of protection to sage-grouse and other ground nesting bird habitat. The only pastures in alternative 3 that contain sage-grouse PPH-sagebrush are pastures 1 and 2. These pastures would receive the same benefits as just described and would benefit sage-grouse nesting habitat. After July 1 every year, a term and condition of Alternative 3 requires active weekly herding to move livestock out of riparian areas to uplands until September 30. Although this term and condition is a positive management tool for riparian areas, it will induce some not previously realized impacts to upland habitats and springs. Overall however, Alternative 3 would make progress towards meeting Standard 8 for upland special status animal species and upland general wildlife species by incorporating defined use periods, reducing AUMs, and deferring spring use. Likewise, Alternative 3 would make progress over and above Alternative 1.

Under current management (Alternative 1), the South Mountain Area allotment is not meeting Standard 8 related to riparian-wetland resources that support a disproportionately high number of special status animal species. Under Alternative 3, the allotment would be managed under a defined 3-year rotation with growing season deferment incorporated 1 in 3 years. Other mandatory terms and conditions of the permit under this alternative would include measures that would reduce impacts (stubble height, woody browse, and bank alteration) associated with the riparian areas condition. Monitoring would be required in all pastures (1-3) the years they are used during the riparian constraint period, and would add assurances that standards would make progress. Additionally, the changes in season of use would result in a 49 percent reduction in active AUMs (34 percent of average actual use) over the 10-year permit. For riparian habitats and the animal species that depend on them, streams and wetlands would improve slightly by affording some hot-season grazing relief and incorporating a term and condition that requires herding livestock away from streams after July 1 until September 30. None the less, riparian areas will be grazed 2 out of every 3 years during the hot season when livestock tend to concentrate there for green forage and water. Additionally, by only moving livestock out of riparian areas once a week, they will likely return within a day or two, minimizing the benefit of herding.

Combined with the aforementioned AUM reduction and livestock herding, progress would be made towards meeting Standard 8. Benefits will occur for Columbia River redband trout breeding habitat and Columbia spotted frog breeding habitat. When compared to alternative 1, the grazing prescription under alternative 3 would avoid the majority of these species breeding seasons, greatly reducing direct impacts from livestock trampling. Limited progress is expected to be made over the long term as grazing changes are not sufficient to induce short-term (less than 10 years) changes in riparian health. Hot-season use would still occur 2 out of every 3 years, and late season use (10/1-11/15) would be prescribed the third year when livestock tend to feed on woody riparian vegetation. Livestock would not be as concentrated on riparian areas in the late season, but woody vegetation consumption would affect migratory bird nesting potential the following year and reduce biomass for early winter big game forage. ORMP objective WDLF-1 would be met because habitat conditions would be maintained and improved over the long term.

#### **3.3.6.2.3.6 Visual Resources**

Impacts to visual resources would be similar to those identified in Alternative 2. The incorporation of deferment, a reduction in AUMs, and a lower stocking rate would benefit both upland as well as riparian vegetation. The grazing system would provide relief to upland vegetation communities during their critical growing periods, while at the same time continuing livestock grazing year to year. Riparian areas could also see some improvement as changes in season of use would result in a 49 percent reduction in active AUMs over the 10-year permit. As these areas begin to improve throughout the allotments, visual qualities would also improve.

### **3.3.6.2.3.7 Social and Economic Values**

See Section 3.2.8.4 above. Differing seasons of use every year in a 3-year grazing system, as well as shorter grazing seasons every year and deferred grazing 1 in 3 years, may result in increased labor and feed costs.

### **3.3.6.2.3.8 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

### **3.3.6.2.4 Alternative 4**

#### **3.3.6.2.4.1 Vegetation, including Noxious Weeds**

Alternative 4 is set apart from all other alternatives by incorporating 1 year of rest in a 3 year rotation, and decreasing the number of days, livestock, stocking rate, and AUMs. By using 573 AUMs over a typical 3-year grazing cycle, this alternative reduces allotment-wide use by 1,662 AUMs (74 percent) relative to alternative 1. Of the total AUMs proposed, the pasture rotation distributes 350 AUMs in the southern portion of the allotment (pastures 2, 3, and 4) and 203 AUMs in the northern (pasture 1), decreasing AUMs in those areas by 1048 (75 percent) and 614 (73 percent), respectively.

In both the northern and southern portions of the allotment, a spring, fall rest rotation would be implemented with a stocking rate ranging from 19-23 acres/AUM. Eliminating summer use and moving to spring or fall would improve distribution throughout the allotment, especially in the spring due to increased water availability and more palatable/nutritious forage on the uplands (Clary & Webster, Managing grazing of riparian areas in the Intermountain region, 1989). Cooler temperatures in the spring and fall would also allow livestock to utilize the uplands more instead of concentrating on the riparian areas as the livestock currently do during the summer months where it is the only cool area to go. Large bunchgrasses would be expected to increase in the short term (less than 10 years) where an adequate seed source is available, although restoration to reference conditions is unlikely in most areas as the plant communities have been altered by juniper

If utilization is reduced in the riparian areas due to change in cattle distribution, it is expected that the utilization would increase in the uplands, but this would be mitigated by the large reduction in AUMs. Also, incorporating rest provides reassurance that all upland herbaceous vegetation would complete their entire life cycle in the absence of defoliation from livestock. Fully recharging carbohydrate reserves provides for better resilience to disturbance regimes and drought.

As with Alternative 3 areas adjacent to riparian areas or in gentle terrain would receive less grazing pressure compared to Alternative 1. Less duration of use (46-48 days vs 122 days) combined with 1 year of rest and periodic herding livestock away from the streams would allow for the vegetation to improve nutrient cycling, vigor and health compared to any grazing alternative. Herding would increase use in the uplands away from these areas, however the reduction in AUMs should mitigate any of these effects from the increased utilization.

Trampling effects to vegetation resources would be similar to Alternative 1, but less due to a lower stocking rate (19-23 acres/AUM verses 8 acres/AUM) and decreasing number of days. However, Alternative 4 would be less beneficial than Alternative 3 because use would occur during seasons of higher soil moisture. Potential spread of weeds would be similar to Alternative 2 (647 Alt 4 vs. 643 Alt 2). Invasive species are expected to remain static in the short and long term.

Overall, in the short term incorporating rest, deferment, and reduction in AUMs would allow for progress towards meeting Standard 4 and in the long term (>10 years), this alternative would meet the ORMP

vegetation management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition.

#### **3.3.6.2.4.2 Soils**

Substantial use reductions and a year of rest during each 3-year grazing cycle set this alternative apart from the other grazing alternatives. Other differences exist, but those effects on soils would be relatively minor by comparison. By using 573 AUMs over a typical 3-year grazing cycle, this alternative reduces allotment-wide use by 1,662 AUMs (74 percent) relative to Alternative 1. Of the total AUMs proposed, the pasture rotation distributes 350 AUMs in the southern portion of the allotment (pastures 2, 3, and 4) and 203 AUMs in the northern (pasture 1), decreasing AUMs in those areas by 1,048 (75 percent) and 614 (73 percent), respectively.

The direct physical effect of livestock trampling on wet soil would be similar to but less than those described for Alternative 1. In each 3-year cycle, livestock would use the allotment during the last half of May 1 year, and during the first half of November the following year. In both cases, soils in the allotment are likely to be wet and vulnerable to surface degradation from trampling. Physical trampling effects would be far less apparent than Alternative 1 because use would occur during periods of high soil moisture in 2 years of each 3-year grazing cycle.

Indirect effects to soils from the proposal would be similar to but substantially less adverse than those described under Alternative 1. This proposal offers the least indirect adverse effects to soils of any other grazing alternative due to the use reduction and the rest rotation. Decreasing AUMs would reduce the amount and continuity of bare ground over short term (< 5 years) compared to Alternative 1. Indicators of accelerated erosion would begin to diminish throughout the allotment over the long term, except in areas where juniper encroachment has reduced the sagebrush steppe vegetation.

The allotment would make progress towards Standard 1 and ORMP objectives in most areas over the long term. The allotment would not make progress toward Standard 1 where juniper continues to encroach into sagebrush-steppe habitat. Livestock grazing would not affect the juniper encroachment rate. Juniper treatment projects are outside the scope of this EA.

#### **3.3.6.2.4.3 Riparian/Water Quality**

Under Alternative 4 (for details, see sections 2.2.4 and 2.4.6.4), the South Mountain Area allotment would be available to grazing during the spring for 1 year, during the fall for 1 year, and rested the third year of a 3-year rotation (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 9.0 miles of perennial stream, 11.4 mile of intermittent stream, and nine springs would be alternately affected by the impacts associated with the spring, summer, and fall seasons of grazing. Recent actual use reported (Appendix B) indicates that the allotment has been primarily used during the summer and fall months every year, and the riparian-wetland standards are not being met.

The South Mountain Area allotment is not meeting the standards associated with the riparian-wetland resources under current management. Under Alternative 4, the allotment would be managed under a defined 3-year rotation with rest and/or growing season deferment incorporated 2 in 3 years. Additionally, the changes in season of use would result in a 73 percent reduction in active AUMs over the 10-year permit. Therefore, the pastures that contain riparian areas within the allotment (pastures 1-3) would meet standards and ORMP objectives under this alternative.

#### **3.3.6.2.4.4 Special Status Plants**

Not applicable.

#### **3.3.6.2.4.5 Wildlife and Special Status Animals**

Under Alternative 4 (for details, see sections 2.2.4 and 2.4.6.4), the alternative proposes several changes from the current permit (Alternative 1). Primary changes that would affect wildlife habitat are the initiation of a 3-year rest-rotation grazing system, terms and conditions, and a 74 percent reduction in AUMs used over the 10-year permit (53 percent reduction of actual use). For upland habitats, the South Mountain Area allotment would be deferred or rested from grazing during the critical growth period 2 of every 3 years allowing relief for upland habitats and the wildlife species that depend on them. Besides the benefits to herbaceous upland plant health and vigor, grazing would be absent during the sage-grouse nesting season, the migratory bird nesting season, and when small mammals are feeding on protein-rich vegetation. Special status animal species and wildlife in general, dependent on these habitats, would see an increase in herbaceous cover and height during the nesting season for ground nesting birds, including sage-grouse. Likewise, small mammals, big game, and other terrestrial species would see an increase in cover and available standing biomass during the critical spring and early-summer seasons versus Alternative 1. During the year of critical growing season use, a 50 percent utilization limit on current year's growth would afford some level of protection to sage-grouse and other ground nesting bird habitat. The only pastures in alternative 4 that contain sage-grouse PPH-sagebrush are pastures 1 and 2. These pastures would receive the same benefits as just described and would improve quality of sage-grouse nesting habitat. Overall, Alternative 4 would make progress towards meeting Standard 8 for upland special status animal species and upland general wildlife species by incorporating defined use periods, reducing AUMs, deferring spring use and providing rest. Likewise, Alternative 4 would make significant progress over and above Alternatives 1 and 2; the alternative would also make faster progress than Alternative 3. Regardless of grazing prescription, in the absence of prescribed fire, wildfire, or without mechanical juniper removal, sagebrush acreage will not increase and quantity of sage-grouse habitat will not increase.

Under current management (Alternative 1), the South Mountain Area allotment is not meeting Standard 8 related to riparian-wetland resources that support a disproportionately high number of special status animal species. Under Alternative 4, the allotment would be managed under a defined 3-year rest-rotation grazing system that would avoid hot-season grazing all together, riparian areas would be exposed to spring grazing 1 year in 3. Additionally, the changes in season of use would result in a 73 percent reduction in active AUMs over the 10-year permit. For riparian habitats and the animal species that depend on them, streams and wetlands would improve by affording hot-season grazing relief, making significant progress towards meeting Standard 8.

Benefits will occur for Columbia River redband trout breeding habitat and Columbia spotted frog breeding habitat. When compared to alternative 1, the grazing prescription under alternative 4 would avoid the majority of these species breeding seasons, greatly reducing direct impacts from livestock trampling. Significant progress is expected to be made over the short and long terms as grazing changes would influence positive changes in riparian health. Late season use would still occur 1 out of every 3 years (10/1-11/15) when livestock tend to feed on woody riparian vegetation. Livestock would not be as concentrated on riparian areas in the late season, but woody vegetation consumption would affect migratory bird nesting potential the following year and reduce biomass for early winter big game forage. This effect would be less than in Alternative 3 and significantly less than in Alternatives 1 and 2. ORMP objective WDLF-1 would be met because habitat conditions would be improved over the long term.

#### **3.3.6.2.4.6 Visual Resources**

This alternative would be the most beneficial to visual resources in comparison to any of the other grazing alternatives. The grazing schedule under Alternative 4 would provide more opportunity for riparian function, as well as for the recovery of upland vegetation following active growing season grazing use and during years of rest. As conditions of the area improve due to the season-based use, reduction in

AUMs over the course of the 10-year permit, and a rest rotation, visual qualities would also begin to improve in all areas throughout the allotment.

#### **3.3.6.2.4.7 Social and Economic Values**

See Section 3.2.8.5 above. A new grazing system that includes shorter seasons of use, as well as spring use in 1 year, deferred grazing in the second year, and resting the allotment in the third year of a 3-year rotation, may result in increased labor and feed costs.

#### **3.3.6.2.4.8 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

#### **3.3.6.2.5 Alternative 5**

##### **3.3.6.2.5.1 Vegetation, including Noxious Weeds**

The effects of not grazing livestock on upland vegetation resources for a 10-year period are described in section 3.2.1.6.

##### **3.3.6.2.5.2 Soils**

The effects to soils of not grazing livestock for a 10-year period are described in section 3.2.2.6.

##### **3.3.6.2.5.3 Riparian/Water Quality**

See the impacts described for all allotments under Alternative 5 in section 3.2.3.6.

##### **3.3.6.2.5.4 Special Status Plants**

Not applicable.

##### **3.3.6.2.5.5 Wildlife and Special Status Animals**

See the impacts described for all allotments under Alternative 5 in section 3.2.5.6

##### **3.3.6.2.5.6 Visual Resources**

This alternative would provide the greatest benefit to visual resources, as the overall conditions of the area improve so would visual quality. There would be no effects to upland vegetation and riparian areas from livestock, thus improving the overall health and visual quality throughout the allotment.

##### **3.3.6.2.5.7 Social and Economic Values**

See Section 3.2.8.6 above.

##### **3.3.6.2.5.8 Cultural Resources**

Under this alternative, no livestock grazing would occur, and there would be no effects to cultural resources by this activity.

### **3.3.7 Wilson Creek FFR Allotment**

#### **3.3.7.1 Wilson Creek FFR Allotment Affected Environment**

##### **3.3.7.1.1 Vegetation, including Noxious Weeds**

A Rangeland Health Assessment, Evaluation, and Determination Report was completed for the Wilson Creek FFR allotment in 2013. This report identified a shift in species composition away from site potential and juniper encroachment as the condition that prevents the allotment from meeting the Idaho

Standards for Rangeland Health Standard 4 – Native Plant Communities. The Determination did not identify current livestock management practices as a contributing factor (Appendix F). In the summer of 2013 and since the Determination document was finalized, parts of Wilson Creek pastures 2 and 4 have burned. The rangeland health assessment site is located within the burned area boundary, yet 250 feet from the mapped perimeter. Due to the close proximity of the assessment area to the fire perimeter, areas adjacent to and outside of the fire perimeter most likely reflect conditions reported in the assessment. For this reason the assessment will be retained for analysis. Juniper encroachment is an issue on BLM-administered acres within all pastures of the allotment. There is emphasis on the loamy soils that show the greatest density of juniper within pasture 4 (where the 2013 wildfire did not burn) and pasture 1. Pasture 2 and pasture 4 burned in 2012, with 55 percent and 77 percent of BLM lands being affected by the fire. Apart from the areas affected by juniper encroachment, a shift away from site potential has been observable in the reduction of deep rooted perennial native grasses and presence of invasive grasses.

### Ecological Sites

The Wilson Creek allotment is composed of one major ecological site (Table VEGE-14), loamy mountain big sagebrush/bluebunch wheatgrass-Idaho fescue, with the shallow claypan low sagebrush/Idaho fescue site making up the remainder.

**Table VEGE-14:** BLM lands mapped by Ecological Sites in the Wilson Creek FFR allotment

Ecological Site	Dominant Species Expected	Acres	Percent of Allotment
Loamy 13-16" ARTRV/PSSPS-FEID	mountain big sagebrush, bluebunch wheatgrass, Idaho fescue	558	91%
Shallow claypan 12-16" ARAR8/FEID	low sagebrush, Idaho fescue	58	9%

The ecological sites show that under natural disturbance regime, the Wilson Creek FFR allotment should be dominated by sagebrush/bunchgrass communities. Other vegetation types such as western juniper and riparian areas are expected to occur as unmapped inclusions within the larger ecological sites, and each should make up only a small percentage of the area.

### Current Vegetation<sup>49</sup>

Current vegetation is discussed at two scales: cover type (overstory vegetation) and understory species composition (rangeland health assessments, trend, etc.). Current overstory vegetation, based on mapping done by the Pacific Northwest National Laboratory (PNNL) from 2000/2001 Landsat satellite imagery in the Wilson Creek FFR allotment, is shown in Table VEGE-15. Ecological site and PNNL mapping were done at different scales (PNNL at a somewhat finer scale) so precise matching is not possible, but gross changes in plant community structure are apparent. None the less, the change between the current vegetation (Table VEGE-15) and the expected vegetation (Table VEGE-14) is indicated by comparing the two tables.

**Table VEGE-15:** Cover Types based on PNNL data for BLM managed lands within Wilson Creek FFR allotment

Vegetation Cover Type	Acres	Percent of Allotment
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<sup>49</sup> Note that these data (specifically rangeland health indicators) are primarily qualitative rather than quantitative, so the following discussion uses non-numerical comparative terms.

Mountain big sagebrush	197	32%
Juniper	153	25%
Low sagebrush	109	18%
Bunchgrass	38	6%
Exotic annuals	37	6%
Big sagebrush	32	5%
Mountain shrub	27	4%
Wet meadow	22	4%
Bitterbrush	3	<1%

PNNL mapping shows the presence of a ‘Juniper’ cover class that is not present within any of the plant community types. Although juniper can be present within unmapped inclusions in the allotment, its presence to the degree mapped by the PNNL indicates a strong shift away from reference condition. Photos associated with the 2001 assessment indicate a diverse age class of juniper and, therefore, concern for continued invasion. Although the 2013 Tank Fire potentially decreased juniper presence in pasture 2 and pasture 4, areas outside of this burn are still subject to the effects of juniper encroachment. Also supporting the departure from reference condition is the strong presence of juniper displayed from 2011 aerial imagery (ESRI, 2013). This type of vegetation mapping does not show changes in the understory, but information from the 2001 rangeland health assessment indicates a shift in species composition (departure from reference condition) noted by the reduction in deep-rooted perennial grasses and biological soil crusts and higher than expected presence of Sandberg bluegrass and juniper. This shift in species composition towards more grazing tolerant species is likely due to past livestock grazing. Although in low percentage, the PNNL mapping identifies a cover type of ‘Exotic annuals’ that further illustrates a departure from reference condition.

#### **Rangeland Health Standard 4**

Rangeland health field assessments for the Wilson Creek FFR allotment were conducted in 2001. In 2013, the previous assessment was amended with additional information that was used to issue the 2013 determination (Appendix F). Standard 4 is not being met mainly due to an altered fire regime resulting in subsequent juniper invasion in conjunction with past grazing management. Descriptions for the loamy 13-16” ecological site, where the assessment was performed and juniper is the most dominant, identifies juniper as an invasive species that when dominant, results in a new state requiring management inputs to restore ecological function of the reference site sagebrush/bunchgrass state. Invasive grasses are also of a concern in further compromising future biological sustainability.

#### **Utilization and Actual Use**

Precise actual use dates of current livestock grazing are unknown; however, the permit currently allows for year-round grazing. No utilization data is available.

#### **Weeds**

No noxious weeds have been mapped in the Wilson Creek FFR allotment. However, other invasive (but not noxious) non-native plants present include bulbous bluegrass, Japanese brome, and cheatgrass. These species are generally in localized disturbed areas and are not dominant.

#### **Biological Soil Crusts**

At the only rangeland health assessment, microbiotic crusts were reported to be missing. This is inconsistent with what is expected at reference condition. Microbiotic crusts are important for increasing soil stability and capturing nutrients, and can affect vascular plant species composition (Wicklow-Howard, Serpe, Orm, Stokes, & Rosentreter, 2003). Without them, the vegetation community has greater susceptibility to invasive plants.

### Summary of Current Upland Vegetation Conditions

To summarize, the Wilson Creek FFR allotment is not meeting the Standard for Native Plant Communities (Standard 4) because juniper encroachment into vegetation communities that should not include juniper (except for sparse representation) is competing with native perennial shrub, bunchgrass, and forb species. Past grazing and extended fire frequency from natural disturbance regimes contribute to juniper invasion and, subsequently, not meeting the Standard in those areas where juniper is present. While not a causal factor for not meeting Standard 4, the determination noted the shift from deep-rooted perennial grasses to shallow-rooted perennial grasses and the presence of invasive grasses. This depressed ecological condition of Wilson Creek FFR allotment is largely a product of grazing management practices in the late 1800s and early 20<sup>th</sup> century (National Research Council, 1994). Even though vegetation communities have shifted to a greater dominance of shallow-rooted native perennial bunchgrass species and non-native annuals and a decline in larger deep-rooted native perennial bunchgrasses, remnant vegetation communities in portions of the allotment not dominated by juniper encroachment retain an adequate composition of native perennial species to conclude that proper nutrient cycling, hydrologic cycling, and energy flow are provided.

#### 3.3.7.1.2 Soils

Current livestock grazing management practices are not significant factors for this allotment’s failure to meet the land health standard for watersheds. Soils on the BLM-administered public land in the allotment are dominated by the Snell-Sharesnout complex (USDA NRCS, 2003). These upland soils occur on the foothills and flanks of South Mountain. The dominant ecological site associated with the Snell soils is the Loamy 13-16”. The shallower Sharesnout soils are less common and support Shallow Claypan 12-16”, Low sagebrush/ Idaho fescue ecological sites on convex sideslopes. None of the soils on BLM-administered public land in the allotment have a high erosion hazard (USDI BLM, 1999a). A field team evaluated rangeland health in 2001 at a location representative of the majority of BLM-administered public land in the allotment. Table Soil-7 summarizes the field assessment of soil/site stability and watershed function.

**Table SOIL-7:** Summary of soil stability and hydrologic function indicators in the Wilson Creek FFR allotment

Ecological Site	Departure of Soil & Watershed Function Indicators from Reference Condition (%) <sup>1</sup>				
	none-to-slight	slight-to-moderate	moderate	moderate-to-extreme	extreme
Very Shallow Stony Loam 10-14 (pasture 4)	28	50	22	-	-

<sup>1</sup> Details are available in the 2013 RHA and Determination documents in project file

A network of long water flow patterns with inch-high pedestals and terracettes indicate a slight to moderate level of soil instability in portions of pasture 4. The water flow paths, pedestals, and soil surface degradation indicate accelerated erosion has occurred. Although snell soils are generally well to excessively drained, water flow patterns and pedestals rarely occur on this site under reference conditions. Juniper trees were common to dominant members of the plant community, particularly at upper elevations of the allotment. In pasture 1, relatively large patches of bare ground beneath juniper canopies indicated a high potential for erosion. The multiple age classes of juniper trees growing in varying densities, combined with little if any evidence of juniper mortality, indicate a high potential for downward trends in watershed function in the future.

#### 3.3.7.1.3 Riparian/Water Quality

A general, common to all allotments, description of the affected environment can be found above in section 3.1.3.

**Existing Condition**<sup>50</sup>

Standard 2 is not being met in pasture 1 of the Wilson Creek FFR allotment. Approximately 0.5 mile of Wilson Creek traverses pasture 1, and a field report was submitted that identified severe bank erosion, a lack of riparian species, heavy use of herbaceous vegetation, and trampling that had been occurring continuously. The reach was assessed FAR.

Three springs that occur on BLM lands in pasture 1 were assessed in 2012; two were rated functioning-at-risk (FAR) and one was rated non-functioning (NF) (Table RIPN-18, Map RIPN-1). One unnamed spring that was FAR had headcuts present, which creates vertical instability; mechanical alteration of the soils causing drying and loss of the riparian area extent. The last unnamed spring that was FAR was heavily trampled, erosion was occurring, the area was heavily grazed, and the spring source was not protected. The unnamed spring that was NF had upland species encroaching, the developments were in disrepair, and the spring source was not protected.

**Table RIPN-18:** Wilson Creek FFR allotment riparian condition

Stream Name	Allotment & Pasture Stream Miles & Condition	Assessment Issues/ Impacts Identified	Total Miles
Wilson Creek	Wilson Creek- 01, 0.5 (FAR- based on field report-1995)	severe bank erosion, lack of desirable riparian species, high use on herbaceous vegetation, continuous trampling	0.5
<b>Springs Assessed, Condition, &amp; Issues Identified</b>			
Spring Name	Pasture/ Assessment Year	PFC Condition	Assessment Issues/ Impacts Identified
Unnamed Spring 1	1/ 2012	NF	Spring source not protected, excessive trailing and erosion, upland species encroaching & area losing extent, developments in disrepair
Unnamed Spring 2	1/ 2012	FAR	Headcuts present, alteration of soils causing drying and loss of area extent
Unnamed Spring 3	1/ 2012	FAR	Heavy trampling & erosion, spring source not protected, heavily grazed, area losing extent

For IDEQ water quality information associated with the Wilson Creek FFR allotment, see table RIPN-3.

**3.3.7.1.4 Special Status Plants**

No known special status plants are on BLM lands within this allotment.

**3.3.7.1.5 Wildlife and Special Status Animals**

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<sup>50</sup> For additional details on the current condition of the allotment, see the *Wilson Creek FFR (0537) Initial Allotment and Permit/Lease Review and Rangeland Health Assessment* document in the project record or available from the Owyhee Field Office

In addition to the general overview of the Affected Environment for Wildlife Resources in the South Mountain allotments presented above (Section 3.1.5), descriptions of the current condition of species and their habitats within the Wilson Creek FFR allotment are based on the 2013 Rangeland Health Assessment and Evaluation Report (USDI BLM, 2013) and Determination (Appendix E), affected environments of the Rangeland Vegetation and Water and Riparian Resources within this EA (Sections 3.1.1 and 3.1.3, respectively), recent personal observations, current element occurrences in IFWIS (IDFG, 2011), and consultation with local wildlife professionals.

The entire Wilson Creek FFR allotment encompasses the Owyhee Uplands and Canyons Level IV Ecoregion discussed previously (Map GEN-2). Within the allotment, this ecoregion is characterized by juniper woodlands interrupted by rolling shrub steppe uplands, steep hills, and rocky outcrops. Currently, the expansion of juniper into former shrub communities has transformed much of the area into woodlands ranging from open, savanna-like conditions to denser canopy forest (Section 3.3.7.1.1). These denser woodlands cover the relatively low profile flanks of South Mountain. A riparian area runs through the allotment in pastures 1, 3, and 5 (Section 3.3.7.1.3). Wildlife habitats within the Wilson Creek FFR allotment include juniper woodlands, low and big sagebrush steppe, grasslands, wet meadow complexes, riparian areas, springs, and seeps (Table VEGET-15). A detailed discussion of upland and riparian vegetation within the allotment can be found in Sections 3.3.7.1.1 and 3.3.7.1.3.

No federally listed Threatened or Endangered animals are known to occur in the Wilson Creek FFR allotment. One candidate species, the Columbia spotted frog, could potentially occur in the allotment, as surveys have never been conducted in the allotment and potential habitat does exist on private lands. A second candidate species, the greater sage-grouse, has designated Preliminary Priority Habitat (PPH) in all pastures. On BLM-administered lands, PPH occurs in pastures 2, 4, and 5, for a total of 135 acres. The remainder of the allotment is designated Preliminary General Habitat (PGH); thus, all of the Wilson Creek FFR is defined as sage-grouse habitat. As many as 11 mammal, 21 bird, 2 amphibian, 2 fish, and 3 reptile species with BLM special status (including Watch List Species) potentially occur within the allotment. One special status animal species, Brewer's sparrow, is recorded in the Idaho Fish and Wildlife Information System within the allotment; additionally, ferruginous hawk have been identified within 0.1 mile of the allotment and western toads were discovered in 2013 on BLM land in pasture 1.

### ***Uplands***

Upland habitats were found to not be meeting Standard 4; however, it was determined that livestock grazing management practices were not significant factors leading to the determination. Results of Standard 4 directly correlate with upland wildlife species habitat conditions. The prevalence of juniper and other increaser species have degraded the habitat through time and reduced habitat quality for sagebrush dependent species. Some special status animal species may benefit from juniper existence, such as bat species that can use the area for roosting sites. However, diminished understories of sagebrush with potential links to bug kill and scattered invasive grasses compared to what would be expected in the Potential Natural Community condition for ecological sites on this allotment, have a negative effect on other animal species. Standard 8, likewise, was determined to not be meeting the Standard, but current livestock grazing management was not a significant factor in reaching this determination for upland species. Conversion of sagebrush habitats to juniper woodlands is the primary limiting factor on public land uplands in Wilson Creek FFR allotment. Although the increase in juniper cover may have benefited some woodland-associated special status wildlife species such as northern goshawks and Lewis' woodpeckers, these woodland habitats are unsuitable for and have come at the expense of sagebrush-obligate and shrub-dependent special status species such as greater sage-grouse, pygmy rabbits, Brewer's sparrows, loggerhead shrikes, and sage sparrows. Although juniper woodlands currently make up 25 percent of the allotment (all ownerships), if their densities continue to increase, sagebrush-obligate species will be further impacted.

### ***Riparian***

Riparian habitat standards were not being met in the Wilson Creek FFR allotment in 2013 because approximately 0.5 mile of Wilson Creek was assessed functioning-at-risk (FAR). Issues identified relating to the condition of the riparian-wetland areas included concerns with severe bank erosion, a lack of riparian species, heavy use of herbaceous vegetation, trampling, and heavy livestock use of riparian vegetation. Livestock use along streams has not provided sufficient residual vegetation to improve, restore, or maintain healthy riparian functions. Current livestock grazing management practices were identified as the significant causal factors for not meeting Standard 2. These conditions have reduced habitat quality for riparian-dependent wildlife species along Wilson Creek. The lack of a diverse age class, herbaceous riparian vegetation use, and streambank trampling by livestock have reduced nesting substrate, protective cover, and foraging areas for many riparian-dependent migratory birds and special status wildlife species such as Western toads, northern goshawks, calliope hummingbirds, willow flycatchers, and some special status bat species like fringed myotis. Three springs that occur on BLM lands in pasture 1 were assessed in 2012; two were rated functioning-at-risk (FAR) and one was rated non-functioning (NF). One unnamed spring that was FAR had headcuts present, which creates vertical instability; mechanical alteration of the soils was causing drying and loss of the riparian area extent. The last unnamed spring that was FAR was heavily trampled, was erosion was occurring, the area was heavily grazed, and the spring source was not protected. The unnamed spring that was NF had upland species encroaching, the developments were in disrepair, and the spring source was not protected. Degraded springs affect amphibian habitat and limit quality of sage-grouse brood-rearing habitat.

### **Focal Special Status Animal Species**

#### Greater sage-grouse

Historically, a majority of the allotment provided suitable habitat for sage-grouse and supported significant populations (USDI BLM, 1969). Currently, sage-grouse PPH exists in all pastures of Wilson Creek FFR allotment and PGH in the eastern portions of pastures (Map WDLF-1). An extensive area of juniper encroachment (conifer) occurs in the allotment and is primarily categorized as PGH (Map WDLF-1; Table WDLF-11). Of the 1002 acres of sage-grouse PPH in the allotment, 86 percent exists on private land (Table WDLF-12). All of the allotment's PGH has been encroached by juniper woodlands (Table WDLF-11). Since the 1960's wildfires have been recorded in Boise District, and until recently, none have occurred. In 2013, the Tank Fire burned almost entirely in the Wilson Creek FFR allotment, primarily in pastures 2 and 4 (Map FIRE-1). The fire burned primarily in PGH habitat in pasture 2 and exclusively in PPH in pasture 4. Although pasture 4 is designated as PPH-sagebrush, aerial photo interpretation indicates it is covered with scattered junipers. In the long term, the fire will be beneficial to sage-grouse by removing juniper; in the short term, it is important to protect the understory grasses and forbs until sagebrush returns to the plant community.

**Table WDLF-11:** Sage-grouse habitat acreage by vegetation class within Wilson Creek FFR allotment, 2013 (all ownerships)

Pasture	Preliminary Priority Habitat (PPH)			Preliminary General Habitat (PGH)			Habitat Total
	Sagebrush	Conifer	Total	Sagebrush	Conifer	Total	
1	0	13	<b>13</b>	0	994	<b>994</b>	1006
2	122	15	<b>137</b>	0	671	<b>671</b>	809
3	25	0	<b>25</b>	0	87	<b>87</b>	112
4	595	0	<b>595</b>	0	0	<b>0</b>	595
5	232	0	<b>232</b>	0	65	<b>65</b>	297
Total	974	28	<b>1002</b>	0	1817	<b>1817</b>	2819
(% of allotment)	(35)	(1)	<b>(36)</b>	(0)	(64)	<b>(64)</b>	(100)

**Table WDLF-12:** Sage-grouse habitat acreage within Wilson Creek FFR allotment by ownership, 2013

Pasture	Preliminary Priority Habitat (PPH)			Preliminary General Habitat (PGH)			Habitat Total
	Private	BLM	Total	Private	BLM	Total	-
1	13	0	<b>13</b>	680	314	<b>994</b>	1007
2	82	55	<b>137</b>	508	163	<b>671</b>	808
3	25	0	<b>25</b>	87	0	<b>87</b>	112
4	525	70	<b>595</b>	0	0	<b>0</b>	595
5	223	9	<b>232</b>	61	4	<b>65</b>	297
Total (% of allotment)	867 (31)	135 (5)	<b>1002</b> <b>(36)</b>	1336 (47)	481 (17)	<b>1817</b> <b>(64)</b>	2819 (100)

Columbia spotted frog

Various agencies and researchers have surveyed potential spotted frog habitat throughout the Owyhee Mountains and Uplands since 1994 (Munger, et al., 1994) (Munger, Ames, & Barnett, 1997) (Owyhee Columbia Spotted Frog Working Group, 2007) (La Fayette, 2010) (Lohr & Haak, 2009) (Lohr, 2011). Although occurrence information available from IFWIS (IDFG, 2011) has not documented spotted frogs within the allotment, pastures containing Wilson Creek, especially on private lands, have habitat suitable for the species. However, Wilson Creek FFR is not currently in an occupied watershed (Map WDLF-3). Columbia spotted frog surveys within a mile of Wilson Creek FFR allotment, to the south on Dougherty Creek have not revealed spotted frogs and none are known until West Fork Owyhee River.

Pygmy rabbit

A coarse-level predictive occurrence model created by Idaho BLM in 2009 suggests that most of Wilson Creek FFR allotment have a moderate likelihood of core habitat presence. However, habitat in the majority of the allotment is unsuitable for pygmy rabbits; only 32 percent of the allotment is classified as having the appropriate cover type the species prefers (i.e., big sagebrush and friable soils; Table WDLF-1). No pygmy rabbit surveys have been conducted within the allotment nor have any individuals been documented. As with sage-grouse habitat, the recent Tank Fire will benefit pygmy rabbit habitat by removing junipers and in time increase sagebrush.

Columbia River redband trout

Redband trout are not known to occupy Wilson Creek (0.5 mile) on public land within pasture 1 nor has it been identified or modeled as potential habitat (Map WDLF-3).

***Migratory Birds, Raptors, and other Birds (including Special Status Species)***

In addition to the general discussion of migratory birds, raptors, and other bird species and their habitats in Section 3.3.1.5, a variety of bird species have the potential to occur or have been documented within and in the vicinity of the Wilson Creek FFR allotment (Appendix G). The juniper woodlands and riparian areas within the allotment are either known to or potentially could provide nesting and foraging habitat for many special status and migratory birds. As discussed above, the expansive juniper woodland habitat that currently occupies ecological sites that otherwise would be dominated by the expected sagebrush habitats in the absence of juniper encroachment presently has augmented the population of woodland birds that would be a far minor component of the area’s overall bird community. Under natural disturbance regimes, juniper woodland bird species would be limited to widely scattered, solitary old-growth junipers or small stands that would be expected to occur on shallow, rocky soils as restricted inclusions within sagebrush or mountain shrub ecological sites (USDA NRCS, 2010). Junipers and aspen provide nesting and foraging substrate for foliage and bark gleaning species such as black-throated gray

and yellow-rumped warblers, mountain bluebird, Townsend's solitaire, hairy woodpecker, and red-naped sapsucker. Ground gleaning species within woodland habitats include American robin, black-billed magpie, chipping sparrow, and dark-eyed junco. In addition, juniper woodlands provide habitat for owl and raptor species such as flammulated owl, long-eared owl, northern saw-whet owl, northern goshawk, and red-tailed hawk.

Riparian habitat along Wilson Creek in the Wilson Creek FFR allotment potentially hosts a variety of obligate and dependent bird species. Riparian-obligate species, like yellow warbler, and dependent species, such as black-capped chickadee, black-headed grosbeak, house wren, and warbling vireo, have been documented in the South Mountain area. These species prefer the structural diversity found in riparian areas with aspen and willow canopies and herbaceous understories along streambanks. The absence of disturbance associated with livestock grazing within these riparian communities has been demonstrated to result in high-quality breeding habitat (i.e., high nest success, low brood parasitism rates) for many of these species (Heltzel & Earnst, 2006).

Shrub steppe habitats dominated by mountain and low sagebrush provide vital nesting and foraging habitat for obligate species such as Brewer's and sage sparrows and dependent species including loggerhead shrike and sage thrasher. Direct loss, fragmentation, and degradation of sagebrush habitats connected with the spread of invasive plants, altered disturbance regimes, and the associated state transitions from stable native vegetation communities are some of the most important factors affecting long-term and regional population dynamics of these species (Knick & Rotenberry, 1995) (Knick & Rotenberry, 2000) (Knick & Rotenberry, 2002) (Knick, et al., 2003) (Knick, Holmes, & Miller, 2005). Passerine species like vesper sparrow, horned lark, western meadowlark, and rock wren, and raptors, such as golden eagle, prairie falcon, ferruginous and rough-legged hawks, and burrowing and short-eared owls, have also been documented in the area's shrub steppe vegetation communities.

### ***Big Game and other Mammals (including Special Status Species)***

In addition to the general discussion of big game and other mammal species and their habitats in Section 3.1.5, various big game and special status mammal species use a variety of habitats in the Wilson Creek FFR allotment for some or all of their seasonal needs. Big game species are limited to elk, pronghorn, and mule deer. No California bighorn sheep Population Management Units (PMU) or extant populations occur within Wilson Creek FFR allotment; however, the Owyhee Front PMU is located 1.5 miles south.

The woodland and riparian habitats within the allotment provide summer habitat for elk and mule deer. Although mule deer may be present year-round within the area, most winter habitat for both species occurs at lower elevations in Oregon and south along the Owyhee River. Pronghorn use within the allotment is highly restricted and limited to the lower (southern) areas along and adjacent to Wilson Creek on private land.

#### ***3.3.7.1.6 Visual Resources***

As mentioned above in section 3.1.6 the Wilson Creek allotment contains class II VRM within only roughly 50 percent of pasture 1. A description of the class II management classification can be found in that section as well.

#### ***3.3.7.1.7 Social and Economic Values***

See Section 3.1.9 above.

#### ***3.3.7.1.8 Cultural Resources***

No previously recorded sites are within the Wilson Creek FFR allotment. Two potential livestock congregation areas identified for the allotment received no survey coverage.

### **3.3.7.2 Wilson Creek FFR Allotment Environmental Consequences**

#### **3.3.7.2.1 Alternative 1**

##### **3.3.7.2.1.1 Vegetation, including Noxious Weeds**

Current livestock grazing management is not identified to be a significant casual factor for not meeting Standard 4. However, this allotment is currently not meeting due to juniper encroachment and an altered native plant community stemming from past grazing. Implementation of Alternative 1 (continuation of current grazing management) would be expected to maintain upland vegetative resources in their current condition, which is degraded due to past livestock grazing.

The Wilson Creek FFR allotment will be stocked at the same AUMs and stocking rate for all alternatives, 78 AUMs and 8 acres/AUM. Even though actual use and utilization data are not available for the Wilson Creek FFR allotment, the determination identified current livestock management to be in compliance with the Idaho Standards for Rangeland Health. Those areas outside of juniper encroachment contain the necessary assemblage of plants that provide for proper nutrient cycling, hydrologic cycling, and energy flow even though the community is compromised from past grazing. It is likely a pasture rotation was utilized in the current management that provides appropriate rest/deferment combined with an appropriate utilization level that would maintain the plant community at hand.

Livestock grazing seasons of use and livestock numbers authorized in the allotment with implementation of Alternative 1 would not contribute to either improvement or continued failure to meet Standard 4 in areas where the Standard is not being met due to juniper encroachment into sagebrush steppe vegetation communities. Other than the indirect effect from removal of fine fuels that support the spread of wildfire, recent livestock grazing has had little influence on juniper encroachment.

The effects of Alternative 1 on biological soil crusts are expected to be similar to those on vegetation in general. Under the proposed level and seasons of use, biological soil crusts are expected to be maintained as livestock movements from pasture to pasture would decrease livestock concentrations.

No noxious weed occurrences have been recorded in this allotment. Invasive grasses are present in the allotment, but they do not dominate in any areas. Alternatives 1 through 4 all authorize 20 AUMs; therefore, the risk of spreading weed seed is equivalent for all alternatives except Alternative 5, the no grazing alternative.

In the case current management is continued that provides for the necessary health and vigor of the vegetative community, Alternative 1 would be expected to maintain existing upland bunchgrasses in the Wilson Creek FFR over the short term (less than 10 years) and livestock grazing management would not contribute towards not meeting Standard 4. The effects from past grazing (reduction of large bunchgrasses) and the presence of juniper in some areas would still be part of the vegetation community and cause the allotment to not meet Standard 4. Recovery of large bunchgrasses would take longer than the 10-year term of this permit, and invasive species are expected to be stable.

##### **3.3.7.2.1.2 Soils**

The current grazing practices would continue, and the effects of grazing livestock on soils are described in Section 3.2.2. Range readiness terms and conditions would limit the potential for livestock to affect wet soils by trampling in spring while utilization limits would ensure an adequate amount of plant material is

left each season to become litter and decompose in place for watershed health. Water flow paths, pedestalled plants, and terracettes would be common indicators of slight to moderate soil instability, particularly in loamy soils where rocks and gravels are less likely to stabilize the soil surface than in claypan soils. Patches of bare ground would be more continuous in areas of juniper encroachment and those areas would be likely candidates for accelerated erosion. Juniper trees would continue to be more common at upper elevations than lower elevations.

Soil and watershed conditions in the allotment would not meet Standard 1 or ORMP objectives over the long term because juniper encroachment appears to be affecting soil stability and hydrologic function adversely. The amount and season of livestock grazing proposed under this alternative would not affect the amount or rate of juniper encroachment, so the allotment would fail to meet Standard 1 for reasons other than livestock grazing over the long term.

#### **3.3.7.2.1.3 Riparian/Water Quality**

Under Alternative 1 (for details, see sections 2.2.1 and 2.4.7.1), the Wilson Creek allotment would be available to grazing without rest or growing season deferment year-round, annually (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 0.2 miles of perennial stream, 1.5 mile of intermittent stream, and three springs would be affected by the impacts associated with all seasons of grazing. Riparian-wetland areas on BLM lands occur only within pasture 1 of the allotment.

The Wilson Creek allotment is not meeting the standards associated with the riparian-wetland resources under current management. Therefore, since the alternative proposes to continue the same season of use and other terms as the current situation, pasture 1 of the allotment that contains the riparian areas would continue to not meet the riparian-wetland standards under this alternative. The management that led to the current condition is what defines this alternative and will form the baseline for comparison to the other alternatives.

#### **3.3.7.2.1.4 Special Status Plants**

Not applicable.

#### **3.3.7.2.1.5 Wildlife and Special Status Animals**

Wilson Creek FFR allotment is currently not meeting upland habitat standards due to juniper encroachment and invasive grasses although current livestock grazing management practices are not significant factors. The allotment is not meeting riparian standards either, in this case it was determined current livestock grazing was a significant factor leading to the determination. Likewise, for special status animal species it was determined the Standard was not being met; livestock grazing was a significant factor leading to the determination. Under Alternative 1, BLM would renew the livestock grazing permit for the use in the Wilson Creek FFR allotment in accordance with the current permit and the current situation that led to conditions on the ground. Because of limited actual use information and lack of a clear season of use, Alternative 1 would authorize grazing in the Wilson Creek FFR allotment consistent with the current permit (1997).

#### Uplands Wildlife Habitats

If staunchly adhered to, the Boise District permit terms and conditions would contribute towards maintaining existing conditions for uplands in Wilson Creek FFR allotment with a 50 percent utilization limit on current year's plant growth. Conditions would not be expected to improve under this prescription and would degrade the allotment further as plant vigor decreases and invasive or short rooted grasses are allowed to expand. Although there are additional terms and conditions beyond the standard Boise District terms and conditions associated with the current permit and alternative 1, they are primarily targeted

towards riparian habitats. Permitted use dates would allow adverse physical effects of trampling during saturated soil conditions, allow impacts to upland plant species by not avoiding the critical growth period of upland vegetation, and not provide any deferment or rest to the area. Continuation of maximum flexibility and active growing season use every year would further decrease the condition of upland vegetation resources in areas accessible to livestock. Overall, the allotment would continue to not meet Standard 8 for upland-dependent species and would not maintain habitat conditions to meet ORMP objective WLDF-1. Sage-grouse habitat in all pastures would not improve nor would habitat for any other upland wildlife species. Lands burned during the Tank Fire, unless individually protected, would be subjected to year-round grazing because livestock would be drawn to the protein rich forage. Excessive grazing during the critical post-fire years would degrade habitat quality below its potential.

#### Riparian Wildlife Habitats

The Wilson Creek FFR allotment is currently not meeting the standards associated with the riparian-wetland resources under current management nor are the needs of riparian/wetland-dependent special status and general wildlife species being met. Riparian areas and springs would continue to be subjected to season-long and hot-season grazing annually. These crucial wildlife habitats would not improve under alternative 1 nor would ORMP objective WLDF-1 be met. The management that led to the current condition is what defines this alternative and will form the baseline for comparison to the other alternatives.

#### **3.3.7.2.1.6 Visual Resources**

Continuation of the present grazing systems could potentially degrade visual conditions of the area. Riparian areas within pasture 1 of the allotment have been identified as not meeting standards due to livestock grazing. This is relevant due to the fact that within VRM class II, the goals of these areas are to retain or preserve the existing character of the landscape, and the levels of change to the characteristic of the landscape should be low. Not meeting standards indicates a downward trend in a particular area regarding upland and/or riparian vegetation, these types of impacts would have a direct effect on visual resources in these areas where the goal is to preserve the existing character.

#### **3.3.7.2.1.7 Social and Economic Values**

See Section 3.2.8.2 above.

#### **3.3.7.2.1.8 Cultural Resources**

No known historic properties would be affected under this alternative.

#### **3.3.7.2.2 Alternative 2**

##### **3.3.7.2.2.1 Vegetation, including Noxious Weeds**

Under Alternative 2 pastures 2, 4, and 5 are identical to Alternative 1 for the amount of AUMs and the season of use; therefore, impacts between the two alternatives would also be the same for those pastures (see Section 3.3.3.2.1.1). Upland vegetation would be expected to be maintained in its current condition.

Pasture 1 would be used during the first 2 weeks of the active growing season every year. Although upland vegetation would potentially have 2 additional weeks for regrowth post-grazing, subjecting the most palatable species (large bunchgrasses) to growing season use in repetitive years can reduce reproduction (seed production) and vigor of these plants. Bunchgrasses are most sensitive to grazing during the active growing period, when plants are actively photosynthesizing, storing carbohydrates, and developing seed. It is expected with this alternative that repetitive spring grazing without deferment or rest in pasture 1 would contribute to not meeting Standard 4. This alternative would not meet the ORMP vegetation objective to improve unsatisfactory and maintain satisfactory vegetation health/conditions.

#### **3.3.7.2.2.2 Soils**

The effects to soils would be similar to those described for Alternative 1 but could be slightly less adverse for pasture 1, compared to Alternative 1. Establishing a month-long season of use in pasture 1 of the allotment would reduce the potential for livestock to trample wet soils compared to Alternative 1 because the use period avoids spring use. The effects of livestock grazing elsewhere in the allotment would be the same as those described for Alternative 1. Permit terms and conditions would have the same effects as those described under Alternative 1.

Although the alternative offers slightly less potential for soil surface degradation in pasture 1 than Alternative 1, soil and watershed conditions in the allotment would not meet Standard 1 or ORMP objectives over the long term because juniper encroachment appears to be affecting soil stability and hydrologic function adversely. The amount and season of livestock grazing proposed under this alternative would not affect the amount or rate of juniper encroachment, so the allotment would fail to meet Standard 1 for reasons other than livestock grazing over the long term.

#### **3.3.7.2.2.3 Riparian/Water Quality**

Under Alternative 2 (for details, see sections 2.2.2 and 2.4.7.2), pasture 1 of the Wilson Creek allotment would be available to grazing without rest or growing season deferment during the early summer, annually (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 0.2 mile of perennial stream, 1.5 mile of intermittent stream, and three springs would be affected by the impacts associated with all seasons of grazing. Riparian-wetland areas on BLM lands occur only within pasture 1 of the allotment.

The Wilson Creek allotment is not meeting the standards associated with the riparian-wetland resources under current management. However, Alternative 2 proposes to define the schedule to 30 days in the early summer in pasture 1 where the riparian resources occur. Therefore, the allotment would make progress towards meeting the standards under this alternative.

#### **3.3.7.2.2.4 Special Status Plants**

Not applicable.

#### **3.3.7.2.2.5 Wildlife and Special Status Animals**

Under Alternative 2, BLM would renew the livestock grazing permit for the use in the Wilson Creek FFR allotment in accordance with the application and grazing system received from Thenon Elordi (for details, see sections 2.2.2 and 2.4.7.2). The grazing system would graze pasture 1 from June 1 to July 1 with no more than 200 cattle. All other pastures would be grazed at the permittees discretion. Primary changes that would affect wildlife habitat are limited to Pasture 1; they include a set season of use and a limit of 200 cattle. The only other constraints in Wilson Creek FFR would be the standard Boise District terms and conditions. No rest or deferment is built into the system in any pasture.

#### Upland Wildlife Habitats

Upland vegetation would be grazed during the critical growth period every year in pasture 1, which may be more concentrated than prescribed in the current permit. The remaining pastures (2-5) would see no change over the current permit and court-ordered terms and conditions would no longer be in place. Special status animal species and wildlife in general, dependent on these habitats, would not see any change in upland habitat conditions over the short term and would see a gradual decline in conditions over the long term. Pasture 1, which would see more concentrated use during the late sage-grouse nesting season, is currently designated PGH and heavily encroached with juniper. As such, very little if and sage-grouse nesting currently occurs in the pasture. Effects to small mammals, big game, and other terrestrial species would be the same for Alternative 2 as for Alternative 1. The largest benefit to upland species

from Alternative 2 would be an increase in conditions at springs located in Pasture 1. Springs would not be grazed during the hot season, which would increase suitability for sage-grouse brood-rearing habitat over the long term. Over the long term, the allotment would continue to not meet Standard 8 for upland-dependent species and would not maintain habitat conditions to meet ORMP objective WLDF-1.

#### Riparian Wildlife Habitats

Under current management (Alternative 1), the Wilson Creek FFR allotment is not meeting Standard 8 related to riparian-wetland resources that many special status animals depend on. For riparian habitats and the animal species that depend on them, wetlands would improve by avoiding hot-season grazing every year in Pasture 1. Remaining pastures would still be objected to unrestricted seasonal grazing every year, which would affect intermittent streams. The lack of current terms and conditions that regulate bank damage and percent forage consumption in riparian areas is a concern under Alternative 2. Without these protections, riparian areas would not improve and may decline. None the less, the major public land riparian areas and springs are located in Pasture 1 and would see improvement. Standard 8 and ORMP objective WDLF-1 would be met in Pasture 1 for riparian-dependent wildlife species. The standard and objective would not be met for other pastures containing any of these resources.

#### **3.3.7.2.2.6 Visual Resources**

Under this alternative riparian areas and wetlands not meeting standards within the allotment would begin to progress, thus improving scenic quality in these areas. Riparian areas would see some relief due to the fact that Alternative 2 proposes to define the schedule to 30 days in the early summer in pasture 1 where the riparian resources occur. This alternative would be in conformance with the class II VRM classification.

#### **3.3.7.2.2.7 Social and Economic Values**

See Section 3.2.8.3 above. Reducing use in pasture 1 to only 1 month could result in additional labor and feed costs.

#### **3.3.7.2.2.8 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

### **3.3.7.2.3 Alternative 3**

#### **3.3.7.2.3.1 Vegetation, including Noxious Weeds**

Alternative 3 retains all aspects of the current situation (Alternative 1) but differs by defining a 3-year rotation for each pasture with specific seasons of use. Pasture 1 will be grazed 1 in 3 years during the critical growth period, and pasture 2 will be deferred in all years (no critical growth period grazing). Because this alternative follows the upland vegetation resource constraint, the grazing schedule avoids repetitive grazing during this critical growth time for upland vegetation. In turn, the most productive and palatable forage species are provided ample opportunity to maintain adequate photosynthetic material to increase carbohydrate production for reproduction. This would provide bunchgrasses throughout the allotment, especially the remnant native perennial grasses adversely affected by past grazing, additional vigor for reproduction and competition, and a slow increase towards reference site condition. The grazing schedule provides greater resilience of the plant communities to better combat further invasion of juniper and invasive grasses (Appendix F).

Although the allotment would still not meet or make significant progress toward meeting Standard 4 because of limitations from causal factors (past livestock grazing that reduced large bunchgrasses, invasive plants), improvement in upland vegetation conditions would be expected in the long term

(greater than 10 years). This alternative would meet the ORMP vegetation management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition.

#### **3.3.7.2.3.2 Soils**

The effects to soils would be the similar to those described under Alternative 1. However, the potential for livestock to trample wet soil in year one and possibly year 3 of each 3-year grazing cycle would be slightly greater compared to Alternative 1 due to the spring use periods. Permit terms and conditions would have the same effects as those described under Alternative 1. Livestock grazing would not prevent the allotment from meeting Standard 1 and ORMP objectives. Although soil conditions under this proposal could improve moderately relative to Alternative 1, juniper would continue to encroach, increasing the risk of depressed watershed function and accelerated erosion. Ultimately, juniper encroachment, not livestock grazing, would prevent the allotment from meeting Standard 1 and ORMP objectives over the long term. The proposed level of livestock grazing would have no effect on the rate of encroachment.

#### **3.3.7.2.3.3 Riparian/Water Quality**

Under Alternative 3 (for details, see sections 2.2.3 and 2.4.7.3), pasture 1 of the Wilson Creek allotment would be available to grazing during the spring for 2 years, and during the early summer for the third year of a 3-year rotation (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 0.2 mile of perennial stream, 1.5 mile of intermittent stream, and three springs would be affected by the impacts associated with all seasons of grazing. Riparian-wetland areas on BLM lands occur only within pasture 1 of the allotment

The Wilson Creek allotment is not meeting the standards associated with the riparian-wetland resources under current management. However, Alternative 3 proposes to define the grazing schedule to a 3-year rotation that incorporates growing season deferment two of the 3 years within pasture 1 where the riparian resources occur. Therefore, the allotment would make progress towards meeting the standards under this alternative.

#### **3.3.7.2.3.4 Special Status Plants**

Not applicable.

#### **3.3.7.2.3.5 Wildlife and Special Status Animals**

Under Alternative 3 (for details, see sections 2.2.3 and 2.4.6.3), the alternative proposes several changes from the current permit (Alternative 1). This alternative developed a 3-year rotational grazing system that authorizes livestock use based on soil, vegetation, riparian, and sage-grouse wildlife/resource issues while still permitting use similar to the permittee application. Primary changes that would affect wildlife habitat are the initiation of a 3-year deferred grazing system and constraints designed to avoid sensitive seasons when resources are most vulnerable. Grazing management under this alternative primarily targets pastures 1 and 2 because most public land resources are located in those two pastures. Grazing would occur during early-season 2 out of every 3 years or every year in Pasture 1.

#### Upland Wildlife Habitats

For upland habitats and wildlife, this prescription would remove biomass during the period when most wildlife species are nesting or seeking nutritious forage to attain breeding condition. Grazing duration would be limited to 30 days to allow for regrowth at least two of every 3 years. Short-term impacts to wildlife in the form of reduced nesting cover and reduced available forage would be negative. Long-term effects to their habitat would be positive because grass and forb vigor and health would be increased. The remaining pastures containing public lands would have a similar response to Pasture 1; however, due to flexibility and duration of the grazing season, overall outcomes are difficult to forecast. Special status

animal species and wildlife in general, dependent on these habitats, would see an increase in herbaceous cover and height during the nesting season for ground nesting birds including sage-grouse. Likewise, small mammals, big game, and other terrestrial species would see an increase in cover and available standing biomass during the critical spring and early-summer seasons versus Alternative 1. The allotment would make progress towards meeting Standard 8 and would meet ORMP objective WDLF-1 for upland wildlife species under this alternative.

#### Riparian Wildlife Habitats

Under current management (Alternative 1), the Wilson Creek FFR allotment is not meeting Standard 8 related to riparian-wetland resources that support a disproportionately high number of special status animal species. Under Alternative 3, Pasture 1 of the Wilson Creek FFR allotment would be available to grazing during the spring for 2 years, and during the early summer for the third year of a 3-year rotation. The allotment would be managed under a prescription that proposes to confine the grazing schedule to a 3-year rotation that incorporates growing season deferment 2 of the 3 years within Pasture 1 where riparian resources occur on public lands. Beyond the Boise District standard terms and conditions, no additional constraints would be placed on the permit. ORMP objective WDLF-1 would be met because habitat conditions would be maintained and improved over the long term. Likewise, progress would be made towards meeting Standard 8 for riparian-dependent wildlife species such as willow flycatchers and Western toads.

#### **3.3.7.2.3.6 Visual Resources**

Impacts to visual resources would be similar to those identified in Alternative 2. This alternative consists of a defined grazing schedule with a 3-year rotation that incorporates growing season deferment 2 of the 3 years within pasture 1 where the riparian resources occur. These changes would be beneficial towards riparian areas and wetlands as they would make progress towards meeting standards. As these areas begin to improve, visual qualities would also improve.

#### **3.3.7.2.3.7 Social and Economic Values**

See Section 3.2.8.4 above. The new pasture rotations and shorter grazing seasons for all pastures may result in increased labor and feed costs.

#### **3.3.7.2.3.8 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

#### **3.3.7.2.4 Alternative 4**

##### **3.3.7.2.4.1 Vegetation, including Noxious Weeds**

Alternative 4 is very similar to Alternative 3 in terms of AUMs and stocking rate, but varies slightly in the season of use with both pasture 1 and 2 having critical growing season use 1 out of 3 years. Both rotations provide the necessary time for recovery between grazing events as defined in Appendix F and the resource constraint for Alternative 4. The effects to upland vegetation in both pastures are the same as those described for Alternative 3 (see Section 3.3.7.2.3.1).

Although the allotment would still not meet or make significant progress toward meeting Standard 4 because of limitations from causal factors (past livestock grazing that reduced large bunchgrasses, invasive plants), improvement in upland vegetation conditions would be expected in the long term (greater than 10 years). This alternative would meet the ORMP vegetation management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition.

#### **3.3.7.2.4.2 Soils**

The effects to soils would be similar to but less adverse than those described for Alternative 1 because the alternative establishes a deferred-rotation grazing system that avoids spring use in at least 2 years of every 3-year grazing cycle. In the same way that alternative two limits the potential for livestock to trample wet soils in pasture 1, this proposal limits that potential for the entire allotment. Permit terms and conditions would have the same effects as those described under Alternative 1. While the seasons of use by pasture would provide a minor benefit for soil surface structure, the amount and season of livestock grazing proposed under this alternative would not affect the amount or rate of juniper encroachment.

Livestock grazing would not prevent the allotment from meeting Standard 1 and ORMP objectives. Although soil conditions under this proposal could improve moderately relative to Alternative 1, juniper would continue to encroach, increasing the risk of depressed watershed function and accelerated erosion. Ultimately, juniper encroachment, not livestock grazing, would prevent the allotment from meeting Standard 1 and ORMP objectives over the long term. The proposed level of livestock grazing would have no effect on the rate of encroachment.

#### **3.3.7.2.4.3 Riparian/Water Quality**

Under Alternative 4 (for details, see sections 2.2.4 and 2.4.7.4), pasture 1 of the Wilson Creek allotment would be available to grazing during the spring for 2 years, and during the early summer for the third year of a 3-year rotation (see Table RIPN-6 and Section 3.2.3.1 for specific impacts). Consequently, within the allotment, 0.2 mile of perennial stream, 1.5 mile of intermittent stream, and three springs would be affected by the impacts associated with all seasons of grazing. Riparian-wetland areas on BLM lands occur only within pasture 1 of the allotment

The Wilson Creek allotment is not meeting the standards associated with the riparian-wetland resources under current management. However, Alternative 4 proposes to define the grazing schedule to a 3-year rotation that incorporates growing season deferment 2 of the 3 years within pasture 1 where the riparian resources occur. Therefore, the allotment would make progress towards meeting the standards under this alternative.

#### **3.3.7.2.4.4 Special Status Plants**

Not applicable.

#### **3.3.7.2.4.5 Wildlife and Special Status Animals**

Under Alternative 4 (for details, see sections 2.2.3 and 2.4.6.3), the alternative proposes several changes from the current permit (Alternative 1). This alternative developed a 3-year rotational grazing system that authorizes livestock use based on soil, vegetation, riparian and sage-grouse wildlife/resource issues. Primary changes that would affect wildlife habitat are the initiation of a 3-year deferred grazing system and constraints designed to avoid sensitive seasons when resources are most vulnerable. Grazing management under this alternative targets all pastures containing public lands. Grazing would avoid the sage-grouse nesting season and most of the migratory bird nesting season in uplands 2 out of every 3 years in Pasture 1. Grazing the third year in Pasture 3 would occur during the sage-grouse nesting season, but would be early enough in the plant growing season to avoid long-term impacts to vegetation that serves as cover and food for most upland associated wildlife species.

#### Upland Wildlife Habitats

For upland habitats and wildlife, this prescription would remove biomass during the period when most wildlife species are nesting or seeking nutritious forage to attain breeding condition. Grazing duration would be limited to 33-35 days to allow for regrowth at least 2 of every 3 years. Short-term impacts to

wildlife in the form of reduced nesting cover and reduced available forage would be reduced over Alternatives 1 and 3. Long-term effects to wildlife habitat would be positive because grass and forb vigor and health would be increased. Effects on Pastures 2, 4, and 5 are the similar to Pasture 1, although grazing seasons vary slightly. Grazing during the critical growth period for upland plants is avoided 2 out of every 3 years. Special status animal species and wildlife in general, dependent on these habitats, would see an increase in herbaceous cover and height during the nesting season for ground nesting birds including sage-grouse. Likewise, small mammals, big game, and other terrestrial species would see an increase in cover and available standing biomass during the critical spring and early-summer seasons versus Alternative 1. The allotment would make progress towards meeting Standard 8 and would meet ORMP objective WDLF-1 for upland wildlife species under this alternative.

#### Riparian Wildlife Habitats

Under current management (Alternative 1), the Wilson Creek FFR allotment is not meeting Standard 8 related to riparian-wetland resources that support a disproportionately high number of special status animal species. Under Alternative 4, pasture 1 of the Wilson Creek FFR allotment would be available to grazing during the spring for 2 years, and during the early summer for the third year of a 3-year rotation. The allotment would be managed under a prescription that proposes to confine the grazing schedule to a 3-year rotation that incorporates growing season deferment two of the 3 years within pasture 1 where riparian resources occur on public lands. Beyond the Boise District standard terms and conditions, no additional constraints would be placed on the permit. Riparian-dependent wildlife species would benefit with Alternative 4 over Alternative 1 because livestock would be more dispersed during the cooler season and not drawn to riparian areas for water and limited green forage. In the long term this will benefit migratory birds that use riparian for nesting due to less woody grazing and allow for regrowth of herbaceous vegetation protecting stream integrity. ORMP objective WDLF-1 would be met because habitat conditions would be maintained and improved over the long term. Likewise, progress would be made towards meeting Standard 8 for riparian-dependent wildlife species such as willow flycatchers and Western toads.

#### **3.3.7.2.4.6 Visual Resources**

Visual resources would be improved under the Alternative 4 grazing schedule. Using resource constraints and constraints on seasons, intensities, duration, and frequency of grazing use, the grazing schedule would provide opportunity for riparian function and recovery. As conditions of the area improve, visual qualities would also begin to improve within the allotment that would be in conformance with the class II VRM classification.

#### **3.3.7.2.4.7 Social and Economic Values**

See Section 3.2.8.5 above. The new pasture rotations, shorter grazing seasons, and deferred grazing in 1 of 3 years for all pastures may result in increased labor and feed costs.

#### **3.3.7.2.4.8 Cultural Resources**

The effects to historic properties are the same as Alternative 1.

#### **3.3.7.2.5 Alternative 5**

##### **3.3.7.2.5.1 Vegetation, including Noxious Weeds**

The effects of not grazing livestock on upland vegetation resources for a 10 year period are described in section 3.2.1.6.

##### **3.3.7.2.5.2 Soils**

The effects of not grazing livestock for a 10-year period on soils are described in section 3.2.2.6.

#### **3.3.7.2.5.3 Riparian/Water Quality**

See the impacts described for all allotments under Alternative 5 in section 3.2.3.6.

#### **3.3.7.2.5.4 Special Status Plants**

Not applicable.

#### **3.3.7.2.5.5 Wildlife and Special Status Animals**

See the impacts described for all allotments under Alternative 5 in section 3.2.5.6

#### **3.3.7.2.5.6 Visual Resources**

This alternative would provide the greatest benefit to visual resources, as the overall conditions of the area improve so would visual quality. There would be no effects to upland vegetation and riparian areas from livestock, thus improving the overall health and visual quality throughout the allotment.

#### **3.3.7.2.5.7 Social and Economic Values**

See Section 3.2.8.6 above.

#### **3.3.7.2.5.8 Cultural Resources**

Under this alternative, no livestock grazing would occur and there would be no effects to cultural resources by this activity.

### **3.4 Cumulative Effects**

#### **3.4.1 Past, Present, and Reasonably Foreseeable Actions/Activities Common to All Allotments**

Cumulative effects are presented in this section to capture projects or actions common to all resources (Tables CMLV-1 and -2). Any additional projects or actions not described in this section will be described in the Cumulative Effects sections by resource below.

##### **Livestock Grazing Management**

Several allotments within and adjacent to the Cumulative Impact Analysis Area(s) (CIAA) for any given resource have recently had permits issued or are under review for renewal according to the Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management. The decisions associated with livestock grazing permits are assumed to meet or move allotments toward meeting the standards required by the aforementioned regulations.

##### **Climate Change**

Changes in greenhouse gas levels affect global climate. Ring et al. (2012) reviewed scientific information on greenhouse gas emissions and climate change, including the four Assessment Reports of the Intergovernmental Panel on Climate Change between 1990 and 2007, and recognized a growing consensus within the scientific community that most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations. Additional analysis by Ring et al. (2012) included data through 2010 and supports the earlier conclusions by others.

A number of researchers, including Lapage et al. (2012), have recognized the potential impact to agricultural production that climate change scenarios, including altered temperature and precipitation

regimes at the regional level, may induce. These researchers also recognize the inherent variability within and appropriate application of global and regional climate models. Neilson et al. (2005), in summarizing output from seven models and possible scenarios of regional climate change in the Great Basin, identified long-term trends toward greater precipitation and warmer temperatures, although they noted inter-annual and inter-decadal variability that could account for short-term records that may differ. A similar summary of the available studies and models is presented by Chambers and Pellant (2008).

Possible consequences to vegetation communities resulting from climate change in the Great Basin include a dramatic increase and expansion of woody frost-sensitive species at the expense of shrubland and a corresponding increase in fire. Bradley (2009) modeled the consequences that altered summer precipitation and winter temperature could have on the potential risk of cheatgrass expansion or contraction, noting that climatic change will affect the potential geographic distribution of cheatgrass and will likely affect other plant invaders as well. Ash et al. (2012) identified that adaptation options will be required in different rangeland regions in response to climate change to enhance the development of sustainable livelihoods with both social and ecological resilience. Technical input to the 2013 National Climate Assessment identified the process of adjustment to actual and expected climate and its effects in order to moderate harm or exploit beneficial opportunities on biodiversity, ecosystems, and ecosystem services (Staudinger, et al., 2012). Beschta et al. (2012) recommended strategies for western public lands to reduce anthropogenic stressors of terrestrial and aquatic ecosystems that may add to stressors from climate change, primarily reduction or elimination of ungulate use to help native species and ecosystems survive in an altered environment.

With consideration for anticipated stressors induced by climate change, appropriate livestock management practices that improve and maintain healthy and functioning vegetation communities that provide for proper nutrient cycling, hydrologic cycling, and energy flow remains the primary adaptation against changing precipitation and temperature regimes.

### 3.4.1.1 Actions/Activities Common to Cumulative Effects Analysis Area 1

The CIAA 1 was developed to capture projects or actions common to all resources that identify the allotments as the spatial scale necessary to incorporate all additive effects (Tables CMLV-1 and Maps CMLV-1 and -2). Those resources that utilize the allotments as their spatial scale are identified and described below by resource. The figures in the following table of past, present, and reasonably foreseeable future actions within the analysis area relevant to cumulative impacts were calculated using BLM GIS data. The data used represent the best available information and the calculations based on the data are approximate.

**Table CMLV-1: Past, present, and foreseeable activities by allotment CIAA for the Group 4 allotments**

Allotment Name	Past & Present Actions <sup>1</sup>	Wildfire (acres)	Noxious Weed Infestation Points	Agriculture (acres)	Roads (miles)	Livestock Trailing (miles)	Range Improvements		Powerline (miles)
							# of Reservoirs and Troughs	Exclosures (acres)	
Dougal FFR	P & P	8	0	549	6	0	2	0	1.5
Lequerica FFR	P & P	0	0	0	3	0	0	0	0
Mckay FFR	P & P	0	0	0	3	0	0	0	0
Sheep Creek	P & P	0	0	35	1	0	0	0	0

Allotment Name	Past & Present Actions <sup>1</sup>	Wildfire (acres)	Noxious Weed Infestation Points	Agriculture (acres)	Roads (miles)	Livestock Trailing (miles)	Range Improvements		Powerline (miles)
							# of Reservoirs and Troughs	Exclosures (acres)	
South Dougal	P & P	0	1	0	12	1	7	0	0
South Mtn Area	P & P	47	0	0	14	0	0	0	0
Wilson Creek FFR	P & P	408	0	21	7	0	2	0	0
Total		467	1	605	48	1	11	0	1.5

<sup>1</sup>All of the reasonably foreseeable actions are unknown or not planned unless otherwise indicated

### 3.4.1.2 Actions/Activities Common to Cumulative Effects Analysis Area 2

The CIAA 2 was developed to capture projects or actions common to all resources that identify the watersheds as the spatial scale necessary to incorporate all additive effects (Tables CMLV-2 and Maps CMLV-1 and -2). Those resources that utilize the watersheds as their spatial scale are identified and described below by resource. The figures in the following table of past, present, and reasonably foreseeable future actions within the analysis area relevant to cumulative impacts were calculated using BLM GIS data. The data used represent the best available information and the calculations based on the data are approximate.

**Table CMLV-2: Past, present, and foreseeable activities by watershed CIAA for the Group 4 allotments**

Type of Activity	Past & Present Actions <sup>1</sup>	Watersheds				
		Big Boulder Creek	North Fork Owyhee River	Soldier Creek	Trout Creek-Jordan Creek	Total
Grazing Allotments	P & P <sup>51</sup>	29	23	14	38	104
Wildfire (instances)	P & P	11	11	21	19	62
Wildfire (acres)	P & P	10,993	5,930	3,614	12,052	32,589
Noxious Weed Infestation Points	P & P	248	88	4	72	412
Agriculture (acres)	P & P	638	1,030	723	5,187	7,578
Roads (miles)	P & P	217	229	255	202	903
Livestock Trailing (miles)	P & P	26	13	0	46	85
Range Improvements – Reservoirs and Troughs	P & P	23	50	94	34	201
Range Improvements - Exclosures (acres)	P & P	5	47	113	47	212
Fenceline (miles)	P & P	169	281	184	208	842
Mining Claims and Gravel Pits (acres)	P & P	0	0	111	10	121
Powerline (miles)	P & P	1	5	25	47	78

<sup>1</sup>All of the reasonably foreseeable actions are unknown or not planned unless otherwise indicated

## **3.4.2 Resource/ Alternative Specific Cumulative Effects**

### **3.4.2.1.1 Vegetation, including Noxious Weeds**

#### **3.4.2.1.1.1 Resource Specific Analysis Area**

##### ***Scope***

Cumulative effects of proposed grazing management alternatives on vegetation resources (as used here: upland vegetation, noxious and invasive weeds, and special status plants) are considered in the context of other activities and natural processes, described below. For cumulative effects, the allotments are considered collectively. The area of analysis for cumulative effects for vegetation resources is the collective acreage within the South Mountain Group allotments (CULV-2). It is an area of about 31,913 acres. This effects analysis area is appropriate for vegetation resources because relevant disturbances such as fire, livestock grazing, and weed movement affect ecological processes at this landscape scale, and it is expected that activities outside this area would generally not have additive effects to the activities proposed in this document. Additionally, the direct and indirect effects of the alternatives for the South Mountain Group allotment grazing schemes would not extend to vegetation beyond the allotment boundaries. It is appropriate to consider a combined cumulative effects analysis area for all seven allotments because simultaneous permit renewals on adjacent allotments within the South Mountain Group may have similar effects on the landscape. Within the cumulative effects analysis area, 40 percent of the area is public land administered by BLM, 34 percent is private land, and 27 percent is managed by the State of Idaho. The percentages of BLM and private land are similar due to the high number of custodial operated FFR allotments (4).

The temporal frame for cumulative impacts to vegetation resources is defined by the continued presence of the effects of past activities to create current conditions, reasonably foreseeable activities planned within about the next 3 years (atypical planning cycle), and the expected duration of effects from those activities (generally 10 to 20 years) and their temporal overlap with the effects of proposed alternatives as described above.

##### ***Current Condition***

Past activities that have affected vegetation resources in the cumulative effects analysis area include livestock grazing and associated range improvements; roads, buildings, utility/water lines, airstrips, and other infrastructure; agriculture; recreation; and wildfire. The impacts of these activities/events and the resultant effects on vegetation resources are summarized in Table VEGE-16, and briefly discussed below.

The spatial extent of these actions and events was calculated using the best available BLM GIS data. The terms for magnitude of vegetation effects are defined as:

- Low – activity affects only a very small percentage of vegetation in the area, or has only a temporary effect on vegetation in a larger area;
- Moderate – activity affects more than a small percentage but less than a majority of the area with noticeable changes in vegetative structure, or affects a majority of the area with changes to vegetative species composition but not necessarily structure; and
- High – activity affects vegetation composition and structure within the majority of the area.

**Table VEGE-16:** Past Activities and Events in Vegetation Resources Cumulative Effects Area

<b>Activity or Event</b>	<b>Timeframe</b>	<b>Indicator/ Degree</b>	<b>Extent</b>	<b>Magnitude of Effect on Vegetation</b>	<b>Type of Effect</b>
Livestock Grazing	Ongoing, continuous	7 active allotments; 1,397 active AUMs (all allotments)	Across virtually entire analysis area except some agriculture fields	Moderate	Species composition shifts to less palatable plants and fewer large bunchgrasses
Trailing	Spring and/or Fall	Approximately 2.5 acres along 0.9 miles	Isolated to existing native surfaced roads in South Dougal allotment.	Low to moderate (herding) at the CIAA level.	Localized elimination of vegetation; introduction of noxious and invasive weeds
Fences	Most constructed before 1980; a few additions each decade	Approximately 81 miles of fence total	Distributed across analysis area, but cumulatively covering a small percentage of area	Low	Short-term, localized construction & maintenance disturbance; chronic cattle trails trampling vegetation
Troughs, Reservoirs	Most constructed before 1980; a few additions each decade.	Estimated 11 (This number does not represent all water developments on private or state lands)	Distributed across CIAA, but cumulatively covering a small percentage of CIAA	Low	Short-term, localized construction & maintenance disturbance; chronic cattle congregation trampling vegetation
Wildfire	Fire records 1960-2012	2 wildfires totaling 463 acres	47 acres 1986 in South Mnt Area pasture 1; 416 acres 2012 in Wilson Creek/Dougal FFR. Less than 2% of CIAA	Moderately high within burn area; very low across entire CIAA	Shift from juniper or shrub/grass-dominated to shrub/grass or grass plant community (invasive annual grasses may dominate in lowest elevation allotments)
Wildfire Suppression Activities	Ongoing, continuous	Total BLM acres approximately 12,700	Widespread throughout BLM lands within CIAA (40%)	Moderate	Species composition shift from grass/forb/shrub community to localized juniper dominance with reduced species diversity
Vegetation Treatments - Juniper Control	No past records, but potential for future	302 acres total or ~ 1% of CIAA	Patchy within CIAA	High within cutting areas; moderately low across entire area	Shift from juniper-dominated to grass/forb/shrub-dominated plant community
Roads and Trails	Roads nearly all in place before 1980; few additions each decade	Approximately 48 miles of roads and trail, all native surface	Distributed across CIAA	High on roads/ trails, moderate throughout CIAA	Elimination of vegetation; introduction of noxious and invasive weeds

<b>Activity or Event</b>	<b>Timeframe</b>	<b>Indicator/ Degree</b>	<b>Extent</b>	<b>Magnitude of Effect on Vegetation</b>	<b>Type of Effect</b>
		(gravel/dirt)			
Agriculture	Nearly all in place before 1980	Approximately 602 acres total or ~ 2% of CIAA	In several blocks within CIAA	High in localized areas; moderately low across entire CIAA	Irrigated crop fields replacing native vegetation
Noxious Weed Treatment	Ongoing, continuous	Estimated <1 acres known and treated	Localized	Low	A few adjacent native plants killed; native plant communities protected from noxious weed invasion
Recreation	Ongoing, continuous	Moderate fall use of roads/trails for hunting (see Roads and Trails) and, to a lesser degree, bird-watching, flower-watching (spring)	Distributed across CIAA but generally concentrated to spur roads off Mud Flat Road and South Mountain Road	Low on roads/trails	Localized vegetation trampling (besides roads/trails), introduction of noxious and invasive weeds

Livestock grazing is the dominant land use activity in the area. Vegetation in the CIAA and surrounding area has been affected by livestock grazing because livestock selectively eat larger bunchgrasses, altering the species composition over time. Heavy grazing in this area in the early 1900s and following has altered the vegetation (reduced large bunchgrass, increased Sandberg bluegrass, juniper, and invasive grasses), although rangeland conditions have gradually improved over the years with reductions in growing-season use, particularly since the implementation of Rangeland Health Standards in 1997. Additionally, a variety of range improvements such as spring developments, fences, cattle-guards, and troughs have been implemented across the landscape to aid in livestock management; these improvements remove or disturb vegetation in localized areas. Future juniper cutting, mastication, or chaining is slated within the project area in Lequerica FFR and South Mountain Area allotment and would affect no more than 1 percent of the CIAA and only in localized areas.

Wildfire is a natural disturbance factor that is recognized in the natural variability of described reference site conditions for sagebrush/bunchgrass ecological sites. Fire return intervals have been lengthened with implementation of suppression activities within the South Mountain Group allotments resulting in a vegetation change in which juniper has a much higher representation than at reference condition. The location and acreage where indirect impacts have led to declining plant community health and conditions due to altered fire return intervals cannot be quantified for the CIAA. However, it has been estimated that within potential juniper woodland areas in Owyhee County, juniper historically occupied approximately 10 percent of the area, but currently occupies 55 percent of those areas (Major, in review). Wildfires have collectively burned less than 2 percent of the analysis acreage since 1960. The largest impact from wildfire to native sagebrush-steep vegetation communities is the reduction or removal of juniper and sagebrush.

Changes in species composition, with shifts toward less palatable species and the presence of non-native plants, are also evident across the South Mountain Group, although few areas dominated by non-natives exist. Synergistic interactions of these changes over time have stressed the ecosystem (Nevada Agricultural Experiment Station, 2008). An example of these interactions is the combination of increased juniper and selective grazing both affecting large bunchgrasses.

Roads (trails/permanent/access for utility) and other recreation activities have extensively fragmented native vegetation in the landscape by creating bare ground and weedy openings within the sagebrush steppe plant communities. Vehicles and travel-ways act as noxious and invasive weed vectors for the spread of weed seed. Ongoing noxious weed treatment (usually spot herbicide application) helps to keep these invaders from spreading into native plant communities. Noxious weeds are uncommon within the CIAA.

Agricultural lands, which make up approximately 2 percent of the cumulative effects analysis area, include riparian floodplains converted to grass hay meadows and upland grain, alfalfa, or other crop irrigated fields in the uplands. Within these agricultural areas, native vegetation has been entirely replaced by cultivated species.

The combination of activities and wildfires described above has altered vegetation within the cumulative effects analysis area. The shrub/large bunchgrass plant communities expected under reference conditions are rare (past grazing management and in some cases current combined with juniper invasion). The shrub component has been lost in some areas (insects, agriculture, roads, and other developments), while the large bunchgrass component has been lost throughout most of the area (whether shrubs are present or not). Large bunchgrasses (and in some cases shrubs) have decreased substantially or have been mostly replaced by Sandberg bluegrass, bulbous bluegrass, and other annual weeds. Localized areas of juniper dominance have displaced native vegetation with bare ground. Special status plants occur mostly on localized habitats in a small area of the CIAA, and occurrences are generally undisturbed from livestock trampling.

In combination, past, present, and reasonably foreseeable future actions that have led toward improving vegetation health and conditions in approximately 3 percent of the CIAA include wildfire consistent with the natural fire return interval (controlling juniper), vegetation treatments for juniper control X acres, and ongoing control of noxious weeds on less than 1 acre. Actions that have led toward declining vegetation health and vigor include the indirect effects of concentrated livestock activity adjacent to rangeland developments (water development, fences), wildfire at intervals inconsistent with natural return intervals, ongoing disturbance from roads/trails, and conversion of native vegetation to agricultural lands.

Reasonably foreseeable activities within the cumulative effects analysis area include livestock grazing permit renewals and a transportation management plan for Owyhee County. No parcels for State land exchange are anticipated.

Grazing permit renewals are expected to maintain or improve vegetation conditions within the analysis area. No additional fences or range developments are anticipated from these renewals. Expanding populations in the Treasure Valley, the increasing popularity of OHVs outside of wilderness area, and increased non-motorized use within wilderness areas are together expected to create additional disturbances to vegetation within the CIAA. Because past recreation has had very little effect on vegetation in the cumulative effects area and because of the distance from major population areas, impacts from current and future recreation is expected to occur at a fairly low magnitude. Any increased impacts from recreation are expected to be managed by the Owyhee County Travel Planning by designating authorized roads and trails and limiting off-road travel. As a result, impacts to vegetation from recreational traffic are anticipated to remain stable rather than increase.

As a result of these upcoming activities, along with past and present activities described above, vegetation resources are expected to remain much as they currently are. Plant communities would continue to consist of a coarse mosaic of mountain and low sagebrush, and Sandberg bluegrass communities with areas of localized juniper dominance, along with developed agriculture, overlaid by an extensive road and trail system. Noxious weeds are expected to continue to be minimal throughout the area, and not increasing. Past, present, and reasonably foreseeable activities are expected to produce similar conditions for special status plants and their habitats. Localized effects from OHVs and grazing may also occur. No indication of substantial change to special status plant habitat is anticipated within the cumulative effects analysis area from reasonably foreseeable activities.

#### **3.4.2.1.1.2 Cumulative Effects Common to All Grazing Alternatives**

Grazing activities analyzed in this EA would contribute toward cumulative effects on upland vegetation and noxious and invasive weeds by incrementally influencing plant species composition and plant community biodiversity in the South Mountain Group allotments, as described in direct and indirect effects. The magnitudes of these seven allotments' incremental additions to effects from other activities (described above) are displayed in Table VEGE-16 and are discussed below. The number of permitted active AUMs is used as an indicator of the magnitude of effects.

The alternatives are expected to maintain or improve vegetation resources (with a few exceptions that would not make significant progress toward meeting standards, as noted below). Therefore, the additive effects from most alternatives to cumulative effects are expected to be minor, and in most cases similar to baseline condition. Note that the indicator for baseline condition is permitted rather than actually used AUMs for the allotments within the cumulative effects analysis area.

Alternative 1 would be the same as baseline conditions, so no additional cumulative effects beyond past, present, and reasonably foreseeable future actions that have impacted vegetation resources would be expected.

Under Alternative 2, grazing management all allotments (Dougal FFR, Lequerica FFR, Mckay FFR, Sheep Creek, South Dougal, and Wilson Creek FFR) except South Mountain Area are not expected to make progress toward meeting Standard 4 due to the season of use, so the direct and indirect effects from grazing would be cumulatively added to other vegetation stressors in the CIAA. However, this alternative has no increase in AUMs and, therefore, is not likely to produce cumulatively noticeable change in vegetation resources across the analysis area.

Under alternative 3 grazing management, no allotments would contribute to Standard 4 not meeting the Standard. This alternative has a reduction of 347 AUMs all originating from the South Mountain Area allotment for an overall 25 percent decrease from baseline. This would offset any negative cumulative effects from past, present, and reasonably foreseeable future actions to vegetation and would also provide improved native perennial plant health and vigor in the CIAA.

Alternative 4 has a reduction of 566 AUMs (464 AUMs South Mountain Area, 90 AUMs South Dougal, 12 AUMs Sheep Creek). This 41 percent reduction in AUMs is likely to have noticeable positive changes to vegetation resources across the analysis area in the form of improved native perennial plant health and vigor. The CIAA would make progress toward a full complement of native perennial species. When combined with past, present, and reasonably foreseeable future actions that have impacted vegetation resources within the CIAA, upward trend in the vegetation condition and health would be anticipated.

Alternative 5, no grazing for the term of the permit, would be drastically different from typical management in the CIAA, and it would have beneficial effects by contributing no detrimental grazing

effects to the CIAA. The 100 percent reduction in AUMs (compared to the current permitted level) would provide an overall increase in ground cover and increase in plant vigor throughout the CIAA. There could be an increase in fence construction on private land associated with Alternative 5 if landowners wanted to continue grazing private land that had been grazed in-common with a BLM allotment. This construction would disturb vegetation in localized areas, with short-term effects expected to last only a few years until naturally revegetate.

**Table VEGE-17:** Cumulative Effects of Alternatives on Vegetation Resources from Livestock Grazing in the South Mountain Group allotments

<b>Current Permitted Level (Baseline)</b>	<b>Alternative 1</b>	<b>Alternative 2</b>	<b>Alternative 3</b>	<b>Alternative 4</b>	<b>Alternative 5</b>
1,397 AUMs	No change from baseline	No change from baseline	-347 AUMs; 25% decrease from baseline	-566 AUMs; 41% decrease from baseline	-1,397 AUMs; 100% decrease from baseline

### 3.4.2.1.2 Soils

#### 3.4.2.1.2.1 Resource Specific Analysis Area

The cumulative impact analysis area for upland soils and watershed (soil CIAA) is the extent of the South Mountain Area Group allotments and their associated pastures. This is an appropriate scale for assessing cumulative effects to soil because soil productivity is a site-specific attribute of the land and is not dependent on the productivity of an adjacent area. Similarly, if one acre of land receives incremental soil impacts (i.e., reduced soil porosity, water holding capacity, aeration, long-term productivity, etc.) and a second management activity is planned for that same site, then cumulative effects to soil are possible. The CIAA was selected because the effects of grazing management on upland soils as well as hydrologic function and energy flow only apply within the allotment boundary. With increasing distances from the allotment, it becomes difficult to determine impacts due to the dilution effect that comes with increased acreage. Cumulative effects to riparian areas are described in section 2.4.2.1.3. Table SOIL-10 summarizes the management entities in the soil CIAA.

**Table SOIL-10:** Management Entities of Soil in the Cumulative Impact Analysis Area for Soils in the South Mountain Area allotments

<b>BLM-Administered Public Land (acres)</b>	<b>Private Land (acres)</b>	<b>State Land (acres)</b>	<b>Total (acres)</b>
12,578 (39%)	10,862 (34%)	8,473 (27%)	31,913 (100%)

The timeframes for cumulative effects include past and present activities that have created the present conditions, including historic grazing over the past century, and reasonably foreseeable future activities planned within the next 3 years, including the expected duration of short- and long-term effects from current and future activities. Reasonably foreseeable actions include activities with completed NEPA, scoping, or decisions, and with implementation planned within 3 years. For this evaluation, short-term effects are those that occur approximately within the first 10 years following permit renewal; long-term effects are those that continue 10 years or beyond.

Soil conditions in the soil CIAA are generally consistent with those described for the area of direct and indirect effects (Section 3.1.2), with the following exception. Soils on private lands of the soil CIAA tend to be situated along stream corridors or terraces with some access to water. As such, some of the privately held lands in the soil CIAA are cultivated or have been sometime in the past. The relative amount of deep loams compared to shallow stony or claypan soils begins to creep upward when considering the soil CIAA relative to just BLM-administered public lands. Even so, shallow stony and claypan soils are far

more common than deep loams throughout the collective soil CIAA. Table SOIL-11 summarizes the effects of various past, present, and reasonably foreseeable activities in the soils CIAA.

**Table SOIL-11:** Summary of effects to soils in the South Mountain Group cumulative effects analysis area

Type of Activity	Timeframe	Degree	Extent	Magnitude of Effect on Soils	Type of Effect
Livestock Grazing	Ongoing, continuous	1,199 active AUMs plus State of Idaho & Private Land Grazing	Across entire analysis area	Moderate	Physical impacts to soils; potential upland watershed health changes due to shift in less desirable veg species composition
Fences	Most constructed before 1980; few additions each decade	About 81 miles	10-foot-wide band along length fence.	Low	Short-term, localized construction and maintenance disturbance; chronic cattle trails often compact soils along fences
Range Improvements	Most constructed before 1980; some additions each decade	Minimum of 11 reservoirs and troughs	Distributed across analysis area, but cumulatively covering a small percentage	Low to Moderate	Short-term, localized construction and maintenance disturbance; chronic cattle congregation trampling soils
Fire	2003 -2013	Depends on Burn Severity	467 acres	Moderate to High	Short-term increases in bare ground increases potential for accelerated erosion
Fire Suppression	Ongoing, continuous	Moderately effective given distance to fire facilities, etc.	Across entire analysis area	Moderate	<u>Pros</u> : suppression prevents consumption of soil-stabilizing vegetation <u>Cons</u> : long-term shift from grass/forb/shrub/tree community to localized late seral shrub/tree dominated areas with reduced watershed function. Fire line construction disturbs topsoil and leaves localized soils exposed over the short term
Juniper Cutting	No records for past	Potential in the future	302 acres	High within cutting areas; moderately low across entire area	Shift to grass/forb/shrub community increases soil stability, hydrologic function, and improves nutrient flow
Roads	Nearly all in place before 1980	About 48 miles of roads and routes total approximately	290 acres	Severe	Compaction, accelerated erosion, decreased soil stability, hydrologic function, and reduced nutrient flow
Weed	Ongoing,	One	<0.1 acre	Low	Increased soil moisture,

Type of Activity	Timeframe	Degree	Extent	Magnitude of Effect on Soils	Type of Effect
Treatments	continuous	treatment site			nutrients, and stability

#### 3.4.2.1.2.2 Alternative 1

This cumulative effects analysis to soils applies to each allotment in the South Mountain Area group. The analysis is limited to those actions that would add cumulatively to those already described in the analysis of direct and indirect effects (Sections 3.2.2 and 3.3). Therefore, the analysis omits discussions of activities that do not affect soil, or affect soil in some way other than the proposed actions.

Alternative 1 would result in additive cumulative grazing effects in the soil CIAA because grazing would continue to be approved on BLM-administered public land with effects to soils that would also be occurring on State and private land in the CIAA. Considering the overall amount of grazing that occurs in the soil CIAA is difficult since the grazing practices of other entities in the CIAA is not documented, but given the analysis assumptions, the total cumulative effect would be moderately adverse for soils in the soil CIAA.

Other activities that continue to occur within the CIAA include weed and vegetation treatments, trailing, road operation, and recreation. Since the proposed grazing under-contributes to a decrease in soil stability and hydrologic function, it would add to the overall impacts within the soil CIAA. There would be no cumulative effect from construction of range improvements because none are proposed. The cumulative effects from existing range improvements are considered part of the cumulative effect of grazing.

While the cumulative effects would be small, the negative effects of the grazing scheme would contribute to a cumulative increase in soil and hydrologic impacts and promote upland erosion. The continued poor conditions within the allotments would add to overlapping impacts from activities within the CIAA and contribute to the decline in upland watershed health.

#### 3.4.2.1.2.3 Alternative 2

The cumulative effects to soils would be similar to those described for Alternative 1, but slight differences in direct and indirect effects to soils in the South Mountain Area allotment would result in slightly more extensive short-term adverse effects due to construction of 4 miles of fence. Long-term cumulative effects would be slightly less adverse than Alternative 1 due to more intense grazing management and pasture rotation scheme. Despite the relative improvement in soil conditions compared to Alternative 1, the direct and indirect effects would contribute to the overall small cumulative adverse effects on soils and watershed health. The cumulative increase in soil and hydrologic impacts would result in small upland erosion effects over the long term.

#### 3.4.2.1.2.4 Alternative 3

Alternative 3 would have direct and indirect effects to upland watershed soil and hydrologic function as described in sections 3.2 and 3.3. Specifically, livestock grazing would affect soils adversely, though less adversely than either Alternative 1 or 2. These effects, when added to other activities that also affect upland soils and watershed health in the CIAA, would be additive and only slightly adverse overall. The deferment of grazing on BLM-administered public land during some critical growing seasons would reduce the cumulative amount of physical disturbance of wet soils and could enable some recovery of plant species composition and biodiversity of key forage species compared to Alternatives 1 and 2.

#### 3.4.2.1.2.5 Alternative 4

The physical trampling of soil and indirect effect of grazing on soils in the CIAA would be adverse and additive to the other past, present, and future activities. However, the overall cumulative effects would be both less extensive and less severe than Alternative 3 because grazing systems on BLM-administered public land would generally incorporate seasonal deferment and rest rotations. Overall cumulative effects to soils would be adverse but very slight. Alternative four would provide additional protection compared to the implementation of alternative three.

#### 3.4.2.1.2.6 Alternative 5

The cumulative effect of resting BLM-administered public land in the soil CIAA could be beneficial overall if grazing pressure does not increase on private and state lands in the soil CIAA. The benefits would be similar to those described for Alternatives 3 and 4, although the incremental effects associated with the recovery of soil stability, hydrologic function, and nutrient cycling affecting upland soil and watershed health would be faster. Accumulations of fuel could increase the size and severity of a fire, should one occur, relative to the other alternatives. In the event of a fire, effects to soils would be adverse over the short term, because the watershed would lack vegetative cover, but beneficial over the long term because vegetation would recover with fewer juniper trees.

This proposal could reduce the extent but increase the severity of adverse soil effects in the CIAA to the extent that livestock operators utilize State and private lands to offset forage reductions on BLM-administered public lands in the CIAA. However, this analysis cannot speculate on the reaction of livestock operators in the CIAA under this proposal.

#### 3.4.2.1.3 Riparian/Water Quality

##### 3.4.2.1.3.1 Resource Specific Analysis Area

The water and riparian resource CIAA was set to the eight IDEQ 5<sup>th</sup> field hydrologic unit codes (HUCs, watersheds) (Table RIPN-19, Map CMLV-1) that incorporate and extend beyond the South Mountain Group 4 allotments boundary. The watersheds comprise assessment units that were established to incorporate groups of similar streams with the same stream order, and with similar land use practices, ownership, or land management.

The watersheds that make up the CIAA include Big Boulder Creek, North Fork Owyhee River, Soldier Creek, and Trout Creek-Jordan Creek. The BLM chose this CIAA because the direct and indirect effects of grazing management on riparian and watershed resources, as well as on specific impacts such as stream sediment and water temperature, would be experienced within these IDEQ 5<sup>th</sup> field HUCs. Outside of this area, however, direct and indirect effects of the grazing scheme would not be experienced and/or would be too small to create identifiable cumulative effects.

Analysis timeframes include past activities that have created the present conditions, and future activities planned within the next 3 years, including the expected duration of effects from current and future activities (generally up to 10 years).

**Table RIPN-19: IDEQ 5<sup>th</sup> field hydrologic unit codes for the South Mountain Group allotments**

5 <sup>th</sup> Field HUC (Watershed)	Watershed Acres
Big Boulder Creek	85,579
North Fork Owyhee River	141,274
Soldier Creek	115,425
Trout Creek-Jordan Creek	85,102
<b>Total Acres</b>	<b>427,381</b>

### **3.4.2.1.3.2 Common to All Grazing Alternatives**

#### **Livestock**

Livestock grazing is the dominant land use activity in the area, and almost all of the land area is managed for grazing (Table CMLV-3). Currently, 104 grazing allotments are contained fully or partially within the CIAA, and 6 allotments are analyzed in the direct and indirect effects for the riparian resource. In the 1990s, BLM initiated a series of range reform activities in response to poor range conditions. Since the standards were implemented in 1997, Idaho BLM has reviewed and issued grazing permits on approximately one-half of the available allotments in the general area. The final decisions for these allotments have been implemented to make significant progress toward meeting standards. Currently, the allotments in the area are primarily grazed throughout the spring and summer. The allotments in the analysis area are in various stages of the 10-year permit cycle, and as expiration dates approach, each allotment will be evaluated for rangeland health and progress toward meeting standards prior to the authorization of a new permit. Overall, past and current grazing in the CIAA has had an adverse effect on riparian and watershed resources (Table RIPN-5) because grazing has primarily occurred during the spring and summer months when the riparian area soil and vegetation are most vulnerable. Reasonably foreseeable future grazing is expected to improve the condition of the riparian areas and watersheds at a minimum to make significant progress toward meeting the Idaho Rangeland Health Standards.

#### **Range Improvements**

Additionally, a variety of range improvement projects such as spring developments, fences, cattle guards, and troughs have been implemented across the landscape to aid in livestock grazing management. Idaho's current range improvement database identifies 212 reservoirs and troughs and 842 miles of fenceline within the CIAA. Although the current permitting process is not considering range improvements, it is anticipated that they will continue to be part of the landscape into the future, and that some lesser number will be added and/or modified to meet the needs of the livestock grazing industry. The development of reservoirs and troughs across the landscape has impacted the natural state of the springs, often reducing the other values they provide (i.e., ground water infiltration and wildlife habitat).

#### **Trailing**

Multiple livestock trailing routes currently traverse the South Mountain Group 4 allotments as well as the CIAA (Tables CMLV-1 and -2, and Maps CMLV-1 and -2). Currently, 85 miles of trails are documented in the CIAA and 1 within the allotments. Livestock would typically be allowed to trail on existing roadways for 1 day during the spring and a second day during the fall. It was assumed that the routes would continue to be authorized into the future. Trailing would occur regardless of the scheduled use within a pasture (i.e., use would occur when pastures are otherwise rested). However, this amount of use would not have discernible effects on the riparian and water resources because the cattle are required to trail on existing roadways and would not congregate in the streams and/or springs.

#### **Wildfires**

Wildfire records maintained by the Idaho BLM State Office indicate that 32,589 acres (9 percent of CIAA) burned through the 2013 fire season within the analysis area (Tables CMLV-1 and -2, and Maps CMLV-1 and -2). Wildfires have caused disturbances within the watersheds, increasing the potential for overland flows, soil erosion, and increased stream sedimentation. When wildfires have burned and removed riparian vegetation, the compounding impacts such as increased stream temperatures, loss of water infiltration, decreased bank stability, and impaired aquatic species habitat have occurred within the CIAA.

#### **Recreation & OHV Use**

Increasing population in the Treasure Valley and an increasing popularity of off-highway vehicles (OHVs) are creating additional pressures on the water-riparian resources from recreation uses. The recent Wilderness and Wild and Scenic River designation is also expected to increase recreation use of this general area. Approximately 902 miles of unpaved roads traverse the analysis area (Tables CMLV-1 and -2, and Maps CMLV-1 and -2). Depending on the amount of traffic that occurs on a given road, the stream crossings increase erosion and sedimentation, disturbing vegetation and aquatic species, both on a site-specific scale as well as downstream of the crossings. A transportation plan for Owyhee County is expected in the near future that may alleviate OHV resource concerns because routes would be designated, reducing cross country and unauthorized travel. However, products resulting from travel management such as maps and signage are likely to result in increased visitor use, which may increase pressure on the water/riparian resources.

**Mining Claims and Gravel Pits**

The CIAA area contains both historic as well as active mining. About 121 acres of mining claims are recorded within the CIAA, and none within the allotments. It is unlikely that new mining activity would begin in the foreseeable future. However, the past and current activity has impacted the riparian condition and the water quality within the CIAA. The streams adjacent as well as those downstream would be influenced by the mining activity. The IDEQ assessment for the Jordan Subbasin (Table RIPN-20), which encompasses the southern watershed and allotments, lists mining as one of the major land uses within the area.

**Existing Conditions and Baseline**

The water-riparian resource cumulative impact analysis area is 395,469 acres, consists of four watersheds (5<sup>th</sup> field HUCs), and contains about 9.5 miles of perennial streams, 29.0 miles of intermittent streams, and 13 springs (NHD). As discussed in the affected environment section 3.1.3, many of the streams designated as intermittent are actually ephemeral and are covered in the watershed/soils sections. Close to 38.0 miles of stream have not been assessed by IDEQ for beneficial uses, and 50.0 miles are not supporting the watershed’s beneficial uses. Beneficial uses are assigned by the IDEQ on a subbasin scale, and within the CIAA they include: cold-water aquatic life, salmonid spawning, drinking water supply, special resource water, and primary and secondary contact recreation. Additionally, of the streams that are not supporting the beneficial uses, 6.0 miles have been placed on the 303(d) list by the State and are water quality-impaired (Table RIPN-3, Map RIPN-1); (Idaho DEQ, 2013).

Six of the seven South Mountain Group 4 allotments contain measurable streams (NHD). The allotments contain approximately 38.5 miles of stream (Table RIPN-4) that occur on BLM-administered lands; currently, approximately 11 miles (35 percent) of these are not meeting Standards 2 and 3 (are not in PFC). The Idaho Rangeland Health Standards 2 and 3, as well as the ORMP objective for riparian-wetland areas, state that the riparian-wetland areas are to be maintained or improved to attain proper functioning condition. Proper functioning condition is a minimal standard, and since all streams, springs, seeps, and wetlands should attain PFC, the baseline for the cumulative effects analysis was set to a PFC rating. Although there is natural variability for the riparian systems, streams in PFC would have the resiliency to withstand high water flows because deep-rooted vegetation would be present to stabilize streambanks and shorelines and the morphological indicators (width/depth ratio, gradient, and sinuosity) would be appropriate for the valley bottom type, hydrology, and soils. Additionally, the presence of hydric vegetation would control erosion, shade water to reduce stream temperature, filter sediment, aid in floodplain development, delay flood water, and increase recharge of groundwater.

**Table RIPN-20: Jordan Subbasin**

<b>Hydrologic Unit Code</b>	17050108
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Size	Approximately 385,000 acres in Idaho (approximately 740,000 acres total)
§303(d) Listed Stream Segments	Jordan Creek (2 Segments), Cow Creek, Soda Creek, Rock Creek, Spring Creek, Louisa Creek, Louse Creek
Beneficial Uses Affected	Cold-water aquatic life, primary contact recreation, salmonid spawning, special resource water
Pollutants of Concern	Sediment, bacteria, flow alteration, oil and grease, pesticides, metals, pH, mercury, temperature
Major Land Uses	Irrigated agriculture, rangeland, forest, mining, riparian

**Table RIPN-21: Miles of stream accomplishing and not accomplishing the cumulative effects baseline**

Allotment	Perennial & Intermittent Streams on BLM lands (NHD miles)	Perennial & Intermittent Streams Assessed (miles)	Condition Rating	% of Total
Dougal FFR (0456)	0.7	0.2	FAR	13.0
Lequerica FFR (0473)	0.8	0.3	FAR	37.5
Sheep Creek FFR (0559)	1.3	1.3	NF	100.0
South Dougal (0536)	12.9	1.2	NF	9.0
South Mountain Area (0536)	20.4	7.9	FAR	39.0
		3.0	PFC	15.0
Wilson Creek (0537)	1.7	0.5	FAR	30.0

### Cumulative Effects Common to all Grazing Alternatives

A network of overlapping effects from the proposed action and alternatives as well as the past, present, and foreseeable activities was developed (Table RIPN-22). Only the activities where effects overlap in time and space with effects from other activities and those impacts are displayed.

**Table RIPN-22: Past, present, and foreseeable activities and the overlapping effects**

Other Activities	Impacts
Livestock Grazing	<ul style="list-style-type: none"> <li>• Increased erosion</li> <li>• Soil Compaction</li> <li>• Sediment loading of riparian areas and streams</li> <li>• Decreased vegetation</li> <li>• Manure deposition in and near streams</li> <li>• In-stream trampling and congregation</li> <li>• Decreased streambank stability</li> <li>• Change in channel shape, structure, and form</li> <li>• Reduced water infiltration</li> <li>• increased flooding</li> <li>• reduced groundwater recharge</li> <li>• lowered water table</li> <li>• increase streambank erosion</li> <li>• removal of submerged vegetation</li> <li>• increased runoff</li> <li>• increased water velocity</li> <li>• less shade and higher stream temperatures</li> <li>• less sediment trapping</li> <li>• decreased water infiltration</li> </ul>

	<ul style="list-style-type: none"> <li>• reduced aquatic habitat</li> <li>• reduced fish spawning habitat</li> <li>• loss of wildlife habitat</li> </ul>
Range Improvements	<ul style="list-style-type: none"> <li>• trampling and congregation</li> <li>• decreased vegetation</li> <li>• increased erosion</li> <li>• decreased streambank stability</li> <li>• loss of form and function</li> </ul>
Fires	<ul style="list-style-type: none"> <li>• Decreased vegetation</li> <li>• Increased erosion</li> <li>• Decreased streambank stability</li> <li>• Change in channel shape, structure, and form</li> <li>• increased erosion</li> <li>• increased runoff</li> <li>• less shade and higher stream temperatures</li> <li>• less sediment trapping</li> <li>• reduced aquatic habitat</li> <li>• reduced fish spawning habitat</li> <li>• loss of wildlife habitat</li> </ul>
Roads/ OHV use	<ul style="list-style-type: none"> <li>• increased erosion</li> <li>• decreased streambank stability</li> <li>• higher sediment &amp; stream temperatures</li> <li>• reduced aquatic habitat</li> </ul>
Mining	<ul style="list-style-type: none"> <li>• increased erosion</li> <li>• flow alteration</li> <li>• increased nutrients: metals, pH, mercury</li> <li>• increased temperature</li> </ul>

### 3.4.2.1.3.3 Alternative 1

As described above in the direct and indirect effects Section 3.2.3.2, the general theme of the alternative would be to authorize livestock use during the spring, summer, and fall. Specifically, approximately 9.5 miles of perennial streams, 29.0 miles of intermittent streams, and 13 springs would be affected by the impacts associated with those seasons of use. The alternative would continue to degrade the riparian areas because the removal of riparian vegetation, deposition of fecal matter, and livestock trampling would continue. Furthermore, the associated secondary impacts, including sedimentation, increased water temperatures, lowered water table, and decreased suitability of aquatic species habitat, would also remain the same.

All of the streams within the analysis area have been affected by past and present livestock grazing because the allotments within the CIAA have been and continue to be grazed during the vulnerable riparian area growing season, and livestock congregate in riparian areas during the hot season. Under Alternative 1, the streams in the South Mountain Group 4 allotments would continue to be impacted by grazing during the riparian area's vulnerable time, and the continued impacts, when combined with those occurring on the other allotments within the analysis area, would continue to alter streambanks because deep-rooted riparian vegetation would be removed and channels would be trampled.

Present and future proposed changes in grazing management within the CIAA to make progress toward meeting standards could improve wetlands and riparian areas by increasing woody and herbaceous plant communities. As plant communities change, streambanks would stabilize due to increases in deep-rooted riparian vegetation that bind the streambanks. Fine sediments would decrease, and stream shade would increase due to the development of riparian communities. Eventually the channels would narrow and deepen, and aquatic habitat conditions would improve as channel form recovers. The continued degradation from the action expected within the allotment would be added to the expected improvements occurring in the adjacent allotments. However, overall, the small improvements expected in the adjacent allotments would not be enough to offset the continued poor condition of the riparian and watershed conditions within the allotment under these alternatives, and the conditions within the CIAA would continue to be degraded.

Past and present range projects such as spring developments, fences, cattle guards, and troughs occur across the landscape to aid in livestock grazing management. The development of reservoirs and troughs across the landscape has impacted the natural state of the springs, often reducing the other values they provide (i.e., ground water infiltration and wildlife habitat). BLM has authorized spring developments, fencing, and the placement of watering troughs in an attempt to re-distribute livestock away from the spring sources. However, currently, many of the developments are not maintained and are in disrepair. The spring source may be excluded, but often the area fenced is too small to protect the riparian area fully and the majority of the water is piped to troughs away from the source, causing a loss of functionality and values. Additionally, livestock concentrate around the troughs causing compaction of soils, altered flow patterns, and loss of vegetation.

A general impact associated with both roads crossing streams and the loss of vegetation caused by wildfires is an increase in sediment and stream temperatures and thus less-suitable aquatic species habitat. The sediment increase from roads occurs where the roads cross the streams, after which the effect is apparent downstream of the crossings. The sediment increase caused by fires occurs because erosion increases when overland flows increase due to the loss of vegetation. Past fires have overlapped with riparian areas and have impacted about 8 percent of the CIAA and the streams and springs that occur within that area. Since the grazing proposed under the alternatives would contribute to an increase in sediment and stream temperatures, it would add to the sediment increase caused by stream crossings and loss of vegetation due to fires and would increase the overall impact within the CIAA. The cumulative impact would be small, but when added to the impact from the other activities, the condition of the riparian areas and watersheds would continue to be degraded.

Mining claims and surface gravel pits occupy approximately 121 acres of the CIAA. Active mining impacts the water quality of streams through the introduction of heavy metals and pollutants. Stream temperatures and sediment levels increase, reducing the aquatic species habitat quality. Since these impacts overlap with some of those caused by livestock use, the overall impact within the CIAA would add to the poor condition of the streams.

Overall, implementation of either of the alternatives would continue degradation of the riparian-wetland areas within the allotments, and 11 miles (about 29 percent) of the streams would continue to fail to meet the standards associated with the riparian-wetland areas. The continued poor conditions within the allotments would add to overlapping impacts from activities within the larger CIAA and contribute to the streams and springs not attaining the PFC baseline.

#### **3.4.2.1.3.4 Alternative 2**

Within the Dougal and Lequerica FFRs, the cumulative effects would be the same as those described above under Alternative 1 (3.4.2.1.3.3).

The direct and indirect effects from Alternative 2 (described in Section 3.2.3.2 above) for the Sheep Creek FFR, South Dougal, South Mountain Area, and Wilson Creek allotments would allow sufficient herbaceous and woody vegetation to remain after the growing season to protect the streambanks during high flow events, allow vegetation to regenerate, and protect riparian soils from physical alterations. When the direct and indirect effects of the alternatives are added to the other past, present, and reasonably foreseeable future actions described above, the condition of the streams, springs, and associated riparian-wetland areas within the analysis area watersheds would see an overall small improvement. The improvements in the condition of the streams and springs would lead to increased riparian area function (i.e., increased water infiltration and improved aquatic and fish habitat).

Past and current livestock grazing within the CIAA generally occurs during the spring and summer months, degrading the riparian areas because streams are trampled and herbaceous and woody riparian vegetation are removed during the vulnerable riparian area growing season. Although there would be an incremental improvement from the implementation of either of these alternatives, it would be small overall when related to the livestock grazing within the CIAA because the past and current practices in the adjacent allotments are degrading the riparian habitat. However, since future proposed changes in grazing management to make progress toward meeting the standards is expected to occur, there would be an improvement in the condition of the wetlands and riparian areas because an increase in the riparian woody and herbaceous communities would occur. As the plant communities change, streambanks would stabilize due to increases in deep-rooted riparian vegetation that bind the streambanks. Fine sediments would decrease and stream shade would increase due to the development of riparian communities. Eventually the channels would narrow and deepen and aquatic habitat conditions would improve as channel form recovers. Overall, the improvements expected within the allotment as well as within the adjacent allotments would lead to an overall improvement in the condition of the riparian areas and watersheds within the CIAA.

Other activities that have and continue to occur within the CIAA that impact the riparian areas and overlap with those caused by livestock grazing include wildfires, roadways that cross streams, off-road OHV use, and range projects (Table RIPN-22).

The improvement resulting from the implementation of either of the alternatives would help offset the impacts from the other activities occurring within the CIAA, and the condition of the streams and springs that occur within the analysis area would make progress toward an improvement in condition and attaining the cumulative effects baseline.

#### **3.4.2.1.3.5 Alternative 3 and 4**

The direct and indirect effects from Alternatives 3 and 4 (described in Sections 3.2.3.4 and 3.2.3.5) would allow sufficient herbaceous and woody vegetation to remain after the growing season to protect the streambanks during high flow events, allow vegetation to regenerate, and protect riparian soils from physical alterations. When the direct and indirect effects of the alternatives are added to the other past, present, and reasonably foreseeable future actions described above, the condition of the streams, springs, and associated riparian-wetland areas within the analysis area watersheds would see an overall improvement. The improvements in the condition of the streams and springs would lead to increased riparian area function (i.e., increased water infiltration and improved aquatic and fish habitat).

Past and current livestock grazing within the CIAA generally occurs during the spring and summer months, degrading the riparian areas because streams are trampled and herbaceous and woody riparian vegetation are removed during the vulnerable riparian area growing season. Since future proposed changes in grazing management to make progress toward meeting standards is expected to occur, there would be an improvement in the condition of the wetlands and riparian areas because an increase in the

riparian woody and herbaceous communities would occur. As the plant communities change, streambanks would stabilize due to increases in deep-rooted riparian vegetation that bind the streambanks. Fine sediments would decrease and stream shade would increase due to the development of riparian communities. Eventually the channels would narrow and deepen and aquatic habitat conditions would improve as channel form recovers. Overall, the improvements expected within the allotment as well as within the adjacent allotments would lead to an overall improvement in the condition of the riparian areas and watersheds within the CIAA.

Other activities that have and continue to occur within the CIAA and have impacts that affect the riparian areas and that overlap with those caused by livestock grazing include wildfires, roadways that cross streams, off-road OHV use, and range projects (Table RIPN-22).

The improvement resulting from the implementation of either of the alternatives would help offset the impacts from the other activities occurring within the CIAA, and the condition of the streams and springs that occur within the analysis area would make progress toward an improvement in condition and attaining the cumulative effects baseline.

#### **3.4.2.1.3.6 Alternative 5**

Under Alternative 5 (for details, see Section 3.2.3.5), the elimination of grazing for a period of 10 years would restore the riparian ecosystem because the rest from livestock grazing would allow for the recovery of the streambank and a functional riparian plant community. Information is lacking on the length of rest required for recovery of riparian vegetation; however, shrubs often require longer periods of recovery than herbaceous vegetation (Powell, Cameron, & Newman, 2000). Improvement in stream channel form and function would only occur if the channel is at a stage where improvement is possible; for example, downcut systems would need to reach a new base level and widening would have to occur to allow vegetation establishment sufficient to resist higher flows (Leonard & Karl, 1995). Recovery would also be dependent on the levels of degradation and the climatic variables (Bellows, 2003). Since the allotments occur in an arid region and most of the riparian areas are degraded, 10 years of rest would not generate riparian-wetland areas that historically existed. However, research has found that in ungrazed areas, streams experienced decreased widths and depths (Clary, 1999), vegetation cover increased two-fold, streambank stability increased by 50 percent (Scrimgeour & Kendall, 2002), and streambank erosion was 3.3 times less in an ungrazed area compared to an area grazed at a moderate stocking rate and level of use (Kauffman, 1982).

The implementation of this alternative would have the greatest benefit for the riparian and water resources within the allotments and the CIAA because the riparian ecosystem would recover most of the structural and functional diversity that should occur within the allotments. Thus, the allotments would make progress toward meeting the water and riparian Standards 2, 3, and 7. Additionally, the ORMP objective to maintain or improve riparian-wetland areas to attain PFC for all lotic and lentic systems would be achievable the most quickly. Similarly, progress would be made toward meeting the ORMP objective to meet or exceed State water quality standards.

#### **3.4.2.1.4 Special Status Plants**

##### **3.4.2.1.4.1 Resource Specific Analysis Area**

Cumulative effects of proposed grazing management alternatives on special status plants are covered under vegetation resources Section 3.4.2.1.1.1.

#### **3.4.2.1.5 Wildlife and Special Status Animals**

#### 3.4.2.1.5.1 Resource Specific Analysis Area

The area considered for cumulative effects can vary greatly by species and their distribution across the landscape. Given the current conservation importance of greater sage-grouse, it is logical if not imperative to choose an analysis area that is biologically relevant to the species. The greater sage-grouse is an upland game-bird species that utilizes sagebrush habitats at multiple spatial scales. Stiver et al. (2010) described four orders of habitat selection for sage-grouse, from broad- to site-scale, including 1) the geographic range of the species in western North America; 2) the physical and geographic range and habitat characteristics within populations and subpopulations, as well as dispersal between subpopulations; 3) the habitat characteristics within a home range, and movements between seasonal ranges; and 4) habitat characteristics within a specific seasonal range and movements to daily use sites.

Given the species' use of habitats at these multiple scales, an adequate cumulative effects analysis for actions that may affect the greater sage-grouse must incorporate a range of scales. This range of scales must be meaningful biologically and must also provide meaningful context relative to the scope of the activity being evaluated (e.g., grazing permit renewals). Selection of too broad an analysis area, such as the entire range of the species or a sage-grouse management zone, would likely dilute any potential cumulative effects of a grazing permit, whereas selection of too small an area such as a portion of a pasture may almost always show effects.

Several authors (Connelly, Knick, Schroeder, & Stiver, 2004) (Stiver, et al., 2006) (Garton, et al., 2011) have delineated sage-grouse populations, sub-populations, and/or management zones across the range of the sage-grouse, and some of these population delineations differ slightly spatially or by name. Connelly et al. (2004) identified the Great Basin Core population that encompassed a large area overlying northern and southern Nevada, southeastern Oregon, northwestern Utah and southern Idaho, and they subdivided these into smaller subpopulations. In a more recent analysis, Garton et al. (2011) delineated a Northern Great Basin population, which is essentially the northern portion of the Great Basin Core population, but he did not delineate subpopulations. The Northern Great Basin population delineation seems to fit more closely with what is currently suspected about likely sage-grouse lek connectivity in the northern Great Basin (Makela & Major, 2012). Therefore, the cumulative effects analysis area for fish and wildlife resources is delineated by the approximately 5.7 million-acre Owyhee subpopulation (i.e., north-central Nevada/southeast Oregon/southwest Idaho) (Map CMLV-2) (Connelly, Knick, Schroeder, & Stiver, 2004).

Besides sage-grouse, the Owyhee subpopulation area provides meaningful context and relevance for large and/or highly mobile species (e.g., big game, raptors, and migratory birds), while greatly exceeding the range of many resident fish and wildlife species. This cumulative effects area encompasses all sage-grouse habitat within the Owyhee Field Office boundary, as well as additional adjacent habitat in southeastern Oregon, northern Nevada, and nearly one-half of the Bruneau Field Office in Idaho. Analysis timeframes include past activities that have created the present conditions and future activities planned within the next 3 years, including the expected duration of effects from current and future activities (generally 10 to 20 years).

#### **Current Conditions**

The past, present, and reasonably foreseeable future actions within the cumulative effects analysis area relevant to fish and wildlife resources are presented in Table WDLF-13. The spatial extent of these actions was calculated using the best available BLM GIS data.

**Table WDLF-13:** Past, present, and foreseeable future actions within the cumulative effects analysis area for fish and wildlife

<b>Type of Activity</b>	<b>Past and Present</b>	<b>Reasonably foreseeable additions</b>
Grazing	251 active BLM allotments	Permits will be renewed/modified as they expire
Wildfire	612,753 acres (1985-2012)	Unknown
Vegetation Treatments (Prescribed Fire and Mechanical)	At least 28,378 acres (1952-2011)	9,750 acres
Agriculture	621,207 acres (up to 2011)	None
Roads and Transmission Lines	8,083 miles	16 to 25 miles of transmission lines

In much of the analysis area, upland, riparian, and stream habitats have been adversely affected by grazing practices (e.g., season of use and stocking rates) and rangeland management infrastructure (e.g., fences and water developments), wildfire, vegetation treatments (e.g., prescribed fires, shrub and conifer control and seedings), and habitat fragmentation due to buildings, roads, and transmission line. As a result, wildlife habitat and populations in the analysis area has been altered from the conditions before Euroamerican colonization of North America and what would be expected under a natural disturbance regime.

In addition, across their distribution, some wildlife species' populations (i.e., sage-grouse and bighorn sheep) have been impacted by disease (i.e., West Nile virus and pneumonia, respectively). Although these diseases currently do not appear to be an issue with local sage-grouse and bighorn sheep, West Nile virus (WNV) has been documented in sage-grouse in Idaho and in 2006, the sage-grouse hunting season was closed in western Owyhee County due to concerns of WNV impacts (Idaho Sage-grouse Advisory Committee, 2008). Large, intact, low- to mid-elevation populations, like those in the cumulative effects area, may be able to endure impacts of WNV if the quality and extent of available habitat still supports positive population growth (Walker & Naugle, 2011). There appears to be a relatively low risk of contraction of pneumonia by Owyhee River PMU bighorn sheep because the primary vectors of transmission, domestic sheep, do not overlap with the local population (i.e., Owyhee Front PMU in Idaho and the Upper Owyhee River Herd in Oregon, collectively).

Native ungulates (e.g., deer, elk, pronghorn, and bighorn sheep) are common in the analysis area and long-distance, interstate movements to seasonal ranges have been documented. The deep canyons of the Owyhee River system to the south provide relatively undisturbed cliff nesting habitat for a variety of wide-ranging raptors (e.g., golden eagle and prairie falcon) and bird species. The abundant juniper woodlands provide an expanding habitat type for forest-associated species (e.g., northern goshawk and special status bats) in an otherwise shrub steppe matrix. Woodland species' populations have benefited from fire suppression activities that have promoted juniper expansion at the expense of shrub-dependent species such as sage-grouse, Brewer's and sage sparrows, loggerhead shrike, and pygmy rabbits. Riparian areas, although many not in properly functioning condition, do support limited populations of spotted frog and redband trout. Although populations of some notable species (e.g., sage-grouse) have declined range-wide, population trends in the analysis area for most fish, wildlife, and special status species are unknown because long-term monitoring data are lacking.

Wildlife, fisheries, and special status species and their habitats in the analysis area have been affected by livestock grazing for more than a century. Allotments in this area are primarily grazed throughout the spring and summer. A variety of range improvement projects, such as spring developments, fences, cattle guards, and troughs, have been built across the landscape to aid in livestock grazing management.

Allotments in the analysis area are in various stages of the 10-year permit cycle, and as expiration dates approach, each allotment will be evaluated for rangeland health and progress toward meeting the Fundamentals of Rangeland Standards prior to the authorization of a new permit. Overall, past and current grazing in the cumulative effects area has had an adverse effect on fish and wildlife habitats because grazing has primarily occurred during the spring and summer months, when native perennial vegetation in the uplands is actively growing and most susceptible to the negative effects of livestock grazing, and soils and vegetation in riparian areas are impacted by continual presence and heavy use of these comparatively moist and cooler environments, respectively. Reasonably foreseeable future grazing management is expected to improve the condition of fish and wildlife habitats at least to make significant progress towards meeting the Idaho Rangeland Health Standards.

Wildfire records maintained by the BLM indicate that approximately 11 percent of the cumulative effects area has burned between 1985 and 2012. Wildfires have primarily removed shrub steppe habitats that negatively impact many special status species, including sage-grouse. Although wildfires are a natural and critical component in the restoration of late-seral communities in the cumulative effects area, invasive species such as cheatgrass and medusahead wild rye presently colonize and infest low elevation burned areas first, outcompete and displace native species, and foster a shorter fire-return cycle to the detriment of the establishment and return of native shrub steppe communities and wildlife habitat. Conversely, fire suppression has enabled western juniper to expand into shrub steppe communities and slowly convert encroached areas into woodlands that precludes many of the obligate and dependent wildlife species that occupied the former shrublands and grasslands.

Less than 0.5 percent of the cumulative effects area has been affected by vegetation treatments. Vegetation treatments include prescribed fires, juniper and sagebrush control, and non-native perennial grass seedings. Due to the relatively limited and small size of treatment areas, effects of vegetation treatments within the cumulative effects area have been negligible.

Approximately 11 percent of the cumulative effects area is comprised of agricultural lands, the majority of which are hay fields in support of local grazing operations. Most of this acreage occurs along the region's rivers and streams. Due to these practices, the former riparian habitats in many of these floodplain areas are deteriorated or absent. Although these areas have been substantially altered, they still may provide valuable albeit marginal quality habitat for many wildlife species.

More than 8,000 miles of roads of varying surface types and use levels occur within the cumulative effects area. Although some of these miles comprise major roads and highways, the overwhelming majority are low use, unmaintained two-tracks. Major paved and graveled roads fragment habitat to a far greater extent than unmaintained dirt roads. Although roads present both spatial and temporal barriers to home range, dispersal, and migratory movements of a variety of wildlife species, the low population density of the cumulative effects area and relatively low use levels of most roads limits many of the negative effects and disturbance associated with transportation networks.

#### **3.4.2.1.5.2 Common to All Grazing Alternatives**

The effects of livestock grazing discussed in Section 3.2.5 can be anticipated to occur on other grazing allotments within the CIAA on Federal, State, and private lands. Grazing during the critical growing season and the development of water sources (i.e., spring development, reservoirs); along with construction and maintenance of fences for livestock purpose, can be expected to occur. As a result, upland, riparian, and stream habitats have been adversely affected and fragmented over much of the CIAA.

Other activities that are expected to occur into the future include wildfire, agriculture, vegetation treatments, development, roads, and energy transmission, as well as recreation management. These

activities either singularly or combined can cause the fragmentation, alteration, and loss of shrub steppe habitat and encourage the invasion of exotic species and increase fire frequency.

## **Past, Present, and Reasonable Foreseeable Future Conditions**

### **Livestock Grazing**

Livestock grazing has occurred over much of the area since the late 1880s. Presently, grazing is still a mainstay of individuals, families, and communities within the CIAA. It is anticipated that livestock grazing will continue into the future and that allotment assessments/evaluations/determinations will occur and adjustments made to meet Rangeland Health Standards and Guides as 10-year permits come up for renewal and issues are identified. There are 251 active BLM grazing permits within the sage-grouse CIAA.

Livestock grazing over this period is a contributing factor to shifts in the plant community composition and diversity favoring smaller more grazing tolerant species and invasion annual exotic grasses. The impact of this plant community shift has reduced understory cover critical for nesting, brood-rearing, hiding, and escaping predators. Riparian areas contain habitat features that attract livestock, and these areas are important for brood-rearing chicks that depend on the hatches of insects and where a diversity of forbs persist and are available into late summer.

### **Trailing**

Cattle and domestic sheep trailing have occurred in the past and are currently taking place on an annual basis. Trailing by nature is usually of short duration as animals are moved from one allotment/pasture to the next. Distances will vary depending on location of grazing allotments. Livestock consume very little forage when actively trailed. The effects of trailing are defined by the both time and space. The Owyhee Field Office recently finalized the 2012 Trailing EA; the analysis specific to sage-grouse is incorporated here by reference (Sections 3.4.1.1, 3.4.2.1 and 3.8.5 of the 2012 Trailing EA (USDI BLM, 2012c)).

Impacts to vegetation and sage-grouse cover elements are minimal because the effects are contained within the trailing corridor usually along a road. However, because trailing does occur during the breeding period and near display sites, livestock can cross areas where birds are congregating and may displace individuals. Temporal and spatial mitigations are required along the route that cross lek sites (Sections 3.4.1.1, 3.4.2.1 and 3.8.5 of the 2012 Trailing EA (USDI BLM, 2012c)). The cumulative effects of trailing are considered to be minimal due to localized disturbance along established roads and the application of spatial and temporal terms and conditions near leks.

### **Range Improvement Projects (RIPs)**

Range improvements including reservoirs, spring developments, troughs, and fences facilitate grazing throughout the CIAAs. The benefit of range improvements for wildlife is debatable; while some species may benefit from these developments, others may not. Of concern are the developments that are not to current BLM standards or are in disrepair. These developments often disconnect ground water flow, are over-grazed, have compacted soils, or are transitioning to invasive species and reduce habitat quality near the development. Any future developments will be to BLM standards and undergo environmental review. Maintenance of developments occurs on a case-by-case basis and is usually not subject to additional environmental review unless substantially reconstruction or additional impacts may occur.

Fences have been built to delineate allotments and pastures and to control livestock. New fences may be constructed as needed, under appropriate NEPA analysis, for improving livestock use and distribution. However, fences will eventually come into disrepair and require regular maintenance to maintain control of livestock.

Sage-grouse derive much of their water from the forage they consume; however, they will use free water if available. Riparian areas associated with streams, wetlands, seeps, and springs are important habitat features for sage-grouse because of the availability of forbs as well as insects for early brood-rearing chicks. Proper design, placement, and maintenance of these improvement projects are critical to their use and to reduce impacts. Riparian fences in disrepair allow livestock to freely congregate and degrade riparian habitat conditions, alter ground/surface water flow, and encourages establishment of invasive species. Non-functional troughs that allow unchecked overflow create bogs and mud holes that can facilitate the growth of mosquitoes and aid the spread of West Nile Virus. If wildlife escape ramps in troughs are not maintained wildlife, animals can be trapped and drown.

Fences can cause direct mortality to sage-grouse. Hazard fences within high risk areas are located within 1.25 miles of a lek, on flat topography, where spans exceed 12 feet between posts, without wood posts, and where densities exceed 1.6 miles of fence per section (i.e., 640 acres) (USDI BLM, 2012b). Fences also create corridors and perches for predators such as ravens, hawks, owls, and eagles.

### **Wildfires and Fire Suppression**

Wildfires historically were natural disturbance events that overall were beneficial to the diversity, composition, and distribution of the plant community and in turn provided abundant forage and cover for wildlife. However, in present times, the wildfire interval has become more frequent and, with the invasion of noxious species, has increased the risk of the native plant community shifting to a community dominated by an increasing presence of annual grasses and other exotic species. Wildfires at lower elevations have the greatest impact to the natural community and the shift in community composition. This condition decreases habitat structure and function and provides unsuitable forage and cover conditions for many shrub-steppe associated species.

Suppression activities can remove sagebrush vegetation, create linear openings, and fragment habitat. Pre-suppression activities are required to occur to identify sensitive resource issues to reduce suppression impacts. Post-fire rehabilitation efforts reseed disturbed areas to stabilize soils and improve habitat conditions. Current reseeding projects are now requiring the use of native seed if available.

Wildfires have the potential to burn over large areas and can contribute to plant community change. Wildfires at lower elevations are susceptible to invasions of cheatgrass and medusahead. Once established, these exotic communities outcompete and replace native communities. This change in the vegetation community does not have the composition and structure to create adequate nesting and hiding cover for sage-grouse and fragments habitat over a large area. Conversely, the control of wildfires has contributed to the expansion of juniper in many areas at higher elevations. Herbaceous composition, post fire, is generally manifested with the same species as before the fire; thus, it is important to have a good herbaceous species composition prior to disturbance. Fire also removes sagebrush that can take decades to reestablish if large acreages are burned.

### **Vegetation Treatments**

Historically, wildfire disturbance intervals were adequate to control juniper encroachment and diversify shrub-steppe community composition and structure. Prescribed fire as a tool to control sagebrush and juniper has been used to improve livestock grazing conditions as herbaceous species flourish post-fire. Mechanical treatments (i.e., chaining and chainsaws) to control juniper and sagebrush have also been used. The results often have mixed results for wildlife in that a period of restoration often needs to occur to realize the benefits or outcomes of the projects. Given the issues surrounding sage-grouse and sagebrush ecosystems, future vegetation treatment objectives will be very specific and localized to minimize broad-scale impacts.

Vegetation treatments can fragment habitat, displace individuals, and reduce shrub species and understory cover for sage-grouse. There has been more than 28,000 acres (less than 1 percent) of primarily juniper control within the CIAA. Overly aggressive treatments can create large openings of stunted vegetation favoring predators such as coyotes. In addition, persisting juniper snags are used as perch locations for hawks, eagles, owls, and ravens. However, project objectives to reduce juniper expansion and improve sagebrush steppe habitat conditions may be achieved over time and benefit sage-grouse when effective vegetation structure and composition are restored.

### **Roads**

The construction of roads on public lands has resulted in the removal of habitat and contributes to fragmentation of the landscape. It is anticipated that any future road development will be project-specific in association with range improvement, transmission line, and renewable energy projects rather than new transportation routes. Roads create openings that expose wildlife to predators and can disrupt movement patterns. In addition, mortality of wildlife often results when collisions with vehicles occur.

Depending on the construction, location, use, and maintenance of roads, they are open linear features on the landscape reduced to no vegetation cover and forage. There are 8,083 miles of road network within the CIAA. These linear features create open strips of non-habitat that allow sage-grouse to be located by predators. They also increase the potential for collisions with vehicles. Inversely, roads also function as firebreaks and can work to control the spread of some fires and protect habitat for sage-grouse. Power lines associated with roads create elevated perches and corridors for predators such as eagle, owls, hawks, and ravens.

### **Recreation**

The CIAAs are open for general motorized use that allows for hunting, fuel wood gathering, collection of miscellaneous products, camping, and motorized touring on established roads. Recreation can limit and disrupt movement patterns of wildlife and cause species to avoid areas where intense and excessive activities occur.

Sage-grouse exist in natural areas that are also used by outdoor recreationists. Recreation can range from bird-watching to motorcycle racing. Areas closer to urban settings receive the highest recreation use. Sage-grouse avoid humans and human activity; recreation can disrupt movement patterns and seasonal behavioral activities and may cause individuals to abandon nests and relocate depending in the intensity of the recreation.

### **Agriculture**

Agriculture ranging from pastureland to grain crops occurs within the CIAA for sage-grouse and bighorn sheep. A majority of the agricultural activity occurs along the Snake River and in the Jordan Valley areas, with scattered homesteads along more prominent roads. Agriculture is anticipated to occur into the future, but not expand.

Large portions of sagebrush-steppe habitat have been converted into agriculture and contributed to the loss and fragmentation of sage-grouse habitat. Currently, over 620,000 acres (approximately 1.0 percent) of agriculture lands are within the CIAA. Sage-grouse are attracted to fields such as alfalfa because of the high availability of quality forage and insects, often at the expense of their own security. Mortality of individuals may occur because of increased predation and road-related fatalities.

### **Mining Activity**

Limited mining activity occurs within the CIAA for sage-grouse and bighorn sheep. The size and purpose of the mine dictates the impacts that can be anticipated. Surface mining can alter the topography, permanently remove native habitat, and cause the spread of noxious weeds. Machinery and increased

human activity can cause sage-grouse to alter behavior activities and avoid the area. Surface activities will contribute to habitat loss and fragmentation, while increased structures provide hunting perch opportunities for predators such as hawks, owls, and ravens.

### **Energy Development and Transmission Lines**

Renewable energy development (i.e., wind, geothermal, and solar) is a rather new demand. Energy exploration, development, and transmission lines are anticipated to be constructed as the national demand for energy increases. Construction of collection and generation facilities can require large tracts of land and increase human activity. Transmission structures can span multiple states and require maintenance of tower structures and access routes.

The construction and operation of energy facilities can permanently remove sage-grouse habitat. Associated with these facilities is increased machinery and human activity. The impacts of these facilities expand beyond their operational footprint, making the adjacent habitat less desirable. Sage-grouse will avoid these areas and possibly relocate. Depending on the alternative authorized from the Final Gateway West Transmission Line Environmental Impact Statement, between 16 and 25 miles of new 500 kV transmission line would be built within the CIAA. Transmission lines also increase road densities and human activity; additionally, they create perch opportunities for predators such as hawks, eagles, owls, and ravens.

#### **3.4.2.1.5.3 Alternative 1**

Under Alternative 1, grazing management has been shown to reduce cover and forage for wildlife in riparian areas and lead to trampling and breakdown of streambanks. In addition, frequent grazing during the active growing season in the uplands has led to static habitat conditions that have not allowed improvements to perennial bunchgrass vigor and health nor progress toward a full complement of native perennial species consistent with ecological site potential. Continuation of extended hot-season grazing would concentrate livestock use on riparian areas, thus decreasing riparian vegetation that wildlife use for nesting substrate, cover, and foraging habitat. These effects would negligibly contribute to an overall decrease in the quality of fish and wildlife habitat throughout the cumulative effects area. In addition, the number of individuals necessary to support neighboring fish and wildlife populations and maintain the genetic diversity of existing populations across the landscape could decrease. The continued degradation of riparian habitats would negatively affect habitat for many species of migratory birds and sage-grouse, especially those with broods.

When these factors are combined with the past, present, and reasonably foreseeable future actions that have impacted wildlife habitats within the cumulative effects area, the downward trend in habitat conditions within the South Mountain Group allotments would not meet ORMP wildlife, fisheries, and special status species management objectives. Although conditions are not expected to improve or worsen in upland habitats for sage-grouse, significant progress toward meeting the Idaho rangeland health standard for special status animals would not occur, due to the continuation of extended hot-season grazing that degrades habitat in riparian areas. However, due to the relatively small amount of PPH-sagebrush within the allotments in comparison to the size of the cumulative effects area, the threshold for unacceptable change in the majority of fish and wildlife population including the Owyhee sage-grouse subpopulation most likely would not be exceeded.

#### **3.4.2.1.5.4 Alternative 2**

The range of applications received and their grazing prescriptions was wide for Alternative 2. Livestock grazing would improve resources for wildlife in some allotments (e.g., Wilson Creek riparian), while the remaining allotments would maintain the status-quo. Allotments that incorporate deferment for upland and riparian areas would see improvement generally over the long term. For those allotments that would

not see change, the alternative would reduce forage and cover for wildlife in uplands and riparian areas, lead to trampling and breakdown of streambanks, and reduced numbers and vigor of native plant species from consumption and trampling, increase sediment into streams, and allow invasive plant species to outcompete native species due to reduced vigor in the latter for the allotments. Habitat conditions for wildlife and fish populations in these allotment would deteriorate because periodic rest of pastures would not occur, some pastures would be grazed annually during the growing season (frequently during the critical growing season), and riparian areas would be grazed during the hot season. These factors lead to the deterioration of wildlife habitats because they decrease the ability of native plant communities to remain healthy, vigorous, and productive, and provide adequate forage and cover for wildlife species.

Due to expected improvements in some allotments and maintenance of conditions in others, overall, Alternative 2 would produce minor positive changes. When these factors are combined with the past, present, and reasonably foreseeable future actions that have impacted wildlife habitats within the cumulative effects area, the downward to static trend in habitat conditions within the South Mountain Group 4 allotments would not meet ORMP wildlife, fisheries, and special status species management objectives. Limited improvement would not promote change at the broader scale of the analysis area. Because a general deterioration of wildlife habitats is likely in upland and riparian communities and improvements in sage-grouse habitat conditions are not expected, the Idaho Rangeland Health Standard for special status animals would not be met under Alternative 2. Due to the relatively small amount of PPH-sagebrush within the allotment in comparison to the size of the cumulative effects area, the threshold for unacceptable change in the majority of fish and wildlife population, including the Owyhee sage-grouse subpopulation, most likely would not be exceeded.

#### **3.4.2.1.5.5 Alternative 3**

Under Alternative 3, substantial improvements to wildlife habitat in upland and riparian areas would be realized over the term of the permit. Implementation of Alternative 3 would include resource constraints that were developed to protect and enhance native plant communities in the uplands and riparian areas; and breeding, brood-rearing, and foraging habitats for sage-grouse and other upland and riparian wildlife species. The sage-grouse constraint to allow no more than 2 years of use in any consecutive 3-year period would provide deferment that would provide suitable nesting cover for sage-grouse during the nesting season throughout PPH-sagebrush within the allotments. The expected improvements from proposed grazing management considered cumulatively with other activities should benefit fish and wildlife habitat and populations overall. However, improving fish and wildlife populations within the allotment would negligibly contribute to more robust regional fish and wildlife populations.

Sage-grouse PPH-sagebrush within the allotments is limited and is primarily connected to larger areas of sagebrush habitat in Oregon to the west. Trend information for the Owyhee subpopulation is limited, as leks are surveyed infrequently, primarily due to inaccessibility. Sage-grouse habitat within the allotment most likely represents the periphery of the range of the local population. Any adverse effects occurring in the allotments would probably have minimal consequences to the local Owyhee subpopulation. Trends in sage-grouse populations at the broadest scale in this analysis (i.e., population level) are more readily available. A recent analysis shows that the proportion of active leks and the average number of males per active lek has decreased over the past 40 years within the Northern Great Basin population (Garton, et al., 2011). The minimal effects to the sage-grouse population from grazing management actions occurring in the South Mountain Group 4 allotments and the Owyhee subpopulation would have a negligible effect on the viability of the regional Northern Great Basin population or the species range-wide.

Although improvement to wildlife and sage-grouse habitats at the allotment level are expected under Alternative 3, and direct and indirect effects from grazing management of this project are expected to be relatively small and localized, cumulative effects from this project, along with other past and ongoing activities within the cumulative effects area, are not likely to negatively affect any special status species'

viability in a substantial way, nor lead to the need for any listing under the ESA. Recovery of wildlife habitat within the allotment could occur in the short term (depending on the current degradation and ecological resiliency of the site) and would continue through the term of the permit; significant progress toward meeting the Idaho rangeland health standard for special status animals would occur. The threshold for unacceptable change in the majority of fish and wildlife populations, including the Owyhee sage-grouse subpopulation, most likely would not be exceeded due to the negligible size of the allotment in relation to the cumulative effects area.

#### **3.4.2.1.5.6 Alternative 4**

Grazing management under Alternative 4 would provide substantial benefits to fish and wildlife habitat. Specifically, wildlife habitat in upland and riparian areas would improve throughout the allotment due to a reduction in AUMs, an overall increase in acres/AUM, changes in season of use, and the potential for periodic rest and deferment. Utilization levels are expected to decrease and likely result in greater forage and cover for wildlife, due to a reduction in AUMs that would result in an overall increase in acres/AUM. Changes in season of use in many pastures would result in fewer disturbances to wildlife breeding activities in uplands and riparian areas. Periodic rest and/or deferment in most of the pastures in conjunction with changes in seasons of use in pastures with riparian areas and sage-grouse nesting habitat would favor improvements in vegetation community composition, structure, and overall health.

Cumulative effects to sage-grouse and their habitats within the cumulative effects area would be the same as those described above for Alternative 3. The expected improvements from proposed grazing management, considered cumulatively with other activities, should benefit fish and wildlife habitat and populations overall. Improving fish and wildlife populations within the allotment would contribute, albeit negligibly, to more robust regional fish and wildlife populations. Habitats are expected to recover and improve and make significant progress toward meeting the Idaho Rangeland Health Standard for special status animals. The threshold for unacceptable change in the majority of fish and wildlife populations including the Owyhee sage-grouse subpopulation most likely would not be exceeded due to the negligible size of the allotments in relation to the cumulative effects area.

#### **3.4.2.1.5.7 Alternative 5**

The extended rest under Alternative 5 would depart markedly from the predominant grazing systems in the analysis area, creating a unique, large area undisturbed by livestock grazing that would provide a refuge for wildlife within the allotments and surrounding areas. Extended rest would dramatically improve conditions for all species of wildlife throughout the South Mountain Group allotments. Vegetative structure and diversity, perennial herbaceous vegetation heights and residual cover, and available forage would increase in all habitat types. Springs and stream riparian habitat would expand and improve. Disturbance from livestock and associated management activities would not occur. The undisturbed mosaic of habitats could augment fish and wildlife populations in the allotment and could provide a productive source area for surrounding allotments.

Cumulative effects to sage-grouse and their habitats within the cumulative effects area would be the same as those described above for Alternative 4. Wildlife and aquatic objectives would be met, and there would be substantial progress toward meeting the Idaho Rangeland Health Standard for special status animals. Improvements to headwaters would benefit aquatic habitats and species in the allotment and downstream. Progress would be realized toward improving fish and wildlife habitat conditions below the threshold of unacceptable change. The expected improvements considered cumulatively with other activities should benefit fish and wildlife habitat and populations overall. Improving fish and wildlife populations within the allotment would negligibly contribute to more robust regional fish and wildlife populations.

#### **3.4.2.1.6 Recreation and Visual Resources**

#### **3.4.2.1.6.1 Resource Specific Analysis Area**

Cumulative effects to recreation and visual resources within the allotments would primarily be the result of grazing, future vegetation treatment projects (such as broadcast burning in surrounding areas), and current and future actions that stem from the Owyhee Management Area (OMA). The area of analysis boundaries for cumulative effects would be Three Forks Road to the west, Mudflat Road to the south, the North Fork Owyhee River on the east, and Jordan Creek on the North. This area is a good representation of the recreation activity that occurs within the area. The timeframe considered is activities since OMA for current conditions and activities planned within the next 3 years, and the expected duration of effects from those activities (generally 10 to 20 years).

#### **3.4.2.1.6.2 Cumulative Effects for Alternatives 1 through 5**

##### **Recreation – All Alternatives**

Cumulative analysis of the alternatives when added to past, present, and future actions, within the analysis area, would have minimal effects to recreation overall. Because few effects are expected from any alternatives, cumulative effects would be minimal for recreation. Opportunities for recreational activities in the cumulative analysis area are abundant and would sustain minimal impact from the alternatives. Access would be limited during the burn treatments within the southern portion of the analysis area which, depending on the timing, would affect the ability to access areas for hunters and other recreationists. Range improvements in neighboring allotments would reduce some opportunities for non-motorized cross country travel. Cumulatively with road closures as a result of wilderness designations, accessibility in the area for hunters and other recreationists who rely heavily on roads and trails for motorized access would be reduced. The expected vegetative improvement from the alternatives, along with development of a travel management plan, would result in an improved recreation experience. During periods of livestock use, there would be an increase in potential human/livestock interactions.

In the long term, the combined effects of suitable grazing management and travel management planning within the cumulative analysis area would be beneficial to the overall health and scenic quality of the area, which in turn would result in an improved recreation experience.

##### **Visual Resources – All Alternatives**

Grazing activities throughout the analysis area would contribute in varying magnitudes toward cumulative effects by influencing plant species composition within the uplands as well as riparian areas. While these impacts may be greater or lesser within differing allotments, overall these impacts would be considered minimal throughout the cumulative analysis area as a whole.

In the short term, some visual impacts would occur within the cumulative analysis area during construction of range improvement projects as new areas of disturbance are created. However, because of the excellent vegetative screening and rugged topography throughout much of the analysis area and minimal construction techniques, these types of features are substantially unnoticeable except at very close distances.

Juniper treatment projects within the southern portion of the analysis area would have extensive effects on visual resources. An estimated 50-70 percent reduction in seral junipers would have a beneficial long-term effect on visual quality as scenic vistas open up and aspen, perennial grasses, and other vegetation increase as a result of juniper removal. Additionally, retaining 30-50 percent of the existing juniper as well as old growth juniper and mahogany stands would remain and assist in maintaining the scenic quality throughout the area. The girdling of trees would provide the landscape with a more natural appearance as trees slowly expire, which helps maintain the visual characteristics of the area. Girdling, as opposed to the dropping of trees on site, gives casual observers/sightseers traveling through the area the appearance that the area was once burned by wildfire.

The effects of future actions such as travel management planning throughout the cumulative analysis area would be beneficial to the overall health and scenic quality as resources are further protected.

Overall, the combined effects of suitable grazing management, or no grazing, travel management planning, and vegetative treatment projects within the cumulative analysis area would be beneficial to the overall health and scenic quality of the area

### **3.4.2.1.7 Social and Economic Values**

#### **3.4.2.1.7.1 Resource-Specific Analysis Area**

The scope of this analysis covers Owyhee County, ID, and Malheur County, OR, because although the Owyhee Field Office has jurisdiction only over the allotments within the Owyhee Resource Area, the ranchers applying for livestock grazing permit renewals maintain base ranches near Jordan Valley, Oregon.

#### **Past, Present, and Reasonably Foreseeable Future Actions**

As stated in the background section of this EA, the BLM Owyhee Field Office prioritized and grouped allotments to fully process and renew grazing permits in accordance with the Order Approving Stipulated Settlement Agreement (United States District Court for the District of Idaho Case 1:97-CV-00519-BLW) dated June 26, 2008. The agreement defined a schedule for completing the environmental analyses and final decisions for grazing permits in a number of allotments.

Past actions taken regarding grazing permit renewals will affect the socioeconomic conditions in both counties because they influence decisions the operators make regarding their ranches. There are 124,251 active use AUMs permitted in Owyhee County (135,116 active use AUMs in the ORMP (USDI BLM, 1999a) minus the 9,558-AUM reduction in the Final Decisions for the Owyhee River Group Final EA (DOI-BLM-ID-B030-2012-0012-EA), the 576-AUM reduction in the Final Decision for the Pole Creek Allotment Final EA (DOI-BLM-ID-B030-2009-0004-EA, and the 731-AUM reduction in the Proposed Decision for the Final Trout Springs and Hanley FFR EA (DOI-BLM-ID-B030-2009-0003-EA; the Proposed Decision for the Final Nickel Creek FFR EA (#DOI-BLM-ID-B030-2011-0006-EA) includes no changes in AUMs), and 407,473 active use AUMs permitted in the Malheur and Jordan Resource Areas in Oregon (USDI BLM, 2002). Proposed Decisions and the Final EIS (DOI-BLM-ID-B030-2012-0014-EIS) for the Chipmunk Group, which is the second of six groups in the Owyhee 68 priority allotments, will be released in October 2013; the economic impact figures used in that EIS will be used for this cumulative effects analysis. Table SOCE-13 shows the value to the community of AUMs for each of the alternatives in this EA, combined with the final changes in the Owyhee River Group and proposed changes in the Chipmunk Group and the Group 6 allotments (Fossil Butte Group, Nickel Creek FFR, Trout Springs, Hanley FFR, and Pole Creek), as well as estimated possible changes for the Toy Mountain and Morgan Groups.

#### **3.4.2.1.7.2 Cumulative Effects for Alternatives 1 through 5**

Currently, for Alternatives 1-4 in this EA, as long as the ranches remain in business, they will continue contributing to employment and the purchase and sale of goods and services in the local areas, and community cohesion will be maintained. For Alternative 5, not renewing the permits would mean that the BLM would no longer be contributing to the ranching community by providing grazing land, and if the ranches chose to close, the operators would no longer be contributing to employment or the purchase and sales of goods and services in the community. The Federal Government would continue contributing to the County through payments in lieu of taxes (PILT), which totaled more than \$9.5 million in Owyhee County from 2003 to 2012, for an average of about \$956,000 per year. Ranching plays a large role in both

counties, so although the loss of any or all of the South Mountain Group ranches alone could have a substantial impact on the local communities. The loss, which is small in proportion to the total livestock operations' contributions to the two-county area, likely would not have a cumulative effect on a larger scale. However, AUM changes incorporated in the alternatives presented here, combined with proposed or final AUM reductions in the Owyhee River Group and some Group 6 (Pole Creek, Nickel Creek FFR, Trout Springs, and Hanley FFR<sup>52</sup>) allotment permits, could have either positive or negative impacts to local suppliers, since the operators associated with all of these allotments might choose to alter ranch operations in ways that would require either increases or reductions in supply purchases.

Allotments in the analysis area are in various stages of the 10-year permit cycle, and as expiration dates approach, each allotment is evaluated for rangeland health and progress toward meeting the Fundamentals of Rangeland Standards prior to the authorization of a new permit. Following these evaluations, the BLM will prepare NEPA documents, either in the form of EAs or EISs. As noted in Section 1.3 of the EA, livestock grazing permits for all of the Owyhee 68 allotments must be renewed by December 31, 2013; draft EAs are currently being prepared for the Toy Mountain and Morgan priority allotment groups (Groups 3 and 5), as well as some of the Group 6 allotments, all of which will be released within a few weeks of each other. These documents will analyze the social and economic impacts of implementing multiple alternatives, just as this Group 4 South Mountain EA does, and will be followed by Proposed and Final Decisions regarding renewal of each of the grazing permits. While it is not possible to analyze those impacts in this EA because future possible changes in the management of the Toy Mountain and Morgan groups have not been released, estimates of impacts based on a range of AUMs are presented below.

It would be speculative at this time for this EA to include the cumulative impacts from those future actions not yet defined, and for which final decisions have not been issued. Future NEPA analysis in all Owyhee planning area grazing permit renewal efforts will include the cumulative effects of past, present, and foreseeable actions at that point in time. That analysis will include the cumulative effects to the social and economic environment that result from implementing the selected alternative in this EA. For any allotments in Groups 3 through 6 that meet all standards and guidelines, reductions in AUMs may not occur; renewing permits for all of the allotments in Groups 3, 5, and 6 (for Group 6, this includes only the allotments without recent proposed or final decisions) at currently permitted levels would maintain active permitted use at 26,642 AUMs. However, because reductions in AUMs have been proposed on allotments in the Owyhee River, Chipmunk, and South Mountain groups that have not met standards or guidelines, it is reasonable to assume that future reductions may occur on any allotments in Groups 3, 5, and 6 that are not meeting standards or guidelines as well. Those potential reductions, combined with any impacts that may result from changes in management of the Owyhee Group and some Group 6 allotments and proposed changes in the Chipmunk Group and South Mountain Group allotments, could have substantial impacts on local economic activity. Social and economic effects experienced locally from reductions on each permit would be compounded on a county-wide or regional basis.

In addition to the Owyhee 68 permits, there have been decisions recently issued by the BLM Owyhee Field Office that, when implemented, will contribute cumulative effects to the social and economic environment in the analysis area (see Section 2.2 for a description of the grazing permit renewal summary). The Pole Creek Allotment Final EA analyzed, and the proposed decision selected, a 576-AUM reduction. The Final EA and Proposed Decision for the Trout Springs and Hanley FFR allotments was

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<sup>52</sup> The Group 6 allotments listed above all have either Proposed or Final Decisions that have recently been released for public review. Grazing permit renewals for the remaining Group 6 allotments (Fossil Butte, Sinkers Butte, Con Shea, Murphy FFR, Montini FFR, and Joyce FFR) are currently being developed, and Draft and Final EAs, as well as Proposed and Final Decisions, will be released within the same timeframe as Groups 3 through 5, with Final Decisions released before December 31, 2013.

released September 20, 2013, and selected an authorization of 699 active use AUMs, for a reduction of 731 active use AUMs. The Final EA and Proposed Decision for the Nickel Creek FFR allotment selected an authorization of 109 AUMs, which is the same as the previous grazing permit. In the context of cumulative effects analysis, these reductions are considered foreseeable actions rather than speculative because the NEPA analysis is completed and the proposed or final decisions have been issued.

A number of permit renewals have been completed and implemented since implementation of the ORMP in 1999 that may have residual effects to the social and economic environment today. Eighteen of the 134 allotments in the Owyhee Field Office considered in this cumulative effects analysis have had AUM reductions and include Castlehead-Lambert, Cliffs, Elephant Butte, Garat, Hardtrigger, Rockville, Rabbit Creek/Peters Gulch, Swisher Springs, Strodes Basin, Trout Springs, Bull Basin, Nickel Creek, Gusman, Silver City (which was combined with Diamond Creek after ORMP publication), Louse Creek, Burghardt FFR, '45', and Tent Creek. The effects of issuing these permits resulted in AUM reductions totaling 20,766 within the planning area (ORMP table LVST-1, RAS data (available from the Idaho BLM State Office project record upon request)).

The cumulative effects to the social and economic environment analyzed in this EA are within the context of the following three analysis assumptions:

- When it was completed in 1999, the ORMP identified 135,116 active use AUMs in the planning area (Proposed RMP at 23). The Final EIS projected that meeting the rangeland health objectives through the implementation of Alternative E (the selected RMP) would cause substantial adjustments to be made in livestock grazing throughout the planning area (EIS at IV-269). The EIS concludes in the effects to livestock management section (IV-271) that active use AUMs would decrease 22 percent, or about 30,000 AUMs over the estimated 20-year life of the plan. The level of AUM reductions analyzed in the grazing alternatives in this EA, added to all AUM reductions implemented or proposed in other permit renewal actions within the planning area, would result in 115,320 active use AUMs permitted, and would be within the AUM reduction levels analyzed in the Final ORMP/EIS (105,899 AUMs by 2019)<sup>53</sup>.
- In pursuit of meeting the resource objectives in the ORMP as well as the standards for rangeland health, the above AUM numbers are approximate estimates, and future authorized levels of livestock use may change. If future AUM reductions within the Owyhee Field Office are greater than those analyzed in the ORMP/EIS, they will be subject to further NEPA analysis.
- The CEQ regulations state that the *“Human environment” shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment (see the definition of “effects” (Sec. 1508.8). This means that economic or social effects are not intended by themselves to require preparation of an environmental impact statement. When an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment (40 CFR 1508.14).* The effects analysis in this EA discusses the social, economic, natural, and physical environment in this context.

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<sup>53</sup> This document tiers to the ORMP Final Decision and incorporates the Final ORMP EIS by reference.

**Table SOCE-13:** Total value of Owyhee 68 Groups 1-6 permitted AUMs to the community<sup>1</sup>

Alternative	Value of AUMs to community	Total value to community with full authorization of Groups 3&5 AUMs <sup>2</sup>	Total value to community with 75% authorization of Groups 3&5 AUMs	Total value to community with 50% authorization of Groups 3&5 AUMs	Total value to community with 25% authorization of Groups 3&5 AUMs	Total Value to community with no grazing in Groups 3&5
1 (No Action)	\$1,389,340	\$2,935,051	\$2,548,623	\$2,162,195	\$1,775,768	\$1,389,340
2	\$1,395,766	\$2,941,477	\$2,555,050	\$2,168,622	\$1,782,194	\$1,395,766
3	\$1,360,622	\$2,906,334	\$2,519,906	\$2,133,478	\$1,747,050	\$1,360,622
4	\$1,306,669	\$2,852,380	\$2,465,952	\$2,079,525	\$1,693,097	\$1,306,669
5 (No Grazing)	\$966,078	\$2,511,790	\$2,125,362	\$1,738,934	\$1,352,506	\$966,078

<sup>1</sup>Based on estimates by Darden et al. (1999)(see Section 3.10.1 above).

<sup>2</sup>This column is the value of AUMs to the community from the Owyhee River Group, Chipmunk Group (minus Alternative 5) and South Mountain Group allotments, as well as the Group 6 allotments with proposed or final decisions (Pole Creek, Nickel Creek FFR, Trout Springs, and Hanley FFR) allotments; all other columns include the total value from this column plus the total value of the AUMs in Groups 3 and 5 at different possible authorization levels.

### 3.4.2.1.8 Cultural Resources

#### 3.4.2.1.8.1 Resource Specific Analysis Area

The scope of analysis for the South Mountain allotment group is considered to be the individual allotment boundaries. The range of known cultural site characteristics is similar to those in the surrounding areas, the group is not part of a historic district under which sites could have a contributing element potential or would need additional protection, and no recorded or known Traditional Cultural Properties or scared sites are within the allotments.

#### 3.4.2.1.8.2 Common to All Grazing Alternatives

The potential effects from livestock grazing upon cultural resources are discussed in section 3.2.8.1. The greatest threat to the resources is the congregating of animals at site locations. If historic properties experience ground disturbances deeper than 10 centimeters below surface level, there is the possibility of affecting buried cultural deposits and the site's potential eligibility for the NRHP may be compromised.

#### 3.4.2.1.8.3 Alternatives 1 to 5

Alternatives 1 and 2 would fundamentally continue the current grazing systems of the expiring permits. Under these systems, generally the minor effects to sites caused by livestock grazing could be expected to continue, but would not be expected to affect a site's NRHP eligibility. Alternatives 3 and 4 can decrease the possibility of grazing impacts by changing the season of use, reducing the numbers of livestock, and/or including pasture rest cycles. Potential and actual effects as previously discussed would apply to these two alternatives. Any effects to unrecorded sites may continue depending on their locations. Because any new undertakings proposed for the allotments would receive a separate cultural resources review under NHPA, no cumulative effects are expected under these alternatives.

Alternative 5 would remove any possibility of livestock grazing effects to cultural resources and since any future proposed undertakings unrelated to these permit renewals would be subject to a separate NHPA compliance review, no cumulative effects are expected under this alternative.

#### *Paleontological Resources*

Because of the absence of fossil-bearing strata beneath any of the allotments and the subsequent lack of any fossil sites, there would be no cumulative effects to paleontological resources.

## 4 CONSULTATION AND COORDINATION

## 5 LIST OF PREPARERS

Name	Position	Experience
Jake Vialpando	Project Manager	BLM, 20 years
Peter Torma	Rangeland Management Specialist	BLM, 11 years
Kavi Koleini	Ecologist	BLM, 6 years URS Corporation, 5 years
Bonnie Claridge	Fisheries Biologist	BLM, 15 years
Gillian Wigglesworth	Botanist	BLM, 7 years
Timothy Carrigan	Wildlife Biologist	
Ryan Homan	Outdoor Recreation Planner	BLM, 10 years
Brian McCabe	Archaeologist	BLM, 15 years
Jessica Gottlieb	Writer/Editor	USDA, 3 years BLM, 2 years
Jayson Murgoitio	GIS Specialist	DOD, 8 years Environmental Conservation Services, 3 years BLM, 2 years
Eric Mayes	NEPA Specialist	BLM, 11 years
Seth Flannigan	NEPA Specialist	BLM, 3 years

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## 7 APPENDICES

## 8 MAPS

