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Term Permit Renewals for Livestock Grazing in Trout Springs and Hanley FFR Allotments

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Grazing Permit Renewals for the Trout Springs and Hanley FFR Allotments

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List of Acronyms Used in the Document

ACEC	Areas of Critical Environmental Concern
AIRFA	American Indian Religious Freedom Act of 1979
ARPA	Archaeological Resources Protection Act (of 1979)
AUM	Animal Unit Month
BLM	Bureau of Land Management
CAA	Clean Air Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FAR	Functional at Risk
FEIS	Final Environmental Impact Statement
FFR	Fenced Federal Range
FLPMA	Federal Land Policy and Management Act (of 1976)
FRCC	Fire Regime Condition Class
GIS	Geographic Information System
HRP	Hanley Ranch Partnership
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IM	Instructional Memorandum
JMWHP	Juniper Mountain Wildlife Habitat Management Plan
LLC	Limited Liability Corporation

LWC	Lands with Wilderness Characteristics
LWG	Local Working Group
MIM	Multiple Indication Monitoring
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act (of 1990)
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act (of 1966)
OFO	Owyhee Field Office
OHV	Off-Highway Vehicle
OPLMA	Omnibus Public Land Management Act (of March 30, 2009)
ORMP	Owyhee Resource Management Plan
ORV	Outstanding remarkable Value
PFC	Proper Functioning Condition
PFL	Payne Family LLC
PNNL	Pacific Northwest National Laboratory
PORMP/ FEIS	Proposed Owyhee Resource Management Plan/Final Environmental Impact Statement
SOP	Standard Operating Procedures
ROS	Recreation Opportunity Spectrum
SRMA	Special Recreation Management Area
SSP	Special Status Plant
SSS	Special Status Species
TMDL	Total Maximum Daily Load
USDI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management
WNV	West Nile Virus
WSA	Wilderness Study Area
WWP	Western Watersheds Project

Environmental Assessment DOI-BLM-ID-2009-0003-EA
Grazing Permit Renewals for the Trout Springs (0539) and Hanley FFR (0453) Allotments

1.0 Introduction

The Bureau of Land Management (BLM), Owyhee Field Office (OFO) has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA), and other relevant Federal and State laws and regulations. The EA analyzes the effects of different alternatives for livestock management and juniper treatment on the Trout Springs and Hanley Fenced Federal Range (FFR) Allotments. It also serves as a tool to help the Authorized Officer make an informed decision that is in conformance with Owyhee Resource Management Plan (ORMP) (USDI-BLM 1999b) objectives and in compliance with the Idaho Standards for Rangeland Health (Standards) and Guidelines for Livestock Grazing Management (USDI-BLM 1997). It discloses the direct, indirect, and cumulative environmental effects that would result from the various alternatives and potential decisions. This EA was formerly referred to as Environmental Assessment #ID-130-2009-EA-3680.

1.1 Location, Setting and Background

The Trout Springs Allotment is located in southwestern Owyhee County, Idaho, approximately 30 miles south of Jordan Valley, Oregon (Map 1). The allotment lies in the Owyhee Mountains and includes Juniper Mountain. Elevations range from 4,900 feet near the Fairylawn Pasture to over 6,700 feet at Stauffer Flat on Juniper Mountain. Annual precipitation ranges from approximately 12 to 20 inches. The North Fork of the Owyhee River forms the allotment's northern boundary, the southern boundary lies on the south side of Juniper Mountain, Squaw Creek forms a portion of the western boundary and the eastern boundary is generally near the Mud Flat Road (Map 2).

The Hanley FFR Allotment is located at Cliffs, Idaho, approximately 2 miles north of the Trout Springs Allotment (Map 3). Elevation is approximately 5,100 feet.

shows the land ownership for both allotments.

There are some changes between pasture names and numbers that need to be clarified to understand the differences in the alternatives. The 2001 Determination (Appendix A) for example, discusses the V pasture. This pasture is now part of the Pleasant Valley Allotment and is not discussed in this EA. In Alternatives B through E, Pasture 2 has been split into two

pastures. Table 1.1 below provides a crosswalk of pastures and pasture names for each alternative; they are also reflected in Appendix B, which also crosswalks stream segments found in each pasture. Table 1.2 displays federal, state and private ownership by pasture within the Trout Springs and Hanley FFR allotments.

Table 1.1 – Crosswalk of pasture numbers and names.

2001 Determination	1		2		3	4 (V-Pasture)	5 (Fairylawn)
Alternative A	1A	1B	2		3	Removed	4 (Fairylawn)
Alternatives B-E	1A	1B	2B	3	2A	Removed	4 (Fairylawn)
Pasture Name	Middle Fork	Thomas Creek	Grave Creek	Cotton-wood	Twin Springs	N/A	Fairylawn

Table 1.2 – Ownership and Acres across allotments.*

Allotment	**Pastures**	**Ownership**			**Total Acres**
		Federal	**State**	**Private**	
Trout Springs	1A – Middle Fork	5,730	2	0	**5,732**
	1B – Thomas Cr	7,735	0	118	**7,853**
	2A – Twin Springs	2,296	0	1	**2,297**
	2B – Grave Creek	6,904	65	39	**7,008**
	3 – Cottonwood	5,049	0	9	**5,058**
	4 – Fairylawn	247	0	1,280	**1,527**
Totals		**27,961**	**67**	**1,447**	**29,475**
Hanley FFR	1	63	0	598	661

*Because of rounding differences, slight discrepancies in acreages may occur throughout the document.

1.1.1 Juniper Expansion Background

In the Owyhee Uplands, old growth juniper typically grows widely spaced in shallow, rocky, heavy clay soils, or rock outcrops which support sparse fuels and therefore burn infrequently, making juniper the climax species on these sites (Miller et al. 2005). Before Euro-American settlement, an abundance of fine fuels on the more productive loamy sites (characterized by shrub steppe communities) resulted in frequent fires which killed young juniper trees as they tried to expand outside of the fire-resistant areas. These fires created mosaics of uneven-aged stands which provided diverse habitats for mule deer and a diversity of other wildlife species.

The mean fire interval in mountain big sagebrush/Idaho fescue communities is believed to have been approximately 10-25 years with large fires every 38 years (Miller et al. 2005). Baker (2008) estimates the historic fire rotation to be 150-300 years in mountain big sagebrush communities, but his estimates lump fire intervals from large regional scale categories and are

inconsistent with research conducted in the Owyhee Uplands (Burkhardt and Tisdale 1969, Miller et al. 2005, and Bunting et al. 2007).

Euro-American settlement, fire suppression, reduction of fine fuels by livestock grazing, and elimination of burning by Native Americans have disrupted the historic fire regime, allowing juniper to expand beyond its historic fire resistant sites into the shrub steppe, riparian, and aspen communities. In addition to anthropogenic changes to the fire regime, juniper expansion is also influenced by climatic changes, particularly milder temperatures and wetter conditions after the Little Ice Age (Miller et al. 2008, Romme et al. 2009); it is difficult to assess the relative contributions of anthropogenic and natural climate factors on juniper expansion in a particular area, but the effect is cumulative. During the past 140 years, western juniper has been expanding within its geographic range at an unprecedented rate compared to any other time during the Holocene (Miller et al. 2005). Its expansion throughout the Owyhee Uplands is well documented by Burkhardt and Tisdale (1969), Miller et al. (2005), and Bunting et al. (2007). Studies by Bunting et al. (2007) in this area estimate that juniper has been expanding at a rate of approximately 5% per decade. Miller et al. (2008) sampled the ages of 4,332 junipers along an 8- to 15-mile transect, which extended from the lower to upper boundaries of the juniper woodland across the Juniper Mountain area. Their research indicated that 90% of all junipers in this area had become established within the last 140 years.

As juniper increasingly dominates a site, shrubs begin to decrease, diminishing the structural complexity of the plant community and habitat for ground and shrub-nesting birds, mule deer, and other wildlife. Seed pools decline, and the reduction of fine fuels (shrubs and grasses) makes the site increasingly difficult to burn under normal conditions. Eventually, these communities transition into non-diverse, simplified juniper monocultures (Miller et al. 2005). The concerns of wildlife habitat loss resulting from juniper expansion and recommendations to control this expansion are articulated in the 2006 Idaho Sage-grouse Conservation Plan, 2004 Owyhee County Sage-grouse Local Working Group (LWG) Plan, 2004 North American Mule Deer Conservation Plan, and 2005 Coordinated Implementation Plan for Bird Conservation in Idaho (as discussed in 1.7.4).

The stages of juniper expansion into the shrub steppe communities are categorized by Miller et al. (2005) into three transitional phases:

- Phase 1 (early seral) - juniper is present, but shrubs and herbaceous plants dominate the site and are the dominant vegetation that influences ecological processes (hydrologic, nutrient, and energy cycles).
- Phase 2 (mid seral) - juniper is co-dominant with shrubs and herbaceous plants and all three vegetation layers influence ecological processes on the site. The site can still be returned to a shrub steppe community with fire alone.
- Phase 3 (late seral) - juniper is the dominant vegetation and primary plant layer driving the ecological processes on the site. This stage usually lacks the fine fuels (continuous understory) needed to carry a fire except under extreme conditions. Consequently, pre-burn cutting is required to recreate fuel continuity that would allow a prescribed fire to burn and carry through Phase 3 juniper stands under more moderate conditions.

Geographic Information System (GIS) layers based on information from a University of Idaho analysis of the juniper transitional phases (Roth 2004) indicate that 69% of the Trout Springs Allotment consists of Phase 3; 24% is in Phase 2; and only 7% is in Phase 1 (Map 4). These data indicate that throughout much of the allotment, juniper has expanded to the point that fire no longer plays a natural role, except in unusual, large, stand-replacing fires, such as the 2007 Crutcher Fire. Although the entire allotment is mapped (at a relatively coarse scale) as Phase 1, 2, or 3, that does not mean that juniper dominates every acre within those areas; finer scale vegetation mapping shows about 55% juniper cover in the Trout Springs Allotment (see Section 3.2.1).

Juniper expansion results in a loss of the herbaceous component (Miller et al. 2000). Juniper treatments would result in restoring vegetation communities closer to their historic condition. The objectives of the juniper treatments are to restore and maintain the native shrub steppe, aspen, and riparian communities of this area, and to restore the natural role of fire on the landscape for the long-term maintenance of these communities. Although forage is expected to increase as a result of juniper treatments, alternatives were not developed or analyzed with the expectation of increasing livestock use.

1.2 Need for and Purpose of Action

This proposal would respond to application for renewal of permitted grazing in accordance with the Federal Land Policy and Management Act (FLPMA), Taylor Grazing Act, Fundamentals of Rangeland Health (43 CFR 4180), and the Owyhee Resource Management Plan (ORMP). The purpose of this action is to improve resource conditions through changes to livestock grazing management and vegetation treatments.

This action is needed here and now because:

1- Currently, none of the applicable standards are being met on the Trout Springs Allotment, and livestock grazing and juniper expansion are significant causal factors (Appendix A: 2012 Trout Springs Allotment Standards and Guidelines Determination).
    a. Standards 1 (Watersheds) and 4 (Native Plant Communities) are not being met, as indicated in the uplands by a reduction of plant vigor, loss of forage plants, increased juniper, loss of litter and cover necessary for nutrient cycling and soil protection, reduced native species diversity (particularly of palatable plants), reduced seed production and dispersal, and reduced seedling survival.
    b. Standards 2 (Riparian Areas and Wetlands), 3 (Stream Channel/Floodplain), and 7 (Water Quality) are not being met. Proper functioning condition assessments determined that 93% of the stream miles assessed are not in proper functioning condition. Indications of not meeting Standards include riparian areas dominated by early seral species with insufficient deep-rooted vegetation to protect streambanks, some stream channels incised with little floodplain and others overly wide and lacking sinuosity, and some streams with elevated water temperatures and/or increased sediment loads.

c. Standard 8 (Threatened and Endangered Plants and Animals) is not being met. The limited abundance and vigor of desirable native bunchgrasses and forbs, and loss of shrubs and associated community structure indicates that the habitat requirements of many special status animal species are not being adequately met throughout much of the allotment, likely resulting in reduced numbers and/or species diversity. Riparian areas that are not in proper functioning condition have resulted in impacts to riparian-dependent special status species, including redband trout, spotted frogs, and neotropical birds.

2- Livestock use in riparian areas, upland vegetation and watershed conditions, and management of wildlife habitat have been identified as issues on the Trout Springs and/or Hanley FFR Allotments. Livestock distribution on the Trout Springs Allotment needs improvement, along with the ability to increase rest/rotation management and exclude livestock from certain sensitive riparian areas.

3- Western juniper expansion is a causal factor for the Trout Springs Allotment not meeting Standards. Juniper is expanding into the shrub steppe, aspen, and riparian communities, transforming many of them into dense juniper woodlands. This reduces habitat for sage-grouse and other shrub steppe, aspen, and riparian-dependent wildlife and plant species. Accordingly, the need to "manage vegetation to achieve healthy rangelands", and "use fire as a management tool to improve rangeland health" is identified in the 1999 ORMP Decision and the need for juniper management is identified in the Management Actions for the respective ORMP Resource Objectives.

4- Standards are not being met on the Hanley FFR Allotment, and livestock grazing and juniper expansion are causal factors (Appendix A: 2010 Hanley FFR Allotment Standards and Guidelines Determination).

a. Standards 4 (Native Plant Communities) and 8 (Threatened and Endangered Plants and Animals) are not being met, as indicated by a dominance of Sandberg bluegrass and juniper, and a deficit of bluebunch wheatgrass, Idaho fescue, perennial forb diversity, and litter amounts, or basically a plant community shift from more palatable to less palatable species. The conversion of a low sagebrush and tall bunchgrass community to one heavily influenced by low grasses and juniper has reduced the potential for these areas to support populations of special status animals.

b. Standard 1 (Watersheds) is not being met, based on alteration of the plant community, but it was determined that significant progress is being made toward meeting the standard, based on an improvement in some soil and hydrologic indicators between 2001 and 2010 Determinations. (Standards 2, 3, 5, 6 and 7 are not applicable.)

A May 15, 2008 Joint Stipulated Settlement between BLM and Western Watersheds Project (WWP) requires a new NEPA document, subsequent decision, and the issuance of a grazing permit before livestock grazing may resume in Pastures 1, 2, and 3 of the Trout Springs Allotment. This settlement was approved in an Order issued by the Honorable B. Lynn Winmill, Chief Judge, United States District Court of Idaho, on June 26, 2008.

1.3 The Decision to be Made

The BLM authorized officer will decide:

1. whether to renew permitted grazing with suitable terms and conditions, whether and to what extent to construct range improvement projects, and
2. whether, and to what extent BLM would implement vegetation treatments.

The BLM authorized officer will consider the following three factors when making the final decision.

1. The degree to which the alternative actions meet the purpose and need and project objectives
2. The degree to which the alternative actions conform to the ORMP and other applicable management direction.
3. The nature and intensity of environmental impacts that would result from implementation and the expected effectiveness of incorporated design features.

1.4 Scoping and Development of Issues

On August 14, 2009, the Owyhee Field Manager issued the Scoping Document for this EA (previously known as ID-130-2009-EA-3680**)**, "Trout Springs Allotment Grazing Permit Renewal" for 30-day comment and review, to all affected grazing permittees, interested publics, and other State and local governments of record for the Trout Springs and Hanley FFR Allotments. A summary of received comments and BLM's response is in Appendix C.

Western Watersheds Project (WWP) provided most of the comments. In summary, they expressed concern about the current conditions of the allotment and the effects of recent livestock grazing on the riparian areas, the natural vegetation, wildlife habitat, and the establishment of noxious and invasive weeds. They stated that the scoping document contained only a limited range of alternatives with no reductions in livestock use to improve the current conditions. Accordingly, they recommended developing alternatives that would change the grazing season away from hot season use and at reduced livestock use levels. WWP disagreed with the need for the proposed range improvement projects and proposed juniper treatments. They emphasized juniper's value as wildlife habitat and disputed the need for the juniper management, especially broadcast burning. They also expressed concerns about the effects of carbon emissions on global climate change. WWP suggested hand cutting with no slash burning as the only appropriate method of juniper management. WWP also proposed designating the entire Juniper Mountain "area" as an Area of Critical Environmental Concern (ACEC) to protect old growth juniper in the area. These last two suggestions were included as Alternatives Considered but not Carried Forward in Section 2.3.

Ron Kay, representing the Idaho Department of Lands, questioned whether stream sections identified as redband trout habitat actually contained such species or their habitat. The presence of redband trout and their habitat within the Trout Springs Allotment has been thoroughly documented by stream sampling and riparian monitoring conducted by BLM and Idaho Department of Fish and Game (IDFG) (BLM and IDFG, unpublished data).

Through the scoping and interdisciplinary team process, BLM identified several issues concerning livestock and juniper management in the Trout Springs Allotment. The foremost issues are:

1. Proposed prescribed juniper burning would increase carbon emissions and may alter wildlife habitat;
2. Hot season grazing encourages increased impacts to riparian areas, wetlands, and fish habitat;
3. Juniper encroachment and livestock grazing have adversely affected and altered upland vegetation and watershed conditions away from reference conditions;
4. Sage-grouse habitat may have been reduced due to juniper encroachment and livestock grazing; and
5. Improper livestock grazing promotes the spread and establishment of noxious and invasive weeds.

On July 12, 2012, the Draft Trout Springs and Hanley FFR Environmental Assessment was issued for a 30-day review period. Comments were received from the Southwest Region of the Idaho Department of Fish and Game, Owyhee Range Service (on behalf of Hanley Ranch Partnership), Ted and Dorothy Payne, Brett Nelson and Western Watersheds Project. Comments were considered and incorporated into the Final EA or were addressed individually. See Appendix N for responses to comments.

1.5 Summary of the Alternatives

BLM initially considered thirteen alternatives for management of the Trout Springs and Hanley FFR Allotments, and eight were analyzed in detail to the point where it was evident that they did not meet the purpose of and need for action. Five alternatives were brought forward for decision. Following is a summary of those alternatives brought forward. See section 2.3 for discussion of those alternatives not brought forward, including those earlier analyzed in detail.

Juniper treatments and interim livestock grazing management would occur and are consistent across Alternatives B, C, D and E.

The five alternatives include:

Alternative A – Current situation or current management from 2002 to 2007 for the Trout Springs Allotment and represents a benchmark to compare against the other alternatives. It is also the only alternative that does not include juniper treatments. This alternative would allow 545 cattle[1] to graze on the Trout Springs Allotment from June 14 to December 23, for a total of 1,988 animal unit months (AUMs). This alternative would also allow grazing on the Hanley

[1] For permitting purposes, "cattle" is the standard kind of livestock identified. One cow is the equivalent of one cow with a nursing calf that weighs less than 600 lbs.

FFR allotment to occur between June 1 and December 30 for a total of seven AUMs on BLM lands.

Alternative B - Up to 530 cows with a rest rotation system, for a total of 1,430 AUMs. Grazing would only occur during the fall (September 15 – December 5). This alternative would allow seven head of cattle to graze the Hanley FFR allotment between October 15 and November 14, for a total of seven AUMs, on BLM lands.

Alternative C - No grazing during the 10-year term of the permit.

Alternative D - Submitted by the Payne Family LLC. It consists of grazing up to 282 cattle from April 15 to September 15, for a total of 1,430 AUMs. April 15 is often too early to meet range readiness criteria on this high elevation allotment, and would often require a delay in livestock turnout but an increased number of cattle could be used. If this does occur, AUMs would not exceed 1,430 and livestock numbers not exceed 350 cattle. This alternative would allow seven head of cattle to graze the Hanley FFR allotment between October 15 and November 14, for a total of seven AUMs, on BLM lands.

Alternative E -Similar to Alternative B in that it consists of fall use (September 15 – December 5) with a rest rotation system, but at a lower use level of up to 475 cattle for a total of 1,147 AUMs. This alternative would allow seven head of cattle to graze the Hanley FFR allotment between October 15 and November 14, for a total of seven AUMs, on BLM lands.

1.6 Conformance with Applicable Land Use Plan

The ORMP guides public land management, including the grazing management program, in the area where the Trout Springs and Hanley FFR Allotments are located. The alternatives were developed to conform with the ORMP, as required by 43 CFR 1610.5-3(a). Relevant objectives and goals from the ORMP are summarized below:

1. Provide for a sustained level of livestock use compatible with meeting other resource objectives. (LVST1: ORMP p. 23)
2. Improve unsatisfactory or maintain satisfactory watershed and vegetative health conditions. (SOIL1: ORMP p. 9; VEGE1: ORMP p. 12)
3. Meet or exceed water quality standards. (WATR1: ORMP p. 11)
4. Maintain or improve riparian and wetland areas to attain proper functioning conditions, and perennial streams to support native fish. (RIPN1: ORMP p. 13; FISH1: ORMP p. 18)
5. Maintain or enhance plant community structure and condition to support wildlife. (WDLF1: ORMP p. 15)
6. Manage special status species and habitats so their existence is not threatened and there is no need for listing under the Endangered Species Act. (SPSS1: ORMP p. 20)
7. Restore the natural disturbance regime to improve rangeland health and native plant communities. (FIRE3: ORMP p. 27)
8. Meet or exceed air quality standards with all authorized actions. (AIRQ1: ORMP p. 9; FIRE4: ORMP p. 27)
9. Manage for specified visual resource management classifications. (VISL1: ORMP p. 44)

10. Protect known cultural resources from loss until their significance is determined; protect/conserve significant cultural resource sites and values. (CULT1 and CULT2: ORMP p. 44-45)
11. Implement a juniper abatement plan for appropriate sites on which juniper is invading. (SOIL1, WATR1, RIPN1, FISH1: ORMP p. 9, 11, 13, 18, respectively)
12. Implement prescribed burning practices in areas where it is determined that burning would improve rangeland health and increase native plant biodiversity in western juniper and big sagebrush vegetation types. (VEGE 1: ORMP p. 12)
13. Use juniper harvesting to achieve a desired plant community. (FORS2: ORMP p. 14)
14. Design and implement vegetation treatments to improve habitat where juniper or shrub density is contributing to unsatisfactory habitat conditions. (WDLF1: ORMP p. 15)
15. Prescribed burning practices will be used in areas where it is determined that burning would improve rangeland health and increase biodiversity in big sagebrush and western juniper vegetation communities. (LVST1: ORMP p. 23)
16. Use natural and prescribed fire in big sagebrush and western juniper-dominated vegetation communities to burn approximately 105,000 acres, (23,300 of which are in current proposal). (FIRE3: ORMP p. 27)

1.7 Relationship to Statutes, Regulations, and Other Requirements

This document is prepared pursuant to Federal law, court orders, collaborative plans, and BLM guidance.

1.7.1 Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management

On August 12, 1997, the Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management were approved by the Secretary of the Interior. Subsequently, livestock management practices must be in conformance with the approved standards and guidelines (USDI-BLM 1997).

1.7.2 Litigation History

Prior to March 4, 1997, permitted use in the Trout Springs Allotment consisted of 344 active AUMs and 269 Suspended AUMS for Pat Payne; 669 Active AUMS and 512 Suspended AUMs for Ted Payne; and 1,914 Active AUMs and 1,458 Suspended AUMs for HRP (HRP). Following March 4, 1997, grazing preference transfers occurred between Pat Payne, Ted Payne, and HRP. Results of these grazing preference transfers resulted in 0 preference AUMS for Pat Payne, 201 preference AUMS (114 active and 87 suspended) for Ted Payne, and 4965 AUMS (2927 active and 2,239 suspended) for HRP.

Following these 1997 transfers and issuance of the Trout Springs grazing permits, on March 31, 1999, the Honorable B. Lynn Winmill, Chief Judge, U.S. District Court, issued a Memorandum Decision and Order (Civil Case No. 97-0519-S-BLW) finding that the BLM violated NEPA when it issued 68 grazing permits (including the permit for the Trout Springs Allotment) in 1997. The decision did not impose a remedy to rectify the NEPA violation. However, on

February 29, 2000, the Honorable Judge B. Lynn Winmill signed a Memorandum Decision and Order (Civil Case No. 97-0519-S-BLW) directing the BLM to complete the review of the allotments associated with the 68 grazing permits with high priority allotments being completed by 2003 and all remaining allotments being completed by 2006. Livestock grazing in the Trout Springs Allotment was to follow the 1997 grazing permit with the inclusion of four interim terms and conditions until a new EA for the Trout Springs Allotment was completed and final decision(s) were issued.

The Trout Springs Allotment draft Standards and Guidelines assessment was completed on March 26, 2001. Following BLM's response to comments received on the draft assessment, final assessments and determinations were completed for the Trout Springs and Hanley FFR Allotments on July 6, 2001.

On January 2, 2002, the Owyhee Field Manager issued Environmental Assessment #ID-096-01037 and a Proposed Decision to reissue a grazing permit for the Trout Springs Allotment. Protests on the Proposed Decision were received by Committee for Idaho's High Desert (CHID), HRP, Mr. Pat Payne and Mr. Ted Payne.

After reviewing public comments received on the EA and proposed decision, the Authorized Officer determined that additional alternatives were necessary. A FONSI and EA #ID-096-02030 which included and analyzed two additional alternatives was issued with a Proposed Decision.

After carefully considering all protest points and comments, the Owyhee Field Manager issued a Final Decision, (analyzed in EA #ID-096-02030), for the Trout Springs Allotment (#00539) on March 12, 2002. The Final Decision identified 4,965 AUMS (1430 active AUMS and 3535 Suspended AUMS) for the Trout Springs Allotment to HRP. The Final Decision also indicated that as a result of preference transfers in March of 1997, Mr. Pat Payne no longer had an interest in preference in the Trout Springs Allotment and Mr. Ted Payne's preference of 201 AUMS (114 active AUMS and 87 Suspended AUMS) in the Trout Springs Allotment would be confined to the Squaw Creek "V" pasture and HRP's preference was confined to Pastures 1, 2, 2a, and 3 (pasture numbers have since changed) of the Trout Springs Allotment.

BLM received appeals and a Petition for Stay Request of the March 12, 2002 Final Decision (from permittees and Owyhee County) which resulted in a partial stay of the March 12, 2002 final decision being granted. WWP and Committee for High Desert were also granted intervener status in the case.

Also, within a few weeks following the issuance of the March 12, 2002 Final Decision, Pat Payne, Ted Payne, and HRP initiated transfers of grazing preference (April of 2002) within the Trout Springs Allotment. These transfers were initiated prior to the March 12, 2002 final decision becoming effective.

In 2003, the appellants dismissed their appeals due to a Stipulated Settlement Agreement reached between appellants and BLM. Western Watersheds Project and Committee for High

Desert were interveners in the case and on March 24, 2003, counsel for the interveners filed non-opposition to withdrawal of appeals. Counsel for the interveners stated "while they did not believe re-evaluation of the March 2002 decision was warranted, with respect to the settlement agreement interveners through their respected counsel stated the concerns of the settlement need not be resolved by the Administrative Law Judge in the context of the matter."

Thereafter, through an agreement dated March 21, 2003, the appellants agreed to withdraw their appeals, provided the BLM analyzed and re-issued a new grazing decision for the management of livestock grazing in the Trout Springs Allotment prior to the start of the 2004 grazing season. In order to do so, the BLM agreed to consider the provisions of the last draft of the settlement agreement. Pending re-issuance of a new grazing decision, the permittees agreed to abide by the BLM's final decision dated March 12, 2002 (including the partial stay that was granted) for the 2003 grazing season. The Honorable James H. Heffernan issued an Order on March 24, 2003 dismissing the appeals and cancelling the up-coming scheduled hearing.

Since the Trout Spring's Squaw Creek "V" Pasture adjoined the Pleasant Valley Allotment, part of the settlement allowed Payne's to make an allotment boundary adjustment to include the Squaw Creek "V" pasture into the adjoining Pleasant Valley Allotment. Payne's respective 114 active AUMS and 87 Suspended AUMS that were part of the Trout Springs Allotment (tied to the Squaw Creek "V" Pasture) became part of the Pleasant Valley Allotment.

Per the Settlement Agreement, on November 17, 2003, the Owyhee Field Manager issued a Proposed Decision for a 10 year term grazing permit to HRP for authorization to graze livestock on the Trout Springs (#00539) and Hanley FFR (#00453) allotments. As a result of the protest received, no Final Decision was ever issued following the November 17, 2003 Proposed Decision.

From 2004 through 2006, BLM issued authorizations to HRP in the Trout Springs Allotment which followed the March 21, 2003 Stipulated Agreement that was signed by appellants and the BLM, and remaining portions of the 2002 Final Decision which were not stayed. While grazing preference transfers were initiated between HRP and Payne's shortly after the 2002 Final Decision, HRP continued to receive authorizations to graze in the Trout Springs Allotment. Additional transfer documents between HRP and Payne Family LLC were received again in December of 2005 and processed in 2006. HRP transferred AUMS back to Payne Family LLC and Pat Payne also transferred AUMS to the Payne Family LLC.

Beginning the grazing season of 2007, Payne's along with HRP both received authorizations to graze livestock in the Trout Springs Allotment. HRP continued to run livestock on the Trout Springs Allotment in 2007 through the Payne Family LLC in which HRP was a member.

Following BLM monitoring from 2005 to 2007, monitoring data demonstrated that excessive utilization levels had occurred both within the riparian–wetland areas and in the upland areas of the Trout Springs Allotment. On May 5, 2008, the authorized officer issued a Final Decision effective upon issuance to both HRP and Mr. Ted Payne in order to provide immediate protection for the soils, vegetation, wildlife and riparian-wetland areas within the Trout Springs

Allotment. The Final Decision closed pastures 1, 2, and 3 of the Trout Springs Allotment to livestock grazing for the 2008 – 2009 grazing seasons. Grazing was allowed to continue in the Fairy Lawn pasture of the Trout Springs Allotment (# 5). This closure has been in effective from 2008 – 2011 and continues into the 2012 grazing season.

The May 5, 2008 Full Force and Effect Decision to close the Trout Springs Allotment (pastures 1, 2, and 3) from livestock grazing for the 2008 and 2009 grazing season was appealed by HRP (Mr. Michael Hanley) and Payne Family Grazing Association, LLC (Mr. Ted and Dorothy Payne).

Following HRP and Payne's appeals of the May 5, 2008 Final Decision, BLM entered into a separate Stipulated Settlement Agreement (SSA) with Western Watersheds Projects in WWP v. Dyer, Case 97-0519-S-BLW (D. Idaho) on May 15, 2008. In the SSA, (specifically item # 2 of the SSA), BLM agreed that there would be no livestock grazing in the Trout Springs Allotment (pastures 1, 2, and 3) until appropriate NEPA was conducted and a new Final Decision and grazing permit(s) were issued. By virtue of this agreement, pastures 1, 2, and 3 of the Trout Springs Allotment have remained closed to grazing in the Trout Springs Allotment until BLM completes and issues the new Environmental Analysis, grazing decision(s), and grazing permit(s).

In 2009, BLM received applications for livestock grazing on the Trout Springs Allotment. Following a record of performance review, the HRP application was denied by decision because BLM found that Hanley Ranch Partnership had an unsatisfactory record of performance with respect to its last grazing permit. HRP appealed the BLM decision, and on April 6, 2011, the Honorable Robert G. Holt, Administrative Law Judge issued an Order upholding the BLM's decision. The Hanley Ranch Partnership's summary judgment was denied. Hanley Ranch Partnership then appealed the Order dated April 16, 2011 to Interior Board of Land Appeals (IBLA), and on March 12, 2013, IBLA affirmed BLM's decision to not renew Hanley Ranch Partnership's grazing permit.

BLM determined that the Payne Family LLC had a satisfactory record of performance, and this EA analyzes their proposed alternative along with several other alternatives designed to move towards meeting Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management.

1.7.3 Statutes

The BLM OFO is required to comply with all relevant Acts, including the National Environmental Policy Act (NEPA), Clean Water Act, Clean Air Act, Migratory Bird Treaty Act, FLPMA, Taylor Grazing Act, Bald and Golden Eagle Protection Act, and the Code of Federal Regulations in 43 CFR 4100.

In addition to the above Acts, the National Historic Preservation Act, Native American Graves Protection and Repatriation Act, and American Indian Religious Freedom Act are pertinent to this Proposed Action. Southwest Idaho is the homeland of two culturally and linguistically related tribes: the Northern Shoshone and the Northern Paiute. In the latter half of the 19th

century, reservations were established at Duck Valley on the Nevada/Idaho border west of the Bruneau River. The Shoshone-Paiute Tribes residing at Duck Valley today actively practice their culture and retain aboriginal rights and/or interests in this area. The Shoshone-Paiute Tribes claim aboriginal rights to their traditional homelands as their treaties with the United States, the Boise Valley Treaty of 1864 and the Bruneau Valley Treaty of 1866, which would have extinguished aboriginal title to the lands now federally administered, were never ratified.

The BLM is required to consult with Native American tribes to "help assure (1) that federally recognized tribal governments and Native American individuals, whose traditional uses of public land might be affected by a proposed BLM action, will have sufficient opportunity to contribute to the decision, and (2) that the decision maker will give tribal concerns proper consideration" (USDI, BLM Manual Handbook H-8120-1). Tribal coordination and consultation responsibilities are implemented under laws and executive orders that are specific to cultural resources, referred to as "cultural resource authorities," and under regulations that are not specific, termed "general authorities." Cultural resource authorities include: the National Historic Preservation Act of 1966, as amended (NHPA); the Archaeological Resources Protection Act of 1979 (ARPA); and the Native American Graves Protection and Repatriation Act of 1990, as amended (NAGPRA). General authorities include: the American Indian Religious Freedom Act of 1979 (AIRFA); the National Environmental Policy Act of 1969; the Federal Land Policy and Management Act of 1976; and Executive Order 13007-Indian Sacred Sites. The proposed action is in compliance with the aforementioned authorities.

1.7.4 Collaborative Habitat Management Plans

The purpose and need for action is also consistent with objectives and management actions for the following wildlife habitat conservation plans developed cooperatively by diverse groups of agency, conservation, and sportsmen interests.

2006 Conservation Plan for Greater Sage-grouse in Idaho: The Idaho Sage-grouse Advisory Committee developed a conservation plan in 2006 (ISAC 2006), and the Owyhee Sage-grouse Local Working Group (LWG) (2004) developed a plan in 2000, updated in 2004. Conservation plan objectives include:

1. Manage Idaho's landscape to foster a dynamic sagebrush ecosystem that includes a diverse species composition of sagebrush, grasses, and forbs; and incorporates structural characteristics that promote rangeland health in general, and sage-grouse habitat requirements in particular.
2. Manage conifer encroachment to restore sage-grouse habitat improving understory habitat quality in areas where sagebrush cover limits the herbaceous cover needs of sage-grouse, improving understory quality where sagebrush cover is otherwise suitable.

The North American Mule Deer Conservation Plan: "restore or improve mule deer habitat function throughout mule deer range" (MDWG 2004). The most relevant objectives include:

1. Proactively manage shrub communities (using prescribed fire, mechanical treatment, or other approaches, as appropriate, at a site specific basis) to maintain mosaics of uneven aged stands to enhance habitat conditions for mule deer.

2. Manage mule deer habitat in a fashion to control type conversions (i.e., conversion of rangeland to croplands, and shrublands to monotypic pinyon-juniper stands).
3. Allow normal fire regimes to occur where this practice does not pose high risk to human developments.

Coordinated Implementation Plan for Bird Conservation in Idaho: (Idaho Steering Committee Intermountain West Joint Venture 2005): Juniper/pinyon pine/mountain mahogany habitats (page 23):

1. Protect, maintain, enhance and/or restore historical juniper woodland habitat, limit further expansion into adjacent grasslands, shrublands, aspen, and riparian areas, and restore encroached habitats by removing juniper woodlands through active management.

2.0 Alternatives

2.1 Alternative Development Process

Five alternatives have been developed and analyzed to renew the 10-year grazing permit for livestock grazing in the Trout Springs Allotment. Alternative A reflects the "current grazing" situation that was most recently in place on the allotment. Alternative D was submitted by the Payne Family LLC, permittee on the Trout Springs Allotment, and supplemented by the BLM to address the vacant permit. Alternatives B, C and E were developed to improve grazing management practices necessary to make significant progress toward meeting Standards and to meet ORMP objectives and other applicable management and resource objectives. Two alternatives are presented for the Hanley FFR Allotment, a current grazing alternative and a second alternative incorporating management designed to enable the allotments to make significant progress toward meeting Standards and ORM objectives.

The transfers discussed in Section 1.7.2 resulted in final allocations of 699 active and 0 suspended AUMs to Payne Family LLC and 731 active and 3,535 suspended AUMs to HRP on the Trout Springs Allotment. During the analysis process, BLM found that administrative errors were made when these transfers occurred. After discussions with Payne Family LLC and HRP, the BLM determined that the correct AUM allocations should be 352 active and 694 suspended AUMs for Payne Family LLC and 1078 active and 2841 suspended AUMs to HRP. Those values are reflected in BLM alternatives B and E.

2.2 Management Common to Multiple Alternatives

The following, where appropriate, apply to Trout Springs and Hanley FFR Allotments.

A Water Quality Restoration Plan (Appendix D) would be implemented once an alternative is selected.

2.2.1 Inventory and Monitoring

1. Monitoring studies would be conducted during the term of the permit in accordance with the Idaho Minimum Monitoring Standards (USDI-BLM 1984) and IM ID-2008-022 (Monitoring Strategies for Rangelands) (USDI-BLM 2008a). Monitoring studies would include, but are not limited to, the following: 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. Frequency of monitoring activities would vary from 1-6 years depending on study type.
2. Pretreatment inventories for the proposed treatment areas (juniper treatments and range improvement projects) would include wildlife, botanical, and cultural surveys.
    a. Pretreatment wildlife surveys would include raptor nest surveys and Columbia spotted frog occupied habitat monitoring.
        - Raptor nest sites would be inventoried within treatment areas. Pretreatment field surveys would be completed prior to juniper treatments planned to occur during the breeding season to identify active and inactive raptor nest sites. For juniper treatments scheduled to occur during the breeding season, breeding activity status would be confirmed between May 15 and August 15 of the current breeding season.
        - Identified raptor nesting sites and Columbia spotted frog habitat impacts will be mitigated through avoidance during treatment layout and adjustment of cutting specifications. For example; raptor nesting trees will be identified prior to treatments and avoided, active ignition will be avoided in Raptor nesting sites and Columbia spotted frog habitats (see Section 2.2.4.1).
    b. Special status plant surveys have been conducted at all proposed range improvement sites and representative juniper treatment areas, and in some situations proposed fence locations have been adjusted to minimize effects to special status plants (Corbin 2010a, 2010b).
3. All pastures have had some cultural inventory completed in consultation with the Idaho State Historic Preservation Office (SHPO), and all proposed range improvements have been surveyed. Additional survey would be conducted prior to juniper treatments in some areas, and significant sites identified through survey and record searches would be protected if juniper treatments were implemented (see Section 2.2.4.1 #15). Monitoring of significant sites would be conducted to assess any damage that may be attributed to juniper treatments, livestock management activities or natural processes.
4. Noxious weed monitoring and control is ongoing in this area. Consistent with the Final Vegetation Treatments Using Herbicides Programmatic Environmental Impact Statement (Vegetation FEIS) (USDI-BLM 2007) and the Boise District Noxious and Invasive Weed Treatment EA (2005), weed populations are recorded, treated, monitored, and re-treated as long as they persist. Because undiscovered noxious weeds may also exist, inventories would be conducted prior to project implementation. The effectiveness of weed control would be monitored using site-specific and landscape level methods.
    a. Site-specific weed monitoring would involve assessing the effectiveness of the treatment or control method on specific weed species relative to application rate, method, and treatment area. Monitoring methods may be qualitative or quantitative and would be commensurate with the level of treatment complexity, size, and extent of infestation. The methods used to monitor treated areas may include field observations, photo plots, and/or

density plot methods. Management actions may be refined or changed over time as this data is analyzed.

b. Landscape level weed monitoring would be accomplished over the long term by tracking weed occurrences through GIS mapping. Weed sites would be inventoried and mapped on the ground to monitor their extent and rate of spread.

2.2.2 Management Objectives

The following management objectives would be monitored to help determine whether Standards are being met with the grazing management prescribed and to evaluate implementation of the permit and juniper treatments, as applicable. The BLM-developed alternatives were designed to conform to ORMP goals and attain the management objective values to a greater or lesser extent, per objective and alternative, and thus moving toward achieving Standards. These objectives articulate allotment-specific objectives and are not terms and conditions of the permit. Rather, they are used to periodically evaluate whether terms and conditions (particularly animal numbers and dates) are resulting in the expected management effects, such as proper utilization. This information would be used to inform future decisions. Failure to meet an objective in any given year would not necessarily trigger any action by the BLM. However, the BLM may choose to take action if necessary.

The following objectives would apply to Alternatives A and D:

1. Utilization of key upland herbaceous forage species by livestock of no more than 50% if pasture includes rest or deferred rotation.
2. Utilization of key upland herbaceous forage species by livestock of no more than 40% if pasture is grazed annually during the critical growth period (when perennial grasses are actively growing).
3. Utilization of key browse species of no more than 30% in mule deer winter range and no more than 40% in other habitats (ORMP Map WDLF-1 page M-7).
4. Streambank alteration by hoof impacts less than 10% in linear area.
5. Herbaceous riparian residual stubble height of at least 4 inches (where applicable) at the end of the growing season.
6. Utilization of riparian willows less than 25% on shrubs less than five feet in height.

The following objectives would apply to Alternatives B, C, D and E:

1. Seral (non-old growth) juniper mortality of 50-70% within Phase 2 and 3 juniper encroachment areas post-treatment.
2. Post-broadcast burn canopy and ground cover of herbaceous vegetation at least 80% of what is found in the unburned islands and adjacent areas after the second growing season.
3. Post-broadcast burn aspen leaders an average height of at least four feet on areas accessible to livestock after the second growing season.

2.2.3 Range Improvement Projects (Alternatives B, D and E)

In addition to changes in livestock grazing management and juniper treatments, the following range improvements are proposed. Implementation of these projects would improve the overall management of livestock grazing on public land in the Trout Springs Allotment and

would move conditions toward meeting Standards. The alternatives associated with each improvement are listed in the description of each. Any new fences located on public land would conform to the specifications for standard livestock fences in deer/elk/pronghorn and sage-grouse habitat (IM# ID-2012-043), and in accordance with the ORMP or Boise District Office fence specifications and fence marking guidelines (IM # ID-100-2011-001). Depending upon its availability of funding, BLM may contribute funding to the construction of these projects. Construction of new improvements would utilize techniques to minimize disturbance, as practicable. Motorized travel for survey, design, construction, or maintenance of projects (i.e. fences) would be limited to existing, authorized roads and trails, unless approved by the Authorized Officer.

Range improvement effects are analyzed in Alternatives B, D and E. All, some, or none of these range improvements may be selected in the Proposed/Final Decision. The following range improvements are being considered, as shown on Map 5:

1. Pasture 2B/3 Division Fence – This division fence is applicable to Alternatives B, D and E. Approximately 0.5 mile of new 3-wire fence would be constructed and serve as the division fence for Pasture 2B and 3. It would tie into natural barriers from an existing fenceline in Section 16 to the east and Cottonwood Creek Canyon to the west. This fence would provide a pasture boundary creating two pastures. Additional pastures would allow improved management of livestock by reducing the amount of time livestock are grazing within each pasture, which would decrease the possibility of livestock re-grazing plants, grazing/trampling in riparian areas, and disturbing wildlife.
2. Cottonwood Headwaters Exclosure – This exclosure is applicable to Alternatives B, D and E. Approximately 1.0 mile of new 4-wire fence would be constructed west of the current, holding field fence. Also, two cattle guards would be installed: one on the new fence and one on the existing fenceline in the southwest corner of Section 35. This would create an exclosure of approximately 320 acres that would allow recovery of an active gully system and create an upland reference area, as requested by WWP. This exclosure was discussed during a field tour with the BLM, WWP, and permittees on November 9, 2009. This exclosure would provide protection to the headwaters of Cottonwood Creek; excluding livestock from the area would prevent excessive bank sloughing from hoof impacts and allow deep-rooted riparian vegetation currently present to increase and eventually stabilize the area.
3. Pasture 2A/2B Northern Gap Fence – This gap fence is applicable to Alternatives B, D and E. Natural topography and rimrock make up most of the pasture boundary. Up to 0.5 miles of gap fencing would be installed. This fence would provide a pasture boundary creating two pastures. Additional pastures would allow improved management of livestock by reducing the amount of time livestock are grazing within each pasture, which would decrease the possibility of livestock regrazing plants, grazing/trampling in riparian areas, and disturbing wildlife.
4. Reconstruction of Pasture 2A Southern Fenceline – This fence reconstruction project is applicable to Alternatives B, D and E. Approximately 4 miles of existing 3-wire fence between Pasture 2A and Pastures 1A and 1B would be reconstructed as a let-down fence. Currently, heavy snow makes this fence non-functional and a significant amount of

annual maintenance is required to keep this fence in good working condition. This modification would allow improved wildlife movement. These pastures improve management of livestock by reducing the amount of time livestock are grazing within each pasture, which decreases the possibility of livestock regrazing plants, grazing/trampling in riparian areas, and disturbing wildlife.

5. North Fork Owyhee River Buck and Pole Gap Fence - This project is applicable to Alternatives B, D and E. One short gap fence (approximately 100 ft.) would be constructed along the top of the southern rim of the North Fork Owyhee River, designated as a Wild River, near the Pleasant Valley Allotment in the North Fork Owyhee Wilderness to eliminate livestock access to the river from the Trout Springs Allotment (Map 5). This would prevent any degradation associated with livestock use and improve scenic quality that enhances the overall recreational experience. This fence would be constructed entirely of native materials (i.e., juniper and rocks). BLM would utilize the minimum tool policy in accordance with BLM manual 8560 for all construction within wilderness.
6. Water Haul Site – This water haul site is applicable to Alternatives B and E. The water haul site would have up to two troughs on the west portion of Pasture 3 to provide an additional water source (Map 5). This project would be located near an existing water development on private property. All troughs at this site would include a wildlife escape ramp meeting Boise District specifications. This water haul site will provide additional water to livestock on dry years, which will maintain distribution away from springs, streams and other water sources in the pasture.

2.2.4 Juniper Treatments/Management (Alternatives B-E)

Identical juniper treatments are proposed for Alternatives B-E; no juniper treatment is included in Alternative A. Juniper treatment may or may not be selected in the Proposed/Final Decision. Juniper treatments will target all phases of juniper stands. These areas are targeted because although juniper has become a dominant component of the plant community, adequate herbaceous understory vegetation remains for a successful post-fire recovery. These treatments would be implemented over the next ten years to meet or progress toward meeting the ORMP objectives and Standards 1, 2, 3, 4, 7, and 8, and to maintain/restore existing shrub steppe, aspen, and riparian communities that are/have transitioned to juniper woodlands (Maps 4 and 6). Two types of treatments are proposed:

1. hand cut/girdle and broadcast burning (approximately 19,500 acres of public lands) and
2. hand cut/girdle and jackpot burning (approximately 3,800 acres).

Hand girdling would consist of cutting around the circumference of the tree, into the cambium layer to kill the tree. This is an effective method for controlling large juniper trees, especially in dense juniper stands. Girdling prevents the need for felling the larger trees, thereby reducing ground fuel loading in a treated area, and resulting in less soil heating when the slash is burned. Girdling is less visually intrusive than felling, as girdled trees look as though they were naturally killed by fire. Girdling also creates cavity nesting trees for a variety of bird species.

Broadcast burning would consist of allowing prescribed fire to naturally carry within a prescribed burn perimeter, similar to a natural wildfire. Due to the nature of juniper encroachment outcompeting the shrub and herbaceous layers over time, fire is not able to function in these systems in a natural manner therefore slashing and girdling of juniper is required to build a consistent fuel bed to allow fire to carry through these stands. Jackpot burning or slash burning would consist of burning downed trees and parts thereof to consume remnant slash from cutting treatments without consuming adjacent desirable species such as sagebrush and mahogany.

In broadcast burn or jackpot burn treatment areas, old growth junipers would not be targeted. Old growth trees are identified by rounded, flat, open, or irregularly shaped canopies as opposed to seral trees which are easily distinguished by tight, conical (Christmas tree) shape. Additional indicators of old growth trees include deeply furrowed, fibrous, and reddish bark; presence of lichens; and large branches near the base of the trunk (Miller et al. 2005). Old growth juniper would not be cut. Concentrations of old growth juniper are not being targeted, and are not expected to burn because old growth juniper is largely restricted to rocky, sparsely vegetated sites that historically burned infrequently. A lack of fine fuels associated with these sparsely vegetated sites resulted in infrequent fires, thereby making juniper the climax species there. Old growth junipers are valuable for wildlife habitat, plant community structure diversity, and scenic values.

Juniper treatment would occur in areas where good herbaceous plant recovery is expected, based on the soil types, precipitation zone, and existing plant composition. Therefore, large-scale post-fire broadcast seeding is not planned. A possible exception to this would be if fire breaks are constructed in the event of an escape fire situation. In that case, the fire breaks and any other unplanned disturbed areas would be broadcast seeded (with native seed) and, where practical, harrowed with a UTV, as discussed under the Standard Operating Procedures.

Late stage juniper expansion results in a loss of the herbaceous component (Miller et al. 2000) of the upland shrub-steppe ecosystem. Juniper treatments to arrest expansion would be expected to result in an increase of the herbaceous component which would benefit both wildlife and livestock. The objectives of the juniper treatments are to restore and maintain the native shrub steppe, aspen, and riparian communities of this area, and to restore the natural role of fire on the landscape for the long-term maintenance of these communities, not to increase livestock forage. Although forage is expected to increase as a result of juniper treatments, alternatives were not developed or analyzed with the expectation of increasing livestock use.

The Grasshopper Fire burned part of the Trout Springs Allotment in August 2012; however, juniper treatment is still proposed because the fire covered less than 5% of the proposed treatment acres and because within the area burned, the percentage of seral juniper killed was lower than the specified objectives for treatment (Corbin 2012). The Juni Fire (August 2013) burned another 8% of the treatment area, but again did not produce specified objectives for seral juniper mortality.

Objectives:

The following objectives would apply to juniper treatments:

Hand cut/girdle and broadcast burning: This treatment would occur primarily within the mountain big sagebrush, mountain shrub, mountain mahogany, riparian, meadows, and aspen sites heavily encroached by juniper. The mountain big sagebrush, mountain shrub, and mountain mahogany potential sites are represented by the Loamy 13-16" and Mahogany Savanna 16-22" ecological sites (Map 7). The riparian, meadow, and aspen communities occur as small inclusions within these larger ecological sites.

To build a consistent fuel layer that would carry prescribed fire within these targeted plant communities, seral juniper sufficient to carry a broadcast burn would be cut or girdled with chainsaws. The combination of cutting and girdling provides a fuel layer that is receptive to ignition, can carry fire into tree crowns, and generally limits (controls) where prescribed fire will burn, based on where the cutting and girdling occurs.

Smaller, seral juniper trees, less than 12 inches in diameter, would be completely severed from the stump and felled, while some of the larger seral trees would be girdled. After completion of these treatments, the areas would be broadcast burned in the fall. This timeframe for burning can occur from August to October, depending on the elevation and annual weather conditions. The proposed units would be ignited primarily by heli-torch with some ground ignition. Standard operating procedures to reduce smoke emissions on prescribed burns include burning under dry fuel conditions and when the weather is predicted to carry smoke up and away for better atmospheric dispersion.

The broadcast burn would be implemented under conditions designed to result in 50-70% seral juniper mortality within the targeted vegetation types. If this level of mortality is not reached in the initial broadcast burn, subsequent treatments may be implemented to achieve this objective. A mosaic of burned and unburned patches within the broadcast burn units is expected. This mosaic would be affected by the amount of vegetation present, degree of cutting/girdling, local topography, weather and fuel moisture conditions during the prescribed burn, and ignition methods and patterns. Fire is an imprecise tool, so results cannot be guaranteed, but a mosaic of burn patch sizes from ½ acre to about 20 acres is anticipated, although larger burn patches would be acceptable. Broadcast burn ignition would concentrate in pre-treated (slash and girdle) units of seral juniper. Patches of sagebrush or mahogany within the broadcast burn units will be avoided during ignition phase.

Hand cut/girdle and jackpot burning: This treatment would be used in larger stands of old growth mahogany and less rocky low sagebrush sites. These areas include the old mahogany stand (2,174 acres) located along the Juniper Mountain Road in Pastures 1A, 1B, and 2A, and the Shallow Claypan 12-16" ecological sites, approximately 3,800 acres. Inclusions of riparian, aspen, old growth juniper and meadows (undergoing seral juniper encroachment) occurring within these larger ecological sites would also be treated.

This treatment also consists of hand cutting/girdling but instead of following up with broadcast burning, only the concentrations of debris created, or jackpots, would be burned. No piling of

debris would occur. In low density juniper areas, the slash may be left on-site and not burned. Also, most of the seral trees in targeted areas would be cut/girdled, as opposed to a smaller percentage under the broadcast burn treatment. This treatment allows for only the jackpot of fuels to be burned and not the surrounding vegetation. Because burn patches would normally be confined to the individual tree debris zone, most patches would be small (less than two acres), although some larger patches may also occur. Within large mahogany stands, the treatment would be girdling without burning so as not to threaten mahogany individuals. Jackpot burning would occur in the late fall and winter months when conditions are cool and moist, thereby preventing fire from spreading outside of the slash, and to minimize heat input into the soil.

Non-Treatment Areas: Areas identified for no juniper treatment include the Hanley FFR, North Fork Owyhee Wilderness, and nearly all of the Fairylawn Pasture. Additional non-targeted areas include the Very Shallow Stony Loam and Rocky Canyon ecological sites, and inclusions of old growth juniper and old growth mahogany that lack much encroaching juniper within the larger broadcast and jackpot burn units.

No pre-burn cutting or intentional lighting will occur within these areas, so it is unlikely that fire will carry into these sites due to lack of fuel continuity and arrangement within these sites. As a result internal control lines will not be constructed or required to prevent fire impacting these sites.

2.2.4.1 Standard Operating Procedures (SOPs) for Trout Springs Allotment Juniper Treatments

Broadcast Burning

1. To minimize heat and smoke exposure to fire holding crews, and minimize ground disturbance that would result from establishing new fire breaks, existing natural and human-made fire breaks would be used where possible. Accordingly, about 1,706 acres of public, State, and private land located west of the Mud Flat Road within the Pleasant Valley Allotment and Pleasant Valley FFR is included within the broadcast perimeter and may be treated simultaneously with the BLM portion, with proper authorization from the land owner. This would allow Mud Flat Road to serve as an existing fire break. In addition, 667 acres of public and private land within a portion of the Squaw Creek FFR (located east of Squaw Creek) would also be included.
2. On short portions of existing roads, dozers or graders may be needed to clean out vegetation which could compromise their usefulness as fire lines, and to improve small portions of these roads which may be inaccessible to BLM fire vehicles. No widespread road grading is anticipated nor is the use of this equipment outside of existing roads. A possible exception would be to protect structures on private lands included in the burn perimeters, and to create fuel breaks between the public and private land should the private landowners decide not to allow BLM to burn on their land. Rehabilitation of these areas could include seeding the disturbed fuel break areas.
3. Fire engines, support vehicles, and all-terrain vehicles (ATVs) would be used to contain the fire within control lines and for cutting efforts. Travel would be restricted to existing trails, unless emergency situations arise and as authorized by the incident commander.

4. In accordance with BLM prescribed fire policy, a contingency area is proposed outside the burn perimeters to act as a buffer should a fire burn outside the perimeters. If this happens, the fire would be suppressed in the contingency area and burning operations could then continue in the project area. It is unlikely that the fire would carry into the wilderness, as no pre-treatment work would occur to make fire carry, however, fire could finger into the wilderness area. No ground-disturbing suppression techniques would be used in the wilderness. Suppression in the wilderness would be in accordance with current BLM policy for wilderness fires.
5. The undercarriage of all vehicles involved in the prescribed burn would be cleaned before traveling to the project area to reduce the introduction of noxious weed seed.
6. Burning would be conducted in accordance with the Idaho-Montana Airshed Group guidelines. Permission from the Airshed group is required prior to ignition to ensure local air quality standards would be met.
7. In accordance with the Owyhee RMP besides prescribed burns, wildfire will be allowed to play its natural role through the use of unplanned ignitions under conditions appropriate to achieve the specified broadcast burn objectives.
8. Burning within identified sage-grouse habitat (Map 8) would be completed between July 15 and January 30.
9. Pretreatment fire crews would take appropriate measures based on topography, vegetation, and fuel loads to ensure that broadcast burning does not remove or damage raptor nest trees and/or nest tree stands (i.e., northern goshawk).
10. Broadcast burning would not be conducted within BLM-stipulated buffer zones of raptor nest sites during the breeding season. Buffer zones would be dependent on species, seasonal timing restrictions, and nest site activity status (See Table 2.1 - Raptor Timing and Buffer Stipulations below). Because nesting raptors may be shielded from disturbance by vegetation and/or topographic features, buffer areas may be individually developed and modified based on 3D analytical methods and/or landscape features (e.g., viewshed analysis, physiographic barriers such as cliffs and canyons).

Table 2.1 - Raptor Timing and Buffer Stipulations

Species	Timing[1]	Breeding Season Nest Site Buffer (miles)[2]
Bald Eagle	Feb 1 – July 31	0.5 – 1.0
Peregrine Falcon	Feb 1 – July 31	1.0
Feruginous Hawk	Feb 1 – July 31	1.0
Golden Eagle	Feb 1 – July 31	0.5
Northern Goshawk	Feb 1 – July 31	0.5
Prairie Falcon	Feb 1 – July 31	0.5
Red-tailed Hawk	Feb 1 – July 31	0.33
Swainson's Hawk	Feb 1 – July 31	0.25
Burrowing Owl	Feb 1 – July 31	0.25

[1]Indicates timeframes for prohibiting broadcast/jackpot burning and hand cutting/girdling around nest sites with active breeding attempts or until dispersal of young.
[2]Buffers apply to nest sites with active breeding attempts.

11. Any new raptor nests discovered during treatment activities would be reported within 24 hours by phone or e-mail to the OFO Wildlife Biologist. Protection of these nest sites will be handled on a case-by-case basis.
12. Pre-treatment fire crews would take appropriate measures based on topography, vegetation, and fuel loads to ensure that broadcast burning does not remove or damage Columbia spotted frog occupied habitat unless otherwise approved by the Authorized Officer.
13. Impacts to Columbia spotted frogs would be avoided by prohibiting vehicles within occupied habitat.
14. Existing native species are expected to respond favorably to juniper treatments and changes in livestock management, therefore the need to apply seed is not anticipated except in localized disturbed areas. Where seeding is necessary native species would be given preference for re-vegetation utilizing the most suitable available seed source. The use of aggressive non-native species would be avoided.
15. Necessary additional archaeological inventories and mitigation plans would be coordinated in consultation with affected Tribes and the Idaho State Historic Preservation Office, as applicable. The OFO Archaeologist would review burn plans prior to project implementation. If significant cultural resources were encountered within the project area, project implementation would be postponed and the OFO Archaeologist would be notified. Prior to resuming work, historic property documentation and evaluation would be completed.
16. Pastures with more than an incidental amount of broadcast burning would require rest for the year prior to burning (to provide adequate fine fuels to carry the prescribed burn), and would require a minimum of two growing seasons rest from livestock grazing following prescribed fire. Necessary conditions for resumption of grazing include:
    a. Canopy and ground cover of herbaceous vegetation would be no less than 80% of what is found in the unburned islands and adjacent areas after the second growing season.
    b. Aspen leaders would reach an average height of no less than four feet on areas accessible to livestock.

Hand Cutting and Girdling Treatments

1. Pre-burn juniper felling, cutting branches, or girdling would be used to increase surface fuels where needed to carry fire, and to control seral juniper in lower density areas.
2. Seral juniper adjacent to old growth junipers would be cut and removed from the old growth trees, where practicable.
3. Undercarriages of ATVs would be cleaned before entering the treatment areas to reduce the accidental introduction of noxious weed seed.
4. In accordance with the ORMP, juniper products, such as fire wood and posts would be made available to the public where feasible.
5. Pickups and larger vehicles associated with cutting treatments and wood gathering activities, as well as support vehicles, would be restricted to established roads and trails.
6. Trees would be cut to a stump height of eight inches or less.
7. No live branches will remain on the stump after the western juniper tree is cut. When junipers are cut for jackpot burning or just cut and leave live limbs may be left on juniper during slashing.
8. Cutting crew camp locations would be pre-approved by the Authorized Officer.

9. Cutting within identified key sage-grouse habitat (Map 8) would be completed between July 15 and January 30.
10. Removal or disturbance (i.e., limbing) would not occur to any tree containing a raptor nest (including large cavities suitable for nesting).
11. Cutting activities would not occur within breeding nest site buffers (Table 2.1) until nest failure or dispersal of young. For cutting treatments scheduled to occur during the breeding season, activity status would be confirmed between February 1 and July 31 of the current breeding season. Because nesting raptors may be shielded from disturbance by vegetation and/or topographic features, buffer areas may be individually developed and modified based on a viewshed analysis.
12. Any new raptor nests discovered during treatment activities would be reported within 24 hours by phone or e-mail to the OFO Wildlife Biologist. Protection of these nest sites will be handled on a case-by-case basis.
13. Maintenance activities consisting of hand cutting young juniper that come in after the initial cutting, girdling, and/or burning treatments may occur over the life of the EA.
14. Known, significant archaeological sites would be avoided within the cutting areas.

Interim Livestock Grazing Management

As part of the juniper treatment analysis, the ID team determined that the following procedures would need to be applied to ensure that effective treatments, as well as adequate resource recovery, were implemented and allowed. These SOPs were considered as part of the effects analysis throughout the document.

1. The year of a broadcast burn treatment, the treated pastures would be rested from livestock grazing in order to build enough fine fuels to adequately carry fire.
2. Following burning, the entire areas within the broadcast burned pastures would be rested for at least two growing seasons.
3. The three growing seasons of rest would require deviations from the proposed rotations in Alternatives B, D and E. As such, pasture rotations would continue as outlined in each alternative; however, the treated pasture would be rested approximately three growing seasons (one year of rest during the treatment year and at least two growing seasons of rest thereafter). If the third growing season of rest lands on a year the pasture is grazed in the fall (after September 1), livestock grazing could be authorized, contingent upon conditions meeting project objectives and monitoring criteria.
4. During the required rest period for the burned pastures, livestock use would be reduced on the allotment, and the AUMs associated with the treated pasture(s) would be unavailable. The stocking rates of the authorized (unburned) pastures would not be increased to compensate for the rested burned pastures.

2.2.5 Livestock Trailing (Alternatives B, C, D and E)

BLM analyzed livestock trailing in Environmental Assessment # DOI-BLM-ID-B030-2012-0011-EA (Trailing EA) (USDI-BLM 2012). In 2013, an application for additional trailing routes was received. The OFO Interdisciplinary Team reviewed the application and found the impacts would be the same as those previously analyzed and the BLM completed a Determination of

NEPA Adequacy (DNA). Livestock are trailed through the Trout Springs, Cliffs, Squaw Creek FFR, Pleasant Valley, Pleasant Valley FFR and Pole Creek Allotments cross country, along two-track roads, and on the Owyhee Uplands Backcountry Byway (also known as the Mud Flat Road), its right-of-way, as indicated on Map 12. Not all routes are used every year. The Trailing EA determined that various numbers of cattle would be authorized to trail along four designated routes, with use beginning as early as April 1 and ending December 12, depending on the route. Not all routes would be used every year, but would be authorized annually through issuance of a bill prior to trailing. Although up to 130 AUMs would be authorized for trailing (depending on routes used each year), cattle would be actively trailing and much less than 130 AUMs of forage are expected to be utilized.

Additional Terms and Conditions identified to reduce environmental effects include:

1. Livestock Grazing - Terms and Conditions
    a. Trailing will be active with livestock moving toward their final destination, except at night.
    b. 90% of the livestock will complete their move within the duration as described in the crossing permit. Sick, weak or injured livestock that are not able to finish trailing may be left behind but must be moved to the final destination or private land within 3 days after the end date on the final authorization/grazing bill.
    c. 90% of the livestock will stay within the required 0.25-mile and or 240-foot corridor.
    d. 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.
    e. Per the Final Supplementary Rules published in the *Federal Register* on July 21, 2011 (76 FR 43706), all supplemental feeding of livestock during trailing, including feeding of 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.
    f. 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.
2. Soils - Terms and Conditions
    a. 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.
3. Wildlife - Terms and Conditions
    a. 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 am and 6:00 pm. If applicable, these routes are identified on attached trailing map(s) by Trailing Hour Limitation.

b. 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. If applicable, these areas are included in the Narrow Width buffer as shown on attached map(s).
c. From March 1 to June 30, temporary water sites and over-night 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% of watering and overnighting livestock are to be kept within a 35-acre area or in previously disturbed sites, such as areas around stock ponds or troughs, corrals, past seedings, or other grassland sites.

4. Special Status Plants - Terms and Conditions
   a. Livestock trailing will be narrowed to within 120 feet on either side (240 feet total width) of the identified trailing route within pastures containing special status plants within the otherwise 0.25-mile corridor. If applicable, these areas are included in the Narrow Width buffer as shown on attached map(s).
5. Riparian - Terms and Conditions
   a. Livestock trailing adjacent to perennial streams or springs will require 90% of the livestock to be kept out of riparian areas for resource protection.
6. Cultural - Terms and Conditions
   a. Bedding or other congregation areas will not be allowed within at least 0.25 miles of National Register of Historic Places eligible sites.
   b. Trailing will not occur over wet soils to avoid mixing of undisturbed stratified cultural deposits, as per Boise District Range Readiness soil criteria.
7. Travel Management and Off Highway Vehicles - Terms and Conditions
   a. Motorized vehicles incorporated with trailing activities will remain on existing vehicle routes. Cross country use of motorized vehicles will not be authorized.

2.3 Alternatives Considered But Not Carried Forward

Alternatives were created by BLM staff or suggested by the public through scoping. The following alternatives or alternative components were considered, but not analyzed in detail, because they were ineffective at addressing the purpose of and need for action, were beyond the scope of this project, or were cost prohibitive.

Juniper Related Alternatives

A. Hand cutting the entire area without broadcast or slash/jackpot burning. During scoping, the need for broadcast burning was disputed by WWP; they suggested the targeted treatment areas be hand cut without broadcast burning or slash/jackpot burning. Studies by Bates and Svejcar (2006) found that, in dense juniper areas, unburned debris tended to smother perennial forbs and most perennial grasses, and reduced their establishment due to reduced light levels. They also found that perennial grass density and cover increased faster under burned debris than unburned debris. Additionally, leaving the juniper debris on-site could present a fuel

load problem for several years following treatment (Miller et al. 2005). Also, this alternative would not maintain vegetative covertype mosaics that provide diverse habitat for mule deer and other wildlife, and would not restore desired fire regimes. For these reasons, the BLM did not consider this alternative in detail.

B. Mastication of juniper. The ORMP authorizes the use of mechanical (i.e. mechanized) and chemical methods "but in very limited areas where burning is not an option due to limited fuels or safety*"* (ORMP page 24). Although mastication has been considered by the OFO in the past, it was not analyzed in detail for this analysis. The density of juniper on the sites targeted for broadcast burning is such that mastication would lead to a mulch depth of debris that would retard or completely stop regrowth of associated understory species that are expected to respond after the treatments. The rockiness of the Trout Springs Allotment further dissuades the use of mastication and would require follow up hand cutting treatments. The remoteness of the treatment areas also makes mastication a considerably more expensive option than hand cutting crews.

C. Chaining of juniper. Chaining, although ecologically effective is historically controversial because of initial visual effects. Unlike selective cutting treatments, chaining would indiscriminately take out scattered old growth trees which may occur sporadically with targeted seral juniper. As with mastication, no interested party has suggested controlling juniper by means of chaining on the Trout Springs Allotment.

Grazing Related Alternatives

D. 2002 EA and Decisions. Environmental Assessment #ID-096-02030 (Grazing Permit Renewals for the Trout Springs and Hanley FFR Allotments) and the March 12, 2002 Notice of Field Manager's Final Decisions to Hanley Ranch Partnership and Ted Payne authorized 1,430 AUMs of use on the Trout Springs Allotment (not including the V-Pasture, which has since been included in the Pleasant Valley Allotment), with use in Pastures 1-3 between June 15 and August 30 (and the Fairylawn Pasture between June 1 and December 31). See Appendix B for corresponding pasture names from the 2001 Determination and 2002 EA. A rotation of two years of use from June 15 to July 15 followed by two years of rest was identified for Pastures 1 and 3, with Pasture 2 used every year from July 16-August 30. The Hanley FFR Allotment was to be used between June 1 and December 31 for 7 AUMs. For various reasons, as described in Section 1.7.2, these decisions were never implemented. This alternative has similar use levels to Alternatives B, and D, all with 1,430 AUMs of use for the Trout Springs Allotment, but has fewer pasture rotations and a different season of use.

This alternative was not analyzed in detail for a number of reasons. The additional pasture divisions associated with the current alternatives would result in a shorter amount of time per pasture and thereby move this allotment toward meeting Standards faster than this alternative. In addition, this 2002 alternative does not address the need for juniper management in spite of the importance placed upon it in the RMP. Since that time, additional site specific research by Bunting, Miller, and others (see Section 1.1.1), new BLM directives (see Section 1.7.3.), various collaborative habitat management plans (see Section 1.7.4), and a Fire Regime Condition Class

Analysis (see Section 3.2.1) for this area further emphasize and clarify the need for controlling juniper expansion and re-establishing the natural fire regime to restore and maintain the important shrub steppe and aspen communities.

E. Grazing Use as authorized in 2002 - 2007. As discussed in Section 1.7.2, between the 2002-2007 grazing seasons, specific rotations, livestock numbers, and seasons of use were specified in grazing applications and grazing bills. Through annual applications and billings, the average use for these six years was 2,023 AUMs. Although this six year average use was authorized on the Trout Springs Allotment, this alternative would exceed the AUMs authorized under Alternative A, which would not make significant progress toward meeting Standards as determined in the effects analysis. It would also increase AUMs from the 1,430 AUMs identified in the 2002 Final Decision. Therefore, BLM believes this level of use, particularly hot season use, would not make significant progress toward meeting Standards.

F. Proposed Owyhee Resource Management Plan and Final Environmental Impact Statement, July 1999 (PORMP/FEIS). The PORMP/FEIS described and analyzed five alternatives for managing public lands in the Owyhee Resource Area. Alternative E, the agency preferred and selected alternative, was developed by the BLM Boise District interdisciplinary planning team following review and consideration of public comments received on the draft document. The FEIS Alternative E projected a spring/fall season of use with reduced "projected five or twenty year preference" (from 2,927 Active AUMs to 1,064 projected AUMs) for the Trout Springs Allotment. The stocking level of 1,064 AUMs was estimated at the time to meet resource objectives, but evaluation of monitoring data would determine future stocking levels (USDI-BLM 1999a). Because the active preferences for Trout Springs Allotment alternatives range from 0 AUMs to 1,988 AUMs, the FEIS alternative is within the range of alternatives analyzed in detail in this document.

G. Hanley Ranch Partnership Submittal

This alternative was submitted by Dr. Chad Gibson, a private range consultant for Hanley Ranch Partnership and discussed how grazing would be managed for both permittees. Under this alternative, the grazing authorization would have been determined annually to assure that all grazing treatments occurred in each of the pastures during a two year rotation. The option of stuttering treatments (two consecutive years of each prescribed grazing treatment) could have been implemented if necessary to accommodate grazing and juniper treatments. Up to 500 cattle would have been authorized annually as long as the total AUMs for the allotment were not exceeded and stocking rates were adhered to. The grazing season was proposed from June 1 to November 1 but would typically begin June 16 with the option of earlier use coordinated with grazing allotments in Oregon. Grazing on the Hanley FFR would be at the discretion of the permittee. After being analyzed, it was determined that this alternative would not meet Standards 1, 2, 3, 4, 7 or 8 primarily because livestock would be authorized in riparian during the hot season and little or no deferment from grazing was provided during the critical growth period for upland vegetation. A detailed analysis of this alternative can be found in the Project Record.

H. Rest Rotation

This alternative proposed summer use with a specific grazing rotation, rest every other year (for Pastures 1A, 1B, and 2A), and a reduced number of AUMs. Under this alternative, a total of 530 cattle were proposed to be authorized to graze the Trout Springs Allotment from July 11 through September 30. A specific rest-rotation grazing system was also proposed for this alternative. The Hanley FFR Allotment would continue to be authorized for 7 AUMs, but the public lands within the allotment would only be grazed between October 15 and November 14.
It was determined, however, that this alternative would not meet Standards 1, 2, 3 and 7 because of hot season grazing. A detailed analysis of this alternative can be found in the Project Record.

I. Rest Rotation with Reduced Livestock Numbers

This alternative was similar to Alternative J, but with fewer livestock numbers. This alternative was developed to facilitate juniper treatments and the subsequent reestablishment of the natural fire regime by leaving more fine fuels with a reduced stocking rate, and to provide a wider range of alternatives, including significant reductions. A total of 425 cattle and 1,147 Active AUMs would be authorized to graze in the Trout Springs Allotment annually. This would result in a 42% reduction in Active AUMs as compared to the average actual use. The Hanley FFR Allotment would continue to be authorized for 7 AUMs, but the public lands within the allotment would only be grazed between October 15 and November 14. After being analyzed, it was determined that this proposal would not meet Standards 1, 2, 3 or 7. A detailed analysis of this alternative can be found in the Project Record.

J. Hanley Ranch Partnership Proposal (submitted by Owyhee Range Service during EA review period)

Owyhee Range Service submitted a proposed alternative for consideration during the comment period. The proposal submitted incorporates a minimum of 5 years of rest on the Trout Springs allotment before livestock grazing is resumed on the allotment, unless initiation of juniper treatment is delayed – in that case, the proposed grazing system would be implemented until juniper treatment was initiated.

The total permitted use for both permits on the allotment would be 4,490 AUMs, of which 3,266 AUMs would be suspended for the term of the permit and 25 AUMs of which would be combined with the Hanley FFR. A total of 1,674 active AUMs would be permitted for a season of use from June 15 through October 31.

The proposed grazing system is based on number of days in each pasture, with 4 to 7 days flexibility to best fit resource conditions on the ground. Livestock would not enter pastures 1A or 1B prior to September 1. The proposed grazing rotation is as follows:

Pasture	Even Year	Odd Year	Days of Use	Flex Days
1A	9/2 – 9/27	10/6 – 10/31	26	7
1B	9/28 – 10/31	9/1 – 10/5	35	7
2A	7/23 – 8/1	7/15 – 7/24	10	4
2B	6/15 – 7/22	7/25 – 8/31	38	7

Pasture	Even Year	Odd Year	Days of Use	Flex Days
3	8/2 – 9/1	6/15 – 7/14	30	7

This proposal removes the Fairylawn Pasture from the Trout Springs allotment and incorporates it with the Hanley FFR for a total of 32 AUMs. This allotment would then be used at the discretion of the permittee as long as utilization does not exceed 50%, permitted AUMs (32) are not exceeded and deterioration of public lands does not occur.

A complete description of the proposed alternative is available in the Project Record.

This proposal would authorize grazing use in pastures containing substantial riparian areas during the hot season. As analyzed in Mr. Gibson's previous proposal submitted on August 4, 2009 (and discussed above), as well as in others that proposed to authorize hot season grazing, this would preclude the allotment from meeting or making significant progress toward meeting Standards 1, 2, 3 and 7. Therefore, it is not analyzed in detail.

Miscellaneous Alternatives

K. Area of Critical Environmental Concern (ACEC).

An alternative was considered to designate Juniper Mountain as an ACEC, as proposed by Western Watersheds Project on August 31, 2009. This alternative was determined to be on a larger scale and outside the scope of this EA and should be analyzed, developed, and considered through the Land Use Plan process (43 CFR 1610.7-2). In fact, an ACEC for Juniper Mountain was analyzed in the Proposed Owyhee Resource Management Plan and Final Environmental Impact Statement (PORMP/FEIS), Alternatives C and D (USDI-BLM 1999a); however, it was not selected in the final decision (USDI-BLM 1999b). There are no material changes since 1999 that would justify reconsideration of this alternative in detail. This EA is intended to address Standards and Guidelines requirements and renewal of the Trout Springs and Hanley FFR Allotments Livestock Grazing Permits through grazing management modification and associated projects, including juniper treatments, to meet Standards. Therefore, the ACEC alternative was considered but not analyzed in detail.

L. Trout Springs Allotment Southern Boundary Adjustment

The permittees proposed relocating two miles of the southern boundary fence (located approximately ½ mile south of Red Canyon) because the current fence is difficult to access and maintain. In 2009, BLM personnel flagged a potential alternative fenceline but concluded that the alternate fence would be as difficult to maintain as the existing fence. A second site visit was conducted with the permittee in August 2010, but no better route was found.

M. Ecological Recovery Alternative (submitted by WWP during EA review period)

As discussed in the proposal, "under this alternative, livestock would be removed from the most sensitive areas (pastures with allotments or allotments) to prevent degradation of critical habitats, and disturbance of wildlife during sensitive periods. This would also be done to preserve the values of the Proposed ACEC." The proposal requests restricted standards be established, such as "9 inches of residual grass cover across understory communities at all times", limiting cattle

trampling to less than 5% of the area of a square meter monitored, 6 inches of stubble height on all riparian/meadow area herbaceous species at all times, riparian shrub browse and/or breakage limited to 5% of livestock-accessible new growth and no livestock grazing on areas that are restored. Removal of range improvements in areas that have been closed to livestock grazing, seeding of disturbed areas using local native plant ecotype seeds and seedlings are also recommended.

Grazing would be removed from occupied habitats in ACECs, and all other lands with significant risk of cheatgrass/exotic invasion or other serious degradation with continued disturbance, as well as lands where populations are at risk of extirpation or significant declines if grazing disturbance continues. This alternative suggests that limited fall grazing by a small number of livestock – approximately 50 head – may be possible in one or two sites. The Project Record contains a complete description as submitted of this alternative.

This proposal appears to address an area much larger than the Trout Springs and Hanley FFR allotments. The restrictions that it proposes would essentially eliminate livestock grazing from the Trout Springs and Hanley FFR allotments, as is indicated throughout the proposal. The extensive monitoring proposed if livestock grazing (up to 50 head) could not be supported based on current budget and personnel restrictions, thereby eliminating grazing from the allotment. When restrictions associated with livestock grazing are removed, this proposal closely resembles Alternative C - No Grazing (Extended Rest) for a Ten-Year Term, which is analyzed in detail below.

2.4 Description of Alternatives

This section describes the alternatives that are analyzed in detail. These alternatives are compared in a table format in Table 2.9 in Section 2.5. Each alternative proposes specific terms and conditions. Juniper treatments and general monitoring activities are common to each of the following alternatives, excluding Alternative A.

2.4.1 Alternative A – Continuation of Grazing Practices from 2002 to 2007

Alternative A represents actual grazing management as it was implemented on the Trout Springs Allotment from 2002 to 2007, and is the No Action alternative. Consideration of this alternative is important because it allows the BLM and the public to understand the level and manner of grazing that resulted in the current conditions on the Trout Springs Allotment. As described in the Evaluation and Determination for the Trout Springs allotment (Appendix A) only the data collected through 2008 was considered in the analysis of this alternative as these conditions represent the conditions at the time that authorized livestock grazing last occurred. Although no grazing has been authorized since 2007, significant trespass has been noted on the allotment as recently as 2012.

Scheduled rotations pursuant to the 2003 Settlement Agreement and billing authorizations were not followed, and based on reviews of monitoring and actual use data, large numbers of cattle remained in pastures after the scheduled removal date. Alternative A's grazing system has season-long use, typically beginning in June, and no pasture rotations. Livestock are removed

on a staggered basis through December. Use is estimated at 1,988 AUMs as calculated from the average actual grazing use that was reported by the permittee. See Appendix E – Actual Use. Grazing as described in this alternative has resulted in the current conditions on the Trout Springs Allotment.

Grazing on the Hanley FFR is permitted to occur between June 1 and December 30, for a total of 7 AUMs.

Mandatory Terms and Conditions including livestock kind and numbers; season of use; percent public land; and active, suspended, and permitted AUMs would be as outlined in Table 2.2. Management Objectives outlined in Section 2.2.2 would apply to ensure conformance with the ORMP. See Map 2 and 3 for current allotment and pasture configurations.

Mandatory Terms and Conditions

This table represents a typical grazing year from 2002-2007.

Table 2.2 - Mandatory Terms and Conditions associated with Alternative A

Permit	Livestock No. & Kind	Season of Use	%Public Land	Active AUMs	Suspended AUMs	Permitted AUMs
Trout Springs Allotment						
Permits #1& #2	545 cattle	6/14 – 9/15	100	1,684	2,977	4,965
	382 cattle	9/16 – 9/30	100	188		
	115 cattle	10/1 – 10/15	100	57		
	60 cattle	10/16 – 10/31	100	32		
	30 cattle	11/1 – 11/15	100	15		
	20 cattle	11/16 – 12/3	100	12		
Totals	**545 cattle**	**6/14 – 12/3**	**100**	**1,988**	**2,977**	**4,965**
Hanley FFR Allotment						
Permit #1	1 cattle	6/1 – 12/30	100	7	0	7
Total	**1 cattle**	**6/1 – 12/30**	**100**	**7**	**0**	**7**

Other Terms and Conditions

1. Up to a total of 545 cattle of both herds combined could be authorized annually to graze in the Trout Springs Allotment.
2. Livestock would be removed in a staggered manner beginning on September 16 on the Trout Springs Allotment, with all livestock being removed by December 3.
3. With prior approval by the Authorized Officer, livestock numbers and season of use could vary at the permittee's discretion, as long as resource degradation does not occur on public land in the Hanley FFR Allotment.
4. Pasture use flexibility would be authorized allowing seven days to make pasture moves, provided pastures are cleared of cattle within five days following the annually scheduled pasture move date and as long as AUMs are not exceeded.
5. Changes to scheduled grazing use require prior approval by the Authorized Officer.
6. Livestock turnout dates are subject to Boise District Range Readiness Criteria.
7. Grazing is not authorized in the exclosures in the Trout Springs Allotment. These include:

a. Trout Springs, Middle Fork Spring, Alto Spring, Three Springs, Loveland Spring, and Cottonwood/Albiston Spring exclosures. All other exclosures within the allotment are also excluded from grazing.

8. Properly complete, sign and date an Actual Grazing Use Report Form (BLM Form 4130-5) annually. The completed form(s) must be submitted to BLM, OFO within 15 days of the last day of authorized annual grazing use.
9. Supplemental feeding is limited to salt, mineral, and/or protein in block, granular, or liquid form. If used, these supplements must be placed at least one-quarter (1/4) mile away from any riparian area, spring, stream, meadow, aspen stand, sensitive plant species, playa, or water development.
10. Pursuant to 43 CFR 10.4(b), the BLM Owyhee Field Manager must be notified 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), any ongoing activities connected with such discovery must be stopped immediately and a reasonable effort to protect the discovered remains or objects must be made.
11. Motorized or mechanized transport and motorized equipment is not allowed in wilderness areas without prior authorization.

All existing range improvements currently on the allotment would remain, but no new improvements would be constructed under this alternative. No juniper treatments would occur under this alternative.

2.4.2 Alternative B – Fall Rest Rotation

Under this alternative, a new ten-year grazing permit would be issued for both the Trout Springs and Hanley FFR allotments. A total of 530 cattle would be authorized to graze the Trout Springs Allotment in a deferred rest rotation from September 15 through December 5 for a total of 1,430 active AUMs. Livestock grazing would follow the grazing pattern as outlined in Table 2.3 below. In this rotation, use in all pastures would be deferred until after seed ripe. Additionally, Pastures 1A, 1B and 2A would be grazed every other year, allowing for a year of rest in a two-year rotation (see Table 2.4).

The Hanley FFR Allotment would authorize seven head of cattle to graze from October 15 to November 14 on public lands, for a total of seven AUMs.

Implementation of this alternative would result in a 28% reduction in Active AUMs for the two allotments as compared to the average actual use described in Alternative A. It would also restrict livestock use to the fall of the year, after vegetation has set seed.

<u>Mandatory Terms and Conditions</u>

The new Term Grazing Permit that would be issued for the Trout Springs and Hanley FFR allotments would contain the following mandatory and other terms and conditions.

Table 2.3 - Permitted Use for the Trout Springs and Hanley FFR Allotments associated with Alternative B

Permit	Livestock No. & Kind	Season of Use	%Public Land	Active AUMs	Suspended AUMs	Permitted AUMs
Trout Springs Allotment						
Permit #1	397 cattle	9/15 – 12/5	100	1,053	2,494	3,547
	9 cattle*	9/15 – 12/5	100	25	0	25
Permit #2	133 cattle	9/15 – 12/5	100	352	694	1,046
Totals	**530 cattle**	**9/15 – 12/5**	**100**	**1,430**	**3,188**	**4,618**
Hanley FFR Allotment						
Permit #1	7 cattle	10/15 – 11/14	100	7	0	7

* This use is for the Fairylawn Pasture 4.

Other Terms and Conditions

1. Utilization of key upland herbaceous forage species by livestock of no more than 50%.
2. Utilization of key browse species of no more than 30% in mule deer winter range and no more than 40% in other habitats (ORMP Map WDLF-1 page M-7).
3. Streambank alteration by hoof impacts less than 10% in linear area.
4. Herbaceous riparian residual stubble height of at least 4 inches (where applicable) at the end of the growing or grazing season, whichever occurs later.
5. Utilization of riparian willows less than 25% on shrubs less than five feet in height.
6. With prior approval by the Authorized Officer, livestock numbers in the Fairylawn Pasture 4 and Hanley FFR Allotment could vary at the permittee's discretion, as long as permitted AUMs are not exceeded and resource degradation does not occur on public land.
7. Hanley Holding Field would only be used to gather livestock. Approximately 20 Active AUMs for Permit #1 and 20 Active AUMs for Permit #2 are included. Total AUMs would not exceed 40s.
8. Up to 530 cattle of both herds combined could be authorized annually to graze in Pastures 1A, 1B, 2A, 2B, and 3 of the Trout Springs Allotment.
9. Pasture use flexibility would be authorized allowing five days to make pasture moves, provided pastures are cleared of cattle within seven days following the annually scheduled pasture move date and as long as AUMs are not exceeded.
10. Changes to scheduled grazing use require prior approval by the Authorized Officer.
11. Grazing is not authorized in the exclosures in the Trout Springs Allotment. These include:
    a. Trout Springs, Middle Fork Spring, Alto Spring, Three Springs, Loveland Spring, Cottonwood Creek Headwaters, Cottonwood/Albiston Spring exclosures, and North Fork Owyhee River. All other exclosures within the allotment are also excluded from grazing.
12. Properly complete, sign and date an Actual Grazing Use Report Form (BLM Form 4130-5) annually. The completed form(s) must be submitted to BLM, OFO within 15 days from the last day of authorized annual grazing use.
13. Supplemental feeding is limited to salt, mineral, and/or protein in block, granular, or liquid form. If used, these supplements must be placed at least one-quarter (1/4) mile

away from any riparian area, spring, stream, meadow, aspen stand, sensitive plant species, playa, or water development.

14. Pursuant to 43 CFR 10.4(b), the BLM Owyhee Field Manager must be notified 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), any ongoing activities connected with such discovery must be stopped immediately and a reasonable effort to protect the discovered remains or objects must be made.
15. Motorized or mechanized transport and motorized equipment is not allowed in wilderness areas without prior authorization.

Table 2.4 - Trout Springs and Hanley FFR Allotments - Grazing Schedules.

Trout Springs	**Year1**	**Year2**	**Year 3**
Pasture			
1A Middle Fork	**REST**	9/15 – 10/3	Repeat Cycle
1B Thomas Cr	9/15 – 10/14	**REST**	Repeat Cycle
2A Twin Spring	**REST**	10/4 – 10/14	Repeat Cycle
2B Grave Cr	10/15 – 11/11	10/15 – 11/11	Repeat Cycle
3 Cottonwood	11/12 – 12/5	11/12 – 12/5	Repeat Cycle
4 Fairylawn	9/15 – 12/5		
Hanley Holding Field	9/15 – 12/5		
Hanley FFR	10/15 – 11/14		

Range improvement projects include the Water Haul Site and all fence projects, as described in Section 2.2.3. Juniper treatments would occur in this alternative as described in Section 2.2.4.

2.4.3 Alternative C – No Grazing (Extended Rest) for a Ten-Year Term

The Trout Springs Allotment would be closed to all livestock grazing for a ten-year term and all 4,965 AUMs (3,535 presently in suspension and 1,430 Active) would be unavailable for livestock grazing on public lands within the allotment. Ten year grazing permits would be issued for 0 (zero) active AUMs. No new range improvement construction would occur. Permittees would be responsible for maintaining existing improvements on the allotments. Permittees would be required to keep livestock off of BLM lands when grazing private land within the allotment. Upon expiration of the ten-year term, livestock grazing on the allotment would be reevaluated.

The Hanley FFR would also be closed to livestock grazing for a ten-year term and all AUMs (7 Active) would be unavailable for livestock grazing on the public lands within the allotment. Permittees would be required to keep livestock off of BLM lands when grazing private land within the allotment. Upon expiration of the ten-year term, livestock grazing on the allotment would be reevaluated.

Juniper treatments would occur in this alternative as described in Section 2.2.4.

2.4.4 Alternative D – Payne Family LLC Submittal

This proposal was submitted by the Payne Family LLC (PFL) to BLM on April 2, 2010. Seven meetings were held at the BLM OFO, Lowry Ranch, and the Cooperative Weed Management Area Office in Jordan Valley, Oregon with Ted and Dorothy Payne. Discussions at these meetings included: determination data, objectives, current grazing management, and grazing management proposals to meet the objectives. The PFL proposal only outlined the proposed use for their permit; therefore, BLM incorporated Permit #1 to effectively complete the requirements, noted below, to issue both permits associated with these allotments. The BLM based the permitted use on what they determined would, in conjunction with the Payne Family proposal, allow for progress to be made toward meeting Standards for both the Trout Springs and Hanley FFR allotments.

This grazing proposal is considered PFL's grazing permit application to BLM.

The grazing permits would be issued for a term of ten years. A total of 282 cattle and 1,430 Active AUMs would be authorized to graze in the Trout Springs Allotment annually (see Table 2.5). A total of 3,535 AUMs would be suspended. Cattle would be grazed following the rotation outlined in Table 2.6. Although not submitted as part of their alternative, Management Objectives outlined in Section 2.2.2 would apply to ensure conformance with the ORMP. This would result in a 28% AUM reduction, as compared to the average actual use described in Alternative A.

The Hanley FFR Allotment would continue to be authorized for 7 AUMs, but the public lands within the allotment would only be grazed between October 15 and November 14.

Mandatory Terms and Conditions

Table 2.5 - Permitted Use Associated with Alternative D

Permittee	Livestock Number and Kind	Season of Use	Percent Public Land	Active AUMs	Suspended AUMs	Permitted AUMs
Trout Springs Allotment						
Permit #1	139 cattle	4/15 – 9/15	100	706	2,841	3,572
	5 cattle[1]	4/15 – 9/15	100	25		
Payne Family LLC (Permit #2)	138 cattle	4/15 – 9/15	100	699	694	1,393
Total	**282 cattle**	**4/15 – 9/15**	**100**	**1,430**	**3,535**	**4,965**
Hanley FFR Allotment						
Permit #1	7 cattle	10/15 – 11/14	100	7	0	7

[1] This use is for the Fairylawn Pasture 4.

Other Terms and Conditions

1. In the event that the early season pastures do not meet range readiness criteria by April 15, the corresponding AUMs would be used after September 15 or additional livestock numbers would be allowed. Up to 350 cattle (pairs) could be authorized (179 cattle for Permit #1 and 171 cattle for Permit #2).

2. Hanley Holding Field would only be used to gather livestock. Approximately 20 Active AUMs for Permit #1 and 20 Active AUMs for Permit #2 are included.
3. Pasture use flexibility would be authorized allowing five days to make pasture moves, provided pastures are cleared of cattle within seven days following the annually scheduled pasture move date and as long as AUMs are not exceeded.
4. Changes to scheduled grazing use require prior approval by the Authorized Officer.
5. Livestock turnout dates are subject to Boise District Range Readiness Criteria.
6. Grazing is not authorized in the exclosures in the Trout Springs Allotment. These include:
    a. Trout Springs, Middle Fork Spring, Alto Spring, Three Springs, Loveland Spring, Cottonwood Creek Headwaters, Cottonwood/Albiston Spring exclosures, and North Fork Owyhee River. All other exclosures within the allotment are also excluded from grazing.
7. Properly complete, sign and date an Actual Grazing Use Report Form (BLM Form 4130-5) annually. The completed form(s) must be submitted to BLM, OFO within 15 days from the last day of authorized annual grazing use.
8. Supplemental feeding is limited to salt, mineral, and/or protein in block, granular, or liquid form. If used, these supplements must be placed at least one-quarter (1/4) mile away from any riparian area, spring, stream, meadow, aspen stand, sensitive plant species, playa, or water development.
9. Pursuant to 43 CFR 10.4(b), the BLM Owyhee Field Manager must be notified 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), any ongoing activities connected with such discovery must be stopped immediately and a reasonable effort to protect the discovered remains or objects must be made.
10. Motorized or mechanized transport and motorized equipment is not allowed in wilderness areas without prior authorization.

Table 2.6 - Grazing Rotation – Year 1

Trout Springs	**Year1**	**Year2**	**Year 3**
Pasture			
1A Middle Fork	**REST**	6/28 – 8/1	Repeat Cycle
1B Thomas Cr	5/28 – 7/23	**REST**	
2A Twin Spring	**REST**	6/6 – 6/27	
2B Grave Cr	7/24 – 9/15	4/15 – 6/5	
3 Cottonwood	4/15 – 5/27	8/2 – 9/15	
4 Fairylawn	4/15 – 9/15		
Hanley Holding Field	4/15 – 9/15		
Hanley FFR	10/15 – 11/14		

Range improvement projects include all fences identified in Section 2.2.3. Juniper treatments would occur in this alternative as described in Section 2.2.4.

2.4.5 Alternative E – Fall Rest Rotation with Reduced Livestock Numbers

This alternative was developed to facilitate juniper treatments and the subsequent reestablishment of the natural fire regime by leaving more fine fuels with a reduced stocking rate. This alternative also responds to scoping comments for a wider range of alternatives (including significant reductions) to improve resource conditions with greater consideration to topography, and to progress faster towards meeting Standards while meeting the purpose and need of this EA. See Map 5 for allotment and pasture configurations.

Utilization and actual cattle use data were used with the desired utilization level to calculate carrying capacity. The following formula was used:

$$\frac{\text{Actual Use (1,863 AUMs)}}{\text{Actual Utilization (65\%)}} = \frac{\text{Estimated Carrying Capacity}}{\text{Desired Utilization (40\%)}}$$

Estimated Carrying Capacity = _____

The actual use used in this formula was determined from the start of the grazing season (June 14, 2006 for the 2006 grazing season, and June 16, 2007 for the 2007 grazing season) averaged through the date utilization was read (November 3, 2006, and October 10, 2007, respectively). Although total actual use was higher in those years, these numbers reflect the actual use up to the time utilization was read, providing a more accurate estimate of carrying capacity. Years 2006 and 2007 were used because they were the only years for which both utilization and actual use data exist. Desired utilization levels were reduced from 50% to 40% for upland herbaceous species to compensate for an expected decrease in forage resulting from increased juniper encroachment, and to increase the rate at which the standards for rangeland health would be met. For actual utilization, the median utilization level for 2006 and 2007 (65%) was used. Refer to Appendices E and F for more specific information.

The grazing permit would be issued for a term of ten years. Approximately 425 cattle and up to 1,147 Active AUMs would be authorized to graze in the Trout Springs Allotment annually (see Table 2.7). Up to 475 cows may be authorized for a shorter period of time, but would not exceed 1,147 AUMs. Livestock would be grazed following the rotation outlined in Table 2.8. This would result in a 42% reduction in Active AUMs as compared to the average actual use described in Alternative A (which included approximately 558 unauthorized AUMs). The season of use would be restricted to a fall use period between September 15 and December 5.

The Hanley FFR Allotment would continue to be authorized for 7 AUMs, but the public lands within the allotment would only be grazed between October 15 and November 14.

Mandatory Terms and Conditions

Table 2.7 - Permitted Use Associated with Alternative E

Permit	Livestock No. & Kind	Season of Use	%Public Land	Active AUMs	Suspended AUMs	Permitted AUMs
Trout Springs Allotment						

Permit	Livestock No. & Kind	Season of Use	%Public Land	Active AUMs	Suspended AUMs	Permitted AUMs
Permit #1	310 cattle	9/15 – 12/5	100	835	2,494	3,354
	9 cattle[1]	9/15 – 12/5	100	25		
Permit #2	106 cattle	9/15 – 12/5	100	287	694	981
Totals	425 cattle[2]	9/15 – 12/5	100	1,147	3,188	4,335
Hanley FFR Allotment						
Permit #1	7 cattle	10/15 – 11/14	100	7	0	7

[1] Fairylawn Pasture 4.
[2] Up to 466 cattle of both herds combined could be authorized annually to graze in Pastures 1A, 1B, 2A, 2B, and 3 of the Trout Springs Allotment. This would require a shorter duration than scheduled in each pasture.

Other Terms and Conditions

1. Utilization of key upland herbaceous forage species by livestock of no more than 40%.
2. Utilization of key browse species of no more than 30% in mule deer winter range and no more than 40% in other habitats (ORMP Map WDLF-1 page M-7).
3. Streambank alteration by hoof impacts less than 10% in linear area.
4. Herbaceous riparian residual stubble height of at least 4 inches (where applicable) at the end of the growing or grazing season, whichever occurs later.
5. Utilization of riparian willows less than 25% on shrubs less than five feet in height.
6. With prior approval by the Authorized Officer, livestock numbers in the Fairylawn Pasture 4 and Hanley FFR Allotment could vary at the permittee's discretion, as long as permitted AUMs are not exceeded and resource degradation does not occur on public land.
7. Hanley Holding Field would only be used to gather livestock. Approximately 20 Active AUMs for Permit #1 and 20 Active AUMs for Permit #2 are included. Total AUMs would not exceed 40.
8. Pasture use flexibility would be authorized allowing seven days to make pasture moves, provided pastures are cleared of cattle within seven days following the annually scheduled pasture move date and as long as AUMs are not exceeded.
9. Changes to scheduled grazing use require prior approval by the Authorized Officer.
10. Grazing is not authorized in the exclosures in the Trout Springs Allotment. These include:
    a. Trout Springs, Middle Fork Spring, Alto Spring, Three Springs, Loveland Spring, Cottonwood Creek Headwaters, Cottonwood/Albiston Spring exclosures, and North Fork Owyhee River. All other exclosures within the allotment are also excluded from grazing.
11. Properly complete, sign and date an Actual Grazing Use Report Form (BLM Form 4130-5) annually. The completed form(s) must be submitted to BLM, OFO within 15 days from the last day of authorized annual grazing use.
12. Supplemental feeding is limited to salt, mineral, and/or protein in block, granular, or liquid form. If used, these supplements must be placed at least one-quarter (1/4) mile away from any riparian area, spring, stream, meadow, aspen stand, sensitive plant species, playa, or water development.
13. Pursuant to 43 CFR 10.4(b), the BLM Owyhee Field Manager must be notified 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), any ongoing activities connected with such discovery must be stopped immediately and a reasonable effort to protect the discovered remains or objects must be made.

14. Motorized or mechanized transport and motorized equipment is not allowed in wilderness areas without prior authorization.
15. BLM will periodically measure the resources associated with the various management indicators to determine whether objectives are being met and/or trending toward desired condition. If BLM, in its sole discretion, determines that livestock need to be immediately moved between pastures and/or off of the allotment based upon BLM's monitoring of the resources associated with the objectives, it will notify the permittee. The permittee must comply with the BLM's movement order.

Table 2. 8 - Grazing Schedules – Alternative E.

Trout Springs	**Year1**	**Year2**	**Year 3**
Pasture			
1A Middle Fork	**REST**	9/15 – 10/3	Repeat Cycle
1B Thomas Cr	9/15 – 10/14	**REST**	
2A Twin Spring	**REST**	10/4 – 10/14	
2B Grave Cr	10/15 – 11/11	10/15 – 11/11	
3 Cottonwood	11/12 – 12/5	11/12 – 12/5	
4 Fairylawn	9/15 – 12/5		
Hanley Holding Field	9/15 – 12/5		
Hanley FFR	10/15 – 11/14		

Range improvement projects include the Water Haul Site and all fences as described in Section 2.2.3. Juniper treatments would occur in this alternative as described in Section 2.2.4.

2.5 Comparison of Alternatives – Trout Springs Allotment (#539)

Table 2.9 - Comparison of Alternatives

Comparison by Alternative	Alternative A		Alternative B		Alternative C	Alternative D		Alternative E	
Cattle No.	545 cattle		Up to 530 cattle		0 cattle	282 (or more if late turnout)		Up to 475 Cattle	
Season of Use by Pasture	1A	6/14-12/3	1A	Rest (yr1) 9/15-10/3 (yr2)	Allotment Closed to Livestock Grazing	1A	Rest (yr1) 6/28-8/1 (yr 2)	1A	Rest (yr1) 9/15-10/3 (yr2)
	1B	6/14-12/3	1B	9/15-10/14 (yr1) Rest (yr2)		1B	5/28-7/23 (yr 1) Rest (yr 2)	1B	9/15-10/14 (yr1) Rest (yr2)
	2	6/14-12/3	2A	Rest (yr1) 10/4-10/14 (yr2)		2A	Rest (yr 1) 6/6-6/27 (yr 2)	2A	Rest (yr1) 10/4-10/14 (yr2)
	3	6/14-12/3	2B	10/15-11/12 (yr 1) 10/15-11/12 (yr 2)		2B	7/24-9/15 (yr 1) 4/15-6/5 (yr 2)	2B	10/15-11/12 (yr 1) 10/15-11/12 (yr 2)
	4	6/14-12/3	3	11/13-12/5 (yr 1) 11/13-12/5 (yr 2)		3	4/15-5/27 (yr 1) 8/2-9/15 (yr 2)	3	11/13-12/5 (yr 1) 11/13-12/5 (yr 2)
			4	9/15-12/5		4	4/15-9/15	4	9/15-12/5
			HHF	9/15-12/5		HHF	4/15-9/15	HHF	9/15-12/5
Number of Days per Pasture	1A	173	1A	0 (yr 1) 19 (yr 2)	Allotment Closed to Livestock Grazing	1A	0 (yr 1) 35 (yr 2)	1A	0 (yr 1) 19 (yr 2)
	1B	173	1B	30 (yr 1) 0 (yr 2)		1B	57 (yr 1) 0 (yr 2)	1B	30 (yr 1) 0 (yr 2)
	2	173	2A	0 (yr 1) 11 (yr 2)		2A	0 (yr 1) 22 (yr 2)	2A	0 (yr 1) 11 (yr 2)
	3	173	2B	29 (yr 1) 29 (yr 2)		2B	54 (yr 1) 52 (yr 2)	2B	29 (yr 1) 29 (yr 2)
	4	173	3	23 (yr 1) 23 (yr 2)		3	43 (yr 1) 45 (yr 2)	3	23 (yr 1) 23 (yr 2)
			4	Up to 82		4	Up to 154	4	Up to 82
			HHF	Up to 82		HHF	Up to 154	HHF	Up to 82
AUMs per Pasture	1A	413	1A	0 (yr 1) 326 (yr 2)	Allotment Closed to Livestock Grazing	1A	0 (yr 1) 311 (yr 2)	1A	0 (yr 1) 260 (yr 2)
	1B	557	1B	514 (yr 1) 0 (yr 2)		1B	505 (yr 1) 0 (yr 2)	1B	410 (yr 1) 0 (yr 2)
	2	640	2A	0 (yr 1) 188 (yr 2)		2A	0 (yr 1) 195 (yr 2)	2A	0 (yr 1) 150 (yr 2)

Comparison by Alternative	Alternative A		Alternative B		Alternative C	Alternative D		Alternative E	
	3	360	2B	497 (yr 1) 497 (yr 2)		2B	479 (yr 1) 461 (yr 2)	2B	397 (yr 1) 397 (yr 2)
	4	18	3	394 (yr 1) 394 (yr 2)		3	381 (yr 1) 398 (yr 2)	3	315 (yr 1) 315 (yr 2)
			4	25 (yr 1) 25 (yr 2)		4	25	4	25 (yr 1) 25 (yr 2)
Pasture by Acres per AUM *	1A	13.9	1A	17.6	Allotment Closed to Livestock Grazing	1A	18.4	1A	22
	1B	13.9	1B	15.0		1B	15.3	1B	18.8
	2	13.9	2A	12.4		2A	12.0	2A	15.5
	3	13.9	2B	12.8 (yr 1) 12.8 (yr 2)		2B	13.2 (yr 1) 13.7 (yr 2)	2B	16 (yr 1) 16 (yr 2)
	4	13.9	3	12.7 (yr 1) 12.7 (yr 2)		3	13.1 (yr 1) 12.5 (yr 2)	3	15.9 (yr 1) 15.9 (yr 2)
			4	9.8		4	9.8	4	9.8
Proposed Active AUMs	1,988		1,430		No Grazing	1,430		1,147	
Suspended AUMs	2,977		3,188		No Grazing	3,535		3,188	
Voluntarily Withheld AUMs	0		0		No Grazing	0		0	
Permitted AUMs	4,965		4,618		No Grazing	4,965		4,335	
% Change compared to 2002-2007 Actual Use	0		-28%		-100%	-28%		-42%	
% Change Compared to 2002 Final Decision	>28%		0%		-100%	0%		-20%	
Range Improvement Projects	No		Yes		No	Yes		Yes	
Juniper Treatments	No		Yes		Yes	Yes		Yes	

* The stocking rate (animals per unit area) is the inverse of the acres/AUM, so a higher number of acres/AUM would equate to a lower stocking rate.

3.0 Affected Environment and Environmental Consequences

3.1 Soils/Watershed

3.1.1 Affected Environment – Soils/Watershed

Soils within the Trout Springs and Hanley FFR Allotments are diverse due to their position on the landscape and varying sources of parent material. These soils occur on structural benches, foothills, and mountains. They formed in alluvium and residuum from welded rhyolitic tuff that has been influenced by volcanic ash. The soils are very shallow to deep and well drained. These soils have a xeric soil moisture regime and a frigid soil temperature regime (USDA-NRCS 2003a).

The northern third of Trout Springs Allotment soils are generally Hat-Avtable-Monasterio complex; middle are Mulshoe-Squawcreek-Gaib association; and the southern third are Saturday-Mulshoe complex (USDA-NRCS 2003a). These soils are generally loamy with high amounts of coarse fragments, both on the surface and in the profile. The Pixley-Barkley complex series are representative of soils in the Hanley FFR (USDA-NRCS 2003a). Surface textures are generally silty loam to loamy. The hazard of water erosion on these soils is slight to moderate; however, soils that occur on 30% or greater slopes have a moderate to high hazard. Approximately 3,950 acres in the Trout Springs Allotment and 0 acres in the Hanley FFR are greater than 30% slope. The hazard of wind erosion is low in both allotments.

Trout Springs and Hanley FFR Allotment Determinations identified that neither allotment met Standard 1(Watersheds) (Appendix A), and livestock grazing management was a significant factor in not meeting this standard on Trout Springs. The 2012 Trout Springs Determination identified that in all pastures, the occurrence of large perennial bunchgrasses is reduced and juniper has increased compared to reference conditions. Trend monitoring ground cover data results indicate a replacement of more stable ground cover elements (gravel, rock, persistent litter and biotic soil crust) with less stable (non-persistent litter) cover at two of the four trend monitoring sites. Also, bare ground and basal perennial vegetation trends were stable at three sites and declining at one site. Many ground cover element trends were stable, but most of the changes that did occur indicated less suitable ground cover, which suggest a slightly declining system, from a watershed and native plant community standpoint. Between 2005 and 2009, the increase in basal vegetation at three of four sites indicates ground cover improvement, although stable ground cover elements declined at two sites, bare ground was statistically unchanged, and non-persistent litter had variable trends between sites. These changes suggest more ambiguous results (Appendix G).

The 2012 Trout Springs Determination also identified that on many areas in the allotment, pedestalled interspatial bunchgrass and surface flow patterns were observed during the 2001 Assessment, which are indicators of accelerated erosion. Mechanical damage to the soil surface by hoof action was present where livestock tended to congregate (riparian areas, water developments, salting areas or at certain gates). Additionally, many areas lacked adequate surface cover to protect and stabilize the soil surface.

There are two headcuts in the headwaters of Cottonwood Creek in the central portion of the Trout Springs Allotment that have downcut channels through the riparian area creating two disconnected gullies approximately 800 feet in length. A headcut is an erosional feature where an abrupt vertical drop in the stream bed occurs and typically resembles a small waterfall or, when not flowing, the head cut will resemble a very short cliff or bluff. A gully is a landform created by running water, eroding sharply into and resemble large ditches or small valleys, meters to tens of meters in depth and width. From 2009 observations, the gullies do not appear to be expanding and some upland grasses are beginning to establish on the barren channel banks and soil slumps.

In the 2010 Hanley FFR Determination, the watershed standard is not being met, but is making significant progress toward being met. Frost heaving was evident, while more historic pedestals were observed around Sandberg bluegrass plants. Frost heaving creates raised-soil landforms in various geometries, including circles, polygons and stripes, and requires a frost-susceptible soil, a continual supply of water and freezing temperatures, penetrating into the soil and is accentuated where there is bare soil. Areas of bare soil were small and moderately connected. Vegetation and gravel cover were adequate to prevent accelerated soil erosion; however, lack of deep-rooted perennial grasses and juniper encroachment would eventually affect the immediate area's nutrient and hydrologic cycles.

In the Trout Springs Allotment and, to a lesser extent, Hanley FFR, the encroachment of western juniper is having a negative influence on hydrologic cycles and vegetative community composition and diversity. Juniper is highly competitive in terms of available soil moisture, nutrients, and understory photosynthetic needs (Pierson et al. 2007, Wilcox and Davenport 1995). Due to the increasing juniper population, shrub frequency, bunchgrass composition and growth form, and possibly stream flows have diminished. The expansion of juniper in combination with resource consumptive uses has had long-term negative effects to these systems.

3.1.2 Environmental Consequences – Soils/Watershed

3.1.2.1 Alternative A

Continuation of Alternative A in the Trout Springs and Hanley FFR Allotments would not be expected to make significant progress (measurable and/or observable as defined by Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management) toward meeting Standard 1, as explained below.

Trout Springs

Direct and indirect effects from grazing management: Continuation of the current grazing management would result in decreased plant biomass, insufficient residual litter amounts and soil cover, increased soil erosion, and altered hydrologic cycle. Substantial areas within the allotment would continue to not make significant progress toward meeting Standard 1. Watershed-impairing effects due to western juniper encroachment, combined with the utilization of key forage species during critical growth periods without an adequate recovery period, would

continue to have long-lasting negative effects on plant communities. Mechanical impacts to the soil surface from hoof action would continue where livestock tend to trail and congregate.

Vegetation (upland and riparian) is the primary factor that influences the spatial and temporal variability of soil processes (USDA-NRCS 2003b), and as vegetation condition changes, so does runoff, erosion, and infiltration. Overall watershed condition is closely tied to the health of the biotic community and soil surface stability. Data suggest that current grazing management would not make significant progress toward meeting Standard 1. Upland utilization data for 2006 and 2007 exceeded management objectives of 40% and 50% use (Appendix F). Therefore, under Alternative A, utilization is expected to exceed the management objectives on a yearly basis. Continual over-utilization of preferred palatable grasses would lead to reduced litter for soil protection and, eventually, less vegetation to protect and hold the soil. Grass and shrub frequency or density data identify a static, decreasing or undetermined trend (Appendix G). There were no clear upward trends identified for any of the native bunchgrasses or shrub species. The 2012 Trout Springs Determination identified livestock grazing as the causal agent for not meeting Standard 1 because of accelerated soil erosion, as indicated by water flow patterns and pedestalled bunchgrasses throughout the allotment, reduction of deep-rooted perennial bunch grasses that provide soil cover and litter necessary for soil site stability (Appendix A). Although the majority of the allotment has been closed to livestock grazing for the past five years and within that time upland /riparian vegetation cover should have increased and begun to improve soil and watershed conditions, under this current grazing management system, these poor watershed and soil conditions would likely reoccur and continue in the short and long terms (up to five years and ten years and beyond, respectively).

Effects from juniper encroachment would increase the potential for accelerated soil erosion. As juniper increases, the juniper-dominated hill slopes would have reduced herbaceous plant and litter cover, and would produce rapid runoff from low-intensity rainfall events (Miller et al. 2005, Pierson et al. 2007). Rainfall impact directly on exposed soil can result in sheet erosion, and large interconnected patches of bare ground can concentrate runoff into rills and possibly gullies. Short-term effects would be the initial loss of top soil, generally the most fertile and with higher nutrient contents. Eventually, some subsoil loss could occur. The long-term effects would be a reduction in vegetation community productivity (Miller et al. 2005) and a high unlikelihood of restoring the communities in the future (Bunting et al. 2002).

Hanley FFR

Direct and indirect effects from grazing management: Short and long-term effects (up to five years and ten years and beyond, respectively) from the current grazing management would lead to no change in soil and watershed conditions, and the allotment would continue to not meet the watershed Standard. In the 2010 Hanley FFR Determination (Appendix A), it was noted that soil and hydrologic effects were both rated none to slight, and that some previously identified indicators appeared to improve from 2001 to 2009. However, the overriding issue is the vegetation departure from expected ranges for the ecological site, mainly, a lack of deep-rooted perennial bunchgrasses and the presence of juniper. There have not been noticeable changes in the plant community structure (more deep-rooted perennial bunchgrasses) between the 2001 and

2009 rangeland health field assessments. Therefore, it is unlikely that these changes would occur in the future under the same management.

Lack of deep-rooted bunchgrasses and increases in juniper would affect the local watershed characteristics. Decreased numbers of deep-rooted bunchgrasses would decrease litter amounts necessary to protect soil surface from erosion, and change infiltration and soil nutrient productivity. Increasing juniper encroachment would increase the potential for accelerated soil erosion by decreasing herbaceous plant and litter cover, and increasing rapid runoff from low-intensity rainfall events (Miller et al. 2005, Pierson et al. 2007). Short-term effects would be the initial loss of topsoil, generally the most fertile and with higher nutrient contents. Eventually, some subsoil loss could occur. The long-term effects would be a reduction in vegetation community productivity (Miller et al. 2005) and a high unlikelihood of restoring the communities in the future (Bunting et al. 2002).

Soil disturbance due to hoof action would continue to occur at congregation points on public lands, such as fences and salt lick areas, although this effect would not be specific to Alternative A. These disturbances, though localized, increase erosion potential by removing vegetation, exposing soil surface to raindrop impact, and channelizing runoff from storm events on these areas with compacted soil. Long-term effects are decreased soil nutrients due to soil loss and increased soil erosion, localized in small areas compared to the allotment and watershed. There is the possibility of weed invasions into the local watershed with these disturbances.

3.1.2.2 Alternative B

Implementation of Alternative B in the Trout Springs and Hanley FFR Allotments would be expected to make significant progress (measurable and/or observable as defined by Idaho Standards for Rangeland Health and Guidelines for livestock Grazing Management) towards meeting Standard 1, as explained below.

Trout Springs

Direct and indirect effects from grazing management: As identified in Sections 3.2.2.2 and 3.4.2.2, upland and riparian vegetation are expected to improve in the short and long term due to the fall season of use, reduced stocking rates (12.4-17.6 acres/AUM), and incorporation of rest for Pastures 1A, 1B, and 2A.

Rest and fall season of use would result in improved herbaceous vegetation health, vigor, and reproduction. The proposed grazing schedule rest along with additional rest from the juniper treatments (as described in the interim management) would result in a possible five to six years rest from grazing in Pastures 1A, 1B, and 2A. Pasture rest from grazing would aid in upland and riparian vegetation health, vigor, reproduction and establishment. Also, fall grazing for riparian vegetation is less damaging because most herbaceous vegetation has completed its growth for that season, making it less susceptible to overgrazing (USDI-BLM 2006). Although riparian vegetation in Pastures 2B and 3 would not receive periodic year rest, the vegetation would be expected to slowly improve due to fall season of use. Riparian vegetation improves with fall use because it is less likely to be overgrazed due to cooler air temperatures, livestock water demands tend to be lower, and livestock tend to shift use to the uplands. Additionally, with the fall season

of use and the high elevation (approximately 6,700 feet) of the area, livestock would tend to leave riparian areas for uplands because the air temperature in riparian areas tends to be colder than in the uplands, decreasing riparian use. Woody vegetation (upland and riparian) would be used more by livestock in the fall, but those effects should be mitigated by the rest/rotation grazing schedule allowing the woody shrubs to establish and grow during non-grazed periods. Because vegetation (upland and riparian) is the primary factor that influences the spatial and temporal variability of soil processes (USDA-NRCS 2003b), as vegetation condition improves, reduced runoff and erosion and increased infiltration would be expected. Short and long-term effects (up to five years and ten years and beyond, respectively) to soil and watershed resources would include less physical damage (hoof impact, trampling, soil compaction) to soil surface due to shorter grazing duration, a lower stocking rate, and increased vegetation growth and vigor producing more vegetative and litter cover. Stabilization of previous erosional scars and fewer incidents of accelerated erosion would be expected with increased vegetation cover.

Effects in Fairylawn (Pasture 4) would be the same as Pastures 2B and 3.

Effects from range improvement projects (fences and cattle guard construction) would occur as small, localized disturbances. These short-term, small area disturbances result from construction and minor changes in livestock trailing, causing some soil compaction and potential weed invasion due to vegetation disturbance. The proposed exclosure between Pasture 2B and the Holding Field would protect the headwaters of Cottonwood Creek, because a gully system is present in the lentic area. Excluding livestock would prevent excess bank sloughing from hoof effects and allow resident, deep-rooted riparian vegetation that is currently present to increase and eventually stabilize the area. Negligible soil/watershed disturbance would be expected from the proposed gap fence construction along the North Fork of the Owyhee River because of the size of disturbance. However, excluding Trout Springs Allotment livestock from the North Fork of the Owyhee River would assist in improving riparian plant communities and limiting streambank damage due to hoof impacts.

One water haul site would be established on BLM land adjacent to an existing private watering site to aid in the distribution of livestock, thereby reducing grazing effects to the surrounding areas as a whole, resulting in long-term positive watershed and soil effects. Localized, negative effects to the soil resource in the form of soil compaction, physical disturbance to the soil surface, loss of cover and organic matter inputs would occur. Effects would generally be confined to the immediate area (approximately 0.1 acre of disturbance) and dissipate radially out from the site. The proposed livestock watering site would allow for more uniform use in the pasture by adding an additional water source (another being Mud Flat Reservoir) thereby leaving more residual material on the ground for watershed protection, aiding in better hydrologic function in the long term.

Effects from livestock trailing would include minor soil disturbance due to hoof impacts. Because trailing is limited in area, duration, and intensity, and because range readiness criteria would be implemented, only minimal effects to soils are expected from trailing through the Trout Springs Allotment.

Direct and indirect effects from juniper management: The proposed juniper treatment (burning, girdling, cutting) would impact soil and watershed resources in a variety of ways, but overall would be beneficial to watershed and soil resources. In the short term (the spring immediately following fire), there is potential for increased erosion due to loss of juniper ground cover and fire-induced/natural water repellency (Miller et al. 2005). The erosion would be most evident on steeper sloped terrain and would consist of rilling and some gullies. The potential vegetation loss from broadcast burning could result in landslides, particularly on steeper slopes. However, the broadcast burn treatment projects a 50-70% seral juniper mortality rate in treated areas, leaving approximately 30-50% seral juniper along with patches of understory vegetation. These unburned islands would mitigate some effects by protecting and stabilizing portions of the soil surface. Additionally, stream channels are at risk of widening and/or down-cutting in the short term from episodic high intensity storm events because of a general lack of soil binding vegetation.

In the short term, there is a possibility of soil nutrient loss from the broadcast burn treatment areas. Research has identified a flush of nutrients available immediately after cutting or burning (Miller et al. 2005). Cutting and leaving woody biomass in place (as in most of the jackpot burn areas) has a lower likelihood for accelerated erosion, and subsequent soil nutrient loss to take place, as compared to larger expanses of burned areas (>1,000-acre patches, not expected in these treatments).

Long-term effects of the proposed juniper treatment would be an overall decrease in surface erosion, and the potential increase in spring (lentic areas) flows and groundwater storage (Deboodt el al. 2009). With the expected increase in herbaceous vegetation and ground cover after juniper treatment (see Section 3.2.2.2), erosion potential would decrease in the treated areas (Miller et al. 2005). This change in cover and vegetation density would alter the area hydrology, likely at a small scale, and retain much of the overland flow and increase infiltration in these areas. Research from Deboodt el al. (2009) identified that removal of post-settlement juniper changed the water balance equation in an Oregon watershed; specifically, spring flow, groundwater, and soil moisture all increased compared to pre-treatment levels. The Trout Springs Allotment water balance may change and may exhibit similar increases in spring flows, groundwater, and soil moistures due to the proposed juniper management. The increased light, available nutrients, and improved soil moisture would improve the overall condition of the herbaceous vegetation and shrubs compared to the untreated juniper areas. In the long term, significant progress toward meeting Standard 1 would occur.

<u>Hanley FFR</u>

Direct and indirect effects from grazing management: Implementation of Alternative B would make significant progress toward meeting Standard 1. Limiting grazing to one month (as compared to previous longer use periods) during the late fall would limit herbaceous plant damage by livestock because plants are grazed after their critical growth period and livestock are in the area for a short period of time. As upland vegetation slowly improves, plant litter and below ground biomass would also slowly increase, decreasing water runoff and soil erosion potential in the long term.

There would be some soil disturbance due to hoof action at congregation points, such as fences and salt lick areas. Hoof action effects would be localized and minor due to livestock numbers, fall use, and limited time of use. There is the possibility of weed invasions into the local watershed with these disturbances. Overall, grazing effects would be minimal in the short and long terms (up to five years and ten years and beyond, respectively).

3.1.2.3 Alternative C

Implementation of Alternative C in the Trout Springs and Hanley FFR Allotments would be expected to make significant progress (measurable and/or observable as defined by Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management) towards meeting Standard 1, as explained below.

Trout Springs and Hanley FFR

Direct and indirect effects from grazing management: Extended rest from livestock grazing would improve perennial plant vigor and production, along with subsequent reproduction and establishment. The increased canopy cover, surface litter, above ground structural material, and fibrous root matter would aid in protecting the soil from both wind and water erosion. Site productivity would increase. Any mechanical damage to the soil surface from livestock hoof action would cease. Short and long-term effects (up to five years and ten years and beyond, respectively) to the soil resource would be positive, and watershed health would improve. This alternative would make progress toward meeting Standard 1 faster than all other alternatives.

Direct and indirect effects from juniper management: Effects to watershed and soil resources in the Trout Springs Allotment would be the same as those identified in Alternative B.

3.1.2.4 Alternative D

Implementation of Alternative D in the Trout Springs and Hanley FFR Allotments would be expected to make significant progress (measurable and/or observable as defined by Idaho Standards for Rangeland Health and Guidelines for livestock Grazing Management) towards meeting Standard 1, as explained below.

Trout Springs

Direct and indirect effects from grazing management: Upland vegetation would be grazed during the critical growing season in non-rest years, and livestock would be on pasture for up to 57 days compared to 29 days in Alternatives B and E, increasing the chances for multiple defoliations of the same plant. Both of these effects, as identified in Section 3.2.2.4, could be negative to upland vegetation reproduction and vigor. Additionally, riparian vegetation would be grazed during part or all of the hot season, which is detrimental to herbaceous vegetation and streambanks because livestock tend to concentrate use in riparian areas and streams during hot summer months (USDI-BLM 2006).

However, upland and riparian vegetation is expected to slowly improve under Alternative D due to the decreased livestock numbers (compared to Alternative A) and the incorporation of rest/rotation in Pastures 1A, 1B, and 2A, and deferment in Pastures 2B and 3. Also, because implementation of the juniper treatments would result in additional rest, Alternative D could

have a possible six to seven years of rest from grazing in Pastures 1A, 1B, and 2A. This rest, along with deferment in Pastures 2B and 3, should mitigate most of the negative effects described in the first paragraph of this section and allow upland and riparian vegetation to slowly improve. Improved vegetation (upland and riparian) would result in reduced runoff and erosion, and increased infiltration. Stabilization of previous erosional scars and fewer incidents of accelerated erosion would be expected. In the long term (≈10 years), significant progress toward meeting Standard 1 would occur.

Early livestock turnout (April 15) every other year on Pastures 2B and 3 could have potential adverse soil effects. Boise District Range Readiness Criteria, identified in the grazing permit's Terms and Conditions, would limit potential damage to wet soils from livestock impacts by delaying turnout to a later more appropriate time, lessening soil compaction effects, and decreasing subsequent water runoff and soil erosion. The area's high elevation and juniper densities tend to accumulate snow and retard snow melt, thus, Range Readiness Criteria may not be met by April 15 every year, as shown in April 14, 2010 field observations (USDI-BLM 2010a). Additionally, early spring precipitation occurring after livestock turnout could potentially cause the soils to be more susceptible to hoof impacts and compaction due to their snowmelt saturation. The severity would depend on the timing, intensity, and duration of the storm event, as well as the area's soil moisture content.

Effects of range improvements (fences and cattle guard construction) and livestock trailing would be the same as those identified in Alternative B.

Direct and indirect effects from juniper management: Effects to watershed and soil resources in the Trout Springs Allotment would be the same as those identified in Alternative B.

Hanley FFR

Effects to watershed and soil resources would be the same as those identified in Alternative B and the allotment is expected to make significant progress towards meeting Standard 1.

3.1.2.5 Alternative E

Implementation of Alternative E in the Trout Springs and Hanley FFR Allotments would be expected to make significant progress (measurable and/or observable as defined by Idaho Standards for Rangeland Health and Guidelines for livestock Grazing Management) towards meeting Standard 1, as explained below.

Trout Springs

Direct and indirect effects from grazing management: Alternative E effects would be similar to the effects identified in Alternative B for all pastures due to a similar grazing schedule and pasture rest associated with juniper treatments (as identified in the interim management). However, this proposal further reduces livestock numbers compared to Alternative B, resulting in a lower stocking rate, which should further reduce grazing and related effects to vegetation and soil surface, and allow for faster vegetative response and less soil disturbances due to hoof impacts in Pastures 1A, 1B, 2A, 2B, and 3. Increased growth, vigor, and cover (both herbaceous and litter) would be expected due to the shortened grazing schedule, decreased livestock

numbers, and lower stocking rate. Soils would begin to stabilize in the short term (up to five years) due to increased vegetation cover and less livestock trampling.

Although the stocking rate in Fairylawn (Pasture 4) remains the same as Alternative B, grazing effects would be similar to effects in Pastures 2B and 3 (for upland vegetation) because of similar fall grazing schedule. As upland vegetation improves, ground cover would increase and slow erosion. Increased roots from increased vegetation would improve soil nutrients and infiltration in the long term (up to ten years)

Effects of range improvements (fences and cattle guard construction), the water haul site, and livestock trailing are the same as those identified in Alternative B.

Direct and indirect effects from juniper management: Effects to watershed and soil resources in the Trout Springs Allotment would be the same as those identified in Alternative B.

Hanley FFR

Effects to watershed and soil resources would be the same as those identified in Alternative B, and the allotment is expected to make significant progress toward meeting Standard 1.

3.2 Upland Vegetation, Noxious and Invasive Weeds

3.2.1 Affected Environment – Upland Vegetation, Noxious and Invasive Weeds

Ecological Sites

Ecological sites are descriptions of the expected vegetation based on soils and climate (precipitation and temperature), under a natural disturbance regime. The Trout Springs Allotment is composed of two primary ecological sites (Table 3.2.1; Map 7). The primary ecological sites are a Loamy 13-16" precipitation mountain big sagebrush/bluebunch wheatgrass and Idaho fescue site and a mahogany savanna site. Secondary ecological sites are a Shallow Claypan low sagebrush site and a Very Shallow Stony Loam low sagebrush site; steep rocky canyons (not an ecological site, but mapped separately) also make up a fair amount of the allotment. Ecological site descriptions include information on the dominant climax vegetation expected, as well as transition states both within and outside of the natural range of variation. See Appendix H for a more detailed description of the dominant ecological sites, and Appendix M for a list of common and scientific names of plants used in this document.

Table 3.2.1 - Ecological Sites Mapped in the Trout Springs Allotment

Ecological Site	Dominant Species Expected	Acres*	Percent of Allotment
Loamy 13-16" precipitation ARTRV/PSSPS-FEID	mountain big sagebrush, bluebunch wheatgrass, Idaho fescue	12,800	44%
Mahogany Savanna 16-22" precipitation	curl-leaf mountain mahogany, Idaho fescue	9,400	32%

Ecological Site	Dominant Species Expected	Acres*	Percent of Allotment
Shallow claypan 12-16" precipitation ARAR8/FEID	low sagebrush, Idaho fescue	2,900	10%
Very shallow stony loam 10-14" precipitation ARAR8/POSE-PSSPS	low sagebrush, Sandberg bluegrass, bluebunch wheatgrass	2,100	7%
Steep, rocky canyons	various	2,000	7%
	Total:	29,200	100%

*Acres are rounded to the nearest hundred. Total acres differ from acres listed elsewhere in this document for the allotment because of non-Federal lands, minor ecological sites, and rounding differences.

The ecological sites indicate that under a natural disturbance regime, the Trout Springs Allotment should be dominated by shrub/bunchgrass communities, primarily sagebrush or mountain mahogany with large perennial bunchgrasses. Other vegetation types, such as juniper, aspen, meadows, and riparian areas, are expected to occur as unmapped inclusions within the larger ecological sites.

Current Vegetation

Current vegetation cover type (based on mapping done by the Pacific Northwest National Laboratory (PNNL) from 2000/2001 Landsat satellite imagery) in the Trout Springs Allotment is shown in Table 3.2.2 below.

Table 3.2.2 - Existing Vegetation in the Trout Springs Allotment (based on PNNL data)

Vegetation Cover Type	Percent of Allotment
Juniper	55%
Mountain big sagebrush	21%
Mountain mahogany shrub	10%
Low sagebrush	12%
Meadow/Agriculture/Grass	1%
Aspen	0.4%
Total:	**100%**

The change between expected overstory vegetation and the current vegetation is indicated by comparing the two tables. Ecological site and PNNL mapping were done at different scales so precise matching is not possible, but gross changes in plant community structure are apparent. In general, juniper is occupying a much higher proportion of the landscape than expected, while both mountain big sagebrush and mountain mahogany are substantially reduced; low sagebrush is somewhat reduced. Wildfires since 2001 have slightly reduced the juniper cover indicated by PNNL data (our most recent vegetation map source) within about 25% of the allotment (see Disturbance History, below).

Old growth juniper stands occur primarily within the historically more fire resistant steep rocky canyons and very shallow stony loam ecological sites. However, old growth individuals also

occur as relatively small, unmapped inclusions within other ecological sites. The inclusions where old growth juniper occurs (and where juniper is expected to occur under a natural disturbance regime) are scattered across the Trout Springs Allotment and range in size from single trees on small rock outcrops to several acres (for example on rocky canyon walls). Because the inclusions are small and scattered, they are not separately mapped from the larger ecological sites but are estimated to make up approximately 10% of the Trout Springs Allotment area. Mapping all the old growth trees would be quite labor-intensive, and is not necessary for the landscape-scale treatment proposed (see Environmental Effects). All ecological sites in the Trout Springs Allotment have been affected by juniper encroachment, but particularly the mountain big sagebrush and mahogany savanna sites (Map 4). Under a natural disturbance regime, based on the ecological sites mapped, one would expect a diverse shrub and grass-dominated landscape, with juniper limited to primarily old growth individuals or small stands on rocky areas and other fire refugia (Tirmenstein 1999). See Appendix H for descriptions of plant community states expected for the major ecological sites in the Trout Springs Allotment. The expected grass/shrub-dominated communities are in marked contrast with the current condition of juniper dominance across the majority of the allotment. A GIS analysis comparing historic juniper cover (the potential under a natural disturbance regime) to current conditions estimated a change from 11% historic juniper cover to currently 54% cover within the Trout Springs Allotment, an increase of five-fold over approximately 140 years (Major, in review 2009). Figure 3.2.1 presents historic (potential under normal disturbance regime) and current Juniper Cover Classes. Blank polygons within the figures represent areas of rocky outcrops, canyons, and claypans where more than a patchy distribution would not be expected. Historically, juniper coverage did not exceed 20% cover within any polygon.

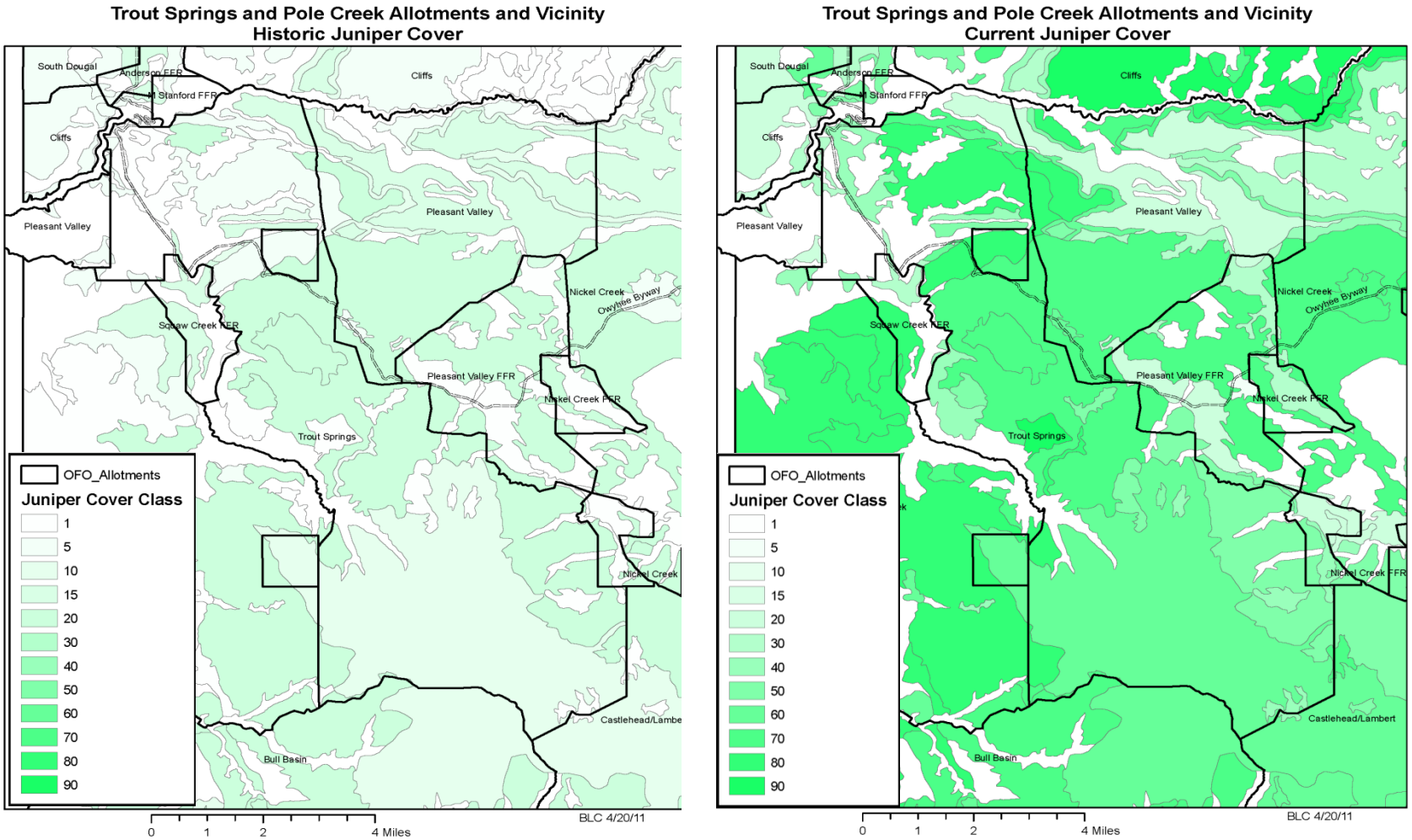

Figure 3.2.1 – Juniper Coverage Change. GIS data is from Major, in review. Cover class of current conditions do not reflect juniper coverage since the 2007 Crutcher Fire (Tongue Fire Complex) which affected a very small portion of the Trout Springs Allotment, or more recent fires. Cover class is represented as a percent.

The current vegetation in the mountain big sagebrush ecological sites is typically moderate to dense western juniper over scattered mountain big sagebrush and low to moderate density of perennial bunchgrasses (needlegrass, Idaho fescue, and bluebunch wheatgrass). Few mountain sagebrush stands remain free of juniper. The juniper within these sites is primarily young, post-settlement individuals (seral juniper). Miller et al. (2008) characterized the Juniper Mountain pre-settlement juniper as widely scattered individuals or small stands rarely exceeding 2 acres, and estimated that old growth juniper made up 5-10% of the current juniper population in the area. Their studies indicate a past fire regime of frequent fires.

According to the ecological site map (Map 7) the mahogany savanna ecological site should occupy a significant proportion of the allotment. Its abundance has decreased considerably, however, most likely as a combination of a 1962 looper worm infestation (Furniss 1985), and competition and shading out from juniper.

Low sagebrush communities with an understory of Idaho fescue, bluebunch wheatgrass, and Sandberg bluegrass occur throughout the Trout Springs Allotment on shallow soil sites. Some of these low sagebrush communities are being invaded by western juniper, but at a slower rate than mountain big sagebrush sites, due to the shallow soil (Tirmenstein 1999).

Aspen and riparian areas occur as localized, unmapped inclusions within other ecological sites. Aspen generally occur in small stands scattered primarily throughout the south half of the allotment. Most of these stands are associated with riparian areas or springs, but some occur on upland areas, presumably where an increased underground water source exists. Much of the aspen is in poor condition due to juniper shading and competition. Aspen sprouts are relatively few, and, in at least some locations, being browsed by wildlife.

Juniper density increase within the Trout Springs Allotment is shown clearly in a series of repeated photograph points between 1963 and 2009. Malcom Furniss of the University of Idaho, documenting a 1962 looper worm infestation of mountain mahogany on Juniper Mountain, took several landscape photographs (Furniss 1985). Photographs taken from the same locations in 1963, 1985, and 2009 illustrate juniper expansion on a local and landscape scale (Figure 3.2.2 and Appendix I).

The increase in juniper density within the Trout Springs Allotment is also illustrated by the proportion of juniper transitional or expansion phases (Map 4). Sixty-nine percent of the allotment is mapped in Phase 3 (juniper dominant); 24% in Phase 2 (juniper co-dominant with shrubs and herbs); and only 7% in Phase 1 (juniper present, but shrubs and herbs dominant).

Juniper expansion and grazing practices have reduced habitat diversity by replacing the sagebrush/grass/juniper mosaic with more simplified juniper woodland in many areas, affecting wildlife and plant biodiversity. This change in plant composition has resulted in reduced amounts of available livestock forage across the Trout Springs Allotment. Miller et al. (2000) documented that an increase in juniper biomass reduces the herbaceous component, likely decreasing the carrying capacity of the allotment.

Figure 3.2.2 - 1963 and 2009 Photos from Bedstead Ridge Road – Notice the increase in juniper cover and the related decrease in mountain mahogany, sagebrush, and other understory vegetation.

Rangeland Health Standard 4

The 2012 Evaluation and Determination for the Trout Springs Allotment (Appendix A, evaluating conditions through 2007) indicate that the allotment is not meeting Standard 4 (Native Plant Communities) due to a combination of grazing management (2000-2007) and juniper encroachment. The assessment for the Standard 4 evaluation/determination is documented within the entire Affected Environment Section for Upland Vegetation, Noxious and Invasive Weeds of this EA.

In all pastures, large perennial bunchgrasses have been reduced compared to reference conditions. Bluebunch wheatgrass, expected to be a co-dominant over much of the area, is nearly lacking, and Idaho fescue has been reduced. Within the grass layer, these large bunchgrasses have been chiefly replaced by smaller native bunchgrasses, including needlegrass, squirreltail, melicgrass, Ross' sedge, or Sandberg bluegrass, or the non-native small bunchgrass bulbous bluegrass. Bunchgrass vigor (seed production, size of the grass clumps) was low during the evaluation period. Weedy annual grasses and non-native forbs are present in scattered patches but are not common. Forb species diversity is fairly similar to reference conditions, but forb cover/abundance has been reduced.

Grazing management is the primary factor in the reduction of large bunchgrasses. Moderate or higher utilization (Appendix F), grazing during the critical growing season, a long season of use that leads to potential re-grazing of plants multiple times, and lack of rest have caused a reduction in the largest, most palatable native bunchgrasses. These are the same large bunchgrasses that provide important plant community structure, wildlife cover, and soil cover.

Shrubs, including mountain big sagebrush, mountain mahogany, and low sagebrush, have been highly reduced in cover and density over much of the Trout Springs Allotment. These shrubs have largely been replaced by western juniper, which dominates much of the allotment. The deeper-soil ecological sites (Loamy 13-16" ARTRV/PSSPS-FEID and Mahogany Savanna 16-

22”) which make up the majority of the allotment have been most impacted by juniper encroachment. The shallow soil ecological sites dominated by low sagebrush (Shallow Claypan 12-16” ARAR8/POSE-PSSPS and Very Shallow Stony Loam 10-14” ARAR8/POSE-PSSPS) and the rocky canyon walls are areas where inclusions of old growth juniper are typically found because fire burns more infrequently through these less productive areas. Juniper has not encroached in the shallow, rocky areas to the same extent as it has in deeper soils, so less low sagebrush has been lost (replaced by juniper) than mountain big sagebrush or mahogany.

The determination is based on grazing through 2007 (as discussed in the determination, grazing management prior to 2007 was used to represent the effects of grazing under the current management). Given that grazing has not been authorized since 2007, and adequate precipitation has occurred in recent years, the current vigor of perennial grasses in the Trout Springs Allotment has improved. This indicates that the plant communities retain the ability to recover in the short term, particularly at this relatively high elevation sagebrush site (Stohlgren et al. 1999). It also indicates that previous vigor loss was due at least in part to livestock grazing, and not entirely juniper competition. A 2008 Owyhee Range Service report, commissioned by the permittee, showed apparently high vigor of perennial plants after one year of rest, and high vegetative cover (mostly of bulbous bluegrass) in previous high use areas (Gibson 2008). See the following Trend Data discussion for more information on conditions since 2007.

Noxious Weeds

Few noxious weeds have been found within the Trout Springs Allotment: two small (<0.1 acre) infestations of leafy spurge, three small (<1 acre) infestations of whitetop, and one small (<1 acre) infestation of Canada thistle. It is likely that additional whitetop and Canada thistle are present. Russian knapweed is mapped near, but not in, the allotment. Noxious weed control is ongoing in this area, under the Boise District Weed EA.

Invasive Plants

Information on invasive plants in the Trout Springs Allotment comes from trend monitoring site data, botanical surveys, and other field observations. The most abundant non-native invasive plant is bulbous bluegrass, which is frequent in most drainages and roadsides but does not generally dominate in undisturbed upland areas. It was likely seeded into the area decades ago, but is now considered weedy and undesirable (Novak and Welfley 1997). Cheatgrass is localized in disturbed areas across the allotment, such as under trees where livestock congregate, occupying a very small percentage of the allotment; the Trout Springs Allotment area has low potential for sagebrush conversion to cheatgrass, based on elevation, precipitation, and site conditions (USDI-BLM 2010c). Ventenata occurs in patches within Pasture 2 (Cottonwood) and 4 (Fairylawn). Medusahead is present in very limited low elevation areas, such as along the Mud Flat Road in the Fairylawn Pasture. Prickly lettuce occurs in scattered locations, such as within the Crutcher Fire area. Japanese or field brome is also scattered at lower elevations. Sulfur cinquefoil, a new invader, is also known from two small patches near the Mud Flat Road. Other non-native perennial grasses have apparently been seeded into several areas in years past, and are persisting in small localized areas around springs, meadows, and some small old burn areas. Species include crested wheatgrass, meadow foxtail, smooth brome, and intermediate wheatgrass. None of these weeds, except bulbous bluegrass in localized areas, currently

dominate any plant communities within the Trout Springs Allotment, nor do they extend beyond a very small area.

Disturbance History and Fire Regime Condition Class

A variety of vegetation disturbances have occurred in the Trout Springs Allotment over the years, although specific records are uneven. The Grasshopper Fire (August 2012) perimeter included about 2,700 acres, mostly within the Cottonwood Pasture at the north end of the allotment. The Grasshopper Fire perimeter included about 1,075 acres within the proposed cut/broadcast burn treatment unit, about 150 acres in the proposed cut/jackpot burn treatment unit, about 500 acres within the North Fork Wilderness, and about 1000 acres in other proposed non-treatment areas. The Grasshopper Fire burned in a mosaic manner, with 68% of the sampled points unburned, and caused approximately 34% juniper mortality across the fire (Corbin 2012). The highest juniper mortality was within the North Fork Wilderness (55% mortality), while juniper mortality from the Grasshopper Fire was 25% within the proposed broadcast unit and 35% within the proposed jackpot unit. Also, the Juni Fire (August 2013) burned about 2,000 acres in the central part of the allotment, nearly all within proposed juniper treatment areas. It covers about 8% of the proposed treatment area, and juniper mortality appears similar to the Grasshopper Fire.

Besides the Grasshopper and Juni fires, the wildfire history GIS layer (1957-2011) shows a small portion of the Crutcher Fire (July 2007) in the south end of the allotment, a 10-acre fire near Twin Springs (August 2008), and a very small portion of the Vee Fire (July 2004) on the northwestern edge of the allotment. Prescribed fire was implemented in the allotment's southeastern part and adjacent areas in the 1980s; an estimated 750 acres within the 13,450-acre burn unit were burned in 1981 and an additional 100 acres in 1983. Four hundred acres of that prescribed burn were recorded as being seeded, apparently with non-native perennial grasses. Additional prescribed burns from the 1980s are recorded in adjacent allotments.

A firewood cutting area (active from 1985 to the present) was designated north of Twin Springs. Although a large area (1,714 acres) within the Trout Springs Allotment was designated for firewood cutting, only about 30 acres have been substantially cut. There were a few small chaining projects, probably from the early 1980s, such as in Pasture 1.

Collectively (besides the Grasshopper and Juni fires), these activities have affected a fairly small percentage of the allotment, estimated at less than 10%. The Grasshopper Fire has affected about 9% and the Juni Fire about 7% of the allotment. No formal monitoring information following the older activities is available, but recent observations have been made. These disturbances have resulted in relatively small patches of early seral shrubs, grasses, and forbs within the larger matrix of juniper, sagebrush, and mountain mahogany across the allotment, producing some desirable plant community diversity. Within the older disturbance (more than about 20 years ago) patches, the vegetation is largely indistinguishable from surrounding areas, and in both the older and more recent disturbance areas, native plant species (rather than weeds) dominate. Grazing is a long-term disturbance, as this allotment has been used for cattle grazing for many decades, affecting vegetation as described in the determination (Appendix A).

A fire regime condition class (FRCC) assessment was conducted for the 288,000-acre Juniper Mountain Strategy Area (Heide and Corbin 2009), which incorporates the allotment. FRCC is an indication of the departure from the natural fire regime (role of fire on the landscape), based on evaluation of fire frequency, fire severity, and the proportion of seral/successional stages across a landscape. The Juniper Mountain FRCC assessment found that the Wyoming and low sagebrush component (which occurs mostly at lower elevation outside of the Trout Springs Allotment) is in FRCC 2, indicating moderate departure from the natural fire regime, while the mountain big sagebrush and mountain mahogany components are FRCC 3, indicating high departure from the natural fire regime. This departure is caused primarily by a reduction in the current fire frequency (as indicated by the number of acres burned over the period of record), and is also illustrated by departure in seral stage diversity, due largely to the overabundance of dense juniper stands in each of the major vegetation types. The Grasshopper Fire of 2012 has reduced the departure from the natural fire regime somewhat (compared to the 2009 FRCC analysis for Juniper Mountain), but not significantly at the larger landscape scale.

Based on the analysis, Phase 3 Juniper stands in the Juniper Mountain area have sufficient diversity and bunchgrass density (see Density Plots, below) to retain the ability to recover to a healthy native grass/forb (and eventually shrub) community. The recovery of the plant community following the 2007 Crutcher Fire, which burned into the southern part of the Trout Springs Allotment, provides a good representation of the expected post-burn recovery following burning, even within stage Phase 3 juniper. Monitoring for three years following the Crutcher Fire found good recovery of native vegetation, with herbaceous canopy cover of 76% post-burn compared to 30% canopy cover in unburned control plots in mountain big sagebrush areas heavily encroached by juniper, although most of this increase was native annuals rather than perennial grasses, which is typical in the short term immediately following fire (USDI-BLM 2010b). Low sagebrush areas with scattered juniper increased herbaceous cover from 50% (unburned) to 72% post-burn after three years, with an increase in perennial grass canopy cover from 39% (unburned) to 53% post-burn (USDI-BLM 2010b). This indicates that, even in areas mapped as Phase 3 juniper and with the severe fire effects of a wildfire, these areas are well within the recovery threshold once juniper is removed.

Biotic Soil Crusts

Biotic soil crusts (including moss and lichen) are relatively rare in the Trout Springs Allotment. Moderate cover by biotic soil crusts (primarily moss) would be expected at this elevation, but they are present only in limited locations in the allotment; this likely reflects past livestock trampling effects. These biotic soil crusts are important for increasing soil stability and capturing nutrients, and can affect vascular plant species composition (Rosentreter et al. 2007, Wicklow-Howard et al. 2003).

Trend Data

Trend studies have been established at nine locations within the Trout Springs Allotment, four nested plot frequency sites and five photo trend sites. See Appendix G for detailed information on trend data. The nested frequency sites are all within Loamy, 13-16”, mountain big sagebrush/Idaho fescue/bluebunch wheatgrass ecological sites, while the photo trends sites are mostly within mahogany savanna 16-22” sites. These monitoring sites were established in the

1980s; the most recent readings were in 1995, 2000, 2005, 2009, and 2012. Statistical analysis was conducted on changes in data between 2000 to 2005, 2005 to 2009, and 2009 to 2012.

Trend studies indicate that (in general) smaller, shallow-rooted, less palatable native perennial grasses (Sandberg bluegrass and squirreltail) are more frequent at most of the sites than large, deep-rooted grasses, particularly the Idaho fescue and bluebunch wheatgrass which are expected to be co-dominant on the ecological sites. Although no clear trend is obvious (that is, no pasture, site, or species shows a consistent change across years), some general trends appear. From 2000 to 2005, during a time when grazing use was about 1,750 to 2,200 AUMs (Appendix F), plot data showed generally stable to decreasing frequency trends for grasses. Between 2005 and 2009, a time period which included similar use followed by two years of non-use, and 2009 to 2012, with no authorized use, bunchgrasses generally showed stable to increasing frequency. Perennial herbaceous canopy cover showed generally stable trends between 2005 and 2009 (earlier data not available), and somewhat improving trends, particularly in large bunchgrasses, between 2009 and 2012. Trend monitoring is not designed to show immediate changes, because frequency takes several years to change as perennial plant become established, so it is not surprising that great improvement is not visible in the 2009 data after less than two years of no authorized use. Mueggler (1975) found recovery (defined as forage/biomass and seed stalk production comparable to unclipped) of large bunchgrasses (Idaho fescue and bluebunch wheatgrass) may take 3 to 8 years after heavy or extreme clipping. The 2012 data, reflecting almost five years without authorized grazing, show some improvement in perennial grasses, but perhaps not as dramatic a change as might be expected. This may be due to continued juniper and bulbous bluegrass influence, unauthorized grazing, and/or insufficient recovery time.

Forb species show similar trends to the grasses, but with more variability. Forb diversity (species richness) is moderate to moderately high. Most forbs are native perennials, along with a few common native annuals; non-native weeds are few. Lupine is one of the most common forbs, and its nitrogen fixation potentially increases soil nutrients.

Shrub frequency was low in the nested frequency plots, mostly consisting of mountain big sagebrush, and showing generally stable trends. Shrub density (measured in larger plots than the frequency plots, at the same location) showed mountain big sagebrush appears to be stable through 2009 and then declining at one site (Pasture 1A), steadily declining until a slight increase in 2012 at another (Pasture 2), variable with a sharp decline in 2009 at a third site (Pasture 2), and stable with a sharp increase in 2009 at the fourth site (Pasture 3). Juniper density was not always measured, but appears fairly stable between years when it was measured. Woody canopy cover (which was mostly juniper) varied from approximately 23-65% cover, and was stable from 2005 to 2009 and 2009 to 2012, but showed significant increases at two of four sites (otherwise stable) between 2000 and 2005.

Ground cover measurements showed bare ground from about 7 to 28% at the four nested frequency sites in various years, which falls within the ranges described in ESDs (Appendix H). However, in 2012, three of four sites showed significant decreases in bare ground. Basal perennial vegetation, primarily perennial grasses and forbs, showed a significant increase in ground cover between 2005 and 2009 at three of four sites, but between 2009 and 2012, basal

vegetation cover trends were mixed (one site increased, one decreased, and two were statistically unchanged). One site showed a significant decrease in basal vegetation between 2000 and 2005, while the other three sites were statistically stable. Other stable ground cover elements (gravel, rock, persistent litter, and biotic soil crust, combined) showed an inconsistent declining pattern through 2009, with cover at two of four sites decreasing between 2000 and 2005, and the other two decreasing between 2005 and 2009; other changes were not statistically significant. Between 2009 and 2012, all sites had increased stable ground cover elements, but changes were significant at only one of the four sites. Overall, ground cover data (Appendix G) suggest a slight decline in the most desirable soil cover elements between 2000 and 2005, and some improvement in basal vegetation but ambiguous trends in other ground cover elements between 2005 and 2009. Between 2009 and 2012, the reduction in bare ground and somewhat increased stable ground cover elements indicate improving watershed conditions, but basal vegetation cover (where most improvement is expected without grazing) shows mixed trends.

Density Plots

In addition to the nested frequency trend monitoring sites, 30 plots were measured in fall 2009 to determine juniper, mountain mahogany, shrub, and perennial grass density across the Trout Springs Allotment. Data from these plots indicate juniper averages 280 young (<6" diameter at root collar) and 141 mature trees per acre (Figure 3.2.3). Old growth junipers were few, averaging less than 4 trees per acre on sampled plots. Mountain mahogany averaged about 87 plants/acre, with a fairly even proportion of young (<6' tall) and mature individuals. Aspen averaged 27 young (<4" diameter at breast height) and 5 mature trees/acre. Both aspen and mahogany showed a patchy distribution (indicated by high variance between plots). Shrub density averaged 3.2 plants/m² (13,112 plants/acre) (Table 3.2.3). Shrub species were primarily mountain big sagebrush, followed in lesser amounts by Oregon grape, rabbitbrush, ceanothus, snowberry, and incidental amounts of wild rose, bitter cherry, currant, and serviceberry. Deep-rooted perennial grasses (such as bluebunch wheatgrass, Idaho fescue, and needlegrass) averaged 8.5 plants/m² (34,277 plants/acre). This indicates that an adequate understory exists to respond once juniper is treated (Miller et al. 2005). Cheatgrass was recorded in subplots within only 2 of the 30 macroplots (7%); no medusahead was found in these plots. Bulbous bluegrass was recorded in 60% of the macroplots; however, its density seldom (10% of macroplots) exceeded that of the native perennial grasses.

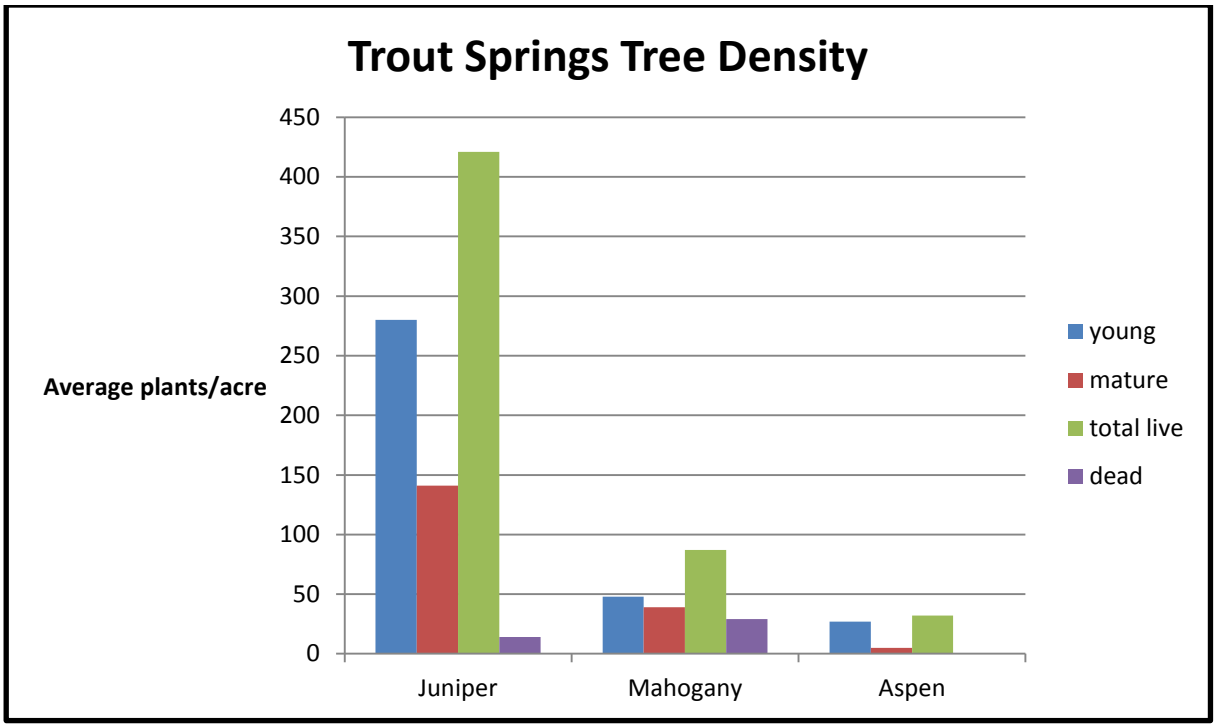

Figure 3.2.3 - Tree density throughout the Trout Springs Allotment

Table 3.2.3 - Grass and Shrub Density (sampled in ten 1-m² subplots within thirty macroplots)

Plant Group	Average Plants/m²	Range of macro-plot averages (averaging 10 subplots within a macroplot)	Standard Deviation between macroplots
Deep-rooted Perennial grass	8.47	2.4 – 13.7	3.56
Shrubs (all species)	3.24	0 - 15	3.37

Actual Use and Utilization

Utilization information is available only for 2006 and 2007 (Appendix F), while actual use numbers are available from 2002 to 2007 (Appendix F) for the Trout Springs Allotment. Utilization in 2006 averaged 66% (53.8 to 74.3% at five stops) for Idaho fescue with a total of 2,133 AUMs of actual use. In 2007, utilization for bluebunch wheatgrass averaged 65% in Pasture 1B, 62% in Pasture 2, 25% in Pasture 3, and 15% in the gathering field, with a total of 1,754 AUMs of actual use. These figures indicate that when actual use is 1,754 AUMs or more, utilization exceeds the 50% utilization specified in ORMP Objective LVST 1 (ORMP p. 24).

Hanley FFR

The Hanley FFR Allotment Determination (Appendix A) states that Standard 4 (Native Plant Communities) is not met and that livestock grazing and juniper expansion are causal factors. Public land in the Hanley FFR is mapped within the Shallow Claypan 12-16" low sagebrush/Idaho fescue ecological type. Existing vegetation cover type (PNNL data) is mapped

as about 21% low sagebrush, 52% big sagebrush, 17% bunchgrass, 3% juniper, and 7% other miscellaneous cover types on the 63 acres of public lands. Currently, these shrub communities contain a strong canopy of sagebrush and shallow rooted bunchgrasses such as Sandberg and bulbous bluegrass, with Idaho fescue and bluebunch wheatgrass occasionally found in the interspaces but primarily under the protective cover of juniper and other shrub canopies. The determination indicates that spring/early summer use combined with late fall/winter use every year has reduced vigor and abundance of deep-rooted perennial bunchgrasses, negatively affecting ground cover and productivity. Perennial forb diversity has also been reduced.

Juniper expansion has somewhat affected the Hanley FFR, with western juniper currently estimated as 10-40% of the plant composition on public lands in the allotment, higher than reference conditions for this ecological site. Juniper cover is estimated at less than 10% of the area overall (based on NAIP imagery), indicating that sagebrush has largely not been replaced by juniper. Public lands in this allotment are in juniper transitional Phase 2.

No trend, utilization, or other monitoring information is available for the Hanley FFR.

3.2.2 Environmental Consequences – Upland Vegetation, Noxious and Invasive Weeds

3.2.2.1 Alternative A

Trout Springs

Continuation of current management would have substantial negative effects on upland vegetation and is not expected to meet or make significant progress toward meeting Standard 4 based on the proposed level of livestock use and lack of juniper treatment. Alternative A, with the greatest number of AUMs and longest season of use, would have the greatest effects on upland vegetation and potential noxious weed spread of all alternatives.

Direct and indirect effects from grazing management: Grazing management of this intensity and duration (1,988 AUMs with season-long use) is likely to result in a continuation of reduced native perennial grasses (particularly bluebunch wheatgrass, Idaho fescue, and needlegrass) and shrubs, and relatively high bare ground and annuals, which does not make significant progress toward meeting Standard 4. Upland utilization is expected to exceed 50% on a yearly basis (as it did in 2006 and 2007 with this level of use; Appendices E and F), contributing to the decline in native perennial grasses (Crider 1955). The Determination (Appendix A) evaluated conditions under management as proposed in Alternative A, and determined that Standard 4 was not being met, with grazing as a primary factor in the lack of plant vigor, reduction in desirable plant density, and lack of litter and other soil cover. Because rangeland trend data under management as proposed in Alternative A showed bunchgrasses as generally stable to decreasing in frequency (Appendix G), no improvement from current conditions of not meeting Standard 4 would be expected under this alternative.

Direct grazing effects include preferential grazing of the more palatable grasses (bluebunch wheatgrass, fescue), as well as grazing of less palatable species (low grasses and forbs) as the preferred species are reduced. Bunchgrasses would continue to be found primarily under the protective cover of shrubs. Grazing can reduce the photosynthetic ability of the plants, plant

reserves, root production, reproduction, and protective soil litter, resulting in lower plant vigor (Branson 1956, Rickard et al. 1975). Grasses and forbs are most sensitive to grazing during the critical growing period, particularly early in the season before seed set (Smith 1998, Brewer et al. 2007). The critical growing period is when plants are actively photosynthesizing, storing carbohydrates, and forming seeds, typically from April to mid-July. Perennial bunchgrasses are particularly sensitive to defoliation during the early boot stage when the grass seedhead is enveloped in enclosing sheaths, just prior to heading out (Smith 1998). The boot stage in the Trout Springs Allotment typically occurs in May to early June, lasting one to two weeks. Moderate (40-60%) or heavy (61-80%) use during the critical growing period and particularly the boot stage would heavily impact upland herbaceous vegetation (McLean and Wikeem 1985, Meays et al. 2000, Blaisdell and Pechanec 1949). Because this alternative has an extended season of use (June to December), in addition to beginning grazing during the critical growing period, any regrowth of preferred vegetation is likely to be grazed multiple times within the season, which would reduce its vigor and health (McLean and Wikeem 1985). Because no rest or deferment would occur, vegetation would be affected season long, every year, continuing the decline of more palatable species and increase of less desirable plants. Alternative A (with 1,988 AUMs of use) is expected to result in utilization levels well above 50%, similar to those seen in 2006-2007 (Appendix F).

Direct effects also include browsing of woody species such as aspen, mountain mahogany, willow, bitterbrush, and serviceberry. These shrubs' sprouts are more likely to be browsed late in the season as grass and forbs dry up, and an extended season of use is likely to have substantial impacts (Gucker 2006). Over time under this level and long season of use, these shrubs would decline because of reduced vigor from removal of biomass, causing reduced seed set, reproduction, and eventually increased mortality of preferred browse species.

Trampling of vegetation is a direct effect of grazing. Brittle species, such as shrub seedlings (including mountain mahogany) and some forbs, are most vulnerable to trampling effects; grass seedling establishment is also affected. Early, wet spring and very late fall seasonal trampling of saturated soils and perennial grass crowns may affect plant and soil productivity. Trampling also affects biotic soil crusts, displacing soil lichen, moss, and bacteria assemblages. Trampling effects on soil crusts are most severe when sandy soils are dry or clay soils are wet (Belnap et al. 2001). Trampling effects are closely tied to the number of animals, duration, and stocking rate within an area. Alternative A has the highest animal numbers, longest season of use, and among the highest stocking rate (lowest acres per AUM) of the alternatives, and thus the highest effects.

Indirect effects from current grazing management are primarily a continuing shift in species composition and potential reduction in species diversity, as grazing pressure results in a reduction in the more palatable species and an increase of less palatable species. Grazing would affect regeneration of aspen and mountain mahogany, resulting in a continued loss of these components (Howard 1996). Low recruitment of desirable species in all plant groups (grasses, forbs, shrubs, and trees) would continue to negatively affect plant community integrity.

Another direct effect of grazing under current levels (545 head) is the continued risk of bringing in noxious weed seed from outside the allotment, and spreading seed from existing infestations

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 (Miller and Narayanan 2008). Because Alternative A has the highest number of cattle, it has a higher weed importation risk than other alternatives.

Indirect effects from grazing include a potential for weed increase (both noxious and other invasive plants), since these species (such as leafy spurge and cheatgrass) are favored by an increase in bare ground and reduction of perennial grass cover, and alien weeds may be more resilient to grazing than natives (Kimball and Schiffman 2003). Although non-natives do not currently dominate substantial areas within the Trout Springs Allotment, continued grazing at current levels is likely to convert larger areas to non-natives. Bulbous bluegrass in particular is likely to continue to increase. This also presents a potential for invasion of noxious weeds, such as knapweeds, which would have substantial negative effects on native plant community integrity and ecosystem function (Dukes 2002). Medusahead is also likely to increase in the lower elevation, clay soil areas.

Grazing at current levels is likely to contribute to the continued trend of juniper dominance by altering the fire regime, although this is a long-term issue (ten-plus years). Fine fuel reduction due to grazing, along with fire suppression, loss of understory due to juniper dominance, and climate factors, converts the fire regime from a more frequent, less severe regime (which would have regularly eliminated most juniper seedlings), to a less frequent and more severe regime. The combination of a reduction in fire, reduced perennial grasses, and increased shrub density due to grazing has also likely increased juniper regeneration by providing increased sites for juniper seedling establishment (Miller et al. 2005).

Continuing current grazing would reduce ground cover and would result in continued soil loss (as evidenced by pedestaled plants in some areas); this soil loss contributes to a reduction in plant productivity and health of the upland plant communities.

Existing range improvements (fences and troughs) would continue to have localized effects on native vegetation, such as trampling from cattle trailing along fencelines and congregation areas near troughs.

These indirect effects are related to the direct effects described above, and the same factors (animal numbers, total AUMs used, season of use, and stocking rate) influence indirect effects (VanPoollen and Lacy 1979). Thus, Alternative A, with the highest and longest use, would have the highest indirect effects of all the alternatives from grazing management. Based on monitoring data, continued management using Alternative A would not result in making progress toward meeting Standard 4.

Direct and indirect effects of not treating juniper: No direct effects from juniper treatments would occur as treatment activities are not proposed in this Alternative.

The effects of juniper encroachment on upland vegetation within the Trout Springs Allotment would continue to accrue. As juniper density and cover continues to increase, desirable

understory vegetation would continue to decline and eventually be lost. This would affect all species groups, from aspen, mountain mahogany, sagebrush and other shrubs to perennial grasses and forbs. Aspen and mahogany, in particular, are at risk, since regeneration (aspen sprouts and mahogany seedlings) is limited by juniper shading and competition, and the few young plants are subject to browse by wildlife and cattle. Sagebrush species, cornerstone components in the mountain big sagebrush and low sagebrush ecological sites that make up the majority of this allotment, could virtually disappear. When understory vegetation is absent or highly reduced, the ecosystem's resiliency is lost, and at that point, a disturbance (such as wildfire) that removes juniper would result in open, barren areas highly susceptible to invasion by cheatgrass and other undesirable species (Miller and Narayanan 2008). The fire regime condition class would continue to show moderate to high departure from the natural fire regime (Heide and Corbin 2009), as more juniper stands transition into Phase 3 and more understory vegetation is lost. Although the Grasshopper Fire has provided some recent diversity within vegetation age classes, it affected less than 10% the allotment, so the effects of juniper increase would continue on the rest of the allotment.

Hanley FFR

Direct and indirect effects from grazing management: Direct and indirect grazing effects in the Hanley FFR would be similar to those described for Trout Springs Allotment. Since use of the few AUMs on public land in the Hanley FFR could occur at any time between June 1 and December 31, effects from early, growing, and/or late season use may occur. Rangeland Health in the Hanley FFR is expected to continue the trends of decreasing tall bunchgrasses under current management, and thus is not expected to make significant progress toward meeting Standard 4. Juniper would continue to affect sagebrush plant communities.

3.2.2.2 Alternative B

Trout Springs

Alternative B is expected to make significant progress in meeting Standard 4, based on its moderate level of livestock use, deferred fall season of use, incorporated rest, and juniper treatments. It is expected to produce greater improvement of herbaceous vegetation and less impact on woody browse species than Alternative A.

Direct and indirect effects from grazing management: Alternative B has fewer livestock numbers, total AUMs, and number of days in a pasture than Alternative A, so the intensity of grazing effects to upland vegetation would be similar to those described under Alternative A, but reduced by about 28% (based on AUMs). Utilization of key bunchgrasses would be lower than under Alternative A, and is expected to be about 50% or less. Utilization of 50% of more has been shown to impede root growth (Crider 1955), but utilization below 50% is generally considered proper use (Smith 1998), particularly if the use is not during the growing season (Anderson 1991). Because all grazing would occur in the fall, outside of the critical growing period for perennial grasses and forbs, improved health, vigor, reproduction, and seedling establishment is expected for herbaceous plants (McLean and Wikeem 1985, Meays et al. 2000). A later start date avoids impacts during the boot stage (the most sensitive period) and provides for increased growing season rest for perennial grasses, promoting plant health and maintenance (Smith 1998). Perennial bunchgrasses often have fall green-up (resumption of growth from fall

rains after summer dormancy), which would be utilized under this grazing season, but because no grazing would occur earlier in the season, plant vigor is expected to remain high. Early season trampling effects would be eliminated, but replaced by those in late season, when soils may be wet from fall rain. This would have reduced effects on seedling establishment for spring germination compared to Alternative A, but may affect fall-germinating species, such as winter annuals. Because soils are generally not as wet in the fall as they are in the spring and because most native annuals germinate in spring, trampling effects are less damaging in fall than spring.

Pasture rotations and a shorter total season of use mean that the number of days per pasture is much lower than Alternative A, highly reducing the likelihood of individual plants being re-grazed during the year, and thus reducing negative effects on plant vigor. Repeated defoliations in the active growth phase cause plant injury because of regrowth demands for carbohydrate reserves (McLean and Wikeem 1985); that would not occur under this alternative. Alternative B also includes rest every other year for Pastures 1A, 1B, and 2A, which would give plants recovery time not provided in Alternative A. Rest periods under interim grazing management associated with prescribed burning would provide for additional recovery. Periodic rest during the growing season improves plants' vigor and productivity (Eckert and Spencer 1987).

This alternative would have the greatest impact on woody browse species, such as bitterbrush, aspen sprouts, and mountain mahogany, since woody species are usually utilized more often in the fall after herbaceous plants have dried (Fitzgerald et al. 1986). A relatively high use of these species by livestock is expected under this alternative, especially of young plants or sprouts. Woody browse species are expected to remain stable, as successful reproduction is limited; rest associated with rotation and juniper treatments would provide for some recovery, balancing out browse impacts. Effects on less palatable woody plants are expected to be negligible.

Alternative B would have a slightly reduced weed *introduction* potential than Alternative A, because total cattle number is about 3% fewer, so slightly fewer cows will be entering the allotment potentially carrying weed seed from outside the allotment. However, the potential for noxious and invasive weed *spread* within the allotment would be substantially lower under Alternative B because the reduced total use and more beneficial season of use is expected to improve vigor and cover of native perennials, reducing bare ground favored by weeds. The Trout Springs Allotment area has low potential for sagebrush conversion to cheatgrass, based on elevation, precipitation, and site conditions (USDI-BLM 2010c).

Direct effects from proposed range improvements on upland vegetation and invasive and noxious weeds are likely to be localized, and for the fences, short-term, consisting of relatively small disturbance areas. This localized disturbance may displace some desirable vegetation, and create small areas conducive for weed invasion. Indirect effects from construction of fences and cattle guards are likely to be minor, consisting of an alteration of trailing patterns due to the new pasture fence. Another indirect effect of fence construction would be the benefits to vegetation of creating an additional pasture, allowing more intensive livestock management including more opportunity for rest pastures and potentially a shorter amount of time per pasture. This would reduce grazing the same plants multiple times during the season, which affects plant vigor. The addition of the Cottonwood Headwaters Exclosure would provide long-term (ten years or more)

recovery for riparian vegetation and headcuts, and create an un-grazed, reference upland area. Localized additional vegetation disturbance would occur at the water haul site.

Effects from livestock trailing would include minor vegetation trampling and negligible utilization. Trailing livestock have the potential to spread noxious and invasive weeds within the trailing corridor, but the degree of this potential weed spread is expected to be slight due to the small area and short timeframe involved. If noxious weeds are detected along the trailing route in the future, access for treatment would be readily available, reducing chances for establishing new infestations. Because trailing is limited in area, duration, and intensity, and because range readiness criteria would be implemented, only minimal effects of trampling plants and soil are expected from trailing through the Trout Springs Allotment.

Direct and indirect effects from juniper management:
Juniper management (slashing, girdling, and broadcast or jackpot burning) would have direct effects on upland vegetation, particularly on juniper density and cover. The resulting community structure would be more widely spaced trees, with fewer continuous patches of thick juniper. Old growth juniper would be mostly retained, particularly on rocky areas and outcrops. Old growth juniper trees, wherever they occur, would not be cut. Removal of young juniper adjacent to old growth (hand cutting SOP #2) would reduce fuel continuity around the older trees, and, combined with ignition patterns that generally avoid old growth, reduce the potential for jackpot or broadcast prescribed burn to impact these trees. This treatment would also reduce the chance of future crown wildfires in old growth stands. Approximately 30-50% of the seral juniper is expected to remain, along with most of the old growth, resulting in a more heterogeneous mosaic of vegetation age classes across the landscape and increased biodiversity. Some old growth individuals would be killed by fire in the broadcast burn area; little or no old growth juniper mortality is expected in the cut and jackpot burn areas. Most juniper old growth occurs in non-treatment areas (rocky canyons, very shallow stony soils, wilderness area) or in cut/jackpot burn areas (shallow claypan soils) rather than the cut/broadcast burn areas, so a relatively small percentage of juniper old growth is expected to be impacted by treatment.

Direct effects on sagebrush, other shrubs, and herbaceous vegetation from juniper management include some minor, localized disturbance from hand cutting activities and blading fireline roads, which would damage or kill individual plants in the immediate area. Effects from the broadcast burn would likely be more substantial than cutting or blading due to the acreage involved, particularly to mountain big sagebrush and low sagebrush, which do not re-sprout after fire. Burning would reduce sagebrush and bitterbrush abundance for 10-30 years within burn areas. This shrub reduction would have effects on wildlife, such as minor reductions in nesting habitat for sagebrush-dependent birds (See Section 3.4.2.2). Burning would remove above-ground biomass of most plants, and kill non-resprouting shrubs.

The broadcast burn is expected to be relatively patchy within the larger burn unit. This patchiness would be a result of differing fuel patterns across the landscape, influenced primarily by pre-burn juniper cutting, existing vegetation (tree, shrub, and grass density, which varies from thick to sparse), rock outcrops, and grazing use (although pre-burn rest would provide some grass cover creating fine fuels throughout). Burn patchiness is also influenced by topography

(steeper, south-facing slopes generally burn more than north, flatter slopes), fuel moisture and temperature, and ignition patterns. Few old growth juniper stands or individuals are expected to be killed by the prescribed burn because they will generally be avoided during ignition, and fire is not expected to carry within the old growth sites because they will not have the slash fuels from pre-burn cutting and they tend to be particularly rocky, with little surface vegetation. Old growth juniper mortality within the broadcast burn unit is expected to be similar or less than to the old growth mortality observed from the Grasshopper Fire of August 2012, which killed about 17% of the old growth juniper across the fire, and almost no old growth within the broadcast burn unit, which makes up 1,074 acres out of the 2,730-acre fire area (Corbin 2012). Because the prescribed burn would be ignited under conditions and methods designed to kill 50-70% of the seral juniper, unburned patches are expected to occupy at least 30% (and likely much higher) of the area. Burned patches are anticipated to be generally between 0.5 and 20 acres in size. This mosaic of burned and unburned areas would provide a seed source for revegetation, along with residual seeds in the soil bank and plants (particularly perennial grasses and forbs) that resprout after fire.

Jackpot burn areas would be even more patchy than the broadcast burn blocks, with a much smaller proportional burn area. Since fuel piling is not planned in either the broadcast or jackpot burns, numerous severely burned areas are not anticipated, but scattered areas with dense juniper would have high fuel loadings, and localized high severity burn pockets might occur. In localized high severity burn pockets, below-ground portions of plants would be killed, precluding re-sprouting.

Direct effects from juniper treatment on aspen and mountain mahogany would consist of minor disturbance from hand cutting adjacent junipers. Prescribed burning is expected to top-kill aspen and mountain mahogany within burn patches. The aspen would readily re-sprout, resulting in healthy, young aspen stands (Howard 1996). Curl-leaf mountain mahogany rarely re-sprouts after fire, but would regenerate from seed (Gucker 2006). Thus, direct effects from prescribed fire would be a reduction in the amount of mature aspen and mountain mahogany in the allotment. Because the largest existing mahogany stand is in the jackpot burn rather than broadcast burn area, burn effects on it are likely to be minor, but smaller mahogany stands within the broadcast burn unit may be affected. Efforts will be taken to avoid burns in mountain mahogany areas – see Section 2.2.4.

Burning would reduce soil cover, biotic soil crusts, current year biomass and potential seed production, and seeds on the soil surface for the short term (1-10 years). Prescribed burn conditions are anticipated to be less extreme (cooler and perhaps moister) than wildfire conditions, so lower burn severity is expected although pockets of higher burn severity may occur. Thus, within the prescribed burn mosaic a certain amount of litter and duff is expected to persist, and the soil seed bank is expected to remain intact in all but a few localized areas of high burn severity or short-term excessive erosion.

Indirect effects on upland vegetation from juniper management are expected to be positive, with short- and long-term increases in plant diversity, understory health and productivity, and community integrity (meaning increased dominance by native grasses and forbs). In the short

term (under 10- 30 years), burn patches would be dominated by herbaceous vegetation and shrubs that resprout or have fire-stimulated seeds (particularly ceanothus, and chokecherry, serviceberry, rabbitbrush). Ceanothus may dominate extensive patches post-burn in some areas, before eventually (>30 years) being replaced by mountain mahogany. An increase in herbaceous vegetation, both grasses and forbs, is expected, particularly annuals and resprouting grasses the first few years. Sagebrush regeneration would be somewhat slower, since as a non-sprouter with short-lived seeds, it is dependent upon seed from surviving mature plants, so its recovery would depend on the burn patch size, and presence of an adequate adjacent seed source (Shaw et al. 2005). Bitterbrush is expected to regenerate mostly from seed (either seed caches which survive the fire or seed dispersed from adjacent unburned sites), although some bitterbrush resprouting is also expected. Long-term health of herbaceous vegetation and shrubs is expected to be improved compared to untreated juniper areas, due to increased light, soil moisture, and nutrients.

Aspen health is expected to be improved by juniper management, with a reduction in shading and competition from the juniper, and stimulation of sprouting from the prescribed fire. The result would be a conversion of scattered small, mostly old aspen stands to more extensive, healthy, young aspen stands over a 10 to 30-year period. Treating relatively large areas of aspen (multiple patches within the allotment), as planned, is likely to reduce effects from concentrating browsing (particularly by elk) on regenerating aspen sprouts.

Mountain mahogany would benefit in the long term from juniper cover reduction, and the return to a less severe fire regime (Gruell et al. 1985). Mountain mahogany would regenerate from seed in the soil seed bank as well as seeding from adjacent unburned areas (Gucker 2006). Although mahogany occasionally resprouts after low-severity fire, these sprouts typically die within 2-3 years (Gucker 2006). Since substantial older mahogany areas would be retained (on rocky, lower fuel areas within the broadcast burn unit and extensively within the jackpot burn areas), a balanced distribution of age classes is expected across the landscape.

Sagebrush ecological sites currently dominated by juniper would be converted to a community structure more similar to reference conditions, with retention of most old growth juniper individuals and small stands, and a reduction in younger trees and dense patches across the landscape. Junipers felled in the pre-burn cutting or that fall after the fire would create microsites that protect regenerating plants from grazing and browsing.

Indirect effects from juniper treatment on weeds, both noxious and other non-native invasives, include a potential increase in these plants, as open conditions conducive to weed dominance are created. A short-term flush of annuals, such as prickly lettuce and cheatgrass, is expected. Bulbous bluegrass may also increase in some areas after juniper treatment, although it is not expected to dominate. Based on observations from the Crutcher Fire (2007) within this allotment, these weeds are likely to be localized rather than dominant or abundant in the landscape. Research indicates that in adequate precipitation zone areas (such as this allotment), annual weed increases are likely to be short lived as native perennials regain dominance (Bates et al. 2006). A recent Rapid Ecoregional Assessment indicates that the Trout Springs Allotment

area has low potential for sagebrush conversion to cheatgrass, based on elevation, precipitation, and site conditions (USDI-BLM 2010c).

Post-fire response in sagebrush and juniper systems depends on the species composition, soil depth and texture, precipitation, elevation, aspect and other factors (Shaw et al. 2005). Xeric sagebrush sites are more susceptible to cheatgrass and other annual grass invasion (Davies et al. 2009). However, the Trout Springs Allotment is generally above (i.e., higher elevation and precipitation) the xeric Wyoming sagebrush zone. Also, low sagebrush and other harsher sites would not be ignited for broadcast burning, although some fire may creep in from adjacent burn areas or jackpot burning. The targeted mesic mountain big sagebrush sites are expected to respond well to the mosaic of broadcast burning planned (Bunting et al. 2002).

Juniper treatment would alter the fire regime by reintroducing fire and reducing, at least for the short term, live woody biomass. Prescribed fire is expected to be less intense than wildfire since ignition would occur under cooler conditions than normally occur in a wildfire, so fire effects on soil and seed banks are expected to be less severe. After the prescribed fire, future wildfires are likely to be less severe. Similarly, the proposed juniper treatment would affect the FRCC of the Juniper Mountain area by making the fire frequency and seral stage diversity more similar to reference conditions. If 50% of the seral juniper is killed, the reduction in departure from reference conditions may be enough to move the mountain big sagebrush and mountain mahogany strata from FRCC 3 (highly departed) to FRCC 2 (moderately departed). The low sagebrush stratum is expected to remain in FRCC 2 because treatment magnitudes are not extensive enough to make a change in FRCC at this large scale, but with a reduced departure from reference conditions (Heide and Corbin 2009).

Juniper treatment may have an indirect effect on biotic soil crusts with an expected long-term increase in soil moss after treatment, due to an increase in available water in the upper soil profile after treatment (R. Rosentreter, personal communication, 2009). With the expected mosaic of burned and unburned patches within the burn units, adequate soil moss would remain to colonize into the burned areas.

Juniper treatment would result in a short-term (1-2 years) reduction in grasses and shrubs, but in the long term (5+ years) vegetative health would greatly improve, and significant progress toward meeting Standard 4 would be made.

Hanley FFR

Direct and indirect effects from grazing management: Under Alternative B, grazing would be limited to October-November with the same amount of use (AUMs) as Alternative A. Elimination of growing season impacts would be expected to result in slow (because of continued juniper encroachment) but significant progress toward meeting Standard 4.

3.2.2.3 Alternative C

Trout Springs

Alternative C would make significant progress in meeting Standard 4 at a faster rate than any other alternative analyzed. The combination of juniper treatments and extended rest for a ten

year period would have substantive positive effects on plant community integrity and biodiversity in the Trout Springs Allotment, addressing all factors identified in the Determination.

Direct and indirect effects from grazing management: No direct grazing effects on upland vegetation or weeds in the Trout Springs Allotment would occur under this alternative because of the extended rest.

Livestock trailing effects would be the same as described in Alternative B.

Indirect effects from extended rest on upland vegetation and noxious and invasive weeds would result in more rapid recovery in plant community health. An increase in perennial grasses and forbs is expected, particularly a substantial increase in the more palatable species. Mueggler (1975) found that vigor recovery (defined as forage/biomass and seed stalk production comparable to unclipped) took three to six consecutive years for Idaho fescue and six to eight consecutive years for bluebunch wheatgrass after heavy clipping; Alternative C provides this extent of rest. No livestock trampling effects would occur (except from trailing). Soil cover from vegetative litter would remain high every year, resulting in increased productivity and reducing soil loss. Plant seed production would not be limited. Seedling establishment would favor those species whose seedlings are more shade tolerant and able to establish in organic matter, resulting in a shift toward more perennials and reducing conditions conducive for invasive weeds. Woody browse species would be eaten only by native ungulates, reducing overall effects on these shrubs. Aspen and mountain mahogany reproduction would be limited only by native browsers. Biotic soil crusts would increase cover over time. The potential for weed seed introduction by cattle would be eliminated (except from trailed cattle). Fire regime alterations may be reduced with fine fuel levels closer to historic conditions. Soil loss is expected to be negligible. No effect from range improvements would occur.

Direct and indirect effects from juniper management: Effects from juniper management would be the same as described in Alternative B.

After ten years without livestock grazing and with juniper treatments, the Trout Springs Allotment would be expected to have a diverse mosaic of healthy native plant communities, with interspaces dominated by large bunchgrasses (Idaho fescue and needlegrasses, with an increase in bluebunch wheatgrass) and native forbs. Noxious and invasive weeds would continue to be present, but native species would be able to compete more effectively. Young shrubs would occur in patches throughout the allotment, and older stands of sagebrush, mahogany, and other shrubs would provide structure and cover. Old growth juniper would remain, primarily in rocky areas, and a large component of young juniper would also be present, but not dominate the landscape. Aspen stands would increase in extent, and consist of denser, younger stands.

<u>Hanley FFR</u>

Direct and indirect effects from grazing management: Effects to upland vegetation and noxious and invasive weeds from extended rest from grazing for a ten year period would be similar to those described for Trout Springs Allotment in this alternative. The main difference is

there would be no beneficial combination with juniper treatment. This alternative would be expected to make slow (because of continued juniper encroachment) but significant progress toward meeting Standard 4.

3.2.2.4 Alternative D

Trout Springs

Alternative D is expected to make significant progress toward meeting Standard 4, but at a slower rate than Alternatives B, C, or E. Although it has relatively low animal numbers, rest or deferral, and juniper treatment, aspects which are all beneficial to upland vegetation, this alternative also includes use during the early, critical growth period and an extended season of use, which limit this benefit.

Direct and indirect effects from grazing management: Overall use and utilization under this alternative is expected to be similar to Alternative B, based on AUMs. However, unlike Alternative B, this alternative has substantial growing season impacts on upland vegetation. Direct effects from early spring (Pastures 2B, 3, and 4) and late spring (Pastures 1B and 2A) grazing during the critical growing season would have detrimental effects on native bunchgrass vigor and ability to reproduce (Smith 1998, Brewer et al. 2007). This alternative has an earlier season of use than any other, so critical growing season effects would be highest. Plants are more vulnerable to grazing while they are growing most quickly early in the season (even after range readiness criteria are met) than they are later in the summer and fall. The extended grazing season (a high number of days per pasture) means that preferred species are likely to be re-grazed during the time cows are in each pasture, with an indirect effect of further reducing more palatable species and shifting species composition toward less palatable plant species (McLean and Wikeem 1985). The time in each pasture is higher in this alternative than any other except Alternative A. Total use (Active AUMs) is the same as Alternative B, but Alternative D has fewer cattle for a longer period of time. Thus, overall effects on upland vegetation would be similar to that alternative, except with greater impacts related to critical growing period grazing and re-grazing.

The rotational rest (every other year in Pastures 1A, 1B, and 2A) and deferred use (a later start in Pastures 2B and 3 every other year) would allow for a certain amount of recovery in native perennial vegetation. Rest periods under interim grazing management associated with prescribed burning would provide for additional recovery. This is expected to allow significant long-term (10 to 20 years) progress toward meeting Standard 4, but at a slow rate. The smaller number of livestock in Alternative D would reduce the potential for weed seed introduction because fewer cattle would be available to potentially carry weed seed in from outside the allotment (47-48% fewer cattle than Alternatives A and B), but overall trampling, fire regime, bare ground, and soil loss effects would be similar to Alternative B, based on the overall AUMs on the allotment. Effects on woody browse species would be similar to Alternative A.

Effects from range improvement projects construction would be as described in Alternative B.

Livestock trailing effects would be the same as described in Alternative B.

Direct and indirect effects from juniper management: Effects from juniper management would be the same as described in Alternative B.

Hanley FFR

Direct and indirect effects from grazing management: Effects to upland vegetation and noxious weeds are the same as those identified in Alternative B, and this alternative is expected to make slow but significant progress toward meeting Standard 4.

3.2.2.5 Alternative E

Trout Springs

Alternative E would make significant progress toward meeting Standard 4, due to the relatively low level of livestock use, avoidance of growing season impacts, rest periods, and juniper treatments.

Direct and indirect effects from grazing management: Fall grazing at reduced livestock levels would have relatively minor effects on herbaceous upland vegetation. Van Poollen and Lacey (1979) showed that both grazing systems and grazing intensity affect herbage production, with grazing intensity having a greater effect. Since Alternative E has relatively low intensity (based on animal number and AUMs) and a favorable grazing system (avoiding critical growing season use), grazing effects on native herbaceous perennials are expected to be lower than other alternatives (except Alternative C). Effects would be similar to those described in Alternative B based on the season of use, but with reduced intensity because of the lower number of livestock and total AUMs. Thus, it would have reduced trampling and woody browse species effects compared to Alternative B. Overall use and utilization would be reduced compared to Alternative B, because AUMs are reduced by 20% compared to Alternative B and D, and reduced by 42% compared to Alternative A. Utilization levels would be expected to be below 40% under this alternative.

The relatively low intensity of use and generally favorable season of us in Alternative E would provide a reduction of stressors to biotic function, and as such would be anticipated to mitigate the additive stressors induced by climate change, primarily altered precipitation and temperature regimes (Staudinger et al. 2012). Vegetation communities that retain resistance and resilience from downward trend induced by changing climate would be provided.

Effects from range improvement projects construction would be the same as described in Alternative B.

Livestock trailing effects would be the same as described in Alternative B.

Direct and indirect effects from juniper management: Effects from juniper management would be the same as described in Alternative B.

Hanley FFR

Direct and indirect effects from grazing management: Effects to upland vegetation and noxious and invasive weeds are the same as those identified in Alternative B and this alternative is expected to make slow but significant progress toward meeting Standard 4.

3.3 Riparian/Water Quality

3.3.1 Affected Environment – Riparian/Water Quality

Lotic Resources

Perennial stream segments on public lands within the Trout Spring Allotment are presented in Table 3.3.1. The North and Middle Fork Owyhee River drainages are located within a fourth-order hydrologic unit in southwest Idaho (HUC # 17050107). The streams generally drain west from Idaho into Oregon (Map 9). In the Trout Springs Allotment, Squaw Creek forms the southwestern boundary with the Pole Creek Allotment (0635); the North Fork of the Owyhee River canyon rim forms a portion of the northern boundary between Trout Springs and the Cliffs Allotment (0501); and the West Fork of Red Canyon forms a portion of the southern boundary between Trout Springs and the Bull Basin Allotment (0540).

The Determination (Appendix A) identified the allotment as not meeting Standards 2 and 3, and livestock grazing management was a significant causal factor. The Determination also noted that in some pastures grazing occurs at the hottest time of year, and due to topography, livestock tend to congregate in the narrow riparian areas. From available data, it appears that stream segments and springs that are accessible to livestock have been negatively affected by current and past grazing practices. Furthermore, stream segments and springs that have been assessed as properly functioning and have well developed woody and herbaceous riparian communities are likely to be inaccessible or have limited livestock accessibility (see Figure 3.3.1).

Figure 3.3.1 - Riparian woody vegetation in reaches of Squaw Creek and its tributary in the Trout Springs Allotment.

Proper functioning condition (PFC) assessments were conducted between 1996 and 2000 on all streams and streams segments listed in Table 3.3.1. Most streams and stream segments were assessed as functional at risk (FAR) with no apparent trend. Exceptions include Salt Creek, a 1.7

mile segment of Squaw Creek, and 0.3 mile segment of the North Fork of the Owyhee River which were assessed as properly functioning and a 1.1 mile segment of the North Fork of the Owyhee River assessed as non-functional. Streams assessed as properly functioning typically have rock armored channels or densely vegetated streambanks composed of riparian species that have root structures that can stabilize streambanks during high flow events.

Streams that were assessed as FAR typically had early seral species, and generally lacked deep-rooted riparian species. If deep-rooted riparian species were observed, they typically exhibited low vigor. Some stream segments had insufficient riparian vegetation to adequately protect the streambanks from high flow events. Additionally, the width/depth ratios of some streams were out of balance, and the riparian areas are not widening, nor have they reached their potential extent. Flood plain and channel characteristics were generally inadequate to dissipate energy, and lateral and vertical stream movements were occurring as a result of streambank damage by livestock. The existing plant communities lacked vigor and age class diversity of woody species, while some stream reaches lacked hydric species altogether. The North Fork of the Owyhee River non-functional segment had similar deficiencies as the FAR stream segments.

Table 3.3.1 - Miles of perennial streams in the Trout Springs Allotment.

Stream Name	Stream miles on public lands within the Trout Springs Allotment
Hells Creek & Tributaries	3.0
Little Smith Creek & Tributaries	2.9
Middle Fork Owyhee River	2.6
North Fork Owyhee River	2.1
Smith Creek & Tributaries	3.9
Squaw Creek & Tributaries	10.3
Salt Creek	0.7
Thomas Creek & Tributaries	3.4
West Fork Red Canyon Creek	2.7
Little Thomas Creek	1.5
Pleasant Valley Creek & Tributaries	3.4

In addition to the perennial streams listed in Table 3.3.1, PFC assessments were also conducted on Cottonwood Creek. Approximately three miles of the lower stream segment was assessed as properly functioning, and the upper 0.7 mile segment was assessed as FAR due to a lack in age class diversity and poor vigor in the riparian vegetation, exposed point bars, and width/depth ratio that is out of balance with the landscape. No monitoring has been conducted on the headwaters of Cottonwood Creek; however, headcuts and severe channel downcutting were observed on the 2009 Trout Springs Allotment tour.

Although no monitoring has been conducted on the intermittent stream Graves Creek, obligate and facultative herbaceous riparian vegetation were observed and photographed downstream from Graves Creek Reservoir during a 2010 visit by BLM personnel.

Herbaceous stubble heights, streambank alteration, and riparian woody browse utilization were measured on various stream reaches from 2000-2002 and are presented in Table 3.3.2. Median

stubble heights and streambank alteration data indicate heavy livestock use in all stream reaches during 2000-2002 time periods. Riparian woody browse utilization data are very limited; however, 2001 data from Cottonwood Creek indicate 55% utilization.

Table 3.3.2 - Herbaceous stubble heights, streambank alteration, and riparian woody browse utilization measured on various stream reaches from 2000-2002.

Stream	Stubble Height (median)	Bank Alteration	Riparian Woody Browse
2000			
Cottonwood Creek	1.8 inch	96%	
West Fork Pleasant Valley Creek	1.5 inch	91%	
Pleasant Valley Creek	1.5 inch	93%	
West Fork Red Canyon	2.0 inch		
Red Canyon	1.5 inch		29%
Middle Fork Owyhee River	2.0 inch	78%	
2001			
Middle Fork Owyhee River	2.5 inch		
Smith Creek Tributary	2.5 inch		
West Fork Red Canyon	2.5 inch		
Pleasant Valley Creek	3.0 inch	49%	
Pleasant Valley Creek Tributary	3.0 inch	67%	
Middle Fork Owyhee Tributary	2.5 inch		
Cottonwood Creek	2.0 inch	91%	55%
2002			
Pleasant Valley Creek Tributary	1.5 inch		
West Fork Red Canyon	1.5 inch		23%
Middle Fork Owyhee River	1.5 inch		

Note: Gaps in Bank Alteration and Woody Browse fields indicate that the attribute was either not measured or the attribute was not there to measure (e.g. no willows or woody browse present to measure).

Several Greenline monitoring transects were established in 2002 on various stream reaches in the Trout Springs Allotment. From the monitoring data, streambank stability percentages (based on vegetation community types) were calculated for each stream reach and the results are presented in Table 3.3.3. From the streambank stability data, the majority of stream reaches sampled have a substantial percentage of unstable streambanks. Sampled reaches in Squaw Creek, West Fork of Red Canyon Creek, and Little Smith Creek all had greater than 50% of streambanks rated as stable. In contrast, sampled reaches of Cottonwood Creek, Pleasant Valley Creek, and the Middle Fork of the Owyhee River had greater than 85% of streambanks rated as unstable.

Table 3.3.3 - Streambank stability percentages on various stream reaches taken from 2002 Greenline monitoring data.

Streams	*Percent Vegetated/ Stable*	*Percent Vegetated/ Unstable*	*Percent Unvegetated/ Stable*	*Percent Unvegetated/ Unstable*	*Percent Streambank Stable*[2]	*Percent Streambank Unstable*
Middle Fork Owyhee River	5	42	6	47	11	89
Squaw Creek[1]	48	20	7	9	55	29

Streams	*Percent Vegetated/ Stable*	*Percent Vegetated/ Unstable*	*Percent Unvegetated/ Stable*	*Percent Unvegetated/ Unstable*	*Percent Streambank Stable*[2]	*Percent Streambank Unstable*
Cottonwood Creek	7	62	2	29	9	91
Little Thomas Creek	17.5	15.5	5.7	61.3	23.2	76.8
West Fork Red Canyon	52.5	17.6	10.8	19	63.3	36.6
Smith Creek	37.5	41.8	5.9	14.8	43.4	56.6
Pleasant Valley Creek	8.9	37	1.6	52.5	10.5	89.5
Little Smith Creek	54.9	20.5	4.9	19.6	59.8	40.1

[1] Approximately 16% of streambank was identified as "bare ground".
[2] Percent streambank stable and unstable were calculated by adding their respective columns together for each respective stream reach.

Data from various sources were gathered from 2003-2008. The Ada County Fish and Game League, Idaho Bird Hunters, and the Idaho Wildlife Federation (2004) documented degraded conditions with photographs and identified less than 2-inch stubble height in riparian areas on West Fork of Red Canyon Creek, Middle Fork Owyhee and Cottonwood Creek in the Trout Springs Allotment during the 2003 grazing season. In 2005, BLM personnel identified excessive riparian utilization on Pleasant Valley Creek tributary in Pasture 3 and West Fork of Red Canyon Creek in Pasture 1B. In an Idaho District Court declaration by Charles Clarke, evidence of overgrazing such as extremely low stubble heights in riparian areas and accelerated erosion such as pedestaled bunchgrasses accompanied by rilling were observed in the Trout Springs Allotment in 2007 (Clarke 2008). A report conducted by Dr. Gibson of Owyhee Range Service in 2008 identified various degraded riparian sites that were in various stages of stabilization by riparian vegetation that appeared vigorous and healthy, and that overall, the allotment's condition did not indicate any negative livestock grazing impacts from 2007 or in the immediate past (Gibson 2008).

In 2008, data were collected on Hells Creek, Cottonwood Creek, Thomas Creek, Middle Fork Owyhee River, Pleasant Valley Creek, Squaw Creek, Smith Creek, and West Fork Red Canyon Creek. MIM protocols (USDI-BLM 2008b) were used and median herbaceous riparian stubble height, streambank alteration, and wood browse were measured on streams presented in Table 3.3.4.

Table 3.3.4 - Herbaceous stubble heights, streambank alteration, and woody browse utilization measured in various stream reaches in 2008.

Stream	Stubble Height (median)	Bank Alteration	Woody Browse*
Hells Creek	6 inch Juncus	24%	22%
Middle Fork Owyhee River	4 inch Carex	34%	NA

Stream	Stubble Height (median)	Bank Alteration	Woody Browse*
Pleasant Valley Creek (3 reaches)	8 inch Carex	1%	NA
Squaw Creek (2 reaches)	6 inch Carex	3%	NA
West Fork Red Canyon	6 inch Carex	21%	17%

*Woody browse was only measured on willows that were less than 5 ft. tall as anything taller is outside the reach of cattle.
NA= not applicable due to willows exceeding 5 ft. in height as per MIM protocols or not present (USDI-BLM 2008b).

The 2008 data was collected in the absence of any authorized grazing. However, bank alteration data indicated unauthorized use in Hells Creek, Middle Fork Owyhee, and West Fork Red Canyon Creek. All stream segments had herbaceous obligate wetland plant species and willow plant communities. Woody browse was not measured on Middle Fork Owyhee, Pleasant Valley Creek, or Squaw Creek because willows on those reaches were mature and well above five feet tall. The general lack of young and immature willows in these reaches may indicate periods of heavy browsing usually during the late summer (USDI-BLM 2006). Few bank alterations were observed in Pleasant Valley and Squaw Creek reaches, and were as expected in non-grazed pastures.

Due to differing pasture numbers used between the 2012 Determination and the various alternatives, Appendix B was developed to correlate the Determination and alternatives' pastures by stream segments.

Lentic Resources

Trout Springs Allotment has 16 developed springs identified from Riparian Improvement Project System (RIPS) and numerous (≈60) undeveloped springs (USDI-USGS 2010), many of which are headwaters to various streams. The majority of springs are located in the southern half of the allotment. Most notable are Trout Springs and Three Springs, both of which have fenced exclosures. Previous reports (1996-2000) have identified that many springs have been negatively impacted by trampling. In 2008, 12 springs were assessed as PFC. These springs were generally small (less than two acres) and contribute water flow to streams. Obligate wetland plants along with various willow species were present. One spring was assessed as FAR due to the high potential for erosion. There was soil slumped at the point where water flows from the spring into the stream channel. This slump is at risk for causing excessive erosion during high flow events.

There are two larger reservoirs (larger than half acre) north of Mud Flat Road, and another reservoir and several (approximately 11) small (less than 0.1 acre) dugout ponds with little associated riparian habitat south of Mud Flat Road. The reservoirs and ponds are primarily used for livestock water.

Water Quality

Streams with designated beneficial uses are addressed under the Idaho Administrative Procedures Act (IDAPA) 16.01.02.140. All streams within the Trout Springs Allotment have

general use designations for secondary contact recreation, agricultural water supply, wildlife habitat, and aesthetics. The North and Middle Fork Owyhee River have been assigned additional designated uses including domestic water supply, cold water biota, salmonid spawning, primary contact recreation, and special resource water. Additionally, Pleasant Valley Creek, Squaw Creek, and West Fork Red Canyon Creek were identified as having additional beneficial uses of cold water biota and salmonid spawning. In 2009, the Omnibus Public Land Management Act (OPLMA) designated the North Fork of the Owyhee River as a Wild and Scenic River.

A Determination conducted in 2012 (Appendix A) identified the Trout Spring Allotment as not meeting Standard 7 and livestock grazing management was a significant factor.

The following streams are on the State of Idaho's 303(d) list as water quality limited: Middle Fork Owyhee River from the headwaters to the Oregon/Idaho state line; North Fork Owyhee River from source to the Oregon/Idaho state line; Pleasant Valley Creek from the headwaters to the North Fork Owyhee River; and Red Canyon Creek from the headwaters to the East Fork Owyhee River. Flow alteration and thermal modification are the primary pollutants in the Middle Fork Owyhee River, Pleasant Valley Creek, and West Fork Red Canyon Creek (IDEQ 2011). Total maximum daily loads (TMDLs) were developed for stream temperature in North and Middle Fork Owyhee Rivers, Pleasant Valley Creek, and West Fork Red Canyon Creek.

Squaw Creek and its tributaries are not water quality limited and fully support their beneficial uses (IDEQ 2011).

Although not identified as a causal factor for not meeting Standards 2, 3 and 7 in the Determination, juniper encroachment is affecting riparian areas throughout the allotment. The effects of juniper encroachment on riparian areas and water quality are described in Sections 3.1.1 and 3.2.1.

There are no known lotic or lentic resources on public lands within the Fairylawn Pasture (4) of Trout Springs or in the Hanley FFR Allotment, and effects to riparian areas and water quality due to changes in grazing management are not discussed.

3.3.2 Environmental Consequences – Riparian/Water Quality

3.3.2.1 Alternative A

Continuation of Alternative A in the Trout Springs Allotment would not be expected to make significant progress (measurable and/or observable as defined by Idaho Standards for Rangeland Health and Guidelines for livestock Grazing Management) towards meeting Standards 2, 3 and 7 due to riparian and water quality impacts associated with hot season grazing of riparian areas.

Direct and indirect effects from grazing management:

Lotic and Lentic Resources

Lotic PFC assessments, woody browse, herbaceous stubble height and streambank alteration measurements, and greenline monitoring data, taken from the allotment when grazed, indicate

heavy riparian vegetation utilization and associated streambank damage due to livestock grazing. These effects would likely continue with no change in grazing management. This level of use would continue to jeopardize the functioning condition of these streams, and would likely result in decreased functioning conditions of streams allotment-wide, over both the short and long terms (10 and >20 years, respectively). This grazing system is not meeting Standards 2 and 3, and would not lead to significant progress toward meeting them.

Lentic areas would not improve under the current grazing system due to continued use at this level AUMs and trampling by livestock. Although the five years of no authorized use (2008-2012) assisted riparian growth and establishment, and likely aided in the overall condition, once the current grazing system is reestablished, heavy herbaceous riparian plant use and bank alterations, as previously documented, would be expected to occur. Long-term effects from continued use at this level would decrease wetland condition from PFC to FAR, then eventually deteriorate to a non-functional condition.

Water Quality

Idaho Department of Environmental Quality (IDEQ) standards would not be met in the short and long terms. All streams within the Trout Springs Allotment would be affected; however, waters currently not meeting IDEQ standards, such as the Middle Fork Owyhee River, and Squaw and Pleasant Valley Creeks would be adversely affected first. As stated earlier in the direct and indirect effects on lotic and lentic resources section, the majority of monitoring data indicates heavy riparian vegetation utilization and associated streambank damage due to livestock grazing; this would likely continue under similar grazing management. Thermal modification due to the loss of shade-producing vegetation, such as shrubs and herbaceous grass-like species along streambanks, would continue. Additionally, sediment deposits from streambank alteration (i.e., trampling and shearing), and increased erosion from juniper encroachment (Pierson et al. 2007, Miller at al. 2005) would increase fine sediment yield, leading to hydraulic disequilibrium, reduced sediment transport capacity, and eventually increased stream width, aggradation, and decreased depth, which exposes more water surface to solar radiation. Water temperatures would substantially increase due to the lack of shade-producing vegetation, and streams would be more likely to be turbid and sediment laden due to lack of bank-holding riparian vegetation and from physical hoof-shearing action from livestock. The Middle and North Fork Owyhee Rivers, and Pleasant Valley and West Fork Red Canyon Creeks would not meet temperature TMDLs in the near future. Significant progress toward meeting Standard 7 (Water Quality) would not be met because of the increase in streams temperatures and sedimentation.

Effects of not treating juniper: Juniper encroachment would likely continue, increasing water runoff and the potential for accelerated soil erosion. As juniper increases, the juniper-dominated hill slopes would have lower herbaceous plant and litter cover, and would produce rapid runoff from even low-intensity rainfall events (Pierson et al. 2007). With current riparian conditions, there would be little buffering capability, and sediment and overland flow could enter stream systems. In some of the stream systems, rapid runoff, coupled with unstable streambanks and the general lack of deep-rooted riparian plants, would cause channel widening or incision to the point where the riparian areas would be non-functioning.

3.3.2.2 Alternative B

Implementation of Alternative B in the Trout Springs Allotment would be expected to make significant progress (measurable and/or observable as defined by Idaho Standards for Rangeland Health and Guidelines for livestock Grazing Management) towards meeting Standards 2, 3, and 7. The proposed fall season of use would decrease the likelihood of cattle in riparian areas.

Direct and indirect effects from grazing management:

Lotic and Lentic Resources

Riparian conditions (lotic and lentic) in all pastures would be expected to improve in the short term (up to five years) and make significant progress toward meeting Standards 2 and 3 in the long term (up to ten years). Estimated time periods for riparian improvement and recovery for this and other alternatives are loosely based off of time periods identified by Clary and Webster *in* Riparian Grazing Guidelines for the Intermountain Region (1990). Clary and Webster (1990) identified that the length of rest from grazing in degraded riparian areas necessary for recovery can be up to 15 years, depending on vegetation composition and streambank conditions. Herbaceous riparian vegetation in all pastures would improve, compared to Alternative A, due to fall season of use, generally reduced stocking rates (12.4-17.6 acres/AUM), and incorporating rest for Pastures 1A, 1B, and 2A. The proposed grazing schedule pasture rest along with additional rest from the juniper treatments could result in a possible five to six years rest from grazing in Pastures 1A, 1B, and 2A. Pasture rest from grazing would aid in riparian vegetation health, vigor, reproduction and establishment.

Herbaceous riparian vegetation is typically less likely to be overgrazed in the fall because with cooler air temperatures, livestock water demands tend to be lower, and animals may shift use to the uplands. Due to fall season of use and the high elevation (approximately 6,700 feet) of the area, livestock would tend to leave riparian areas for uplands because the air temperature in riparian areas tends to be colder than in the uplands. Less time in the riparian areas would equate to less streambank damage due to hoof impacts and decreased utilization of riparian vegetation. The lower stocking rates in Pastures 1A and 1B would decrease overall grazing pressure on riparian vegetation, while resting Pastures 1A, 1B and 2A every other year would improve riparian vegetation recruitment, reproduction, and vigor (USDI-BLM 2006) along with reducing potential streambank damage.

Effects to riparian vegetation (lotic and lentic) in Pastures 2B and 3 would be similar to Pastures 1A, 1B, and 2A because of the similar fall grazing schedule, and rest associated with the juniper treatment, and would be expected to improve. However, due to the lack of periodic rest from grazing and slightly higher stocking density than Alternative A, improvements would occur slowly and in the long term. The exclosure between Pasture 2B and the Holding Field would protect the headwaters of Cottonwood Creek. There is currently a gully system present in the lentic area; excluding livestock from the area would prevent excessive bank sloughing from hoof impacts and allow deep rooted riparian vegetation currently present to increase and eventually stabilize the area. Excluding Trout Springs Allotment livestock from the North Fork of the Owyhee River with the proposed gap fence would assist in improving riparian plant communities and limiting streambank damage due to hoof impacts.

Livestock are more likely to browse woody riparian species in the fall (USDI-BLM 2006). The rest/rotation and additional rest associated with juniper treatments in Pastures 1A, 1B, and 2A would lessen the grazing pressure on riparian shrubs. Pastures 2B and 3 would have more riparian shrub use than the other three pastures due to the lack of periodic rest from grazing and slightly higher stocking rate.

The proposed water haul site would have little effect on riparian resources in Pasture 3. Water haul projects are designed to aid in the distribution of livestock thereby reducing grazing impacts to the surrounding areas as a whole. However, there is already a dependable source of water for livestock in that pasture (Mud Flat reservoir). The proposed water source may decrease grazing impacts (hoof impacts and riparian vegetation use) in livestock accessible areas of Cottonwood Creek and lentic areas.

Direct effects from pasture division fences (Pasture 2B/3 and 2A/2B) and fence reconstruction in Pasture 2A would be minor if any for riparian resources. Indirect effects would be the potential for better livestock management in the short and long terms by reducing the amount of time cattle spend in each pasture, thus limiting time spent in riparian areas. Less time cattle spend in riparian areas, the less streambank damage and riparian vegetation use would occur.

Livestock trailing through the allotment would have little effect on riparian areas due to the limited duration on the allotment and crossing only one perennial riparian area (Cottonwood Creek). Some pugging and trampling of wetland vegetation next to the road would occur during the livestock trailing event. However, because trailing is limited in area, duration, and intensity, and because the livestock would be actively herded, only minimal effects to riparian vegetation are expected from trailing through the Trout Springs Allotment.

Water Quality

Water quality is closely tied to riparian conditions, and would be expected to improve as riparian conditions in all pastures improve; all streams should meet or exceed IDEQ water quality standards in 10 to 15 years. Riparian conditions in all pastures are expected to improve with a fall season of use, mostly reduced stocking rates, and incorporating rest for Pastures 1A, 1B, and 2A. Also, although riparian vegetation in Pastures 2B and 3 would not receive periodic rest, the vegetation would be expected to slowly improve because riparian vegetation is typically less likely to be overgrazed in the fall. Due to fall season of use and the high elevation (approximately 6,700 feet) of the area, livestock would tend to leave riparian areas for uplands because the air temperature in riparian areas tends to be colder than in the uplands. Less time in the riparian areas would equate to decreased utilization of riparian vegetation. Additionally, livestock water demands are lower due to the cooler temperatures, so cattle do not need to water as often as in the summer. However, livestock are more likely to browse woody riparian species in the fall (USDI-BLM 2006). Rest from grazing (every other year and associated juniper treatments) and fewer livestock would reduce the overall browsing effects.

Reductions in stream temperature and sediment would occur as the riparian vegetation communities develop into mature, late-seral communities that would have the canopy cover to increase stream shading and the root mass to increase bank stability. In the long term, stream

channels would narrow and deepen due to improved bank stability, also enhancing stream temperatures.

Idaho water quality standards would be met in the long term (10 to 15 years) for the North and Middle Fork Owyhee Rivers, West Fork of Red Canyon Creek, and Pleasant Valley Creek, and their subsequent removal from the 303(d) list would be expected.

Effects from the water haul site are negligible and follow the same rationale as presented in the previous section. The proposed gap fence on the North Fork of the Owyhee River would limit cattle access from the Trout Springs Allotment and limit impacts to water quality associated with livestock grazing. Effects from pasture division fences (Pasture 2B/3 and 2A/2B) and fence reconstruction in Pasture 2A would be the same as what was presented in the riparian section and follow the same rationale.

Livestock trailing through the allotment would have little effect on water quality due to the limited duration on the allotment and crossing only one perennial riparian area (Cottonwood Creek). Dust from the trailing could enter Cottonwood Creek and increase turbidity in a localized area for a very brief time (up to two days) and is unlikely to significantly contribute to stream turbidity and sedimentation.

Direct and indirect effects from juniper management:

Lotic and Lentic Resources and Water Quality

The proposed juniper treatment (burning, girdling, cutting) would impact riparian resources in a variety of ways. In the short term (the spring immediately following fire), there is potential for increased erosion and sedimentation in the streams due to loss of juniper canopy cover and fire-induced/natural water repellency (Miller et al. 2005). The erosion would be most evident on steeper sloped terrain. There is a possibility of temporarily losing woody riparian shrub cover in lentic and lotic areas due to burning. Due to potential loss of streambank-binding riparian vegetation, some stream channels are at-risk for widening and/or down cutting from a high intensity storm event (estimated 10-20 year storm event). Streams at-risk of this erosional hazard are on a higher gradient, have highly erodible soils, absent of rock armor, and are dependent on riparian vegetation for streambank stabilization. Even under typical precipitation, some rilling on denuded soils on steeper slopes would be expected. Riparian areas in Pastures 1A, 1B, and 2A would be the most affected because the majority of riparian resources (lotic and lentic) in the allotment are found here. The lentic resources in Pasture 2B would also be affected; although the Pasture 2B reach of Squaw Creek is not prescribed for juniper treatment, its location in a steep canyon would make the stream reach a deposition point from any erosion from the juniper treatments of the surrounding areas.

Long-term effects (up to ten years) of the proposed juniper treatment would be an overall potential decrease in erosion, and increase in spring flows and groundwater storage. With the expected increase in herbaceous vegetation and ground cover after juniper treatment, erosion potential would decrease in the treated areas (Miller et al. 2005). This change in cover and vegetation density would alter the area hydrology, likely at a small scale, and retain much of the overland flow and increase infiltration. Woody riparian shrubs, such as willow, if removed by

fire, should re-sprout from roots, crowns and basal stems (Anderson 2006). Common riparian shrub species that could be affected are Booth, Geyers, coyote, and whiplash willows; chokecherry; dogwood; alder; and aspen. Disagreement exists about the effects of juniper removal on a watershed's water budget. Miller et al. (2005) suggest current research has not linked juniper control and increased spring flows, and that the relationship between juniper and subsurface flow is site-specific, determined by topography, soils, geology, and precipitation amount. However, more recent research from Deboodt el al. (2009) suggests that removal of post-European aged juniper changed the water balance equation in an Oregon watershed. Specifically, spring flow, groundwater, and soil moisture have all increased compared to pre-treatment levels (Deboodt el al. 2009). The headwaters of many streams are located in the Trout Springs Allotment. That fact, coupled with information from the above researchers, indicates the water balance in Trout Springs Allotment may change and increase spring flow, groundwater, and soil moisture due to the proposed juniper management. This would potentially expand lotic and lentic areas. Riparian areas throughout the Trout Springs Allotment would be affected, though the perennial streams and lentic areas would likely benefit more due to their potential linkage to groundwater.

Water Quality

Effects of the proposed juniper treatment are closely tied with riparian condition, as described above. The proposed juniper projects would reduce some streambank-binding riparian vegetation that could lead to increased sediment from high intensity storm events (estimated 10-20 year storm event), and degrade the water quality. Even under typical precipitation, increased sedimentation from erosion on denuded slopes could affect water quality. Additionally, increased fine sediment yield from excess upland erosion could lead to hydraulic disequilibrium, and reduced sediment transport capacity. This in turn leads to increased stream width, aggradation, and decreased depth, which exposes more water surface to solar radiation. Stream temperatures would increase. Reduced stream shading is expected, also increasing water temperatures. Effects of the juniper treatment would be allotment wide, but especially where broadcast burning near perennial waters is proposed. However, these effects are short term. Previous studies identify erosion rates typically returning to pre-fire rates in five years after a prescribed or wildfire (Miller et al. 2005).

Long-term effects of the proposed juniper treatment would be the overall decrease in stream temperatures and decrease in sedimentation rates, leading to meeting IDEQ water quality standards. All streams within the Trout Springs Allotment that were in or adjacent to juniper treated areas would be affected. Upland and riparian vegetation (herbaceous and shrubs) would increase, reducing water runoff and upland erosion. Reductions in stream temperature and sediment yield would occur as the willow and herbaceous vegetation communities develop into mature, late seral communities that would have the canopy cover to increase stream shading and the root mass to increase bank stability. Stream channels would narrow and deepen due to improved bank stability and sediment catchment, lowering stream temperatures. Idaho water quality standards would be met in Middle Fork Owyhee, Squaw Creek, West Fork of Red Canyon, and Pleasant Valley Creek, and their subsequent removal from the 303d list would be expected.

3.3.2.3 Alternative C

Implementation of Alternative C in the Trout Springs Allotment would be expected to make significant progress (measurable and/or observable as defined by Idaho Standards for Rangeland Health and Guidelines for livestock Grazing Management) towards meeting Standards 2, 3, and 7 because of extended rest.

Direct and indirect effects from grazing management:

Lotic and Lentic Resources

This alternative proposes extended rest and no livestock grazing for ten years. Effects of this alternative would be immediate increases in both herbaceous and woody riparian vegetation. Streambank damage due to hoof impacts, woody shrub use, and herbaceous stubble heights would be expected to meet all riparian objectives. All lotic and lentic resources within the allotment would be affected and their conditions would be expected to improve. In the long term, early-seral dominated riparian vegetation communities would eventually change to riparian communities dominated by late-seral, deep-rooted species. Stream channels would improve as they narrow and deepen, and streambanks stabilize due to the bank-stabilizing abilities of deep-rooted riparian vegetation. Aquatic habitat conditions would improve as channel form recovers, fine sediment levels decrease, and stream shading levels increase due to the development of dense and vigorous riparian plant communities.

There are no proposed range improvements in this alternative.

Water Quality

Water quality is closely tied to riparian conditions, and with the expected improvement in riparian conditions in all pastures, all streams would meet IDEQ water quality standards. Riparian conditions in all pastures are expected to improve due to no livestock grazing. Reductions in stream temperature and sediment would occur as the willow and herbaceous vegetation communities develop into mature, late-seral communities that would have the canopy cover to increase stream shading and the root mass to increase bank stability. In the long term, stream channels would narrow and deepen due to improved bank stability, also enhancing stream temperatures. Idaho water quality standards would be met in the Middle and North Fork Owyhee Rivers, West Fork of Red Canyon Creek, and Pleasant Valley Creek, and their subsequent removal from the 303(d) list would be expected.

Direct and indirect effects from juniper management:

Lotic and Lentic Resources and Water Quality

Effects to riparian resources and water quality are the same as those identified in Alternative B.

3.3.2.4 Alternative D

Implementation of Alternative D in the Trout Springs Allotment would be expected to make slow, but significant progress (measurable and/or observable as defined by Idaho Standards for Rangeland Health and Guidelines for livestock Grazing Management) toward meeting Standards 2, 3, and 7. Alternative D is expected to produce slow improvement in the riparian areas due to regular rest from grazing and deferment.

Direct and indirect effects from grazing management:

Lotic and Lentic Resources

Pasture 1A would be grazed primarily in the hot season, and approximately two weeks of hot season grazing would occur in Pasture 1B. Hot season grazing can be detrimental for riparian areas because livestock tend to remain and concentrate their use in riparian areas and stream channels (USDI-BLM 2006), increasing riparian vegetation utilization and streambank alterations. Additionally, observations suggest that turn-out is likely to be delayed in Pastures 2B and 3 to meet Boise District Range Readiness Criteria (USDI-BLM 2010a), which could either extend the grazing schedule or increase livestock numbers to obtain active AUMs. If the grazing schedule is extended, both pastures would be grazed entirely in the hot season, and would likely have similar effects as Alternative A. Also, depending on the length of delay, Pasture 2A may be grazed during a portion of the hot season, and would likely incur similar effects as Pastures 1A and 1B. If livestock numbers are increased, the physical effects of low livestock numbers would diminish, and the effects from hot season grazing would occur in Pastures 1A and 1B, and would not occur in Pasture 2A. Other than the potential effects associated with the likely delay in the grazing schedule, riparian areas (lotic and lentic) in Pasture 2A should improve due to fewer livestock on pasture and rest/rotation grazing schedule.

However, Pastures 1A, 1B, and 2A would potentially be grazed only three or four years, non-sequentially, during a ten year grazing permit due to rest/rotation grazing schedule and rest associated with juniper treatments (as identified in the interim management). On years that the pastures are grazed, little if any riparian improvement is expected, while during the rest years, riparian vegetation is expected improve. Overall, riparian vegetation, even during hot season use, would be expected to improve, because the riparian vegetation gains during the rested years are greater than potential damage occurred during grazed years. Gains in riparian vegetation health, vigor, and establishment would be slow due to effects from hot season use, and would occur in the long term (up to ten years).

With early livestock turnout (April 15) every other year on Pastures 2B and 3, riparian effects would be negligible, and riparian vegetation would likely improve because livestock would tend to spend more time in the uplands due to similar or better forage quality (USDI-BLM 2006). Consequently, less livestock in the riparian areas should equate to less streambank alterations. However, any gains in riparian vegetation condition and channel stabilization would likely diminish when grazed late summer-early fall the following year because livestock tend to congregate in the riparian areas during the summer months. Overall, slight but significant progress in riparian vegetation and stream channels is expected for the long term in Pastures 2B and 3.

Effects of the gap fence on the North Fork Owyhee River, the exclosure on headwaters of Cottonwood Creek , the pasture division fences (Pasture 2B/3 and 2A/2B), the fence reconstruction in Pasture 2A, and livestock trailing would be the same are the same as those identified in Alternative B.

Water Quality

Water quality is closely tied to riparian conditions. Riparian vegetation, even during hot season use, would be expected to improve in Pastures 1A, 1B, and 2A due to six or seven years of rest. However, gains in riparian vegetation health, vigor, and establishment would be slow due to effects from hot season use, and would occur in the long term. Riparian vegetation improvement in Pastures 2B and 3 would be minor and occur in the long term due effects from spring/late summer grazing schedule. Overall, reductions in stream temperature and sediment would occur as the riparian vegetation communities develop into mature, late-seral communities that would have the canopy cover to increase stream shading and the root mass to increase bank stability. In the long term, stream channels would narrow and deepen due to improved bank stability, also enhancing stream temperatures.

Significant progress toward meeting Idaho water quality standards would occur slowly, and would be realized in the long term (up to ten years) for the Middle Fork Owyhee Rivers, West Fork of Red Canyon Creek, and Pleasant Valley Creek. Their subsequent removal from the 303(d) list would be expected.

Effects of the gap fence on the North Fork Owyhee River are the same as those identified in Alternative B, and that river segment would progress toward meeting Standard 7. Effects from pasture division fences (Pasture 2B/3 and 2A/2B), fence reconstruction in Pasture 2A, and livestock trailing would be the same as those identified in Alternative B.

Direct and indirect effects from juniper management:
Lotic and Lentic Resources and Water Quality
Effects to riparian resources and water quality are the same as those identified in Alternative B.

3.3.2.5 Alternative E

Implementation of Alternative E in the Trout Springs Allotment would be expected to make significant progress (measurable and/or observable as defined by Idaho Standards for Rangeland Health and Guidelines for livestock Grazing Management) toward meeting Standards 2, 3, and 7 because of a relatively light stocking rate and no hot season grazing.

Direct and indirect effects from grazing management:
Lotic and Lentic Resources
The effects (lotic and lentic) would be the same for all pastures as previously identified in Alternative B except the magnitude of livestock grazing effects would be decreased due to fewer livestock and lighter stocking rates in all pastures. Reduced grazing and related effects would allow for faster vegetative response in all pastures. Riparian vegetation health, vigor, reproduction and establishment would improve at a faster rate (shorter time periods for short and long-term effects) than in Alternative B.

Effects of the gap fence on the North Fork Owyhee River, the exclosure on headwaters of Cottonwood Creek , water haul site, the pasture division fences (Pasture 2B/3 and 2A/2B), fence reconstruction in Pasture 2A, and livestock trailing would be the same are the same as those identified in Alternative B.

Direct and indirect effects from grazing management:
Water Quality
Effects to water quality would be similar to those identified in Alternative B. Water quality is closely tied to riparian conditions. Riparian vegetation health, vigor, reproduction and establishment would improve at a faster rate than in Alternative B due to fewer livestock and lower stocking rates in all pastures. In the long term, stream channels would narrow and deepen due to improved bank stability, also enhancing stream temperatures. Idaho water quality standards would be met in the Middle and North Fork Owyhee Rivers, West Fork of Red Canyon Creek, and Pleasant Valley Creek, and their subsequent removal from the 303d list would be expected.

Effects of the gap fence on the North Fork Owyhee River, the exclosure on headwaters of Cottonwood Creek , water haul site, the pasture division fences (Pasture 2B/3 and 2A/2B), fence reconstruction in Pasture 2A, and livestock trailing would be the same as those identified in Alternative B.

Direct and indirect effects from juniper management:
Lotic and Lentic Resources and Water Quality
Effects to riparian resources and water quality are the same as those identified in Alternative B.

3.4 Fish and Wildlife/Special Status Animals

3.4.1 Affected Environment –Fish and Wildlife/Special Status Animals

Wildlife Habitat

Two Level IV Ecoregions of Idaho are represented within the Trout Springs and Hanley FFR Allotments (McGrath, et al. 2002). Although these ecoregions are relatively similar, they are distinguished by differences in physiography, precipitation, and elevation. The Owyhee Uplands and Canyons ecoregion occurs on the entirety of the Hanley FFR Allotment and the lower elevation, northern portions of the Trout Springs Allotment, and is characterized by deep canyons, badlands, and rocky outcrops covered with a variety of shrub steppe vegetation communities. The Semiarid Uplands occur on the higher elevation, southern portion of the Trout Springs Allotment; these areas are typically dominated by mountain shrub and woodland communities. Within the allotments, the physiognomy of these ecoregions is characterized by alluvial fans, rolling shrub steppe uplands, and shrub-dominated lava plains interrupted by low hills, rocky tuffaceous outcrops and precipitous sheer-walled river canyons.

The dominant upland wildlife habitats within the Trout Springs Allotment include juniper woodlands, mountain shrublands, sagebrush steppe, native grasslands, and sparsely vegetated rocky outcrops and canyons. Riparian/wetland wildlife habitats are more limited in abundance and extent and include wet meadow complexes and woody and herbaceous riparian areas along perennial and intermittent streams and around springs, seeps, and reservoirs (Table 3.4.1; Map 9). Currently, the expansion of juniper into former shrub communities has transformed most of

the Trout Springs and Hanley FFR Allotments into woodlands. These juniper woodlands range from open, savanna-like conditions to dense, nearly-closed-canopy forest. In particular, juniper woodlands cover the summit and relatively low-profile flanks of Juniper Mountain and the riparian areas that occur along many perennial streams (Map 4); the density of junipers generally increases with elevation. Overviews of upland and riparian vegetation communities within the Trout Springs Allotment have been discussed in detail in Sections 3.2 and 3.3.

Table 3.4.1 - Major habitat and general cover types with the Trout Springs Allotment

Habitat Type	General Cover Type	Percentage of Allotment	
		General Cover Type	Habitat Type
Grassland	bunchgrass	< 1%	< 1%
Shrub Steppe[1]	big sagebrush	< 1%	33%
	mountain big sagebrush	21%	
	low sagebrush	12%	
Mountain Shrub	bitterbrush	< 1%	10%
	mountain shrub	10%	
Forest	aspen	< 1%	55%
	juniper	55%	
Riparian	wet meadow	1%	1%
Non-native/Disturbed	exotic annuals	< 1%	< 1%
	rabbitbrush	< 1%	

[1] Shrub steppe habitat type includes the predominant big and low sagebrush communities in the area. Big sagebrush (*Artemisia tridentata*) cover types include communities dominated by the subspecies Wyoming (*wyomingensis*), Basin (*tridentata*), and mixed communities dominated by either subspecies. Mountain big sagebrush (*A. tridentata* ssp. *vaseyana*) and low sagebrush (*A. arbuscula*) cover types comprise the remaining sagebrush communities.

Wildlife habitat within the Hanley FFR Allotment is composed primarily of sagebrush and juniper woodlands. Streams, riparian areas, and wetlands do not occur on public lands in the allotment, and the species that use these habitats (e.g., fish, frogs, and riparian-dependent migratory birds) are absent. Therefore, any discussion regarding aquatic and riparian-dependent wildlife species does not apply to the Hanley FFR Allotment. Although the allotment has the potential to support some of the same upland species as the Trout Springs Allotment, due to its relatively small size and nearby anthropogenic disturbances (i.e., roads and buildings), smaller, less diverse populations would be expected. No wildlife surveys have been conducted in the allotment and species and community composition can only be inferred from the wildlife habitats present. Due to these factors and their proximity to one another, fish and wildlife in the Trout Springs and Hanley FFR Allotments will be discussed jointly throughout this section with differences noted where appropriate.

Uplands

Upland wildlife habitats within unburned portions of the Trout Springs and Hanley FFR Allotments have departed substantially from what would be expected under a natural disturbance regime (i.e., periodic wildfires) (Rowland, et al. 2008). Sagebrush steppe and mountain shrub communities that would be expected at higher elevations in Pastures 2, 2B, 3, and 1B, based on

ecological site descriptions, are being negatively impacted by juniper encroachment and have been predominantly converted to woodland habitat. The departure due to juniper encroachment and shifts in vegetation functional-structural groups has resulted in the dominance of woodland habitat and an underrepresentation of dominant bunchgrass species such as bluebunch wheatgrass and Idaho fescue and an overrepresentation of shallow-rooted, short-statured Sandberg bluegrass in what should otherwise be sagebrush steppe and mountain shrub habitat types replete with deep-rooted, tall perennial bunchgrasses (Appendix A). Healthy, productive, and diverse populations of native perennial grasses, forbs, and shrubs are not maintained with juniper encroachment (Huxman, et al. 2005) (Rowland, et al. 2008), and what remains in juniper-dominated areas does not provide for proper nutrient cycling, hydrologic cycling, and energy flow (Appendix A).

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, sage sparrows, and Wyoming ground squirrels. The Crutcher fire of 2007 burned a small portion of the south edge of the allotment and substantially reduced juniper dominance in that area; post-burn recovery of upland native communities is occurring (USDI BLM 2010b). In burned areas, the continuing return of perennial bunchgrasses and forbs in the short term and the shrub component in the long term (i.e., 20 to 50 years) (USDI BLM 2010b) should provide the structural and functional constituents necessary for suitable breeding habitat for shrub-associated species and foraging habitat for spotted and Townsend's big-eared bats, as well as raptors such as golden eagles, ferruginous hawks, and prairie falcons. A similar post-burn recovery is expected to occur following the Grasshopper wildfire, which burned approximately 2,700 acres in the northern portion of Pasture 2 in August of 2012.

Riparian

Standard 8 is not being met for wildlife in riparian/wetland habitats accessible to livestock grazing due to a lack of hydric vegetation and soil instability along streambanks and in wet meadows. Typically, for the reaches of stream that are not in proper functioning condition, there is inadequate riparian/wetland vegetation present to protect streambanks and dissipate energy during high flows, and plant communities are often not comprised of deep-rooted bank stabilizing hydric species. Heavy herbaceous riparian vegetation use and streambank trampling by livestock have reduced nesting substrate, protective cover, and foraging areas for many riparian-dependent 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 toad, common garter snake, 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 current season-long livestock grazing practices in riparian/wetland habitats.

Wildlife Species

Many wildlife species utilize a variety of habitats in the Trout Springs and Hanley FFR 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 and endangered species listed under the Endangered Species Act (ESA) occur in the Trout Springs and Hanley FFR 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 2012). 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 2008c), 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 2003) and those afforded protection under the Bald and Golden Eagle Protection Act (BGEPA) (U.S.C. 1940) with potential to occur within the allotments and whose habitat may be affected by the current action.

One bird and one amphibian species listed as candidates under the ESA, and 7 mammals, 12 birds, one reptile, three amphibians, one fish, and one invertebrate with special status could potentially occur within the Trout Springs and Hanley FFR 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 allotment are summarized in Appendix J.

With the exception of a few well-studied species, current occurrence and population data for most special status animal species within Trout Springs and Hanley FFR Allotments are limited due to a deficiency of surveys and directed research. Therefore, only a few focal special status animal species will be discussed in detail individually. These species include the greater sage-grouse, yellow-billed cuckoo, Columbia spotted frog, pygmy rabbit, and Columbia River redband trout. The USFWS has determined that greater sage-grouse, yellow-billed cuckoo, and Columbia spotted frogs warrant listing under ESA (i.e., candidate species) but listings have been precluded due to higher priorities. The Idaho BLM has determined that pygmy rabbit and 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 Trout Springs and Hanley FFR Allotments, and they have been the subject of targeted surveys and periodic species-specific monitoring studies. Other special status animal

species, migratory birds, raptors, and species of socio-economic importance (e.g., big game) will be included in a general discussion by taxonomic groupings.

Description of the current condition of species and their habitats are based on the 2010 and 2012 Determinations (Appendix A), personal observation, and consultation with local wildlife professionals. Based on the Determinations and the subsequent evaluation of the existing poor habitat conditions identified in Standards 2 (Riparian Areas and Wetlands) and 4 (Native Plant Communities), the allotments currently are not meeting Standard 8 (Threatened and Endangered Animals) for many special status animal species dependent upon upland and riparian habitats.

A focal species is a species which defines landscape characteristics necessary for functional and healthy ecosystems. For example, because they are so dependent on healthy sagebrush communities, sage-grouse and pygmy rabbits are appropriate species to use as surrogates for other sagebrush associated wildlife, while spotted frogs and redband trout serve as surrogates for riparian and aquatic wildlife species and the general health of lentic and lotic systems (Caro & O'Doherty 2001).

Focal Special Status Animal Species

Greater Sage-grouse

The greater sage-grouse (*Centrocercus urophasianus*) is a sagebrush-obligate bird species that requires large areas of relatively undisturbed sagebrush steppe habitat. Sage-grouse were once abundant and associated with sagebrush steppe ecosystems across western North America; currently, however, their distribution has been reduced to nearly 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, et al. 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 and Smurthwaite 1992). On March 23, 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 2010a). 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 sagebrush habitats across the West (Rowland, et al. 2006) (Hanser and Knick 2011).

The Trout Springs and Hanley FFR Allotments are located in the Western Association of Fish and Wildlife Management Agencies' (WAFWA) Snake River Plain Management Zone (Zone IV; (Stiver, Apa, et al. 2006)). The Northern Great Basin population within Zone IV (Garton, et al. 2011) is a large population in Nevada, southeast Oregon, southwest Idaho, and northwest Utah (Map 13). 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 Trout Springs and Hanley FFR Allotments (Map 13).

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 Trout Springs Allotment and surrounding area. Connelly et al. (2004) conducted a population analysis by state and not by management zone, population, or subpopulation; annual rates of change for sage-grouse in Idaho suggest a long-term decline for sage-grouse in Idaho. 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 Zone IV.

In 2006, the Idaho Sage-grouse Advisory Committee (ISAC) completed the "Conservation Plan for the Greater Sage-grouse in Idaho" (ISAC 2006), which incorporated recent science and conservation measures into a comprehensive state-level sage-grouse conservation plan. This plan incorporated an updated version of an earlier sage-grouse habitat mapping effort that had been initiated in 2000. The resulting Idaho Sage-grouse Habitat Planning Map (ISHPM) has been updated annually since that time, based primarily on wildfire polygons, expert opinion and/or other new information. However, this map displays only general habitats (i.e., key habitat, defined as areas of generally intact sagebrush that provide sage-grouse habitat during some portion of the year, and potential restoration areas comprised of perennial grasslands, annual grasslands and conifer encroachment areas). It does not reflect the relative importance or priority of those habitat areas with respect to sage-grouse population characteristics.

In March 2010, BLM Washington Office Instruction Memorandum (IM) 2010-071 directed field office managers to implement appropriate conservation actions in priority sage-grouse habitat. Subsequent guidance (Washington Office IM 2012-043) provided interim conservation measures for use within preliminary priority habitat (PPH) and preliminary general habitat (PGH) areas, while BLM is amending land use plans. PPH is defined as areas that have been identified as having the highest conservation value to maintaining greater sage-grouse populations; PGH is defined as areas of occupied seasonal or year-round habitat outside of priority habitat.

The process leading to the most current (April 2012) PPH/PGH map involved two versions. Version 1 was completed in September 2011, and relied solely on sage-grouse breeding bird density and lek connectivity information for delineating priority areas. Version 2 was completed in April 2012, following scoping, and incorporated additional important information provided by IDFG, BLM, USFS, and others, including sage-grouse seasonal habitats, movement corridors, habitat connectivity, locally important leks and telemetry data. Version 2 also incorporates filters for agriculture and timber lands, excluding those areas from PPH/PGH, and more closely aligning with the ISHPM, for general conservation planning purposes. Overall, Version 2 provides a more detailed and comprehensive portrayal of preliminary PPH/PGH in the state, and is intended to replace Version 1 in its entirety (Makela and Majors 2012).

Historically, the Trout Springs and Hanley FFR Allotments provided suitable habitat for sage-grouse and the area supported significant populations (USDI-BLM 1969). Currently, the majority of both the Trout Springs and Hanley FFR Allotments are either unsuitable or marginal sage-grouse habitat due to the extensive juniper woodlands in the area (Map 8). Based on an interim, updated (2011) version of the ISHPM (ISAC 2006), approximately 3% (854 acres) of the Trout Springs Allotment is currently classified as key sage-grouse habitat, and 16% (4,559 acres) are classified as areas where conifers have encroached into sage-grouse habitat (Table 3.4.2). The remaining 81% (23,810 acres) of the Trout Springs Allotment is not considered sage-grouse habitat. Approximately 33% (9,717 acres) of the Trout Springs Allotment was identified as PGH and none of the allotment was identified as PPH (Makela and Major 2012) (Map 14).

Table 3.4.2 - Sage-grouse habitat acreage within the Trout Springs Allotment, 2012 (all ownerships)

	Idaho Sage-grouse Habitat Planning Map				Version 2		
Pasture	**Sagebrush**	**Perennial Grassland**	**Conifer Encroachment**	**Total**	**PGH**	**PPH**	**Non-habitat**
1A	0	0	0	0	1,045	0	4,691
1B	0	0	248	248	2,230	0	5,390
2	177	0	3,359	3,536	4,802	0	6,760
2B	0	0	105	105	112	0	117
3	0	0	6	6	0	0	2,589
4	677	0	841	1,518	1,528	0	0
Total (% of allotment)	854 (3 %)	0 (0 %)	4,559 (16 %)	5,413 (19 %)	9,717 (33 %)	0 (0%)	19,547 (67 %)

Based on the same interim, updated (2011) version of the ISPHM (ISAC 2006), approximately 2% (1 acre) of BLM lands within the Hanley FFR Allotment are currently classified as key sage-grouse habitat, and 98% (60 acres) of BLM lands are classified as areas of juniper encroached sage-grouse habitat. Approximately 2% (1 acre) of BLM lands within the Hanley FFR Allotment were identified as PPH and 98% (60 acres) were identified as PGH (Makela and Major 2012).

Typically, sage-grouse in the vicinity of the Trout Springs Allotment congregate on communal strutting grounds (i.e., leks) from April to early May. The nesting season occurs soon after, extending from May to early 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 late brood-rearing and summer habitats (e.g., wet meadows and riparian areas) from June to August. Based on locations acquired through lek surveys, telemetry studies, and incidental observations, sage-grouse nesting, early and late brood-rearing, and winter habitats currently occur within the Trout Springs and Hanley FFR Allotments to varying degrees.

Currently, potential sage-grouse use is limited to the northern portion of the Trout Springs Allotment (Pastures 2 and 4) where junipers are absent or sparse and have not completely replaced sagebrush habitat (Map 8). Habitat within the remainder of the allotment (i.e., Pastures 1A, 1B, 2B, and 3) is generally unsuitable for sage-grouse (Table 3.4.2). Habitat within Pastures 1A, 1B, and 3 is characterized by rough and steep terrain covered by juniper mixed with mountain mahogany and mesic shrub communities. Although junipers are far denser and mountain mahogany are much sparser within these pastures currently than several hundred years ago, the density of the woodlands (primarily mountain mahogany and scattered junipers) under natural conditions, and the mountainous topography probably excluded extensive sage-grouse use before fire suppression and livestock grazing altered the vegetation communities in the area. Although habitat within Pasture 2B is currently composed of dense juniper woodlands with relatively sparse understory cover, restoration efforts could re-establish some patches of sagebrush habitat and attract sage-grouse to suitable areas. The abundance and density of juniper on the BLM lands within the Hanley FFR certainly limit and probably exclude sage-grouse use.

The Conservation Plan for Greater Sage-grouse in Idaho (ISAC 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, as recovery of the mountain sagebrush community and decay of the juniper snags is estimated to take from 35 to 200 years (Baker 2006) (Huffman, et al. 2012). Excessive livestock grazing in the Trout Springs Allotment is also a limiting factor for sage-grouse use because heavy livestock utilization reduces nesting and hiding cover, which also increases exposure to predators.

Riparian and wetland areas within the Trout Springs Allotment that sage-grouse could potentially use during late brood-rearing and summer are currently in poor condition due to season-long livestock grazing practices (Section 3.3.1). Breeding and late brood-rearing habitat assessments conducted within the allotment in 2000 and 2008 have documented unsuitable or marginal conditions due to juniper encroachment, forb scarcity, and degraded riparian site stability (Appendix A). Xeric plant species invading into riparian areas was also a contributing factor to the current unsuitability of the habitat. Sage-grouse habitat in the allotment is in need of restoration through improved livestock management and juniper reduction (Appendix A). Breeding and brood-rearing habitat assessments have not been conducted within the Hanley FFR Allotment because of the lack of suitable habitat due to juniper encroachment.

No known leks occur within either the Trout Springs or Hanley FFR Allotments. The Trout Springs Allotment is located within the 75% breeding bird density (BBD) buffer (4 miles) of one occupied lek (based on the presence of 2 or more males observed during surveys in the last five years) and one undetermined lek within Idaho. The Trout Springs Allotment is located within the 75% BBD buffer of one additional undetermined lek on Oregon state land (Table 3.4.3). The Hanley FFR Allotment is also located within the 75% BBD buffer of the S.E. Brewster Reservoir lek in Oregon. The 75 % BBD buffer is highly correlated to breeding habitat surrounding leks and encapsulates 75% of male lek attendance along with 60% of currently occupied habitat within Zone IV (Makela and Major 2012). The remaining 40% of currently occupied habitat (which occurs outside the 75% BBD) is likely the more fragmented habitat (Doherty et al. 2011). Because counts at these leks have only recently been conducted with any annual regularity via helicopter, long-term trends in lek attendance are difficult to extrapolate.

Table 3.4.3 - Attendance at leks within 4 miles of the Trout Springs Allotment, 2007-2012

Lek	Location	Survey Year[1]					
		2007	2008	2009	2010	2011	2012
2O227	< 0.6 miles W	--	0	--	9	0	--
2O632	< 1.5 miles E	--	--	--	0	0	0
S.E. Brewster Reservoir (OR)	< 3.0 miles NW	--	--	--	--	--	--

[1]Surveys were not conducted in years indicated by dashes (--).

Yellow-billed Cuckoo

The yellow-billed cuckoo (*Coccyzus americanus*) is a riparian-obligate bird species usually found in large tracts of cottonwood and dense willow habitat. In southwestern Idaho, the yellow-billed cuckoo has been considered a rare, sometimes erratic, visitor and breeder in the Snake River valley. The breeding population in Idaho is likely limited to a few breeding pairs at most (USFWS 2011a). The USFWS considers cuckoo populations that occur west of the Rocky Mountains a Distinct Population Segment (DPS) that is experiencing ongoing declines as a result of habitat loss and degradation due to land use conversion and livestock grazing (USFWS 2011a). On June 25, 2001, the USFWS submitted a new finding to the Federal Register, which found that listing the yellow-billed cuckoo was warranted but precluded by the need to take action on other species facing more immediate and severe extinction threats (USFWS 2001).

A suspected yellow-billed cuckoo breeding pair was documented approximately 30 miles east of the Trout Springs Allotment along Battle Creek in 1996. However, riparian habitat within the Trout Springs Allotment is currently in poor condition (see Section 3.3.1), and is likely precluding the presence of this species within the allotment. Cottonwoods are limited to the lower portions of Squaw Creek and could potentially be supported in parts of the North Fork Owyhee River and the east end of Cottonwood Creek. However, no large cottonwood stands currently occur within the allotment and it would take decades to produce suitable cuckoo habitat under ideal conditions. In addition, the majority of perennial streams where cottonwoods would occur lack the extensive sandy floodplains mature cottonwood groves require for

development. The loss of willows due to livestock grazing and juniper encroachment has also reduced suitable cuckoo nesting sites.

Columbia Spotted Frog

The Great Basin DPS of the Columbia spotted frog (*Rana luteiventris*) 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 (USFWS 1993). As a candidate species under the ESA, Columbia spotted frogs are awaiting review and additional information for potential listing as threatened or endangered.

Columbia spotted frogs are highly aquatic and are 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 are the most serious threats to the maintenance of viable populations of spotted frogs (IDFG 2005a). Currently, spotted frogs are widely distributed throughout southwestern Idaho and eastern Oregon, but local populations appear to be isolated from each other by either natural or human induced habitat disruptions (USFWS 2011c).

Various agencies and researchers have surveyed potential spotted frog habitat throughout the Owyhee Mountains and Uplands since 1994 (Munger, Heberger, et al. 1994) (Munger, Ames and Barnett 1997) (Lohr and Haak 2009) (Lohr 2011). Occurrence information available from IDFG documents three spotted frog observations within Pasture 2 of the Trout Springs Allotment. Spotted frogs have also been documented in Cottonwood Creek approximately 0.1 miles downstream from Pasture 2B, Pleasant Valley Creek approximately 1.0 mile downstream from Pasture 2B, Thomas Creek approximately 0.2 miles downstream from Pasture 1B, and Smith Creek approximately1.5 miles downstream from Pasture 1B (Map 10). The majority of wetland and riparian areas in the allotment are in poor condition (Section 3.3.1) and are either only providing marginal or unsuitable habitat for the maintenance of viable populations. Beaver ponds create habitat for spotted frogs; however, loss of willows and aspen in riparian areas due to livestock grazing and juniper encroachment has reduced available food resources for beaver, and they are not currently known to occur within the allotment.

Pygmy Rabbit

The pygmy rabbit (*Brachylagus idahoensis*) 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.

On September 30, 2010, the USFWS submitted a new finding to the Federal Register which found that listing the pygmy rabbit was not warranted at the time (USFWS 2010b). As a BLM

Type 2 sensitive species, BLM continues to manage the species to prevent future endangered species act listing. 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 2005b).

A coarse-level predictive occurrence model created by Idaho BLM in 2009 suggests that portions of Pastures 1B and 3 within the Trout Springs Allotment have a moderate likelihood of core habitat presence (Map 17). 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; Table 3.4.1). Suitable sagebrush habitat and soils are mostly absent or now dominated by junipers throughout the majority of the allotment. Pasture 4 is characterized by very shallow, clayey soils and suitable loose, friable soils are limited. No pygmy rabbit surveys or observations have been documented within the allotment.

Columbia River Redband Trout

The Columbia River redband trout (*Oncorhynchus mykiss gairdneri*) is the resident form of steelhead trout that historically returned from the ocean to spawn in streams throughout the Owyhee River watershed (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 2005c). 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. As a BLM Type 2 sensitive species, BLM continues to manage the species to prevent future endangered species act listing.

Within the Trout Springs Allotment, redband trout have been documented in the North Fork Owyhee River which forms portions of the boundary of Pastures 2 and 4, Squaw Creek which transects Pastures 4 and 1B and forms the boundary of Pastures 2 and 3, the Middle Fork Owyhee River which transects Pasture 1B, and Smith and Thomas Creek in Pasture 5 (Map 10). The majority of the trout habitat in the allotment is not in proper functioning condition (Section 3.3.1), and thus the streams are not providing adequate habitat conditions to maintain viable trout populations. Redband trout are not known to occupy the intermittent and ephemeral streams within the remaining pastures. Overall, habitat for redband trout is degraded due to grazing effects in riparian areas and juniper encroachment (Section 3.3.1). In addition, fish and fish habitat downstream of the allotment are affected by activities taking place upstream.

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

A variety of special status bird species occur or are likely to occur within the Trout Springs and Hanley FFR Allotments (Appendix J). The majority of these species are associated with shrub steppe, grassland, or riparian habitats. Further consideration is given to avian species afforded special management emphasis under the Migratory Bird Treaty Act (MBTA) (U.S.C. 1936). 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 Trout Springs and

Hanley FFR Allotments may provide foraging and nesting habitat for up to 177 additional species of migratory birds (Appendix K).

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 MOU (USDI 2010). 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 developed as the primary unit within which issues are resolved, sustainable habitats are designed, and priority projects are initiated (NABCI-US 2012). 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 Trout Springs and Hanley FFR Allotments fall within the Great Basin BCR. In addition, the allotments are found 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 K).

The nesting requirements of many migratory birds are fulfilled within the Trout Springs Allotment 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, et al. 2005). Grasslands and shrub steppe provide nesting and foraging habitat for the majority of migratory bird species found within the Trout Springs Allotment. 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 and Sauder 2004).

The juniper woodlands and riparian areas within them are known to 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 expected sagebrush habitats in the absence of juniper encroachment, presently has augmented the population of woodland birds that would be only a minor component of the area's overall bird community. Under natural disturbance regimes, 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

(Appendix H). 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. Red-tailed hawk nests are common in the area's aspen stands and several northern goshawk nesting areas with multiple nest sites have been documented within Pastures 1A and 1B in the allotment. All nests were constructed within mature, large aspens.

Riparian habitats support the most diverse migratory bird communities in the arid and semiarid portions of the Intermountain West (Knopf, et al. 1988)(Dobkin 1998). In addition, healthy riparian areas sustain high densities of breeding migratory birds (Mosconi and 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 and George 1994).

Riparian habitat along the perennial streams in the Juniper Mountain area 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 Juniper 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 and Earnst 2006).

The varied mountain shrub communities 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. Maintaining adequate amounts of the different successional states along the shrub steppe to juniper woodland gradient is important in preserving bird species diversity throughout these habitat types (Reinkensmeyer, et al. 2007). Several species that also favor these habitats but negatively affect local migratory bird populations through brood parasitism or usurpation of nesting cavities include the brown-headed cowbird and the invasive European starling (*Sturnus vulgaris*), respectively.

Shrub steppe habitats dominated by several species of sagebrush and perennial grasslands provide vital nesting and foraging habitat for obligate species such 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 away from stable native vegetation communities are some most important factors affecting long-term and regional population dynamics of these species (Knick and Rotenberry 1995) (Knick and Rotenberry 2000) (Knick

and Rotenberry 2002) (Knick, Dobkin, et al. 2003) (Knick, Holmes and 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.

Although limited in number, ponds provide foraging habitat for killdeer, spotted sandpiper, Wilson's phalarope, and white-faced ibis. Wetlands and wet meadows provide nesting substrate and cover for red-winged blackbird, song sparrow, and Wilson's snipe. In addition, open wetlands with abundant flying insects are important foraging areas for aerial foragers such as barn, tree, and violet-green swallows. Raptor species associated with water such as bald eagles, osprey, and peregrine falcons have been documented in the area during migration and winter. Although bald eagles have been documented near the allotments during winter months, their use of the area is not well known. However, bald eagle breeding within the Trout Springs Allotment is highly improbable because of the lack of open water and nesting trees.

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 Trout Springs and Hanley FFR Allotments (Appendix J). California bighorn sheep (*Ovis canadensis californiana*) inhabit the deep, rugged canyons of the Owyhee River system year round. Although bighorn sheep forage in adjacent uplands, up to a mile from canyon rims, they prefer the benches and terraces within rugged canyons where escape terrain is readily available. In recent years, the local population (Owyhee River population management unit [PMU]) of approximately 250 to 350 California bighorn sheep has remained relatively stable (IDFG 2010a). The overall management goal for the Owyhee River PMU is to maintain or increase the current population; IDFG estimates the PMU is capable of supporting 400 to 700 sheep (IDFG 2010a).

IDFG has identified the more rugged portions of Pastures 2 and 4 in the Trout Springs Allotment as bighorn use areas (Map 16). However, based on occurrence records it does not appear that bighorn sheep have made use of these parts of the allotment historically. Nevertheless, due to the juniper clearing effects of the 2007 Cruthcher fire, it is possible that bighorn sheep may currently be expanding use farther up the rugged canyons and adjacent uplands of the East and West Forks of Red Canyon within the neighboring Castlehead-Lambert Allotment as habitat conditions have become more favorable (i.e., increased viewshed due to decreased density of woodlands).

Special status bat species occurring or potentially occurring within the Trout Springs Allotment include fringed myotis (*Myotis thysanodes*), California myotis (*Myotis californicus*), spotted bat (*Euderma maculatum*), and Townsend's big-eared bat (*Corynorhinus townsendii*). 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 and 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 in the portions of the allotment only provide marginal roosting habitat (Perkins and 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.

Although the geographic distributions and preferred habitats of several other special status mammal species including the dark kangaroo mouse (*Microdipodops megacephalus*) and Wyoming ground squirrel (*Spermophilus elegans nevadensis*) occur in the area, the Trout Springs Allotment is located in the extreme northern extent of their ranges and occurrences within suitable lower elevation habitats in Pastures 1A and 1B are probably inhibited by the east-west trending Owyhee River canyon.

The Trout Springs Allotment has long supported populations of a wide variety of big game species. Rocky Mountain elk (*Cervus canadensis*) and mule deer (*Odocoileus hemionus*) use portions of the area yearlong. However, some areas are used specifically as seasonal ranges (i.e., spring, summer, fall, and winter). Some specific pronghorn (*Antilocapra americana*) seasonal habitats (i.e., spring through fall) occur within Pastures 4 and 2 (Map 15). 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 2010b) (IDFG 2010c). Nevertheless, mule deer are common year-round in the uplands and canyonlands within the allotment. The area has traditionally yielded large, highly prized elk bulls during the very limited annual hunt (IDFG 2010b).

While juniper does provide 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. Pronghorn population declines were noted in the 1969 JMWHP (USDI-BLM 1969). The JMWHP documents degraded range conditions and forage competition as the reasons for pronghorn decline.

The Trout Springs Allotment is located within the IDFG game management units (GMU) 40 and 42. Current population data for elk and mule deer are lacking because surveys have not been conducted within either GMU for several decades (IDFG 2000a) (IDFG 2000b). 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 2010b). IDFG does not have any current population estimates for mule deer in GMU 40 or 42; managers have identified population information within the GMUs as a primary data need in the future (IDFG 2010c). The IDFG objective for mule deer within GMU 42 is to increase populations within these important herds (IDFG 2010c). Pronghorn surveys were conducted in GMU 42 in 2009; more than 1,500 pronghorn were observed (IDFG 2010d). Besides maintaining a variety of hunting opportunities and average horn lengths, IDFG has no explicit population objectives for pronghorn within GMU 42 (IDFG 2010d).

Large predators that occur within the 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. The JMWHP identified that limited populations of beaver were present along some of the streams in the area (USDI BLM 1969). However, habitat along many of the streams had deteriorated to the point that only remnant populations remain. Habitat for beavers in the Trout Springs Allotment 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. Other common fur-bearing animals including badger, fox, muskrat, otter, raccoon, skunk, and weasel are widespread and relatively common in the region and will not be discussed further.

Amphibians and Reptiles (including Special Status Species)

Several special status amphibians and reptiles, including the northern leopard frog (*Rana pipiens*), western toad (*Bufo boreas*), Woodhouse's toad (*Bufo woodhousii*) and common garter snake (*Thamnophis sirtalis*), have the potential to occur within the Trout Springs Allotment (Appendix J). All four 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 Trout Springs Allotment, 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 (including Special Status Species)

One species of freshwater mussel with special status, the California floater (*Anodonta californiensis*), has been documented approximately 20 miles north of the allotment in Jordan Creek. This species typically inhabits shallow water in low elevation lakes, rivers, and streams and has the potential to occur in the North and Middle Fork Owyhee Rivers and Squaw Creek. Other fish species that occur or potentially occur within streams in the Trout Springs Allotment include smallmouth bass (*Micropterus dolomieui*), dace (*Rhinichthys* spp.), redside shiner (*Richardsonius bateatus*), sculpin (*Cottus* spp.) and suckers (*Catostomus* spp.) (IDEQ 2002) (IDFG 2007). Some or all of these species have been documented within the North Fork Owyhee River and have a high probability of occurrence within Squaw Creek and other perennial streams. Fish habitat is degraded within the majority of streams due to grazing effects in riparian areas and juniper encroachment (see Section 3.3.1). Riparian conditions and activities in the upper reaches of streams also influence fish and fish habitat downstream of the allotment boundaries. These species will not be discussed further, as fish habitat in general will be included in detailed discussions under redband trout.

3.4.2 Environmental Consequences – Fish and Wildlife/Special Status Animals

3.4.2.1 Alternative A

Because the livestock grazing that has occurred under Alternative A has led to the current condition for upland and riparian wildlife habitats, it will serve as the baseline for comparison to the other alternatives. Current grazing management has been shown to reduce cover and forage for wildlife in upland and riparian areas, led to trampling and breakdown of streambanks, led to reduced numbers and vigor of native plant species from consumption and trampling, increased stream sedimentation, and enabled invasive plant species to better compete due to reduced vigor of native species (see Sections 3.2.1 and 3.3.1). Continuation of season-long grazing would concentrate livestock use on riparian areas, thus decreasing riparian vegetation that wildlife use for nesting substrate, cover, and foraging habitat. Streambank trampling would add sediment into streams and increase channel width to depth ratios, which increase water temperatures and decrease water quality to unacceptable levels for some fish and amphibian species. The degraded habitat conditions in the allotments would remain and habitat for wildlife and fish populations would continue to deteriorate. The short-term effects such as disturbance from livestock presence, disturbance from management activities, and loss of seasonal forage and cover would continue on an annual basis. Habitat degradation would be long-term with little opportunity for recovery. This alternative would not meet or make significant progress toward meeting Standard 8 (Threatened and Endangered Animals) for the Trout Springs and Hanley FFR Allotments.

<u>Trout Springs</u>
Direct and indirect effects from grazing management:

Focal Special Status Animal Species
<u>Greater Sage-grouse</u>
Although some positive effects to sage-grouse from livestock grazing have been documented (e.g., vegetative growth stimulation and greater availability of forbs with light grazing) (Beck and Mitchell 2000), they appear to be neutralized or outweighed by the negative effects identified at moderate or heavy (> 50%) use levels (Connelly, Braun, et al. 2007). Under Alternative A, negative effects to upland sage-grouse habitats from livestock grazing may include trampling of eggs, nest desertion, further degradation of marginal to suitable nesting cover (i.e., sagebrush and perennial bunchgrass canopy cover and heights) during the breeding season, introduction of non-native weeds, and increased densities of nest-depredating ground squirrels following heavy grazing (Beck and Mitchell 2000). The removal of fine fuels under current grazing practices as described under Alternative A would continue to contribute to a reduced fire frequency and subsequent juniper expansion into sage-grouse habitat. In addition, negative effects to riparian/wetland sage-grouse habitats from livestock grazing under Alternative A include inadequate protective herbaceous cover in riparian/wetland areas used as brood-rearing habitat, and continued deteriorated wet meadow hydrology. Effects in upland and riparian/wetland sage-grouse habitats would be expected for the term of the permit and could persist for several decades.

Grazing management in sage-grouse habitat should include the long-term objective of promoting desirable plant communities and the annual objective of retaining a standing crop that adequately provides cover for sage-grouse (Cagney, Bainter, et al. 2010). General grazing management recommendations for nesting and early brood-rearing habitats includes maintaining the sagebrush/bunchgrass plant community wherever present, managing for high vigor in all plant communities, avoiding repeated use of cool-season bunchgrasses during the critical growing season, and limiting utilization to moderate levels to assure that the previous year's standing crop is available as hiding cover (Cagney, Bainter, et al. 2010).

Specifically, current scientific literature identifies adequate canopy cover of sagebrush and tall grasses for nesting, abundant and diverse forbs and insects for brood rearing, and access to succulent and herbaceous riparian vegetation for summer foraging, as critical components of healthy sage-grouse habitats (Crawford, et al. 2004). Greater sagebrush and herbaceous cover provides vertical and horizontal concealment of nests from predators and has been demonstrated to result in higher nest success (Connelly, Wakkinen, et al. 1991) (Gregg, et al. 1994) (DeLong, Crawford and Delong, Jr. 1995) (Moynahan, et al. 2007) (Coates and Delehanty 2010). In general, these studies observed that perennial herbaceous cover at successful nests averaged more than 7 inches in height. Based on these and other studies, current guidelines recommend managing breeding habitats to support perennial herbaceous vegetation averaging more than 7 inches in height at the end of the nesting period (Connelly, et al. 2000), and residual grass heights more than 4 inches at the beginning of the nesting season (Holloran, et al. 2005)

Under Alternative A, perennial herbaceous vegetation heights are expected to average less than 4 inches at the beginning and end of the nesting season in the Trout Springs Allotment, based on data collected within the allotment in 2006-2007 (Appendix F). The average perennial herbaceous vegetation heights of less than 7 inches that would result from grazing under Alternative A would provide only marginal to unsuitable nesting cover throughout the allotment. In addition, the heavy utilization levels (i.e., 65%), frequent growing season use, and lack of rest that are likely to occur with implementation of Alternative A would not be adequate for the maintenance of vigorous and healthy perennial bunchgrass and rangeland vegetation which contribute to suitable sage-grouse habitat conditions.

Current scientific literature also suggests that a healthy and vigorous herbaceous understory of native perennial bunchgrasses is closely associated with sage-grouse productivity (Crawford, et al. 2004) (Hagen, Connelly and Schroeder 2007). Thus, some researchers recommend that certain grazing utilization limits be placed on pastures with sage-grouse habitat to ensure long-term productivity of bunchgrasses (Braun 2006). It is unlikely that sage-grouse select habitat based on utilization levels, much less even perceive it. Because percent utilization of vegetation is dependent on a variety of factors (e.g., species, annual growing conditions, differences in observers and methods), the concept is independent of and uncorrelated to the actual structural and physical properties of the plant on which sage-grouse most likely are selecting for. Nevertheless, utilization can be a useful tool in managing for the health of native perennial bunchgrasses in the short and long term.

A review of the literature suggests that 40 to 45 percent utilization will maintain the health and vigor of bunchgrasses and other rangeland vegetation, and 30 to 35 percent utilization is needed to improve the health and vigor of bunchgrasses and other rangeland vegetation (Holechek, Gomez, et al. 1999). Under Alternative A, levels of utilization in the Trout Springs Allotment are expected to be consistent with recorded levels that have resulted in 65% percent utilization. Under these stocking rates and resultant heavy utilization levels, perennial bunchgrass and rangeland vegetation will continue to deteriorate over the term of the permit, and the conditions of upland and riparian sage-grouse habitats will remain similar to the current conditions which are providing marginal and unsuitable habitat.

In the past 3 to 5 years, one advocacy group has demanded that BLM abide by the recommendations of one particular sage-grouse expert, Dr. Clait Braun, although this same author has previously acknowledged that there is scant evidence correlating sage-grouse population levels with grazing practices (Connelly and Braun 1997). In an unpublished and un-peer reviewed document, Dr. Braun advocates a maximum of 30 percent utilization in sage-grouse habitats (Braun 2006). In addition, Dr. Braun recommends that grazing should not be permitted in sage-grouse habitat during the breeding season (mid-April to early to mid-June) (Braun 2006). Although Dr. Braun's utilization recommendations are designed to achieve adequate breeding and concealment cover and to ensure the long-term health of native bunchgrass communities, BLM has decided that perennial herbaceous vegetation height is a more accurate, consistent, and repeatable measure of determining adequate cover than subjective percent utilization levels. Nevertheless, under Alternative A, BLM would implement a utilization limit of 50%, which would be insufficient to maintain or improve the health and vigor of bunchgrasses and other rangeland vegetation, which is required by the RMP.

With respect to excluding grazing in sage-grouse habitat during the breeding season, the fact is that there is little evidence in the scientific literature to support Dr. Braun's proposal that grazing should be prohibited until after June 20th. Although the trampling of eggs and nests by livestock, and subsequent displacement and nest abandonment have been documented (Coates, Connelly and Delehanty 2008), these direct effects are rare and isolated, and more than likely have a negligible influence on population levels. Alternatively, the grazing effects associated with the long-term health of native plant communities and the relationship between herbivory and the removal of cover have been shown to be the important and relevant issues affecting sage-grouse and their habitats. Improving juvenile survival rates by increasing the quantity and quality of early brood-rearing habitat as suggested by Connelly and Braun (1997) appear to have more influence on sage-grouse populations than other factors related to overall reproductive success (i.e., nest success and breeding success) (Aldridge and Brigham 2001) (Aldridge and Brigham 2002). Accordingly, while prohibiting grazing during the breeding season may reduce some impacts to sage-grouse and their habitats, it is not required to ensure juvenile survival and increases in sage-grouse populations.

Because implementation of Alternative A would allow frequent and prolonged grazing in sagebrush during the breeding season, which would result in continued degradation of sage-grouse nesting and brood-rearing habitats by reducing perennial herbaceous cover beyond suitable heights (over 7 inches), this alternative is not consistent with objectives of the BLM

special status species policy in Manual 6840 (USDI BLM 2008c); in particular "to initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA."

Yellow-billed Cuckoo

Under Alternative A, riparian areas accessible to livestock would continue to deteriorate and remain marginal to unsuitable habitat for yellow-billed cuckoos. Direct loss and degradation of riparian woodland habitats have contributed greatly to the decline of yellow-billed cuckoos. Restricting livestock grazing within yellow-billed cuckoo breeding and foraging habitats has been shown to promote riparian woodland expansion and help restore natural patterns of water flow (Wiggins 2005). Riparian microhabitats favored by yellow-billed cuckoo such as relatively cool, damp, and shady areas also are favored by livestock. In addition, livestock grazing can have a major effect on understory vegetation that creates these conditions by hindering new growth and impeding recruitment of woody species (Wiggins 2005). The continued effects of livestock grazing at heavy use levels would be long-term (>10 years) and riparian habitat would continue to be degraded as it has been under current management.

Because implementation of Alternative A would allow frequent and prolonged grazing in riparian areas, which would result in continued degradation of yellow-billed cuckoo nesting habitats by restricting riparian woodland expansion, reducing desirable riparian vegetation, and altering stream width to depth ratios, this alternative is not consistent with objectives of the BLM special status species policy in Manual 6840 (USDI BLM 2008c); in particular "to initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA."

Columbia Spotted Frog

Under Alternative A, habitat for spotted frogs and other amphibian species would remain in a deteriorated condition in streams and riparian areas within the allotment boundaries and for several miles downstream of the allotment (Section 3.3.1). Healthy and viable populations of spotted frogs depend on properly functioning wetland and riparian areas. 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 (IDFG 2006a).

Under Alternative A, bank trampling, reduced macroinvertebrate diversity and numbers, loss of desirable riparian vegetation, increased sedimentation, and reduced overhead cover would negatively affect spotted frogs and other amphibian species. As a result, the prey base for amphibians would decrease, sediment would likely suffocate or entomb incubating eggs and emerging tadpoles, and reduced overhead cover would likely increase predation on spotted frogs. Without deep-rooted riparian vegetation, streams would be more susceptible to degradation from livestock and high water events. There would be a loss of habitat complexity important for spotted frogs such as fewer pools, overwintering sites, and riparian meadow components, which would likely result in increased vulnerability to predation and seasonal mortality. Width to depth ratios also would increase, which means streams would become wider and shallower. Wide,

shallow streams provide less suitable habitat for spotted frogs, and would likely result in decreased survival. Juniper would increase in riparian areas leading to lowered water table, reduced groundwater recharge, and changes to nutrient cycling. Effects to spotted frogs and other fish species would be long-term and potentially last for more than 10 years because the degraded condition would continue through the term of the permit.

Because implementation of Alternative A would allow frequent and prolonged grazing in riparian areas, which would result in continued degradation of spotted frog habitat habitats by reducing desirable riparian vegetation, altering natural stream flows, and reducing prey items, this alternative is not consistent with objectives of the BLM special status species policy in Manual 6840 (USDI BLM 2008c); in particular "to initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA."

Pygmy Rabbit

Heavy stocking rates similar to those expected under Alternative A can increase livestock trampling effects such as reduced shrub cover and collapse of pygmy rabbit burrows (Siegel Thines, Shipley and Sayler 2004) (Hagar and Lienkaemper 2007). The effects of grazing under Alternative A would continue habitat deterioration for many small to medium herbivores including pygmy rabbits. Juniper encroachment in the Trout Springs Allotment would also continue to degrade pygmy rabbit habitat by reducing forage and sagebrush cover. Because small and medium herbivores including pygmy rabbit play an important role in the food chain, actions that reduce numbers of these species can have cascading effects to the food web.

Columbia River Redband Trout

Under Alternative A, riparian areas within the allotment will continue to receive heavy use. Heavy use of riparian areas has been shown to degrade fish habitat (US GAO 1988) (Elmore and Kauffman 1994) (McInnis and McIver 2009). When riparian areas are heavily utilized, as under current grazing management levels, effects to fish habitat include increased levels of surface fines, increased width to depth ratios, loss of cover, and reduced stream shading. Surface fines degrade spawning substrates and reduce reproductive success. Fines can suffocate eggs or trap newly hatched fry in the substrate. Direct effects from cattle trampling redds (i.e., fish spawning areas) while eggs or fry are present may occur in the form of mortality. Increased width to depth ratios lead to simplified channels which reduces hiding cover and leads to warmer water. Loss of overhead cover increases exposure to sunlight which further reduces hiding cover and increases water temperatures. Loss of hiding cover increases the likelihood that individual redband trout will be preyed upon, and increased water temperatures is likely to result in decreased survival of individual redband trout.

Under Alternative A, habitat for redband trout and other fish species would remain in a deteriorated condition in streams within the allotment boundaries and for several miles downstream of the allotment (Section 3.3.1). Bank trampling, reduced macroinvertebrate diversity and numbers, loss of desirable riparian vegetation, increased sedimentation, and reduced overhead cover would negatively affect redband trout and other fish species. As a result, the prey base for redband trout would decrease, sediment would likely suffocate or entomb

incubating eggs and emerging fry, and reduced overhead cover would likely increase predation on redband trout. Without deep-rooted riparian vegetation, streams would be more susceptible to degradation from livestock and high water events. There would be a loss of habitat complexity important for redband trout such as fewer pools, undercut banks, and woody debris, which would likely result in increased vulnerability to predation. Width to depth ratios also would increase, which means streams would become wider and shallower. Wide, shallow streams provide less suitable habitat for redband trout, and would likely result in decreased survival. Juniper would increase in riparian areas leading to lowered water table, reduced groundwater recharge, and changes to nutrient cycling. Effects to redband trout and other fish species would be long-term and potentially last for more than 10 years because the degraded condition would continue through the term of the permit.

Migratory Birds, Raptors, and other Birds (including Special Status Species)
Grazing management under Alternative A is expected to continue to deteriorate bird habitat conditions in the uplands. Riparian habitats would also remain in a degraded condition for many bird species in the allotment. Birds generally respond not to the presence of grazing livestock but to the effects on vegetation from grazing (Bock and 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 and Hutto 1982) (Taylor 1986) (Bock, Saab, et al. 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.

Heavy livestock grazing, as is expected on portions of the allotment under Alternative A, has been shown to degrade sagebrush and shrub steppe habitat to the detriment of sagebrush-obligate species (Braun, et al. 1976) (Paige and Ritter 1999). Specifically, heavy grazing reduces native perennial grass and forb cover, vegetative structure, suitable nest sites, and increases non-native grasses and promotes juniper expansion. Research on bird species in shrub steppe habitats found differing responses to moderate levels of grazing (Bock, Saab, et al. 1993). Based on the results of this study, special status and migratory bird species that would be negatively affected by Alternative A include Brewer's sparrow, grasshopper sparrow, Swainson's hawk, short-eared owl, and burrowing owl. Brewer's blackbird, black-throated sparrow, loggerhead shrike, and sage thrashers demonstrated mixed or no responses (Bock, Saab, et al. 1993). However, Bock and Webb (1984) found that some species that prefer open habitat responded positively to grazing. In the sagebrush steppe communities, several species are thought to respond positively to upland grazing at moderate levels including golden eagle and sage sparrow.

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 1986) (Krueper, Bart and Rich 2003) (Earnst, Ballard and 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 (i.e., ground foragers that prefer open habitats), negative effects for calliope hummingbird and willow flycatcher (i.e., riparian habitat specialists), and mixed or uncertain response by red-naped sapsucker (i.e., habitat generalists)

(Bock, Saab, et al. 1993). Grazing effects on riparian habitat specialists tend to be greater than on habitat generalists (Bock, Saab, et al. 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 with Alternative A. 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 A. 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, et al. 2005).

Raptor species that prefer forest habitat such as northern goshawk and flammulated owl would 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 continue to deteriorate from current conditions and prey species populations would likely decrease. Under Alternative A, prey species found in riparian areas would also likely decline as these areas deteriorate from continuation of adverse effects of heavy and prolonged livestock utilization. Reduced numbers of prey can influence reproductive efforts and success of raptors. For instance, golden eagles lay fewer eggs or do not breed during years when jackrabbit numbers are low and lay more eggs and produce more young when jackrabbit numbers are high (Steenhof, Kochert and McDonald 1997). Ground nesting raptors, including northern harriers and short-eared owls, would experience reduced amounts of suitable nesting cover and potentially higher incidence of nest trampling on an annual basis from grazing. Burrowing owls might be disturbed by cattle, but their nests are protected from trampling by being deep in burrows and effects to reproductive success due to livestock grazing would be negligible.

Big Game and other Mammals (including Special Status Species)

Under Alternative A, the proposed timing and level of grazing would reduce forage and cover in riparian areas, while 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 and Clary 1989) (Schulz and Leininger 1991) (Hayward, Heske and Painter 1997). Effects of livestock grazing on big game and other mammals under Alternative A would include reduced amounts of forage (e.g., grasses, forbs), browse (e.g., willows, sagebrush, bitterbrush, mountain mahogany), and protective cover. These effects could lead to lower winter survival due to a reduction of high-quality forage that deer and elk require when building winter fat reserves. A reduction in cover could expose fawns and elk calves to greater predation and increase mortality rates. In addition, population numbers for deer and elk probably have been affected to some degree by poor habitat conditions due to historic grazing practices and juniper

encroachment. Because elk have a competitive advantage over mule deer, effects to deer populations probably would be greater (Mule Deer Working Group 2004).

Under Alternative A, habitat conditions for bighorn sheep would most likely remain similar to current conditions because upland habitats are expected to continue to deteriorate over the term of the permit. However, because bighorn sheep typically select habitats in rugged terrain and on steep slopes within the canyons adjacent to Pastures 2 and 4, there is very little spatial overlap and resource competition with cattle. Due to the lack of spatial overlap and resource competition with cattle, grazing management under Alternative A is expected to have negligible effects on the local bighorn sheep population and their canyon habitats.

Hanley FFR

Direct and indirect effects from grazing management: Where not otherwise noted, effects to species that use upland habitat types on the Hanley FFR Allotment would be the same as those that use upland habitats in the Trout Springs Allotment. Due to the lack of riparian habitat within the Hanley FFR Allotment, effects to riparian-dependent species from grazing management on public lands would not occur.

Trout Springs and Hanley FFR

Effects of not treating juniper: Without juniper treatment**,** juniper would continue to expand across the landscape. The current level of grazing would promote the spread of juniper by reducing fine fuels and reducing the potential for stand-replacing fires. Browse species important to deer such as mountain big sagebrush, mountain mahogany, and bitterbrush have decreased substantially because of juniper encroachment. Although elk populations have increased in recent decades, potential long-term population gains from increased hiding cover provided by juniper expansion is expected to be offset by a reduction in forage.

Although some species would benefit from juniper expansion (e.g., Lewis' woodpecker, flammulated owl, Cassin's finch), the continued conversion of the remaining sagebrush, mountain shrub, and shrub steppe communities would lead to decreased species diversity and loss of habitat for many sensitive species including sage-grouse, migratory birds, raptors, pygmy rabbits, and redband trout. Habitat types that would be lost due to juniper encroachment include aspen, shrub steppe, sagebrush, riparian, and meadow areas.

3.4.2.2 Alternative B

Alternative B is expected to make significant progress toward meeting Standard 8 (Threatened and Endangered Animals) in the Trout Springs Allotment. The proposed fall use would augment recovery of vegetation by allowing most if not all plants to complete their lifecycle prior to grazing (Section 3.2.1). This would provide increased forage and cover, and the absence of livestock disturbance during spring and summer seasons when breeding, birthing, and rearing of young occur for many species. However, the recovery of browse species in juniper treatment areas may be hindered because young browse plants would be selected by livestock during the fall after other vegetation has dried. 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 Standard 8 would occur.

The Hanley FFR Allotment would make significant progress toward meeting Standard 8 due to the shortened season of use in the fall.

Trout Springs
Direct and indirect effects from grazing management:

Focal Special Status Animal Species
Greater Sage-grouse
Under Alternative B, sage-grouse would benefit due to lack of livestock disturbance during nesting and brood-rearing because the season of use in Pastures 2B, 3, and 4 is in the fall (October-November) and sage-grouse nest and rear their young in the spring and summer (March-September). Due to heavy juniper encroachment and rugged topography throughout the majority of the Trout Springs Allotment, Pastures 2B, 3, and 4 are the only pastures where sage-grouse nesting and brood-rearing activity is likely to occur. As discussed in Alternative A, grazing management in sage-grouse habitat should include the long-term objective of promoting desirable plant communities and the annual objective of retaining a standing crop that adequately provides cover for sage-grouse (Cagney, Bainter, et al. 2010). Current guidelines recommend managing breeding habitats to support perennial herbaceous vegetation averaging more than 7 inches in height at the end of the nesting period (Connelly, et al. 2000), and residual grass heights more than 4 inches at the beginning of the nesting season (Holloran, et al. 2005) Under this alternative, expected moderate use levels (< 50%) and the pasture rest rotation schedule would promote high plant community vigor and could potentially provide an adequate perennial herbaceous vegetation height during the subsequent nesting/early brood-rearing season, particularly in comparison to Alternative A. Improved riparian habitat in Pastures 2B and 3 (see Section 3.3.2.2) also would benefit sage-grouse by slowly improving late-brood rearing habitat in comparison to Alternative A.

Yellow-billed Cuckoo
Under Alternative B, riparian areas throughout the allotment would be expected to improve in comparison to Alternative A (see Section 3.3.2.2). The development of mature cottonwood stands suitable for use as cuckoo breeding habitat could occur in the lower end of Squaw Creek, the North Fork Owyhee River, and Cottonwood Creek in the long term (>30 years).

Columbia Spotted Frog
Under Alternative B, spotted frog habitat is expected to improve in comparison to Alternative A because herbaceous and woody cover in riparian areas would be more abundant, which could result in greater site stability and better water quality. Since banks would be stable and vegetated along streams and vegetation within spring areas would increase, erosion would decrease and spotted frog habitat would improve. Since spotted frogs are active primarily from spring through early fall, there would be little chance of trampling of adult frogs and egg masses, disturbed aquatic habitat, and reductions of prey items during the breeding season. The reduced effects of livestock on this species would likely result in population increases.

Pygmy Rabbit

Under Alternative B, habitat conditions for pygmy rabbits and other small to medium herbivores such as mice, voles, and jackrabbits would improve in comparison to Alternative A. Under this alternative, expected moderate use levels (< 50%) and the pasture rest rotation schedule would result in improvements to perennial bunchgrasses and sagebrush communities and would enhance cover throughout the allotment for these species, especially in riparian areas. There also would be more forage available from spring through late summer when pygmy rabbit herbivory of grasses and forbs occurs; reproduction and population recruitment would likely increase due to lower predation rates resulting from greater concealment cover and a greater abundance of forage species.

Columbia River Redband Trout

Under Alternative B, habitat for redband trout and other fish species would improve in streams in comparison to Alternative A because woody and herbaceous vegetation would be more abundant and less streambank trampling would occur (Section 3.3.2.2). Increased vegetation would result in improved hiding cover which would reduce predation on redband trout and increase macroinvertebrate prey availability, both of which would likely increase redband survival. Because livestock use would occur in the late summer and fall, the direct effects of livestock on spawning would not occur. Shade and cover would improve and there would be an increase in stream channel characteristics including pools, undercut banks, and habitat complexity that would improve instream habitat for fish compared to Alternative A, which would decrease predation on redband trout and increase refuge areas during high water events resulting in increased survival. Sediment levels probably would be reduced, making gravel areas more suitable for spawning, which would likely increase egg-to-fry survival, and creating better habitat for macroinvertebrates, which would increase the prey base for redband trout. Conditions for fish populations downstream of the allotment boundaries also would improve.

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

Under Alternative B, habitat for many bird species in the allotment, especially species associated with riparian areas, would experience improvements in comparison to Alternative A. Increased cover in upland and riparian areas would provide improvements in nesting and foraging substrates and cover. Habitat structure and complexity from the current season of growth would be improved. An increase in structural complexity of woody species and the herbaceous understory in riparian areas would provide greater nesting and foraging opportunities because of an increase in cover and prey. Forage would likely be more abundant and reproductive success probably would increase. In turn, nesting success and populations would increase over the term of the permit as heavily impacted riparian areas along reaches of streams would recover and afford adequate bird habitat that currently is absent. Expected light to moderate utilization of herbaceous species in riparian areas would increase nest-screening cover. However, utilization of browse species in the fall could affect nesting areas for some species by reducing nest-screening cover for the next breeding season. Nevertheless, the rest designed into this alternative would leave sufficient nesting cover the following year. Reproductive efforts would not be disturbed by livestock or management activities during the spring breeding season in

riparian areas. Disturbances to nesting birds in most riparian areas would not occur as pastures would be grazed in the fall.

Expected improvements to perennial bunchgrasses and sagebrush communities would enhance cover throughout the allotment for most shrub steppe-obligate and dependent species. Raptors would benefit from improved habitat conditions and increased levels of prey species. Effects to most raptors would be minimal as the territories of most species extend beyond the allotment boundaries. Raptor reproduction would likely increase over time as conditions improved for prey species across the allotment.

Big Game and other Mammals (including Special Status Species)
Under Alternative B, habitat for big game, particularly deer and elk, would improve in comparison to Alternative A. Bighorn sheep habitat would also improve and effects from livestock grazing to the species would be similar but to a lesser degree than those identified under Alternative A. The amount of upland forage and cover would increase, and use of browse species in riparian areas would be less. Light to moderate use of riparian areas would increase cover for fawns and elk calves during spring and summer months. Beaver colonization would be possible in the long term (< 10 years) because riparian habitat would improve (Section 3.3.2.2). Herbivores would benefit from the increase in cover and forage throughout the allotment from leaving an adequate amount of current year's growth. However, displacement between livestock and big game would continue in riparian areas as late summer/fall use would continue. Competition may cause displacement of deer and elk during a time when it is important to build up winter fat reserves. However, the expected improvement in riparian habitat from this grazing system would ultimately result in increased browse availability (see section 3.3.2.2). Available browse also exists in adjacent areas that are not grazed in the fall.

Habitat conditions for small to medium herbivores such as mice, voles, and jackrabbits would improve. Residual vegetation and spring growth would enhance cover throughout the allotment for these species, especially in rested riparian areas. There also would be more forage available from spring through late summer and reproduction and population recruitment would likely increase. Large predators would benefit as habitat conditions would improve across the allotment and there would likely be an increase in prey numbers.

Direct and indirect effects from proposed range improvements:
Although a minimal amount of disturbance to wildlife habitat from the construction of range improvement projects and one water haul site is expected, effects would be short-term and would be offset by the long-term benefits accrued through the protection of spring and riparian areas, and the improved distribution of livestock within the allotment. The creation of a livestock exclosure around the springs and wetlands at the headwaters of Cottonwood Creek is expected to provide additional habitat for many species of amphibians, birds, and small mammals. The exclosures would prevent many of the adverse effects of mechanical damage and reduction of cover due to livestock trampling and grazing, would allow meadow areas and stream habitat to recover, and provide improved habitat for redband trout, spotted frogs, and riparian-dependent birds.

Fence construction could damage habitat along the fence lines in the short term. Injury or mortality of wildlife species due to fence collisions, and impediments to daily or seasonal travel could occur until wildlife acclimates to the new fence. However, due to the implementation of BLM wildlife fence standards, any potential effects to wildlife should be minimal. Improved habitat and reduced competition between cattle and big game would be realized from better distribution of livestock grazing within the allotment.

A recent fence collision risk model, created from a randomized sampling of fences near sage-grouse leks in Idaho (Stevens 2011, Stevens et al. 2012), identifies the risk of sage-grouse fence collisions in the Trout Springs Allotment as negligible. Based on distance to active leks and terrain ruggedness, only Pasture 4 and the extreme western edge of Pasture 3 were identified as possible sage-grouse fence collision areas. All proposed fence construction occurs outside of the collision areas identified in the model. However, collision risk may increase after successful juniper treatments restore sage-grouse habitats and promote lek attendance in adjacent allotments. Therefore, to minimize collision risks at the allotment level as well as cumulatively, new fence construction would follow prescribed fence marking protocols according to IM ID-100-2011-001.

The risk of propagation and transmission of West Nile Virus (WNV) would not increase with construction of the proposed range improvements. The mosquito species, *Culex tarsalis*, is the dominant vector of WNV in sagebrush habitats (Goddard et al. 2002, Naugle et al. 2004, Doherty 2007). This species of mosquito prefers sites with submerged vegetation on which to oviposit (deposit eggs) and warm, standing water that promotes rapid larval development, including ephemeral puddles, vegetated pond edges, and water-filled hoof prints (Milby and Meyer 1986, Buth et al. 1990, Doherty 2007).

Man-made water sources known to support breeding *Culex tarsalis* in sage-grouse habitat include overflowing stock tanks, stock ponds, seep and overflow areas below earthen dams, irrigated agricultural fields, and ponds constructed for coal-bed natural gas development (Zou et al. 2006, Doherty 2007). Also, habitat or range improvement projects that create mesic zones around stock tanks or ponds may inadvertently contribute to the WNV problem, because *Culex tarsalis* readily takes advantage of water-filled hoof prints around tanks and ponds for breeding (Doherty 2007).The proposed water haul site would not create tanks overflows, mesic areas, or other breeding habitats for *Culex tarsalis* populations.

Effects to wildlife from livestock trailing would include a short period of disturbance (several hours) over a relatively short duration (two days per year) that may displace a few individuals, minor vegetation trampling, and negligible utilization. Because trailing is limited in area, duration, and intensity, and because range readiness criteria would be implemented, only minimal effects of wildlife displacement, plant trampling, and forage utilization are expected from trailing through the Trout Springs Allotment.

Direct and indirect effects from juniper management:
Treatment of juniper would generate long-term benefits throughout the Trout Springs Allotment. Most long-term benefits would begin to be realized after 10-30 years as sagebrush begins to

provide forage and cover for sagebrush-dependent species. Benefits to many common species (i.e., big game, small mammals, some passerines, etc.) would occur the growing season following juniper treatment. Effects would be long-term under a more natural fire regime in the Juniper Mountain area.

Focal Special Status Animal Species

Greater Sage-grouse

Due to extensive juniper encroachment, the only remaining key sage-grouse habitat within the Trout Springs Allotment is found in Pastures 2 and 4 (Table 3.4.2). Because no juniper treatments are proposed within key sage-grouse habitat, and jackpot rather than broadcast burning would occur in areas of Phase 1 juniper encroachment, current sage-grouse key habitat would be maintained and conifer encroached sage-grouse habitat would be improved. Improvements in Phase 1 juniper encroached habitat would occur because vegetation surrounding jackpots would not be burned and burn patches would be small and confined to individual tree debris zones. Much of the Phase 2 and Phase 3 juniper woodlands within sage-grouse habitat affected by juniper encroachment would be treated with broadcast prescribed fire which would reduce juniper canopy and convert these areas to grasslands for 10-30 years until sagebrush naturally reestablished. Although the newly created grasslands would increase the area of sage-grouse habitat (albeit marginal quality) in the short term, the return of sagebrush communities would provide long-term benefits to sage-grouse by making thousands of acres of previously unsuitable habitat available for nesting and other life history phases. Although there is a slight possibility for prescribed fire to carry into adjacent sagebrush areas, suitable sage-grouse habitat is not expected to be lost. The hand girdling of junipers and use of prescribed fire could also increase available perching sites for raptor species, which have been found to prefer high perch sites free of obstructing vegetation (Marion 1975)(Leyhe and Ritchison 2004). Available raptor perch sites appear to increase the predation risk of male sage-grouse near leks (Commons et al. 1998). However, the removal of seral juniper and the reestablishment of sagebrush in the area would greatly benefit sage-grouse populations in the long term (>10 years) by increasing the area of suitable habitat. Therefore, local sage-grouse populations are not expected to be negatively affected by proposed juniper treatments.

Yellow-billed Cuckoo

By removing juniper from riparian areas, willows and aspen would likely recover, especially in areas where they are stimulated by fire and provided protection from livestock. Removal of juniper from riparian areas would improve vegetative species composition and improve the herbaceous cover and structure for yellow-billed cuckoos. Nesting and foraging habitat would be enhanced and overall productivity of riparian areas and waterways would improve over time as riparian vegetation reestablished. Overall improvements to riparian areas will increase the suitability of breeding and foraging habitat for yellow-billed cuckoos in the short and long term (3-10 years). Re-established beaver populations in some areas might decrease the suitability of foraging habitat with the removal of large aspens in the long term (>30 years).

Columbia Spotted Frog

The proposed burns would likely be less intense than wildfire and generally pose less of a threat to spotted frogs. Treatments occurring after September are less likely to harm this species

because many individuals would already be hibernating. Russell et al. (1999) reported few fire-related injuries to herpetofauna, even though many of these species, particularly amphibians, have limited mobility. Many amphibians live in mesic habitats which are less likely to burn or would burn less severely than upland sites. The variation within burns may account for observations that fire has little effect on populations of amphibians (Ford et al. 1999). Wetlands may provide refuge from fire, and activities such as breeding by aquatic species may be carried out with little interruption (Russell et al. 1999). Juniper felling in riparian areas would likely improve spotted frog habitat by slowing stream flow and creating deeper pools. Spotted frog habitat would benefit from the proposed removal of juniper because willow and aspen would likely increase in riparian areas. As willows and aspen become more prevalent in the area, beaver would likely return and their dams would provide excellent habitat for spotted frogs.

Vegetation is expected to recover in a similar manner to the Crutcher Fire area, which currently provides excellent habitat for many amphibian species in the area. Several tadpoles and young frogs and toads were observed by BLM personnel during the summer of 2009 at a spring-fed pond within the Crutcher Fire area. Proposed treatments and removal of juniper is expected to benefit amphibians throughout the allotment. Changes to habitat would be long-term, and conditions from the proposed treatments would move vegetation communities in a direction that would benefit spotted frogs.

Pygmy Rabbit

Pygmy rabbits would have negative responses to juniper treatments initially due to fire related mortalities and the potential to convert sagebrush stands into perennial grasslands (Rachlow and Svancara 2006). However, due to the lack of suitable sagebrush habitat within the Trout Springs Allotment (Table 3.4.1) mortality levels are expected to be low and the low to moderate intensity of the prescribed fire and patchiness of the burn should prevent the loss of any remaining large contiguous stands of sagebrush remaining in Pastures 1B and 3. Habitat suitability for pygmy rabbits would increase over time (>10 years) as areas formerly composed of juniper woodlands reverted to big sagebrush.

Columbia River Redband Trout

Juniper treatments would benefit redband trout and other fish species by reducing the amount of water used by junipers and potentially increasing flows in streams (Deboodt et al. 2009). Juniper removal from riparian areas would increase exposure to sunlight until other vegetation could reestablish to provide shade. Emergent willows and aspen would be selected by cattle (after the post-burn rest) because they tend to utilize new growth of browse species, especially late in the season.

Rieman et al. (1997) found redband trout to be well-adapted to disturbances such as large-scale, high-intensity wildfire. The authors described fire events as “pulsed disturbance” with effects that may be considered adverse but limited in time as opposed to chronic “press” disturbance such as poorly-built roads or continuous timber harvest. The chronic nature of habitat degradation resulting from juniper expansion can be described as a press disturbance. Broadly distributed habitat within stream systems provide refuge for fish outside areas most severely affected by large pulse disturbances, and migratory behavior ensures that fish are not

concentrated in small areas subject to intense effects. Results of the study indicated potential for dramatic recovery (sometimes within 1 year) from large-scale, high-intensity wildfire in which local, direct mortality was observed. Another study addressed landscape perspectives on persistence of native fish through fire events, and documented positive effects from management of habitat elements (i.e., prescribed fire for riparian and upland forest) before wildfire occurs (Dunham et al. 2003).

Loss of juniper canopy in any treatment unit would contribute to elevated stream temperatures in the short term (1-3 years). Change is unlikely to be measurable in riparian areas where topography contributes the majority of shade during peak summer temperatures, the treatment area is small, or riparian shrub vegetation remains after treatment. Reestablishment of aspen and willows in riparian areas would attract beaver, which would build dams, providing habitat for redband trout and augmenting the recovery of degraded stream systems. Although mortalities could occur, the likelihood is very low due to the expected low intensity of the prescribed fire in the riparian areas.

Migratory Birds, Raptors and other Birds (including Special Status Species)
In the short term, sagebrush-dependent species could be negatively affected because some remnant stands of mountain big sagebrush would be burned with junipers in scattered and transitional stands. Burning would reduce sagebrush and nesting habitat for sagebrush-associated species for 10 to 30 years (see Section 3.2.2.2). Affected species would disperse into nearby sagebrush habitat or out of the area to adjacent available habitats. In the short term (1-9 years), the displacement could reduce productivity and species abundance within the allotment. However, due to the nearby abundance and availability of sagebrush habitats in the surrounding landscape, population reductions in the allotment would not lead to listing of any of the affected species. In the long term (10-30 years), habitat conditions would improve for sagebrush-dependent species with the reestablishment of sagebrush.

Cutting and jackpot burning in big sagebrush vegetation types would have minimal effects on bird species as most of the sagebrush canopy would be left intact and still useable. This level of burn could have beneficial effects for grassland species in the short term.

Removal of juniper from riparian areas would improve vegetative species composition and improve the herbaceous cover and structure for the many birds that utilize riparian habitat. Nesting and foraging habitat would be enhanced and overall productivity of riparian areas and waterways would improve over time as riparian vegetation reestablished. Habitat for sensitive bird species associated with riparian areas would improve.

Habitat for woodland species would decrease as juniper treatments control and reduce juniper stands. This would decrease the number of individuals and potentially a reduction in woodland species diversity. Junipers are expected to remain on at least 30-50% of the project area and provide habitat for birds preferring woodland and forest habitat. Woodland species (including sensitive species, Appendix J) would have habitat reduced, but not to a level that would affect overall population numbers in the Owyhee Mountains as large areas of forests and woodlands would remain in the surrounding areas.

Species such as Cooper's hawk, northern goshawk, and sharp-shinned hawk would experience a decrease in suitable habitat. In the long term (>30 years), however, the return of healthy aspen stands in treated areas would provide additional northern goshawk nesting habitat. In general, restoration of grasslands, sagebrush, shrub steppe, riparian, and aspen habitats would increase the potential productivity of the area treated and could lead to increased prey for all raptors.

With an increase in dead trees, nesting opportunities for cavity-nesting raptors such as American kestrel and flammulated owl would increase with juniper treatments. Ground nesting raptors would benefit from juniper treatments because open habitat would be restored where juniper has encroached.

Big Game and other Mammals (including Special Status Species)
Overall, the proposed juniper treatments would have beneficial effects to big game and other herbivores by creating a greater mosaic of habitat types and greater habitat diversity. Juniper would be replaced with more productive grass and shrubs, but with at least 30-50% of the juniper remaining, there would be ample cover for elk and deer. The remaining juniper would provide travel corridors and refuge from extreme weather events. Aspen stands, sagebrush, grasslands, and shrub steppe habitat would increase over time. Understory vegetation would increase, providing higher quality forage for deer and elk.

Bighorn sheep, particularly ewes with lambs, use open habitats with good visibility near rugged escape terrain to detect and evade predators. Encroachment and maturation of forest and tall shrub stands can degrade and fragment habitat and interfere with migration corridors. Stand manipulation via logging, prescribed fire, or wildfire can produce increased bighorn use of treated areas and at least short-term gains in nutrition and population performance, and may be used to improve migration corridors (IDFG 2010a). The proposed juniper cutting and broadcast burning in the Trout Springs Allotment is expected to produce effects similar to the 2007 Crutcher's fire, where habitat conditions have become more favorable due to increased viewsheds resulting from decreased woodland density.

Pronghorn would benefit by the creation of open habitat and increases in grasses and forbs. Cutting and jackpot burning in sagebrush vegetation types would benefit pronghorn by maintaining sagebrush which is an important part of their diet and cover for young. Depending on the size of open habitat created and available food sources post-treatment, pronghorn may make extensive use of burned areas.

Browse species would be reduced short-term to some degree by treatments, but browse in Phase 1 juniper would largely be maintained. Much of the browse in Phase 2 and 3 juniper has been lost or is in poor condition and would be lost over time without juniper treatment. Although browse species and grasslands would be reduced by treatments, effects would be short-term. Grasses and forbs would recover quickly while browse species would take 5-10 years to provide forage for big game species. Mule deer numbers have been shown to increase over time after a stand-replacing fire due to the increase in availability of browse (Ashcraft 1979).

Small to medium herbivores such as mice, voles, and jackrabbits would have mixed responses initially due to fire related mortalities. However, mortality levels are expected to be low, due to the low to moderate intensity of the prescribed fire and the patchiness of the burn. Ream (1981) concluded that populations of ground squirrels, pocket gophers, and deer mice generally increased after stand-replacing fire. Deer mice appeared to respond in a positive manner relatively quickly following fire (Groves and Steenhof 1988).

Beavers would benefit from proposed juniper treatments because aspen and willow would increase in areas treated by fire or in areas where direct competition with juniper was removed by cutting. Beaver have been shown to colonize streamside habitat where fire has stimulated regrowth of aspen or willow species (Ream 1981).

Because the expected adverse effects to herbivores would be short-term and patchy across the treatment area while long-term effects would generally be favorable, large predators are expected to respond positively to the juniper treatments. Prey numbers would likely increase and support greater numbers of predators throughout the allotment. Adequate juniper for travel corridors and cover is expected to remain. Predator mortality from prescribed fire is expected to be negligible.

Hanley FFR

Direct and indirect effects from grazing management: Conditions for species that use upland habitat would improve similar to those discussed in the Trout Springs Allotment, and are expected to make significant progress toward meeting Standard 8 due to the change in season of use and duration of livestock grazing.

3.4.2.3 Alternative C

Alternative C would dramatically improve conditions for all species of wildlife throughout the Trout Springs Allotment. Vegetative structure and diversity, perennial herbaceous vegetation heights and residual cover, and available forage would increase in all habitat types. Riparian habitat adjacent to springs and streams would expand and improve. Disturbance from livestock and associated management activities would not occur. In general, all of the negative effects associated with grazing identified in this EA would not occur across the allotment. The effects of previous annual season-long cattle grazing would improve over the term of the permit or sooner, especially in aquatic and riparian/wetland habitats. Overall, wildlife habitats the allotment would become much more diverse and productive and population numbers for most species would increase. Wildlife and aquatic objectives would be met and there would be substantial progress toward meeting Standard 8 (Threatened and Endangered Animals), although recovery of degraded habitats could take 5 to 20 years.

Trout Springs

Direct and indirect effects from grazing management:

Focal Special Status Animal Species

Greater Sage-grouse

Under Alternative C, sage-grouse would benefit from the removal of livestock from the allotment because the negative effects of livestock grazing would no longer occur to the species or their habitat. Negative effects of livestock grazing on sage-grouse include trampling of eggs and subsequent nest desertion, and degradation, loss, and avoidance of formerly suitable habitat. With the removal of livestock, nesting structure and cover are expected to increase in uplands, along with a similar increase and improvement of late brood-rearing habitat in meadows and riparian areas. Sage-grouse have been shown to select brood-rearing habitat with taller grasses and increased herbaceous cover; increased herbaceous biomass is correlated with invertebrate prey abundance, and the increased vertical and horizontal cover it affords most likely imbues greater protection from predators, both of which could increase juvenile survival (Kaczor, et al. 2011). Under Alternative C, improved habitat conditions could result in higher nesting success, juvenile survival, and productivity, which could increase local population numbers. However, due to the severity of juniper encroachment and the limited amount of sage-grouse habitat in the Trout Springs Allotment, increases in local population numbers would have an extremely small effect on overall sage-grouse population numbers in the area.

Because implementation of Alternative C would exclude livestock disturbance and all associated impacts from the Trout Springs Allotment, the alternative is consistent with objectives of the BLM special status species policy in Manual 6840 (USDI BLM 2008); in particular "to initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA."

Yellow-billed Cuckoo

The removal of livestock grazing would greatly increase the potential for development of suitable habitat for yellow-billed cuckoos. Riparian areas would improve markedly (see Section 3.3.2.3). Responses of riparian corridors to the elimination of livestock grazing has been shown to restore understory cover to riparian woodlands and increase the local breeding population of yellow-billed cuckoos (Kreuper et al. 2003). In the absence of livestock grazing, recruitment of young trees and regeneration of riparian woodland should increase.

Columbia Spotted Frog

Under Alternative C, spotted frogs would benefit from the removal of livestock because riparian habitat would improve substantially (Section 3.3.2.3). Improvements to spotted frog habitat include increased levels of high emergent vegetation cover and lack of livestock trampling effects. An increase in suitable breeding areas could lead to greater reproductive output, and an increase in cover in the form of aquatic vegetation has been shown to lead to greater survival of offspring (Bull and Hayes 2000) and associated increases in population numbers would be expected.

Pygmy Rabbit

Removal of livestock grazing would improve habitat conditions for pygmy rabbits in a variety of ways under Alternative C. An increase in quantity and improvement of species composition of grasses (particularly native perennial bunchgrasses) and forbs would provide more and higher-quality spring and summer forage (Siegel Thines, Shipley and Sayler 2004). In addition, a reduction of soil compaction and burrow collapse and an increase in use (as determined by

burrows per unit area) would be expected with removal of livestock (Siegel Thines, Shipley and Sayler 2004).

Columbia River Redband Trout

Under Alternative C, habitat conditions for redband trout would improve because stream channels would not be degraded by livestock grazing. Habitat features such as pools, undercut banks, and overhead cover, which are critical to redband production (Muhlfeld and Bennett 2001), are expected to increase under Alternative C. Herbaceous and woody plant vegetation would return and increase along streambanks, creating greater stabilization, which would reduce sediment inputs and lead to improved channel conditions. Increased shade and reduced sediments would also improve aquatic habitat by lowering stream temperatures which has been shown to increase density and biomass of redband trout (Lamberti, et al. 1994) (Tait, et al. 1994) (Zoellick 2004). As habitat improves, the numbers of redband trout is expected to increase over the term of the permit.

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

Under Alternative C, birds would benefit because of the increased productivity of all habitat types they utilize, especially riparian areas. Springs would improve and expand and streams would eventually experience widening riparian areas, resulting in increased levels of riparian habitat across the allotment. Bird diversity and numbers have been shown to increase when livestock are removed from an area (Taylor and Littlefield 1986) (Dobkin 1998) (Krueper, Bart and Rich 2003) (Earnst, Ballard and Dobkin 2005). Nesting structure and cover would increase and lead to greater reproductive success and improved population numbers. Improved habitat conditions under Alternative C would also benefit all raptor species; nesting conditions would improve and prey numbers would increase, leading to greater levels of successful reproduction and offspring survival.

Big Game and other Mammals (including Special Status Species)

All mammals and big game species would benefit from removal of livestock from the allotment under Alternative C. There would be more available forage for all herbivorous species and increased levels of protective cover. Desirable perennial bunchgrass and forb species could increase over time and competition between cattle and other herbivores would not occur. Population numbers of big game and other herbivores would be expected to increase. Livestock trampling of cover and collapse of small mammal burrows would not occur. Willow and aspen would be expected to increase across the allotment at suitable sites. This would most likely lead to increased numbers of beaver in the area and lead to habitat creation or improvements for many species, including spotted frog and redband trout.

Livestock trailing effects to wildlife would be the same as described in Alternative B.

Direct and indirect effects from juniper management: Effects are the same as those identified in Alternative B.

Hanley FFR

Direct and indirect effects from grazing management: Effects to wildlife in the Hanley FFR Allotment are the same as those identified in the Trout Springs Allotment.

3.4.2.4 Alternative D

Implementation of Alternative D would make very slow but significant progress toward meeting Standard 8 (Threatened and Endangered Animals), but at a slower rate than Alternatives B, C, or E. Although the number of livestock on the Trout Springs Allotment would be less than Alternatives A and B, the proposed season of use and longer grazing season would lead to only very slow improvements to cover and forage for wildlife in upland and riparian areas (see Section 3.2.2.4 and 3.3.2.4). Pastures 1A, 1B, and 2B would be rested every other year, which has the potential to improve wildlife habitat in those years. However, in years that pastures are not rested, hot season grazing could be detrimental for riparian areas and associated species because livestock tend to remain and concentrate their use in riparian areas and stream channels which could increase riparian vegetation utilization and streambank alterations. The grazing management, juniper treatments, and associated rest should provide slow recovery of degraded habitats.

The Hanley FFR Allotment would make significant progress toward meeting Standard 8 (special status animals) due to the shortened season of use in the fall.

<u>Trout Springs</u>
Direct and indirect effects from grazing management:

Focal Special Status Animal Species
<u>Greater Sage-grouse</u>
Under Alternative D, sage-grouse habitat in upland and riparian areas would slightly improve in comparison to Alternative A, primarily because of fewer AUMs and the addition of rest, which would lead to an increase in nesting, brood-rearing, and concealment cover, and an overall improvement in vegetation community health and composition (see Sections 3.2.2.4 and 3.3.2.4). However, habitat improvements would occur at a slower rate than Alternatives B, C, or E because of higher AUMs (1,430 vs. 0-1,147) and/or an earlier season of use (spring/summer vs. late-summer/fall) (See Table 2.9). Potential effects of spring use (alternating between Pasture 2B and 3 every other year) to sage-grouse could include trampling of eggs, nest desertion, reduced nesting cover, and competition for forbs during early brood rearing due to the early season of use. Potential effects of late-summer use (alternating between Pasture 2B and 3 every other year) could include deteriorated wet meadow hydrology during late brood rearing. However, because these effects to sage-grouse habitat would alternate between years and pastures, in any given year with spring effects in Pasture 2B there would not be late summer effects and the pasture would provide undisturbed late brood-rearing habitat. Likewise, in the same year there would not be spring effects in Pasture 3, but there would be late summer effects and the pasture would provide undisturbed nesting and early brood-rearing habitat. Therefore, at least some portion of sage-grouse habitat within the allotment would provide undisturbed nesting, early brood-rearing, and late brood-rearing habitat. Overall, this alternative would be beneficial to sage-grouse habitat as improvements accrued in the long term (>10 years).

Yellow-billed Cuckoo

Under Alternative D, riparian areas would slightly improve in comparison to Alternative A, but at a slower rate than Alternatives B, C, or E because of higher AUMs (1,430 vs. 0-1,147) and/or an earlier season of use (spring/summer vs. late-summer/fall)(See Table 2.9). Breeding habitat would only become suitable for yellow-billed cuckoos with successful cottonwood recruitment in the long term (40-50 years).

Columbia Spotted Frog

Under Alternative D, spotted frog habitat is expected to slightly improve in comparison to Alternative A, but at a slower rate than Alternatives B, C, or E because of higher AUMs (1,430 vs. 0-1,147) and/or an earlier season of use (spring/summer vs. late-summer/fall)(See Table 2.9). With early livestock turnout (April 15) every other year on Pastures 2B and 3, riparian effects would be negligible, and riparian vegetation would likely improve because livestock would tend to spend more time in the uplands due to similar or better forage quality (USDI-BLM 2006). Consequently, less livestock in the riparian areas should equate to less streambank alterations. . Herbaceous and woody cover in riparian areas would be more abundant, which could result in greater site stability and better water quality. Because bank stability and vegetation would increase, erosion potential would decrease and spotted frog habitat would improve. However, any gains in riparian vegetation condition and channel stabilization would likely diminish when grazed late summer-early fall the following year because livestock tend to congregate in the riparian areas during the summer months. Direct effects to spotted frogs due to spring use could include trampling of adult frogs and egg masses, disturbed aquatic habitat, and reductions of prey items during the breeding season. However, these effects are only expected three or four out of ten years in Pastures 1A, 1B, and 2A, given the rest associated with pasture rotation and possible juniper treatments. Overall, slight but significant progress in riparian vegetation and stream channels is expected for the long term in Pastures 2B and 3 (Section 3.3.2.4).

Pygmy Rabbit

Under Alternative D, habitat conditions for pygmy rabbits and other small to medium herbivores such as mice, voles, and jackrabbits would slightly improve in comparison to Alternative A, but at a slower rate than Alternatives B, C, or E because of higher AUMs (1,430 vs. 0-1,147) and/or an earlier season of use (spring/summer vs. late-summer/fall)(See Table 2.9). Improvements to perennial bunchgrasses and sagebrush communities would enhance cover throughout the allotment for these species, especially in riparian areas. There would also be more forage available from spring through late summer when pygmy rabbit herbivory of grasses and forbs occurs; reproduction and population recruitment would likely increase due to lower predation rates resulting from greater concealment cover and a greater abundance of forage species.

Columbia River Redband Trout

Under Alternative D, habitat for redband trout and other fish species would slightly improve in comparison to Alternative A, but at a slower rate than Alternatives B, C, or E because of higher AUMs (1,430 vs. 0-1,147) and/or an earlier season of use (spring/summer vs. late-summer/fall)(See Table 2.9). With early livestock turnout (April 15) every other year on Pastures 2B and 3, riparian effects would be negligible, and riparian vegetation would likely improve because livestock would tend to spend more time in the uplands due to similar or better

forage quality (USDI-BLM 2006). Consequently, less livestock in the riparian areas should equate to less streambank alterations. Increased vegetation and streambank stability would result in improved water quality and hiding cover which would reduce predation on redband trout and increase macroinvertebrate prey availability, both of which would likely increase redband survival. Shade and cover would improve and there would be an increase in stream channel characteristics including pools, undercut banks, and habitat complexity that would improve instream habitat for fish compared to Alternative A, which would decrease predation on redband trout and increase refuge areas during high water events resulting in increased survival. Sediment levels probably would be reduced, making gravel areas more suitable for spawning, which would likely increase egg-to-fry survival, and creating better habitat for macroinvertebrates, which would increase the prey base for redband trout.

However, any gains in riparian vegetation condition and channel stabilization would likely diminish when grazed late summer-early fall the following year because livestock tend to congregate in the riparian areas during the summer months. Because use in Pasture 2B and 3 (alternating every other year) would occur in the late summer and fall, the direct effects of livestock on spawning would not occur. Potential effects to due to early and extended seasons of use could include bank trampling, reduced macroinvertebrate diversity and numbers, loss of desirable riparian vegetation, increased sedimentation, and reduced overhead cover. However, these effects are only expected three or four out of ten years in Pastures 1A, 1B, and 2A, given rest associated with pasture rotation and juniper treatments. Overall, slight but significant progress in riparian vegetation and stream channels is expected for the long term in Pastures 2B and 3. Conditions for fish populations downstream of the allotment boundary are also expected to improve.

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

Under Alternative D, habitat for many bird species in the allotment, especially species associated with riparian areas, would experience slight improvements in comparison to Alternative A, but at a slower rate than Alternatives B, C, or E because of higher AUMs (1,430 vs. 0-1,147) and/or an earlier season of use (spring/summer vs. late-summer/fall)(see Table 2.9). Slight increases in herbaceous vegetation in upland and riparian areas would provide improvements in nesting, foraging substrates, and cover. Habitat structure and complexity from the current season of growth would be improved. An increase in structural complexity of woody species and the herbaceous understory in riparian areas would provide greater nesting and foraging opportunities because of an increase in cover and prey. Forage would likely be more abundant and reproductive success would probably increase. In turn, nesting success and populations would increase over the term of the permit as heavily impacted riparian areas along reaches of streams would slowly recover and afford adequate bird habitat that currently is absent. Herbaceous and browse species would increase nest-screening cover. Reproductive efforts would not be disturbed by livestock or management activities during the spring breeding season in riparian areas. Potential effects of late-summer use (alternating between Pasture 2B and 3 every other year) could include deteriorated wet meadow hydrology. However, because these effects to migratory bird habitat would alternate between years and pastures, in any given year with spring effects in Pasture 2B there would not be late summer effects and the pasture would provide undisturbed riparian habitat. Likewise, in the same year there would not be spring effects in

Pasture 3, but there would be late summer effects and the pasture would provide undisturbed upland habitat. Therefore, at least some portion of migratory bird habitat within the allotment would provide undisturbed upland and riparian habitat. Overall, this alternative would be beneficial to migratory bird habitat as improvements accrued in the long term (>10 years).

However, potential effects to birds from early livestock use in upland habitats in Pastures 1A, 1B, and 2A (shrub steppe in particular) could include disturbance to nesting, and foraging activities, and trampling of nests at the onset and early in the breeding season. Nevertheless, slight improvements to perennial bunchgrasses, sagebrush communities, and live and residual herbaceous vegetation heights would enhance cover throughout the allotment for most shrub steppe-obligate and dependent species. Raptors would benefit from improved habitat conditions and increased levels of prey species. Effects to most raptors would be minimal as the territories of most species extend beyond the allotment boundaries. Raptor reproduction would probably slowly increase over time as conditions improved for prey species across the allotment. The early season of use in Pastures 1A, 1B, and 2A, would expose ground-nesting raptors to a risk of trampling. However, these effects are only expected three or four out of ten years in Pastures 1A, 1B, and 2A, given rest associated with pasture rotation and potential juniper treatments.

Big Game and other Mammals (including Special Status Species)
Under Alternative D, habitat for big game, particularly deer and elk, would slightly improve in comparison to Alternative A, but at a slower rate than Alternatives B, C, or E because of higher AUMs (1,430 vs. 0-1,147) and/or an earlier season of use (spring/summer vs. late-summer/fall)(See Table 2.9). Bighorn sheep habitat would also improve and effects from livestock grazing to the species would be similar but to a lesser degree than those identified under Alternative A. The amount of upland forage and cover would slowly increase, and use of browse species in riparian areas would be less in Pastures 1A, 1B, and 2A three or four years out of ten due to an early season of use. Light use of riparian areas would increase cover for fawns and elk calves during spring and summer months. Beaver colonization would be possible in the long term (more than10 years) because riparian habitat would slowly improve (Section 3.3.2.4). Herbivores would benefit from the increase in cover and forage throughout the allotment from leaving an adequate amount of current year's growth. However, competition between livestock and big game would continue in riparian areas as late summer/fall use would continue in Pastures 2B and 3(alternating every other year). Competition may cause displacement of deer and elk during a time when it is important to build up winter fat reserves.

Livestock trailing effects to wildlife would be the same as described in Alternative B.

Direct and indirect effects from proposed range improvements: Effects are the same as those identified in Alternative B.

Direct and indirect effects from juniper management: Effects are the same as those identified in Alternative B.

Hanley FFR

Direct and indirect effects from grazing management: Effects to wildlife in the Hanley FFR Allotment are the same as those identified in the Trout Springs Allotment.

3.4.2.5 Alternative E

Under Alternative E, the Trout Springs Allotment would make significant progress toward meeting Standard 8 (Threatened and Endangered Animals) due to the relatively low level of livestock use, avoidance of growing season impacts, rest periods, and juniper treatments. Effects of the proposed grazing system on the Trout Springs Allotment would be similar to Alternative B, except the magnitude of livestock grazing effects would be decreased due to fewer livestock and lighter stocking rates in all pastures. Due to the decreased magnitude of livestock grazing effects, expected improvements to wildlife habitat should occur more quickly than in Alternative B.

The Hanley FFR Allotment would make significant progress toward meeting Standard 8 due to the shortened season of use in the fall.

Trout Springs
Direct and indirect effects from grazing management:

Focal Special Status Animal Species
Greater Sage-grouse
Under Alternative E, conditions for sage-grouse would improve similar to Alternative B but more quickly due to fewer AUMs and a lighter stocking rate in all pastures. Sage-grouse habitat would benefit due to lack of livestock disturbance during nesting and brood-rearing because the season of use in Pastures 2B, 3, and 4 is in the fall (October-November) and sage-grouse nest and rear their young in the spring and summer (March-September). Due to heavy juniper encroachment and rugged topography throughout the majority of the Trout Springs Allotment, Pastures 2B, 3, and 4 are the only pastures where sage-grouse nesting and brood-rearing activity is likely to occur. As discussed in Alternative A, grazing management in sage-grouse habitat should include the long-term objective of promoting desirable plant communities and the annual objective of retaining a standing crop that adequately provides cover for sage-grouse (Cagney, Bainter, et al. 2010). Current guidelines recommend managing breeding habitats to support perennial herbaceous vegetation averaging more than 7 inches in height at the end of the nesting period (Connelly, et al. 2000), and residual grass heights more than 4 inches at the beginning of the nesting season (Holloran, et al. 2005) Under this alternative, expected light use levels (≤ 40%) and the pasture rest rotation schedule would promote high plant community vigor and could potentially provide an adequate perennial herbaceous vegetation height during the subsequent nesting/early brood-rearing season, particularly in comparison to Alternative A. Improved riparian habitat in Pastures 2B and 3 (see Section 3.3.2.5) also would benefit sage-grouse by improving late-brood rearing habitat in comparison to Alternative A.

Yellow-billed Cuckoo
Under Alternative E, riparian areas throughout the allotment would be expected to improve similar to Alternative B but more quickly due to fewer AUMs and a lighter stocking rate in all pastures. The development of mature cottonwood stands suitable for use as cuckoo breeding

habitat could occur in the lower end of Squaw Creek, the North Fork Owyhee River, and Cottonwood Creek in the long term (>30 years).

Columbia Spotted Frog

Under Alternative E, spotted frog habitat is expected to improve similar to Alternative B but more quickly due to fewer AUMs and a lighter stocking rate in all pastures. Habitat would improve because herbaceous and woody cover in riparian areas would be more abundant, which could result in greater site stability and better water quality. Since banks would be stable and vegetated along streams and vegetation within spring areas would increase, erosion would decrease and spotted frog habitat would improve. Since spotted frogs are active primarily from spring through early fall, there would be little chance of trampling of adult frogs and egg masses, disturbed aquatic habitat, and reductions of prey items during the breeding season. The reduced effects of livestock on this species would likely result in population increases.

Pygmy Rabbit

Under Alternative E, habitat conditions for pygmy rabbits and other small to medium herbivores such as mice, voles, and jackrabbits would improve similar to Alternative B but more quickly due to fewer AUMs and a lighter stocking rate in all pastures. Under this alternative, expected light use levels (≤ 40%) and the pasture rest rotation schedule would result in improvements to perennial bunchgrasses and sagebrush communities and would enhance cover throughout the allotment for these species, especially in riparian areas. There also would be more forage available from spring through late summer when pygmy rabbit herbivory of grasses and forbs occurs; reproduction and population recruitment would likely increase due to lower predation rates resulting from greater concealment cover and a greater abundance of forage species.

Columbia River Redband Trout

Under Alternative E, habitat for redband trout and other fish species would improve similar to Alternative B but more quickly due to fewer AUMs and a lighter stocking rate in all pastures. Habitat would improve because woody and herbaceous vegetation would be more abundant and less streambank trampling would occur (Section 3.3.2.5). Increased vegetation would result in improved hiding cover which would reduce predation on redband trout and increase macroinvertebrate prey availability, both of which would likely increase redband survival. Because livestock use would occur in the late summer and fall, the direct effects of livestock on spawning would not occur. Shade and cover would improve and there would be an increase in stream channel characteristics including pools, undercut banks, and habitat complexity that would improve instream fish habitat, which would decrease predation on redband trout and increase refuge areas during high water events resulting in increased survival. Sediment levels probably would be reduced, making gravel areas more suitable for spawning, which would likely increase egg-to-fry survival, and creating better habitat for macroinvertebrates, which would increase the prey base for redband trout. Conditions for fish populations downstream of the allotment boundaries also would improve.

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

Under Alternative E, habitat for many bird species in the allotment, especially species associated with riparian areas, would experience improvements similar to Alternative B but more quickly

due to fewer AUMs and a lighter stocking rate in all pastures. Increased cover in upland and riparian areas would provide improvements in nesting and foraging substrates and cover. Habitat structure and complexity from the current season of growth would be improved. An increase in structural complexity of woody species and the herbaceous understory in riparian areas would provide greater nesting and foraging opportunities because of an increase in cover and prey. Forage would likely be more abundant and reproductive success probably would increase. In turn, nesting success and populations would increase over the term of the permit as heavily impacted riparian areas along reaches of streams would recover and afford adequate bird habitat that currently is absent. Expected light utilization of herbaceous species in riparian areas would increase nest-screening cover. However, utilization of browse species in the fall could affect nesting areas for some species by reducing nest-screening cover for the next breeding season. Nevertheless, the rest designed into this alternative would leave sufficient nesting cover the following year. Reproductive efforts would not be disturbed by livestock or management activities during the spring breeding season in riparian areas. Disturbances to nesting birds in most riparian areas would not occur as pastures would be grazed in the fall.

Expected improvements to perennial bunchgrasses and sagebrush communities would enhance cover throughout the allotment for most shrub steppe-obligate and dependent species. Raptors would benefit from improved habitat conditions and increased levels of prey species. Effects to most raptors would be minimal as the territories of most species extend beyond the allotment boundaries. Raptor reproduction would likely increase over time as conditions improved for prey species across the allotment.

Big Game and other Mammals (including Special Status Species)

Under Alternative E, habitat for big game, particularly deer and elk, would improve improvements similar to Alternative B but more quickly due to fewer AUMs and a lighter stocking rate in all pastures. Bighorn sheep habitat would also improve and effects from livestock grazing to the species would be similar but to a lesser degree than those identified under Alternative B. The amount of upland forage and cover would increase, and use of browse species in riparian areas would be less. Light use of riparian areas would increase cover for fawns and elk calves during spring and summer months. Beaver colonization would be possible in the long term (< 10 years) because riparian habitat would improve (Section 3.3.2.5). Herbivores would benefit from the increase in cover and forage throughout the allotment from leaving an adequate amount of current year's growth. However, competition between livestock and big game would continue in riparian areas as late summer/fall use would continue. Competition may cause displacement of deer and elk during a time when it is important to build up winter fat reserves. However, the expected improvement in riparian habitat from this grazing system would ultimately result in increased browse availability (see section 3.3.2.5). Available browse also exists in adjacent areas that are not grazed in the fall.

Habitat conditions for small to medium herbivores such as mice, voles, and jackrabbits would improve. Residual vegetation and spring growth would enhance cover throughout the allotment for these species, especially in rested riparian areas. There also would be more forage available from spring through late summer and reproduction and population recruitment would likely

increase. Large predators would benefit as habitat conditions would improve across the allotment and there would likely be an increase in prey numbers.

Livestock trailing effects to wildlife would be the same as described in Alternative B.

Direct and indirect effects from proposed range improvements: Effects are the same as those identified in Alternative B.

Direct and indirect effects from juniper management: Effects are the same as those identified in Alternative B.

Hanley FFR
Direct and indirect effects from grazing management: Effects to wildlife in the Hanley FFR Allotment are the same as those identified in the Trout Springs Allotment.

3.5 Botany/ Special Status Plants

3.5.1 Affected Environment – Botany/Specials Status Plants

No federally listed threatened or endangered plant species are known or suspected to occur within the Trout Springs or Hanley FFR Allotments (USDI-USFWS 2009). Slickspot peppergrass, (*Lepidium papilliferum*), proposed for listing as threatened under the Endangered Species Act, occurs in eastern Owyhee County, but is not currently known to occur in western Owyhee County or the Owyhee Field Office Area (USDI-USFWS 2010c). No soil types containing slickspot microsites occur in the Trout Springs or Hanley FFR Allotments. Therefore, this plant will not be discussed further.

Six BLM special status plant species are known to occur in or near the Trout Springs Allotment. Mud Flat milkvetch (*Astragalus yoder-williamsii*), dimeresia (*Dimeresia howellii*) , and thinleaf goldenhead (*Pyrrocoma linearis*)[2] are Type 3 BLM sensitive plant species, which are plants considered range-wide/globally imperiled with moderate endangerment. Rabbitbrush goldenweed (*Ericameria bloomeri*), short-lobed penstemon (*Penstemon seorsus*), and diverse-leaved pondweed (*Potamogeton diversifolius*) are BLM Type 4 plants, which are species of concern, due to small populations or localized distribution. Observations regarding the status of special status plants reported in this document are on file with the IDFG Idaho Fish and Wildlife Information System and were made by BLM staff.

Mud Flat milkvetch is a diminutive perennial plant whose distribution is restricted to uplands in the upper forks of the Owyhee River in Idaho and one disjunct location in Nevada. In Idaho, Mud Flat milkvetch occurs on flat to very gentle slopes predominately in swale positions on fine loamy soils in mountain big sagebrush and low sagebrush communities. It has been recorded in

[2] Previously identified as one-flowered goldenweed (*Haplopappus uniflorus* var. *howellii*), but updated taxonomic work indicates that the current name for this plant is *Pyrrocoma linearis* and it has a more limited distribution than previously thought (Bogler 2006).

the 1980s near Pasture 2 of the Trout Springs Allotment, but the specific location has not been verified.

Mud Flat milkvetch reaches less than two inches in height and is therefore not readily consumed by livestock. It appears tolerant of some disturbance as portions of some populations occur in areas disturbed by heavy grazing, along road tracks, in recently burned areas, and in association with ant hills (Mancuso and Moseley 1993). However, like other *Astragalus* species, this plant appears to be shade intolerant, occurring mostly within openings in the vegetation, sparsely covered microsites, or areas devoid of other vegetation (Mancuso and Moseley 1993). Consequently, this plant is believed to be negatively impacted by juniper expansion (Rosentreter 2009).

Dimeresia is a diminutive annual that occurs in dry, rocky, cindery, or gravelly soils in desert foothills or drier mountains. It occupies small microsites that have different soil structure and more open vegetation than the surrounding area. This species is known to occur on approximately 11 sites in Owyhee County and is also found in Oregon, Nevada, and California. Dimeresia is found in Pasture 2 of the Trout Springs Allotment.

Thinleaf goldenhead occurs in wet or dry, often alkaline meadows, streambanks, and around springs. Its world-wide range is Owyhee County, ID and Harney County, OR (USDA-NRCS 2010). It was found in Pastures 2 and 3 in 2010. It is an herbaceous perennial about 6-12” tall.

Rabbitbrush goldenweed is a shrub in the sunflower family that grows up to about two feet tall, on dry rocky slopes and open woods. This species occurs from British Columbia to California and Nevada, but very few locations are known in Idaho. During 2009 surveys it was identified in Pasture 1A of the Trout Springs Allotment. In general, grazing (other than extremely concentrated use) is unlikely to affect this shrub, but since it prefers open areas, its habitat becomes more unsuitable with increasing juniper density.

Short-lobed penstemon occurs on dry, rocky low sagebrush slopes and is found in eastern Oregon, and Owyhee, Washington, and Custer Counties, Idaho (USDA-NRCS 2010). It is a perennial about 12” tall, and was found in Pasture 2 in 2010. Livestock effects to this plant across its range are unknown.

Diverse-leaved pondweed is an aquatic perennial that grows in shallow, still water of ponds and reservoirs. Although widely distributed across the U.S., it is recorded from few locations in Idaho. It is known from two locations in Pasture 2.

Botanical inventories were conducted on portions of the Trout Springs Allotment in August 2009 and July-September 2010, for the range improvement projects and representative juniper treatment areas. A dimeresia occurrence was monitored in May 2010. See the project file for survey locations and lists of plant species identified during 2009 and 2010 surveys (Corbin 2010a, 2010b).

Based on 2009 and 2010 observations, occurrences of known special status plants in the Trout Springs Allotment appear to be small, but plants that are present are fairly vigorous under the current non-use. These populations have been reduced as a result of previous grazing or juniper expansion, although we have no long-term monitoring data.

No special status plant species are known to occur on the Hanley FFR Allotment. No botanical inventory has been completed. Occurrences of thinleaf goldenhead and Bacigalupi's downingia (*Downingia bacigalupii*), a BLM Type 4 plant species, have been recorded near the Hanley FFR. Bacigalupi's downingia is an annual plant that grows in moist mudflats of lake, stream, or reservoir edges.

The Trout Springs Determination (Appendix A) states that Standard 8 is not being met for special status plants due to a combination of grazing management and juniper encroachment. Season-long grazing with moderate or higher utilization has resulted in no opportunity for special status plants to rest during critical growing stages to recover vigor and provide for reproduction. Juniper encroachment has reduced habitat suitability for shade-intolerant special status plant species. The Hanley FFR Determination (Appendix A) indicates Standard 8 is not being met for special status animals, but makes no determination for special status plants based on the lack of known special status plant occurrences within the allotment.

3.5.2 Environmental Consequences – Botany/Specials Status Plants

3.5.2.1 Alternative A

Direct and indirect effects on special status plants from grazing are related to the intensity and duration of cattle use of an allotment, as grazing, trampling, and weed spread impact these plants and their habitats. Alternative A, with the highest number of animals, highest livestock use (number of AUMs), longest season of use, and among the highest stocking rate (lowest acres per AUM) of the alternatives, would have the greatest potential effects on special status plants of all the alternatives, and would not make significant progress toward meeting Standard 8 (sensitive plant species) for the Trout Springs or Hanley FFR Allotments.

Direct and indirect effects from grazing management: Direct effects from grazing on Mud Flat milkvetch and dimeresia are likely to be minor because they are small, low plants of limited forage value. Thinleaf goldenhead and short-lobed penstemon (taller perennial plants) are likely to experience direct grazing effects on leaves and flowering stalks, particularly in spring and early summer before plants go dormant. The shrub rabbitbrush goldenweed is not considered highly palatable, but may be incidentally grazed, particularly in high use areas; the one recorded location is more than 0.25 miles from a water source, so is not likely to be heavily used. Diverse-leaved pondweed and Bacigalupi's downingia, although small plants, are likely to be grazed because they are associated with water sources where cattle congregate.

Trampling effects to special status plants are possible. Trampling effects are likely to be most evident on individuals of downingia, since it grows at the edges of water holes and is a shallow-rooted annual. Diverse-leaved pondweed (in slightly deeper water) would also be subject to trampling along the edge of its habitat. Dimeresia, an annual, could be readily

uprooted by trampling in its loose substrate, although its sparsely vegetated habitat is unlikely to be heavily used by cattle. Mud Flat milkvetch and thinleaf goldenhead are low perennials that both appear somewhat resilient to trampling under light to moderate use, but heavy use (particularly concentrated cattle numbers or extended use within occupied habitat) is likely to damage plants. Rabbitbrush goldenweed seedlings may be trampled, particularly from trailing along the pasture fence and near the road, but adult shrubs are likely to be resilient to trampling. Short-lobed penstemon is somewhat brittle and sensitive to trampling, but may be protected by its rocky habitat, where cows are less likely to walk.

Little monitoring information on special status plants in the Trout Springs or Hanley FFR Allotments is recorded, so data on specific direct effects under current management are not available. It is likely that direct effects on any of these plants may affect individuals' vigor and reproduction. Effects on the Trout Springs or Hanley FFR Allotments' occurrences or the Owyhee populations (as a whole) of these special status plants are uncertain.

Indirect effects on special status plants include habitat change from a reduction in perennial grasses and an increase in bare ground. These indirect effects which create more open soil would likely be favorable to Mud Flat milkvetch, dimeresia, and Bacigalupi's downingia, although dimeresia and downingia are more dependent on specific soil conditions (open, dry sand for dimeresia and wet mudflat for downingia) than competition cover.

Another indirect effect from grazing is ongoing contributions to long-term (>20 years) changes in the fire regime, shifting to a less frequent, more severe fire regime over time due to the reduction of fine fuels (perennial grass) and increase of woody vegetation (Miller et al. 2005). The change in fire regime is likely to affect special status plants by shading out habitat microsites as woody vegetation increases, followed by potentially severe wildfire under extreme weather conditions.

Indirect grazing effects on pollinators to special status plants may occur, specifically by trampling ground-nesting native bees (Kearns and Inouye 1997). No specific information on pollinators for these species is available.

Indirect effects on rare plants from non-native weed increase as a result of grazing may occur, particularly in high use areas such as along roads, watering sources, salt grounds, and gathering areas. Grazing can cause weed increases by cattle carrying in and dispersing weed seed, and creating more bare ground favoring weed dominance. An increase of weeds, particularly exotic annual grasses, can negatively affect rare plants (Rosentreter 1992).

No trailing permits would be issued, so no effects to special status plants from permitted trailing would occur.

Indirect effects of not treating juniper: Without juniper treatment, the density and cover of juniper would continue to increase. Increasing shade and competition for water and soil nutrients would make the habitat less suitable for Mud Flat milkvetch and rabbitbrush goldenweed, in particular; other special status plants have more specialized microhabitats less likely to be

affected by juniper increase. No direct effects to special status plants from juniper cutting or burning would occur.

3.5.2.2 Alternative B

Alternative B would make significant progress toward meeting Standard 8 (sensitive plant species) for the Trout Springs and Hanley FFR Allotments.

Direct and indirect effects from grazing management: Direct grazing and trampling effects on special status plants would be similar to those described for Alternative A, although at a much lower magnitude due to the reduced use and fall rather than spring/summer grazing. Because Alternative B has a lower number of AUMs proposed, fewer cattle, and a shorter season of use, less disturbance to special status plants and their habitat is expected. The disturbance would occur only late in the year (after September 15), so no growing season grazing or trampling effects would occur; thus, effects on annuals (dimeresia and downingia) would be virtually eliminated because plants would have set seed and died, and direct effects on perennials minimized because plants would be dormant. Grazing of dormant perennial special status plants would have little effect on their vigor, but trampling could dislodge young plants or break stems, particularly of short-lobed penstemon and rabbitbrush goldenweed which are more brittle than the other special status plants. Grazing and trampling in the fall at use levels proposed in Alternative B is not expected to reduce viability for special status plants in the Trout Springs Allotment.

Indirect effects on special status plants would be similar to those described for Alternative A, but at a reduced level. Fewer AUMs and late season use is likely to have few indirect effects on special status plants. Perennial grass is expected to increase under Alternative B, resulting in slightly more potential for competition with special status plants. Fire regimes are expected to be closer to reference conditions under this alternative, potentially improving special status plant habitat. Impacts to pollinators would be lower under Alternative B with the reduced numbers and AUMs, which would reduce potential nesting bee trampling, and weeds are expected to increase less than in Alternative A.

Effects on special status plants from proposed range improvements in the Trout Springs Allotment are expected to be minor. All proposed fence locations were surveyed in 2009 or 2010, and some adjustments in fence proposed fence locations were made based on special status plants, although it was not practical to avoid all occurrences. Short-lobed penstemon and thinleaf goldenhead occur on or near some fence locations. Fence construction and subsequent cattle trailing may affect some individual plants within larger occurrences, but are not expected to reduce viability of any special status plant occurrence or lead toward listing for any of these plants under the endangered species act. Likewise, addition of the water haul site in Pasture 3 would increase dormant-season trampling on thinleaf goldenhead, but is not expected to substantially impact the occurrence.

Grazing effects on special status plants (if any) in the Hanley FFR Allotment would be limited to dormant season (October/November) effects. Downingia (an annual) would have no direct

effects at that time, and effects to thinleaf goldenhead would be minimal. Indirect effects would be the same as described for Trout Springs (Alternative B).

Trailing is not expected to have substantial effects on special status plants because impacts are limited to the Mud Flat Road and adjacent areas (within a narrowed 240-foot corridor), and because of the short duration of trailing.

Direct and indirect effects from juniper management: Juniper management may have direct effects on Mud Flat milkvetch and rabbitbrush goldenweed; some individual plants are likely to be effected from disturbance by juniper trees or branches being felled on them or by above-ground plant parts being consumed by fire. Effects from felling are likely to be localized, affecting only a small portion of the occurrence. Direct fire, particularly in broadcast burn areas, would potentially remove much of the above-ground portion of the plants. The known rabbitbrush goldenweed site is within the jackpot burn rather than broadcast burn area; Mud Flat milkvetch, if present, would be within the broadcast burn area. This one-time effect is likely to be followed by sprouting from the roots or below-ground caudex, especially the rabbitbrush goldenweed.

Dimeresia, thinleaf goldenhead, short-lobed penstemon, downingia, and pondweed all grow in areas unlikely to be occupied by seral juniper, and therefore are unlikely to have direct effects of cutting. All of these special status plants occupy relatively open microsites likely to have at most very light fire effects. The low fuel loading and generally dormant-season burning planned for the prescribed burn are expected to create little or no direct fire effects on these species. The known dimeresia occurrences are in no treatment areas, thinleaf goldenhead is in broadcast burn and no treatment areas, short-lobed penstemon is in jackpot burn and no treatment areas, pondweed is in no treatment areas, and downingia (if present) would be in a no treatment area.

Reduction in juniper canopy is likely to have beneficial effects on Mud Flat milkvetch and rabbitbrush goldenweed in both the short (1-10 years) and long (>10 years) term, as their preferred unshaded microsite habitats increase. Long-term indirect effects from expected perennial grass cover increase as a result of juniper removal would probably not be beneficial to Mud Flat milkvetch, but substantial open ground due to specific soil inclusions within Mud Flat milkvetch occurrences is expected to provide adequate suitable habitat.

Juniper treatment activities may produce an increase in non-native invasive weeds such as cheatgrass and prickly lettuce, which could negatively affect rare plant habitat. Based on observations from recent wildfire in the Juniper Mountain area, these weeds are likely to be localized in previously disturbed areas, and the increase is likely to be short-lived as native perennials regain dominance (Bates et al. 2006). Thus, substantial indirect effects from an increase in weeds as a result of juniper treatment are not expected.

3.5.2.3 Alternative C

The combination of juniper treatments and no grazing is expected to produce conditions conducive for long-term special status plant occurrence health and would make significant

progress toward meeting Standard 8 (special status plants) for the Trout Springs and Hanley FFR Allotments.

Direct and indirect effects from grazing management: There would be no direct effects from domestic livestock grazing on special status plants in the Trout Springs and Hanley FFR Allotments. No livestock grazing of flowering stalks or photosynthetic material would occur, and no trampling would displace seedlings. Thus the reproduction potential would not be limited.

Indirect grazing effects on special status plants would not occur. No grazing-induced changes to the fire regime, impacts to native pollinators, or weed increases would occur. This would result in increased long-term health to the special status plant occurrences and their surrounding plant communities.

Lack of grazing for a ten year period would produce increased soil cover by perennial vegetation (particularly native perennial grasses), vegetative litter, and biotic soil crusts, resulting in less erosion and fewer invasive annuals (Wicklow-Howard et al. 2003). This may make the habitat somewhat less suitable for Mud Flat milkvetch, which prefers more open microsites. Perennial grasses are unlikely to increase appreciably in dimeresia, pondweed, short-lobed penstemon, and downingia habitat, given their specialized soil/moisture regimes. Thinleaf goldenhead commonly grows within high perennial grass cover, and rabbitbrush goldenweed is a relatively long-lived shrub; both are unlikely to be affected by an increase in perennial grasses.

Trailing is not expected to have substantial effects on special status plants because impacts are limited to the Mud Flat Road and adjacent areas (within a narrowed 240-foot corridor), and because of the short duration of trailing.

Direct and indirect effects from juniper management: Direct and indirect effects from juniper management would be the same as described in Alternative B.

3.5.2.4 Alternative D

Alternative D would make significant progress toward meeting Standard 8 (sensitive plant species) for the Trout Springs and Hanley FFR Allotments.

Direct and indirect effects from grazing management: Direct and indirect effects of Alternative D on special status plant species from grazing management are expected to be similar to Alternative B based on total AUMs, but the earlier season of use would have increased detrimental effects on both annual and perennial species because use would occur during a very sensitive growing period. Early season use (during growth and before seed set) and the longer season of use (more days per pasture) could affect vigor and reproduction of special status plants. Effects from direct grazing, trampling, bare ground, fire regime changes, pollinators, and weeds, and the effects to special status plants would be similar to those described in Alternative A, although at a somewhat reduced level because of the lower AUMs and fewer cattle. Compared to Alternative B, Alternative D has fewer cows over a longer season of use, which means that trampling and direct grazing of special status plants is likely to be less intensive, but

of longer duration, so plants are more likely to be repeatedly impacted. The rotational rest or deferred use, along with the rest associated with juniper treatments would provide enough rest and recovery to special status plants to mitigate negative effects of long, growing-season use.

Effects on special status plants from proposed range improvements would be the same as described in Alternative B.

Grazing effects on the Hanley FFR Allotment would be as described in Alternative B.

Trailing is not expected to have substantial effects on special status plants because impacts are limited to the Mud Flat Road and adjacent areas (within a narrowed 240-foot corridor) and thus avoid most of the special status plant habitat, and because of the short duration of trailing.

Direct and indirect effects from juniper management: Direct and indirect effects from juniper management would be the same as described in Alternative B.

3.5.2.5 Alternative E

Alternative E would make significant progress toward meeting Standard 8 (sensitive plant species) for the Trout Springs and Hanley FFR Allotments.

Direct and indirect effects from grazing management: Grazing management effects on special status plants are expected to be similar to Alternative B (based on the season of use), but with lower overall use, because of the reduction in AUMs and number of cattle. Thus, growing season effects would be eliminated, and other effects (dormant season trampling, indirect plant community, weed, pollinator, etc.) would be minimal.

Effect on special status plants from proposed range improvements would be the same as described in Alternative B.

Grazing effects on the Hanley FFR Allotment would be the same as described in Alternative B.

Trailing is not expected to have substantial effects on special status plants because impacts are limited to the Mud Flat Road and adjacent areas (within a narrowed 240-foot corridor), and because of the short duration of trailing.

Direct and indirect effects from juniper management: Direct and indirect effects from juniper management would be the same as described in Alternative B.

3.6 Recreation

3.6.1 Affected Environment – Recreation

Some areas of the Trout Springs Allotment are located within the North Fork Owyhee Backcountry Special Recreation Management Area (SRMA) (1,232 acres) and the North Fork Canyon SRMA (51 acres). SRMAs are designated for special or more intensive types of

recreation management and where greater investments for recreation management are anticipated due to the intensity of use the area receives (USDI-BLM 1999a). The main recreational activities within the North Fork Owyhee Backcountry SRMA include: backpacking, horseback riding, camping, hunting, fishing, and sightseeing. Within the North Fork Canyon SRMA the main recreational activities include: camping, whitewater boating, hunting, fishing, and sightseeing.

The Owyhee Uplands National Backcountry Byway (aka Mud Flat Road) traverses approximately four miles of the Trout Springs and Hanley FFR Allotments. 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. The 63 acres of public land on the Hanley FFR Allotment is an isolated BLM parcel adjacent to the Back Country Byway and developed private property. Although the allotment is prominent due to its location, the recreational contribution of the public land in the context of the broader landscape is minimal.

Approximately 1,170 acres of the recently designated North Fork Owyhee Wilderness area is located in the very northern portion of the Trout Springs Allotment. The wilderness area contains outstanding opportunities for solitude and primitive and unconfined types of recreation. The area also includes exceptional scenic quality, a diversity of landforms, and deep river canyons that attract a variety of recreationists including: kayakers, hunters, fisherman, backpackers, sightseers, and photographers.

The North Fork Owyhee River serves as a natural boundary for the northern edge of the Trout Springs Allotment. This river and its tributaries offer outstanding low-water backpacking opportunities during the summer months. Opportunities for whitewater boating on the North Fork exist as well, however, this section is highly technical with its steep gradient, narrow channel, and frequent obstacles and is recommended for expert boaters only.

Other special recreational areas on the Trout Springs Allotment include Trout Springs (located on Juniper Mountain), which is a popular dispersed undeveloped site used by campers and hunters. This area is fenced and excluded from livestock grazing.

The North Fork campground is located along the Backcountry Byway; however, the campground lies outside the Trout Springs Allotment immediately to the northwest. This is a developed site (restroom, picnic tables, campsites, etc.) that is utilized primarily by Backcountry Byway travelers, campers, and hunters in the fall. The site received an estimated 2,500 visitors in 2008 and is anticipated to see a slight increase in use with the recent designation of wilderness in the surrounding area as the public ventures out to explore their new wilderness areas.

Off-highway motor vehicle (OHV) designations in the Trout Springs Allotment include 13,417 acres, where travel is limited to existing roads and trails; 14,124 acres where travel is limited to designated roads and trails; and 1,285 acres that are closed to motorized access. Within the Hanley FFR Allotment, motorized travel is primarily limited to existing roads and trails (63 acres).

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 Trout Springs Allotment contains multiple settings for recreationists, ranging from Primitive (North Fork Owyhee wilderness) and Semi-Primitive Motorized in the north, to a Roaded Natural classification surrounding the Back Country Byway, and fading back into Semi-primitive motorized and primitive in the southern sections.

The Primitive classification is an area characterized by an essentially unmodified natural environment. The concentration of users is very low and the evidence of other users is minimal. The area is managed essentially to be free from evidence of man-induced facilities for comfort or convenience. Only facilities essential for resource protection are used. Motorized use within the area is not permitted (USDI-BLM 1999b).

The Semi-Primitive 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 (USDI-BLM 1999b).

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 1999a).

3.6.2 Environmental Consequences – Recreation

3.6.2.1 Alternative A

Effects to recreation would primarily be the interaction with livestock during periods of livestock use. During periods of no livestock use, no effects would be expected. Visual quality can also have a positive or negative impact on recreational experiences. Visual qualities are currently negatively impacted throughout the allotment under current management as upland and riparian areas fail to meet Standards. The appearance of degraded vegetation can negatively affect the overall recreation experience for some users. In addition, failure to meet these Standards would continue to diminish big game habitat thereby negatively affecting hunting opportunities for recreationists within the allotments.

No range improvement projects are proposed, therefore livestock would continue to congregate in the same areas. Additionally, there are no proposed fence projects for this alternative, which would maintain the existing opportunities for hikers and equestrian users to travel cross country. It also prevents the creation of new disturbances and potentially new trails along a fence line.

3.6.2.2 Alternative B

This alternative proposes fall use and is likely to increase interactions between livestock and recreationists during the hunting season. Recreation use in the area is highest during the hunting

season. However, the proposed limited season of use would reduce interactions between livestock and recreationists throughout the rest of the year. During periods of no livestock use, effects would be minimal on both the Trout Springs and Hanley FFR Allotments. As conditions of the area improve due to fewer AUMs and a limited season of use, visual qualities would also begin to improve throughout the area, thus creating a more positive recreation experience. Improved conditions could also potentially result in increased hunting success as more wildlife utilize the area.

The proposed range improvements would have some effect on recreationists. The construction of approximately 1.5 total miles of fence combined in Pasture 3 (0.5 miles) and Cottonwood Headwaters Exclosure (1 mile), as well as gap fencing in Pasture 2A could reduce opportunities for cross-country travel for hikers and equestrian users. There is no developed trail system in the area that would be affected by the fence construction. Construction of the exclosure would provide recreational opportunities free from livestock and similar to those identified for the Trout Springs Exclosure. The 4 mile let-down fence reconstruction in Pasture 2A would have minimal effects on recreationists. This fence currently exists and is simply being modified and/or slightly relocated and would not introduce any new effects to recreationists with the exception of possibly some short-term visual disturbance.

In addition to those projects, a buck and pole/rock gap fence would be constructed to prevent livestock access to the North Fork Owyhee River. This would have a negligible impact to recreationists. The barrier could reduce opportunities for cross-country travel for hikers and equestrian users; however, the fence would only be approximately 100 feet in length. The elimination of livestock from the river corridor and improved riparian habitat and scenic quality would create a more positive experience for recreationists within the wilderness area and wild river corridor. There are no other proposed range improvement projects or juniper treatment projects identified within the North Fork Owyhee Wilderness Area.

Hunting and camping would likely be affected during juniper treatment operations. Depending on the time (August-October and early spring) of broadcast and/or jackpot burning, big game hunters and campers in the area may experience helicopters, BLM crews, vehicles, noise, and smoke in the vicinity. Sightseers in the area would also be affected during operations, in particular, those that are traveling Backcountry Byway. Travelers along the Byway may experience some delays during burning operations. Approximately 1,219 acres west of Mud Flat Road would be included within a broadcast perimeter. In the long term, juniper treatment operations would be beneficial to the overall health of the area, in turn benefitting hunters, sightseers, and other recreationists.

With the collective strategy of fewer livestock, reduced AUMs, and a limited season of use, there would be fewer interactions between livestock and recreationists overall. As a whole, conditions of the area would also improve which positively benefits visual qualities throughout the area, thus creating a more enjoyable recreation experience. Improved wildlife habitat conditions would increase wildlife viewing opportunities and potentially result in increased hunting success.

3.6.2.3 Alternative C

This alternative would provide the greatest benefit to recreationists on the Trout Springs and Hanley FFR Allotments. There would be no interaction between livestock and recreationists, and as the overall conditions of the area improved so would visual quality, thus creating a more enjoyable recreation experience. Improved wildlife habitat conditions would increase wildlife viewing opportunities and potentially result in increased hunting success.

There would be no proposed range improvement projects so no effects of new structures on recreationists would occur. Effects to recreationists as a result of juniper treatments would be the same as those identified in Alternative B.

3.6.2.4 Alternative D

Effects to recreationists would be minimal. The reduction in livestock numbers would decrease the chances of recreationists encountering livestock; however, the longer grazing season would increase the time recreationists could see livestock.

Overall, upland vegetation would be expected to slowly improve in the long term, which will in turn improve visual qualities throughout the area and provide for a higher quality recreation experience. In addition, riparian habitat is expected to improve in the long term. Improved wildlife habitat conditions would increase wildlife viewing opportunities and potentially result in increased hunting success.

The effects to recreationists as a result of the proposed range improvement projects, gap fencing within wilderness, and juniper treatment strategies would be the same as those identified in Alternative B.

Effects to the Hanley FFR Allotment are the same as those identified in Alternative B.

3.6.2.5 Alternative E

This alternative would be similar to Alternative B, with the only difference being fewer livestock. With the collective strategy of fewer livestock, reduced AUMs, and a limited season of use, interaction between livestock and recreationists would be further reduced. During periods of no livestock use, minimal effects would be expected. Overall, conditions of the area would improve which positively benefits visual qualities throughout the area, thus creating a more enjoyable recreation experience. Improved wildlife habitat conditions would increase wildlife viewing opportunities and potentially result in increased hunting success.

Effects associated with range improvements, gap fencing, and juniper treatment projects would be the same as Alternative B.

Effects to the Hanley FFR Allotment are the same as those identified in Alternative B.

3.7 Visual Resource Management

3.7.1 Affected Environment – Visual Resource Management

The Visual Resource Management (VRM) classes within the Trout Springs Allotment consist of the following: Class I (1,723 acres) which includes the small portion of wilderness within the allotment, Class II (970 acres), Class III (2,649 acres), and Class IV (23,484 acres).

Within the Hanley FFR Allotment there is primarily VRM Class III (55 acres), with some Class II (8 acres) lands. The 63 acres of public land on the Hanley FFR Allotment is an isolated BLM parcel adjacent to the Backcountry Byway and developed private property. Although the allotment is prominent due to its location, the scenic contribution of the public land in the context of the broader landscape is minimal.

The VRM Class I objective is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic of the landscape should be very low and must not attract attention.

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 would reduce the projects' visual effects to the natural landscape (USDI-BLM 1999a).

The objective for VRM Class IV is to provide for management activities which 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 effects with careful location and minimal disturbances. Maintenance, construction and reconstruction of rangeland facilities and vegetation treatment projects are permitted (USDI-BLM 1999a).

3.7.2 Environmental Consequences – Visual Resource Management

3.7.2.1 Alternative A

Continuation of the present grazing practices would have a negative effect on visual conditions throughout the area. Effects to scenic quality would continue to occur throughout the allotments, especially in areas of substantial livestock use where vegetation is more heavily trampled and degraded. Visual quality within the allotments would continue to be affected while upland

vegetation and riparian Standards are not being met. The North Fork Owyhee River corridor would continue to be affected visually as livestock could continue to access the river corridor and potentially degrade the natural resources and Outstandingly Remarkable Values (ORVs) within the corridor. Throughout much of the Trout Springs Allotment these effects would be considered acceptable with the VRM objectives; however, within the designated wilderness area and the wild North Fork Owyhee River corridor scenic quality must be retained or improved.

There are no proposed range improvement projects or juniper treatment projects under Alternative A; therefore, no additional effects to visual resources would occur.

3.7.2.2 Alternative B

The effects associated with the change in livestock grazing would be beneficial to visual resources throughout the area. Fewer AUMs combined with a limited season of use would improve the overall health and visual quality of the allotment. However, this alternative proposes a late season of use which could be slightly more beneficial to visual resources as livestock are absent during spring and summer growing seasons, benefitting vegetation throughout the allotment. Areas that are currently improving would continue to do so, and areas that have been impacted by heavy livestock use would also begin to show improvement.

The proposed range improvements would have some short-term negative visual effects as new areas of disturbance are created. However, these types of man-made features are substantially unnoticeable except at very close distances because of the excellent vegetative screening and rugged topography throughout much of the allotment. In the long term, the new developments would improve livestock management and distribution which would improve ecological health, and scenic quality throughout the allotment. These effects are permitted and considered acceptable with the VRM objectives for this area (USDI-BLM 1999a).

Construction of gap fencing within the wilderness to restrict livestock access into the North Fork Owyhee River corridor would have negligible effects to scenic quality within the area due to the excellent topographic and vegetative screening. The impacts of gap fencing would be minimal as the construction would be less than 100 ft in length and would also be constructed using native materials in order to make the fence as unobtrusive as possible. Overall this project would be consistent with VRM class I objectives identified in BLM Manual 8431-1, the level of change to the existing landscape due to the construction of the gap fencing would be extremely low and would not attract attention.

In the long term the fence prevents the degradation of ORVs within the wild river corridor, which would in turn improve scenic quality, which is one of the key values in ORVs, and the overall ecological health of the wilderness area and the wild river corridor. BLM would minimize effects by using the minimum tool policy as described in BLM Manual 8560 (Sec .13), for construction within the wilderness. This gap fence would also be consistent with RECT 7 of the 1999 RMP.

The proposed juniper treatment project work is located within Class III and IV VRM categories; vegetation treatment projects are permitted under the VRM classifications for area. It should

also be noted that the Omnibus Public Lands Management Act (OPLMA) [Sec. 1503(10)(B)] states that: *"The fact that non wilderness activities or uses can be seen or heard from areas within a wilderness area designated by this subtitle shall not preclude the conduct of those activities or uses outside the boundary of the wilderness area."*

The results of juniper treatment projects are somewhat subjective when it comes to visual resources; this is due to the fact that beauty is in the eye of the beholder. While some may yearn for densely populated juniper forests, others may desire open areas and scenic vistas. With the proposed projects, the BLM would achieve both while at the same time accomplishing management objectives, preserving old growth juniper, and restoring mahogany and aspen stands throughout the area.

Juniper treatment projects would have extensive effects on visual resources. An estimated 50-70% 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% of the existing seral juniper as well as old growth juniper and mahogany stands would remain and assist in maintaining the scenic quality throughout the area.

During juniper treatments, for a period of several years, effects to visual resources would be minimal. Hand-cutting would create the most noticeable short-term effects. These effects would end after trees are burned and perennial grasses recover. However, in low density juniper areas the slash would be left on site and not burned. Dead junipers scattered across the landscape would be noticeable for several years, and some would be apparent for the foreseeable future. In addition, the visual effect of the cut trees would be reduced somewhat by cutting the stumps within eight inches of ground level, and lopping and scattering the trunk and branches.

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.

Burning would have short-term effects on the visual resources within the project area. During operations, the Backcountry Byway would be affected by smoke and BLM crews working in the area. Once burning operations were completed, fire-blackened areas and dead vegetation would be noticeable for several years. Visitors within the immediate area would see charred to partially charred tree skeletons and blackened earth and rock. Partially burned trees could retain redden dead foliage for several years after the project. However, visual effects would improve over time after grasses and shrubs begin to reestablish. The use of fire in the vegetation treatments would give the area a more natural appearance. In the long term, burning would improve the overall health and scenic quality of the area.

The addition of a water haul site within the Trout Springs Allotment would likely create some small areas of disturbance. However, the long-term effects would provide improvement in the distribution and management of livestock, which would improve the overall ecological health

and scenic quality throughout the allotment as a whole. These effects are considered acceptable with the VRM objectives for this area.

Visual resources on the Hanley FFR Allotment would improve because of a one month season of use and improvements to Standards 1, 4 and 8. Areas that are currently improving would continue to do so, and areas that have been affected by heavy livestock use would also begin to show improvement.

3.7.2.3 Alternative C

Alternative C would provide the greatest amount of benefits to visual resources across the board. There would be no effects to upland vegetation and riparian areas from livestock, thus improving the overall health and visual quality throughout both allotments.

There would be no proposed range improvement projects. Effects to visual resources as a result of juniper treatment strategies would be the same as those identified in Alternative B.

3.7.2.4 Alternative D

Effects to visual resources would be minimal. Upland and riparian vegetation would slowly improve in the long term benefiting visual quality throughout the area.

The effects to visual resources as a result of the proposed range improvement projects, gap fencing within wilderness, and juniper treatment strategies would be the same as those identified in Alternative B.

Effects to the Hanley FFR Allotment are the same as those identified in Alternative B.

3.7.2.5 Alternative E

Alternative E would be similar to Alternative B, with the only difference being fewer livestock. Areas that are currently improving would continue to do so, and areas that have been affected by heavy livestock use would also begin to show improvement.

Effects associated with range improvements, gap fencing, and juniper treatment projects would be the same as Alternative B.

Effects to the Hanley FFR Allotment are the same as those identified in Alternative B.

3.8 Wilderness/Wild and Scenic Rivers

3.8.1 Affected Environment – Wilderness/Wild and Scenic Rivers

The North Fork Owyhee Wilderness is approximately 43,413 acres in size and roughly 1,170 acres lie within the northern portion of the allotment. In 2009, this area was designated as wilderness through Omnibus Public Land Management Act of March 30, 2009 (OPLMA). The North Fork Owyhee Wilderness comprises 4% of the allotment.

The wilderness area consists of rugged juniper hills and a flat plateau dissected by numerous canyons. Approximately 15 miles of the North Fork Owyhee River meanders throughout the wilderness area. This section of river was designated as a "wild" river in OPLMA. Special features recognized for the North Fork Owyhee Wilderness area include exceptional scenic quality because of its spectacular sheer-walled canyons and rock outcrops highlighted with gnarled juniper. Sensitive wildlife species are also included as special features in the wilderness area (USDI-BLM 1999a).

Regulations administering management of wilderness areas specify that they be managed in a manner that preserves and protects wilderness characteristics and values. Wilderness values include: solitude, naturalness, opportunities for primitive and unconfined recreation, and the presence of special features that enhance wilderness values. The North Fork Owyhee Wilderness contains naturalness, outstanding opportunities for solitude due to excellent topographic and vegetative screening, outstanding opportunities for primitive and unconfined recreation, and supplemental values such as scenic, geological, ecological, and historic and prehistoric sites.

BLM Manual 8560 [Sec .08 (A)(1)] states that "The Wilderness Act directs that wilderness areas be managed to provide for their protection, the preservation of their natural conditions, and the preservation of their wilderness character" which include naturalness and outstanding opportunities for solitude and/or primitive and unconfined recreation. The continuation of existing grazing, in accordance with [Sec 4(d)(4)(2)] of the Wilderness Act provides for continued livestock grazing where established prior to designating the area as wilderness. The objective of livestock management in wilderness is to utilize the forage resource in conformity with established wilderness objectives for each area and BLM grazing regulations (43 CFR 4100), and through practical, reasonable and uniform application of the congressional guidelines and policy (BLM Manual 8560).

The North Fork Owyhee River serves as the northern boundary of the Trout Springs Allotment for 5.4 miles. Livestock are able to access the river at one verified location along the top of the southern rim of the North Fork Owyhee River near the Pleasant Valley Allotment. The North Fork Owyhee River contains a multitude of ORVs including scenic, recreational, geologic, and wildlife values (USDI-BLM 1999a). ORVs are defined as those characteristics that make the river worthy of special protection.

Regulations administering the management of Wild and Scenic Rivers specify that the corridors be managed in a manner to preserve and protect the values of the river corridor which make it outstandingly remarkable while providing river related recreational opportunities in a primitive setting. Within Wild and Scenic River corridors agricultural use is limited to that amount of domestic livestock grazing permitted prior to designation (BLM Manual 8351).

The Hanley FFR Allotment does not have Wilderness or Wild and Scenic Rivers and will not be discussed further.

3.8.2 Environmental Consequences – Wilderness/Wild and Scenic Rivers

3.8.2.1 Alternative A

Under the current situation, this area was designated wilderness based upon Wilderness Criteria and the recommendation of the 1991 Wilderness Study Report. Naturalness and scenic quality are two wilderness criteria affected by livestock grazing. Recognizing these criteria and understanding that grazing is an allowable grandfathered use within the North Fork Owyhee Wilderness, BLM must manage public lands to meet Standards as well as to protect and enhance wilderness characteristics. Alternative A is expected to meet wilderness criteria in the short term, because conditions are similar to those when the Wilderness was designated. However, in the long term, as riparian and upland vegetation continue to decline (as indicated by not meeting Standards) along with the values these plant communities provide, the wilderness criteria of naturalness and scenic quality would not be protected or enhanced, as required by the Wilderness Act.

Livestock would continue to access the North Fork Owyhee River corridor from the Trout Springs Allotment, which could potentially lead to the degradation of the river's ORVs. Riparian habitat, stream bank, and water quality degradation would affect the naturalness and scenic quality of the river corridor.

3.8.2.2 Alternative B

Changes in upland grazing would benefit the area's wilderness characteristics. Fewer AUMs combined with a limited season of use would improve the overall health and scenic quality within the North Fork Owyhee Wilderness, thus improving the naturalness of the wilderness (see Section 3.2.2.2). The late season of use would be more beneficial to the overall health and scenic quality, thus improving the naturalness. As livestock are absent during spring and summer growing seasons, vegetation in the uplands as well as riparian areas throughout the allotment would improve. Areas that are currently improving within the wilderness would continue to do so, and areas that have been impacted by heavy livestock use would also begin to show improvement.

Range improvements occurring throughout the allotment, outside the wilderness area, may provide improvement in the distribution and management of livestock, which would help improve the overall ecological health, scenic quality, and naturalness throughout the allotment as a whole.

This alternative would also allow for a water haul site within Pasture 3. The water haul site would not be located within the wilderness; thus, there would be no impact on the wilderness or wild and scenic rivers due to this action.

Gap fencing for natural resource protection would occur within the North Fork Owyhee Wilderness area which would affect the area's naturalness as construction of the gap fence would leave an imprint of human work within the wilderness area. However, the fencing would be less than 100ft in length and would eliminate the access point cattle have from the Trout Springs Allotment to the river corridor. Gap fencing would also be constructed using native

materials in order to make the fence as unobtrusive as possible. The fencing would have a positive effect to the wilderness area and wild river corridor overall as conditions throughout the river corridor improve due to restricted livestock access. The fencing would have no impact on the areas solitude and primitive and unconfined recreation. Impacts to the areas naturalness and scenic value would be negligible due to the excellent topographic and vegetative screening of the area.

Fencing would be in conformance with RECT 7 of the ORMP which states: *"…Prohibit the construction of new rangeland (livestock, watershed, and wildlife) facilities within the primitive settings of the SRMA lands associated with the Owyhee River system, except for a maximum of one linear mile of gap fences if needed to exclude livestock from river corridors."*

The gap fencing would be very beneficial to wilderness and wild and scenic values as the fencing would prohibit livestock from accessing the North Fork Owyhee River corridor. This would protect the wilderness character and the ORVs of the "wild" river corridor. Naturalness and the scenic quality value would benefit most from this proposed project as riparian vegetation improves. Much like wilderness characteristics, it's the BLM's responsibility to protect and enhance the ORVs of a wild and scenic river. BLM manual 8351 Section .51 (D) states that: *"Each component of the National Wild and Scenic Rivers System shall be administered in such a manner as to protect and enhance the values which caused it to be included in said system without, insofar as is inconsistent therewith, limiting other uses that do not substantially interfere with public uses and the enjoyment of these values. In such administration, primary emphasis shall be given to protecting its esthetic, scenic, historic, archeologic, and scientific features."*

Section .51(A)(2) also states that: *"Developments such as trail bridges, occasional fencing, natural-appearing water diversions, ditches, flow measurement or other water management devices, and similar facilities may be permitted if they are unobtrusive and do not have a significant direct and adverse effect on the natural character of the river area."*

Overall, the benefits of the gap fencing would far outweigh any negative effects associated with the proposed project as naturalness, scenic quality, riparian habitat, water quality, fisheries and the overall ecological health of the wilderness and wild river corridor improve. The construction of gap fencing is permissible [Manual 8560 Sec .37 (2)], and would be necessary for resource protection and effective management of the wilderness and the wild and scenic river corridor. Because fencing would be constructed using native materials and the minimum tool policy as described in BLM Manual 8560 (Sec .13), effects would be minimal to the area's wilderness character.

The fencing is also permissible House Report No. 101-405 which states: *"The construction or new improvements or replacement of deteriorated facilities in wilderness is permissible if in accordance with these guidelines and management plans governing the area involved. However, the construction of new improvements should be primarily for the purpose of resource protection and the more effective management of these resources rather than to accommodate increased numbers of livestock."*

This House Report is documented in the OPLMA bill which states that: *"In the wilderness areas designated by this subtitle, the grazing of livestock in areas which grazing is established as of the date of enactment of this Act shall be allowed to continue, subject to reasonable regulations, policies, and practices as the Secretary considers necessary, consistent with section 4(d)(4) of the Wilderness Act (16 U.S.C. 1133 (d)(4) and the guidelines described in Appendix A of House Report 101-405."*

Manual 8560 also acknowledges a nearly identical set of Congressional Grazing Guidelines in Section .15 (G)(2) which states: *"Congressional Grazing Guidelines regarding "Grazing in National Forest Wilderness Areas" published in House Report 96-1126, dated June 24, 1980, must be implemented in all BLM-administered wildernesses with pre-existing grazing."*

A Minimum Requirements Decision Guide (MRDG) was used to evaluate the proposed 100ft gap fence within the North Fork Owyhee wilderness that would be used to restrict domestic livestock access into the wild river corridor and is provided in Appendix L. It was determined that, according to the Congressional Grazing Guidelines, the ORMP, and BLM Manual 8560, the construction of the gap fence was warranted, given that the primary purpose of the fence was for the protection of natural resources and the more effective management of the resources rather than to accommodate increased numbers of livestock.

Juniper treatment projects are not planned for the wilderness area, although prescribed fire could inadvertently carry into the wilderness area. However, without pretreatment cutting, there would be minimal fuel on the ground so fire would not be expected to carry into the wilderness area. In the small chance that fire did carry over into the wilderness, naturalness and solitude would be the most likely wilderness characteristics to be affected, as well as the scenic and ecological special features. The area's naturalness would be impacted in the short-term until vegetation recovers. However, to the casual observer recreating within the wilderness, the area would appear to have been burned by a natural event. Depending on the percentage of vegetation burned throughout the area, solitude could be affected as well, as vegetative screening is part of what contributes to the area's solitude. In the short-term the area's scenic value could be impacted until vegetation recovers. Again, fire is not expected to carry within untreated areas and it is highly unlikely to have a crown fire, particularly in old growth stands. Additionally, the Grasshopper wildfire which occurred in the summer of 2012 will help provide crews a buffer, as this fire carried into a portion of the North Fork Owyhee Wilderness and impacted old growth stands. The already blackened area, due to the Grasshopper fire, along the wilderness boundary reduces the chances of a crown fire carrying into wilderness and threatening more old growth juniper. However, although highly unlikely, if indeed prescribed fire carried into wilderness, the potential loss of some old growth juniper trees located within the wilderness area could impact a small portion of the climax juniper system identified as a special feature in the North Fork Wilderness.

OPLMA states that "The fact that non wilderness activities or uses can be seen or heard from areas within a wilderness area designated by this subtitle shall not preclude the conduct of those activities or uses outside the boundary of the wilderness area" [Sec. 1503(10)(B)].

3.8.2.3 Alternative C

This alternative would provide the greatest benefit to wilderness characteristics. There would be no effects to upland vegetation and riparian areas from livestock, thus improving the overall health, naturalness, and visual quality throughout the entire allotment.

No range improvement projects would occur. Effects associated with juniper treatment projects would be the same as those described in Alternative B.

3.8.2.4 Alternative D

Impacts to wilderness character would be similar to those identified in Alternative B.

Effects associated with range improvements, gap fencing within wilderness, and juniper treatment projects would be the same as those described in Alternative B.

3.8.2.5 Alternative E

Changes in grazing under this alternative would benefit the area's wilderness characteristics, similar to Alternative B, with even greater improvement due to lower overall use.

Effects associated with range improvements and juniper treatment projects would be the same as Alternative B.

3.9 Lands with Wilderness Characteristics

3.9.1 Affected Environment – Lands with Wilderness Characteristics

Lands with wilderness characteristics (LWC) are lands that have been inventoried and determined by the BLM to contain wilderness characteristics as defined in Section 2(c) of the Wilderness Act. In order for an area to be classified as an LWC, it must possess sufficient size (>5,000 acres), naturalness, and outstanding opportunities for either solitude and/or primitive and unconfined recreation. In addition, it may also possess supplemental values, such as ecological, geological, or other features of scientific, educational, scenic, or historical value.

As directed by Section 201 of FLPMA, BLM began an inventory of public lands identifying LWCs in the 1970s. The OFO has approximately 100 separate units that were each assessed for wilderness characteristics through a public process. An update of the 1970s inventory, which is required by FLPMA, is currently ongoing. Units within the Trout Springs Allotment have recently been updated and those findings are reflected in this document. The Trout Springs Allotment consists of portions of three units that contain LWC. These units are identified as:

106-42 - Squaw Creek Canyon
106-45 - Middle Fork Owyhee
106-47 - West Fork Red Canyon

Portions of Units 106-42, 45, and 47 were all part of three Wilderness Study Areas (WSAs): Middle Fork Owyhee River, Squaw Creek Canyon, and West Fork Red Canyon. In 2009, Congress passed OPLMA designating more than 500,000 acres of wilderness in Owyhee County. OPLMA also released several WSAs, including Middle Fork Owyhee River, and Squaw Creek Canyon, and West Fork Red Canyon and opened these lands up to other uses, as per the recommendation of the 1991 Idaho Wilderness Study Report (USDI-BLM). All three recommendations in the report contained the following language:

> *"Wilderness designation would reduce the flexibility necessary to improve the ecological condition of plant communities through vegetative manipulation."*
>
> *"The long term protection of multiple-use objectives in the WSA is dependent upon restoring good ecological condition to plant communities through vegetative manipulation."*

Units 106-42, 45, and 47 within the Trout Springs Allotment which were identified as having LWCs are listed and described below:

Unit 106-42 – Squaw Creek Canyon –
The unit contains 20,966 BLM-administered acres with two State inholdings and a finger of private land on the North. A small section in the northwest portion of the unit borders Oregon, however the two states are separated by a fence line running the length of the unit boundary which is approximately 1 mile long. The land on the Oregon side is a mixture of private and State.

The unit is located on well dissected terrain sloping northwest from Juniper Mountain. Relatively flat ridges and benches are interspersed with steep sloping drainages. The canyon of Squaw Creek, along with several major tributary drainages, are the dominant topographic feature. Relatively dense stands of juniper occupy a major portion of the unit, with the exception of rocky canyon areas and scattered ridge top openings. Dense riparian vegetation occurs in the canyons. The southern portion of this unit was part of the Squaw Creek Canyon Wilderness Study Area and was later released in 2009.

Improvements within the unit include several unsubstantial fence lines, six spring developments, a reservoir and a corral, which are all located in the eastern portion of the unit. In the extreme southern portion of the unit is a primitive route and developed spring with a fenced exclosure. Short fence lines on the east and a number of primitive routes in the northwest and western portion of the unit constitute other human imprints within the unit. Along the eastern periphery of the unit there are two cabins, a fenced livestock holding field, a fence along the Bedstead Ridge road, as well as a small reservoir located in the NE corner of the unit.

The imprints of man are minor, and significant impacts are primarily located along the periphery of the unit. The area is substantially free of significant evidence of human influence.

Although the modified unit has private land fingers on the north and south, its size, configuration, and good to excellent topographic and vegetative screening provide outstanding opportunities for solitude.

Recreational opportunities include camping, backpacking, hiking, photography, sightseeing, fishing, hunting, wildlife observation, and horseback riding. The diversity and quality of these opportunities is considered outstanding. The presence of recreational attractions throughout the unit makes the area appealing for multiple day trips within the area.

Unit 106-45 – Middle Fork Owyhee River

This unit contains 17,485 BLM-administered acres in a rectangular configuration. The topography of the unit gradually changes from gently rolling hills and tablelands covered with desert shrubs and scattered juniper in the west to rugged mountainous terrain covered with dense stands of juniper in the east. The unit encompasses most of the upper drainages of the Middle Fork Owyhee River. The canyons are typically steep walled and narrow with heavy riparian vegetation. This unit was part of the Middle Fork Owyhee River Wilderness Study Area and was later released in 2009.

The unit is used for grazing. There are a number of routes and fence lines (some bladed) in the north and west sides of the unit. These routes and fences penetrate but do not bisect the unit. There are also five spring developments, including one developed by the Civilian Conservation Corps.

These intrusions generally affect the periphery of the unit. However, the majority of the unit retains its natural character. The impacts of the intrusions are localized because of topographic and vegetative screening.

The relatively large size and good configuration of the unit combined with excellent topographic and vegetative screening afford outstanding opportunities for solitude.

Primitive and unconfined recreational opportunities within the unit are primarily associated with the Middle Fork Owyhee River. These opportunities consist of backpacking, photography, sightseeing, horseback riding, hunting, and fishing. The quality of recreational opportunities is considered outstanding because of the exceptional or unusual natural features and recreational attractions within the unit.

Unit 106-47 – West Fork Red Canyon

This unit contains 31,590 acres, 98% of which is BLM administered. The unit is located on the relatively steep southern slope of Juniper Mountain. The topography is broken up; major drainages include the East and West Forks of Red Canyon, as well as Bear, Pete's, and Cow Creek. Bull Basin occupies the south central portion.

The unit is bisected by a route and a fence line that runs north and south across the entire unit, thus dividing it into an eastern and western portion. The western portion of the unit is a very rugged mountainous region with "V" shaped canyons, while the eastern portion is a moderately eroded high plateau. A dense cover of juniper with scattered openings dominates the vegetation in the unit, with the exception of the extreme southern portion where shrub species are dominant. There are more than 15,000 acres within the western portion that appear to be affected primarily by the forces of nature. The western portion of this unit became part of the West Fork Red Canyon Wilderness Study Area and was later released in 2009.

The eastern portion contains four substantial fence lines and four routes that penetrate into the core of the unit. The western portion contains two routes and a short fence line that intrudes the unit in the SW periphery. There are two small exclosures and in State inholding in the NE periphery of the western portion. Intrusions are few, not substantial, and peripheral. Users traveling within the core of the western portion of the unit are very unlikely to encounter substantially noticeable human imprints.

The >15,000 acres in the western portion of the unit contains vegetative screening that is excellent as a whole, with the exception of the extreme southern portion where high desert shrubs dominate. Dense stands of juniper dominate most of the unit. The broken, well dissected terrain provides excellent topographic screening. The western portions adequate size, good configuration and generally excellent topographic and vegetative screening provide outstanding opportunities for solitude.

Primitive opportunities within the unit include: backpacking, photography, sightseeing, horseback riding, hunting, fishing, and wildlife observation. Mule deer hunting may be considered outstanding; the combination of good habitat and broken, challenging country provides excellent hunting and other recreational opportunities.

The diversity of recreational attractions and the opportunity for hunting and other types of recreation render the opportunities for primitive and unconfined recreation outstanding

3.9.2 Environmental Consequences – Lands with Wilderness Characteristics

3.9.2.1 Alternative A

Effects to LWCs would include degraded riparian, upland, and wildlife habitat, which would appear to have been affected by domestic livestock. This management strategy could impact (cause to become worse or better) the naturalness of LWCs identified in Units 106-42, 45, and 47 if grazing standards are not met. Additionally, juniper encroachment would continue to occur throughout the area under this alternative, affecting the ecological health of upland and riparian plant communities throughout the area and their natural appearance. There are no proposed range developments under this alternative; therefore there would be no additional impact or impairment of LWCs. There would be no impacts to solitude or primitive and unconfined recreation in this alternative. This alternative would have long-term impacts due to grazing and juniper effects, but not to the extent that they would impair (preclude units from being identified as having LWCs) the LWCs.

3.9.2.2 Alternative B

LWCs are likely to improve with the proposed grazing system under this alternative. Overall the conditions of the area would improve due to the proposed fewer AUMs combined with a limited season of use. This would improve ecological health, visual quality, and naturalness throughout the area.

Proposed range improvements would have some minor impact on the area's naturalness throughout the allotment; however, these projects would not impair the LWCs because they are generally inconspicuous. Many of these types of projects currently exist throughout the allotment and do not hinder the area's wilderness characteristics. Because of the excellent vegetative screening and rugged topography throughout much of the allotment and minimal construction impacts these types of man-made features are substantially unnoticeable except at very close distances. In addition, the natural features of the area are so prominent and of such high interest that the casual observer tends to overlook the imprints of man in favor of examining the natural features. Solitude and primitive and unconfined recreation would not be impacted as a result of these projects.

The long-term effects from the new developments would improve livestock management and distribution throughout the allotment, thus improving the area's ecological health, naturalness, and scenic quality. There would be no impairment of LWCs.

Juniper treatments throughout the area would have short-term impacts to LWCs. Naturalness is the characteristic most likely to be affected by the proposed project. During juniper treatments, hand-cutting would create stumps and slash, the most noticeable short-term effects. Visual effect is not expected to be substantial because the stumps would be cut within eight inches of ground level and slash will not be piled. These effects would end after the prescribed burn and perennial grasses recover. Areas where the slash is left on site and not burned would take several years to regain a more natural appearance.

The girdling of trees would provide the landscape with a more natural appearance as trees slowly expire, which helps maintain the naturalness and visual characteristics of the area. Girdling, as opposed to the dropping of trees on site, gives casual observers/sightseers within the vicinity the appearance that the area was once burned by wildfire.

Effects to solitude as a result of the juniper treatment operations are considered minimal. Juniper treatment projects would reduce an estimated 50-70% of seral junipers, which would reduce some of the opportunities for solitude throughout the units. However, with considerable vegetation remaining and the rugged topography of the units, opportunities for solitude would still be considered outstanding. Short-term impacts would also occur during treatment operations while crews were in the area, potentially reducing opportunities for solitude; however these impacts are temporary and considered negligible.

There would be no effects to opportunities for primitive or unconfined recreation as a result of the juniper treatment projects.

Overall, the proposed projects would control the encroachment of juniper and improve riparian and vegetative health conditions throughout the area, restoring existing shrub steppe, aspen and riparian communities. This in turn would enhance LWCs by restoring the area to its more natural state. Although some minimal impacts are expected in the short term, there would be no long-term impairment of LWCs within the units.

3.9.2.3 Alternative C

Alternative C would provide the greatest amount of benefits to LWCs. There would be no affects to upland vegetation and riparian areas from livestock, thus improving the overall health, naturalness, and scenic quality throughout the area.

There would be no effect to LWCs from proposed range improvement projects under this alternative. Effects to LWCs as a result of juniper treatments would be the same as those identified in Alternative B.

3.9.2.4 Alternative D

Effects to LWCs would be minimal. Upland and riparian vegetation would slowly improve in the long term benefiting ecological health, visual quality, and naturalness throughout the area.

The effects to LWCs as a result of the proposed range improvement projects and juniper treatments would be the same as those identified in Alternative B.

3.9.2.5 Alternative E

Alternative E would be similar to Alternative B, with the only difference being fewer livestock.

The effects to LWCs as a result of the proposed range improvement projects and juniper treatments would be the same as those identified in Alternative B.

3.10 Cultural Resources

3.10.1 Affected Environment – Cultural Resources

The Juniper Mountain area is a landscape that has been associated with humankind for thousands of years. The land provided aboriginal peoples and, later, Euro-American settlers resources to construct suitable dwellings and meet their subsistence needs. Prehistoric artifacts in the area indicate a focus on hunting with earliest use at least three thousand years ago. Ancestors of the Shoshone and Paiute peoples used this and surrounding areas for camping and subsistence activities for centuries and the Shoshone and Paiute Tribes retain an active interest in their traditional lands and claim aboriginal title to them. Historically and into the present, Euro-Americans have used the area for livestock grazing and other commercial enterprises. More recently, the area has become increasingly popular for recreational purposes and this use has added to the potential risks faced by cultural resources.

Archaeological sites are considered one of several classes of cultural resources. They demonstrate past human activities, promote a sense of cultural heritage, and are managed accordingly as historic properties. Section 106 of the NHPA, (specifically 36 CFR 800) directs agencies such as the BLM to consider impacts to cultural resources, and allows State Historic Preservation Offices (SHPO) to comment before decisions are implemented.

Twenty cultural resource inventories have been conducted in the Trout Springs Allotment since 1989 with slightly more than 33% of the allotment having been systematically surveyed. Within the allotment, a total of ten prehistoric and two historic cultural sites have been recorded in addition to two isolated features that do not contain artifacts but are likely indigenous. Thirty-one isolated artifacts have also been recorded; three of these were historic artifacts and the rest were prehistoric. The known site density for the allotment is low given the amount of survey that has been done. In addition to previous surveys for a variety of small projects, Pastures 1A, 1B and 3 were extensively inventoried during 2009, Pasture 2 in 2010, and the northern half of Pasture 2 in 2011. All proposed range projects (not including juniper treatments) were inventoried in 2010 and no cultural resources were identified. There are no sites within the allotment that are on the National Register of Historical Places (NRHP) and there are no recorded or known traditional cultural areas. One cultural inventory has been completed within a portion of the Hanley FFR Allotment and no cultural sites were discovered as a result. Surveys and their findings are subject to consultation with the State Historic Preservation Office (SHPO).

Because there are few sites identified in the allotment, and most have been recorded within the last decade, only one site has been monitored. It was originally recorded in 1976 and was described as having major cattle disturbance and a salt lick adjacent to the site. Archaeologists revisited the site in 2010 and no livestock disturbances were observed. Cattle had only been absent from the allotment since 2007, suggesting that disturbance to the site was already reduced before grazing cessation and that soil and vegetation recovery was relatively rapid (within a few decades). Past surface artifact breakage and displacement cannot be reversed after they have occurred. However, limited monitoring suggests that even more intensive grazing along congregation areas may not cause disturbance to the point of changing aspects by which sites may meet criteria for NRHP Eligibility. Also, disturbances that might eventually change eligibility, such as severe erosion, can be mitigated even with minimal grazing restrictions such as attempting to separate cattle congregation areas from known archaeological sites and maintaining AUMs at levels that allow for adequate soil and vegetation cover.

Native American Religious Concerns

The Shoshone-Paiute Tribes of the Duck Valley 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 effects to the earth and its natural environment are of concern to the Shoshone-Paiute Tribes.

3.10.2 Environmental Consequences – Cultural Resources

3.10.2.1 Alternative A

No range improvement projects or juniper treatments would be implemented, thus no effects would occur from such undertakings. However, as juniper continues to encroach, vegetation, soil, and fire regime changes could lead to increased wind and water erosion over a span of decades that could impact sites through increased erosion.

Trailing would occur along the Mud Flat Road, but there are no known sites along the road and any disturbance beyond the currently disturbed road bed and verge would be minimal with impacts similar to and no greater than for grazing, with no significant impacts to sites in terms of NRHP eligibility, aesthetics, or scientific or cultural merits. Trailing impacts would be the same across all alternatives. Mechanical effects to cultural sites from hoof action would continue where livestock tend to trail and congregate. Artifact breakage and minor transport would be possible as a result. Minor horizontal and vertical displacement and minor artifact breakage of surface and shallowly buried artifacts is expected to have already occurred due to wild game trampling, burrowing, and natural erosion as well as cattle activity. Such disturbances are unlikely to affect sites' integrity to the extent that eligibility for the NRHP, scientific merits, or their long-term aesthetic value would be altered. However, trampling can result in erosion that can affect the spatial and temporal integrity of cultural sites, thus potentially compromising information potential and cultural context. This could cause disturbance to stratified sites under certain circumstances. Wet soils can be mixed via hoof action, or previously stable sediments such as old stream terraces can wash away. Very few identified sites in the area have the potential for stratified deposits, and those that do exist were reported in good condition when recorded or monitored while the most recent grazing management was in place, so such effects would not be expected. Spring grazing would result in more frequent congregation at riparian resources, and a longer grazing season could result in decreased plant cover and thus decreased soil stability (see Sections 3.2 and 3.3). If erosion continues and increases due to vegetation loss and trampling, particularly along drainages, additional artifacts and sites could become exposed or disturbed over a span of years or decades (see Section 3.1.2.1).

3.10.2.2 Alternative B

Cattle trampling effects to cultural resources would be similar to Alternative A, though possibly less due to expected increased dispersal away from water sources during cooler weather. Erosional impacts would be ameliorated due to the change in grazing management, particularly with expected improvements to vegetation condition and lessened effects from hoof action on sediments in riparian areas (see Section 3.2.2.2).

Proposed range improvement areas have been surveyed and no known cultural resources will be impacted. While use of prescribed burning treatments could pose some risk to undiscovered combustible or other fire-sensitive cultural resources, no combustible structures or similar resources are known to exist within the proposed areas. Many of the remaining un-surveyed areas in the allotment were not surveyed due to inaccessibility, steep slopes, or rocky terrain that would also make those areas unsuitable for combustible features such as historic structures. Additional areas suitable for sites and accessible for survey would be inventoried before juniper

treatments. These factors and the generally low site density in this area make the chance of inadvertent fire damage to unidentified sites extremely unlikely. Identified sites with the potential for fire damage will be protected using appropriate measures (see Section 2.2.4.1). In the long term, significant cultural resources identified in the planning area could benefit from landscape scale juniper treatments. Sites would become less likely to sustain damage from severe wildfire events and consequent fire suppression activities whereas they could be avoided during prescribed cutting and burning activities. Prescribed fires could pass through sites (those deemed insignificant, not identified during survey, or due to fire escape) temporarily changing their aesthetics and possibly modifying some artifacts or features but frequent and low-fuel burns would be less likely to damage cultural resources than more unpredictable and high-fuel load wildfires. The paucity of sites and general lack of artifact or feature types that are susceptible to fire damage, in conjunction with the incorporation of project design features, should result in there being no significant effects to historic properties as a result of this alternative.

3.10.2.3 Alternative C

There would be no effects over at least a decade from livestock grazing related activities and there would be no range development projects implemented. This would benefit sites since recovery of soils and vegetation would generally help to protect sites' context, matrix, and protective cover and trampling effects from wildlife would likely be minimal. Trailing effects would be the same as in Alternative A. Effects from juniper treatments would be as described in Alternative B.

3.10.2.4 Alternative D

Effects to cultural resources would be similar to those described in Alternative B with slightly greater potential trampling and erosional effects because of the spring season of livestock use when animals would be more likely to congregate at water sources and disturb vegetation and sediments. This could then disturb site context and lead to artifact exposure and breakage at a limited number of sites.

3.10.2.5 Alternative E

Effects to cultural resources would be similar to those described in Alternative B with lower potential trampling and erosional effects because of the reduced livestock use. Fewer AUMs and reduced congregation at riparian areas during the limited fall grazing season would likely result in the recovery of soils and vegetation with positive stabilizing effects similar to, but slightly less than, Alternative C.

3.11 Grazing Management/Socio-economics

3.11.1 Affected Environment – Grazing Management/Socio-economics

The Trout Springs Allotment consists of 27,892 acres of public land and 4,965 Permitted AUMs. In addition there are 65 acres of State land, and 1,515 acres of private land within the allotment boundary. The 1999 RMP identified the Trout Springs Allotment as a Category "I" Allotment

(Improve – improve current unsatisfactory resource conditions with adequate expenditure). The boundary was modified by a settlement agreement in 2003 that removed the V-Pasture with the associated 114 AUMs from the Trout Springs Allotment and reassigned it to the Pleasant Valley Allotment.

Monitoring and billing data and Actual Use Reports submitted by the grazing permittees indicate that the authorized season of use for Pastures 1A, 2, and 3 on the Trout Springs Allotment was not followed between 2002 and 2007 (Appendix E). For example, in 2006, the first cattle entered the allotment on June 14, 2006; on September 30, 2006, 377 cattle (69% of the 549 total) remained on public land within the allotment. As of December 3 that same year, 67 cattle were still unaccounted for. Actual use in 2006 was 2,133 AUMs as submitted by the permittees' actual use records (see allotment files). The 2012 Assessment and Determination for the Trout Springs Allotment found that the allotment failed to meet all applicable Rangeland Health Standards due to livestock grazing and juniper encroachment (Appendix A).

Several range improvements are present on the Trout Springs and Hanley FFR Allotments to help manage livestock. These improvements are important to aid in livestock distribution, control, water, removal, etc. and are essential components for livestock management on these allotments.

The Hanley FFR Allotment includes only 63 acres of public land in the southwest corner, 598 private acres, and 7 AUMs of active use. It is identified in the 1999 ORMP as a Category 'C' Allotment (Custodial – continue protecting existing resource values with minimal expenditures). Annual authorized grazing use has been permitted at the permittee's discretion between March 1 and February 28 (year-long) as long as degradation does not occur on public land.

Economic Profiles

This socioeconomic analysis will focus on Owyhee County, Idaho, where the Trout Springs and Hanley FFR allotments are located, but one permittee who owns cattle maintains a ranch near Jordan Valley, Oregon, (Malheur County) so this county will also be included in the analysis.

Owyhee County is the second-largest county in the state and 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 of Idaho 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 rangeland areas to recreate on weekends and during hunting and fishing seasons. In 2010, the median age in the county was 35.3 years, almost three 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" age range 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 and 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 much 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 3.11.1 shows the unemployment rate, per capita income, median household income, and poverty rate of Owyhee and Malheur counties.

Table 3.11.1 - 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%	$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

Farming, natural resource management, education and social services are the primary sectors for employment in Owyhee and Malheur counties, although manufacturing and retail trade also employ many residents in the counties (Table 3.11.2).

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 3.11.2 - County employment by industry

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%

Industry	Owyhee County, Idaho	Malheur County, Oregon	United States
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 75.88 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 3.11.3 shows the industry classification (based on the North American Industry Classification System (NAICS)) for farms located 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 3.11.3 - Number of Farms by Type, 2007

	Owyhee County, ID	Malheur County, OR	County Region	U.S.
All Farms	620	1,250	2,326	2,204,792
Oilseed & Grain Farming	40	74	114	338,237
Vegetable & Melon Farming	10	57	68	40,589
Fruit & Nut Tree Farming	4	8	13	98,281
Greenhouse, Nursery, etc.	4	8	14	54,889
Other Crop Farming	185	388	627	519,893
Beef Cattle Ranch. & Farm.	247	492	1,005	656,475
Cattle Feedlots	8	34	44	31,065
Dairy Cattle & Milk Prod.	23	35	58	57,318
Hog & Pig Farming	4	10	14	30,546
Poultry & Egg Production	6	4	14	64,570
Sheep & Goat Farming	30	40	89	67,254
Animal Aquaculture & Other Animal Prod.	59	100	266	245,675
Percent of Total				
Oilseed & Grain Farming	6.5%	5.9%	4.9%	15.3%
Vegetable & Melon Farming	1.6%	4.6%	2.9%	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%	27.0%	23.6%
Beef Cattle Ranch. & Farm.	39.8%	39.4%	43.2%	29.8%
Cattle Feedlots	1.3%	2.7%	1.9%	1.4%
Dairy Cattle & Milk Prod.	3.7%	2.8%	2.5%	2.6%
Hog & Pig Farming	0.6%	0.8%	0.6%	1.4%
Poultry & Egg Production	1.0%	0.3%	0.6%	2.9%
Sheep & Goat Farming	4.8%	3.2%	3.8%	3.1%
Aquaculture & Other Prod.	9.5%	8.0%	11.4%	11.1%

Source: *(EPS-HDT 2012)*

Table 3.11.4 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 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, more than 10 percent of the jobs in Malheur County. In both counties, more than half of the cash receipts generated by farms come from livestock and products.

Table 3.11.4 - Farm Earnings, Employment, and Cash Receipts (2011)

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

Source:
1 Bureau of Economic Analysis, Regional Economic Information System (BEA-REIS). 2012. Table CA05: Personal income by major source and earnings by NAICS industry.
2 Bureau of Economic Analysis, Regional Economic Information System (BEA-REIS). 2012. Table CA25N: Total full-time and part-time employment by NAICS industry.
3 Bureau of Economic Analysis, Regional Economic Information System (BEA-REIS). 2012. Table CA45 Farm income and expenses.

In 2010, livestock cash receipts in the state of Idaho totaled $3.23 billion, an increase of 29 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 of Idaho, 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 in the area 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 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 to the Owyhee County economy (Darden etal 1999). 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. 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 as much as $2,695 per year from active-use AUMs. 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). Fees paid to graze on private, non-irrigated grazing land in Idaho in 2011 were $14.50 per AUM[3] (USDA NASS 2012).

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

[3] Includes animal unit plus cow-calf rates; cow-calf rate converted to AUM using (1 AUM = cow-calf *0.833)

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 3.11.5 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 3.11.5 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 3.11.5: Race/ethnicity distribution

	Owyhee County	Malheur County
Total	11,389.0	31,326.0
Population by race		
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%
Two or more races	3.2%	2.7%
Population by ethnicity		
Hispanic or Latino	24.4%	30.3%
Minority	30.82%	35.60%

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

3.11.2 Environmental Consequences – Grazing Management/Socio-economics

3.11.2.1 Alternative A

Direct and indirect effects from grazing management: Livestock grazing would continue with current stocking levels (see Section 2.4.1). This would include an increase from 1,430 Active AUMs (as stated in the 2002 Final Decision and what is currently Active) to 1,988 Active AUMs, which would be activated from the suspended AUMs. No applicable Standards are being met and no current monitoring data supports an increase in AUMs with the current situation. No grazing rotation would occur and no new range improvements would be constructed to improve distribution or livestock control, but range improvement maintenance responsibilities would continue to be required. Livestock management would continue with no changes to livestock management practices, current pastures, rotations, or where/how livestock water. No juniper treatments or prescribed burns would be implemented and no rest would occur on the allotment.

No new range improvements would be constructed, and no change in the season of use would occur. As hot season grazing continues, rangeland health standards would continue to not be met, thereby contributing to the continued decline of resource health and the ability to sustain viable livestock operations.

Livestock grazing would continue with current management on the Hanley FFR Allotment for a total of seven Active AUMs, and no range improvements would be constructed. With prior approval by the Authorized Officer, livestock numbers and season of use could vary at the permittee's discretion as long as resource degradation does not occur on public land. Therefore, no new impacts to livestock operations would occur with implementation of this alternative.

Livestock trailing would allow livestock operators (adjacent permittees, etc.) the opportunity to trail across the Mud Flat Road to access private, state, and federal lands that they control, own, or on which they are permitted. The time authorized would only allow active trailing, but the short distance on BLM land on the allotment would be easily completed.

The change in permitted AUMs would likely have some socioeconomic impact on their operations. The ranches would continue contributing to employment and the purchase and sale of goods and services in the counties where they are located. Any economic impact that resulted from this alternative would simply reflect previous unauthorized use.

Effects of continued juniper expansion: No juniper treatments or prescribed burns would be implemented; therefore, no rest from livestock grazing would be required. Livestock gathering would be increasingly difficult due to dense juniper throughout most of the allotment. The perennial grass component would continue to decrease.

3.11.2.2 Alternative B

Direct and indirect effects from grazing management: This alternative proposes a two-year fall rest/rotation on Pastures1A, 1B and 2A, and a 28% reduction in active use as compared to Alternative A. Approximately 15 fewer cattle and a shorter season of use (by 91 fewer calendar days) would be authorized on the Trout Springs Allotment, requiring the permittees to utilize

non-BLM resources. In addition to rest/rotation, deferment would occur on Pastures 2B and 3, requiring the permittees to make provision for forage for livestock prior to turnout. Livestock would be moved between pastures every 11-30 days. In addition, the change in season could impact calving schedules, such that the operators would need to adjust their operations accordingly.

The public land within the Hanley FFR Allotment would change from being used any time during the year, to being authorized from October 15 - November 14. Livestock numbers would remain flexible, but season of use, on public lands, could not be outside the specified dates. The permittee may have to adjust a small portion of the livestock operation to limit use of public land in the allotment to October/November.

New range improvements would improve livestock distribution and control, but would require a minor increase in annual fence maintenance. There would be an immediate direct cost to the permittee, which BLM may assist in providing funds for, if they are available. Although the permittee would be responsible for construction of most of the improvements, the BLM would likely provide materials for fence construction and may assist with construction in some cases. The planned range improvements and juniper treatments within the Trout Springs Allotment would promote resource health, thereby benefitting the community at large. In addition, short-term increases in income to the community would occur with the contracting of proposed juniper treatments and range improvements. These projects could potentially employ local contractors or private citizens in the Owyhee County or greater Treasure Valley area.

Effects from livestock trailing would be the same as Alternative A.

The grazing schedule has been drastically altered in this alternative to provide rest for all pastures during the critical growing season and periodically throughout the grazing season to allow sagebrush steppe bunchgrass species and sage-grouse breeding habitat recovery, recruitment and maintenance of special status plant species, riparian area recovery and development, and soil protection. The permittees would be required to move livestock to other grazing lands or find additional pasture, compared to Alternative A. Therefore, an increase in costs because of absorption of more cattle elsewhere into the livestock operation and/or an increase in land/hay would be necessary to maintain livestock grazing during the time cattle are not on the allotment with more livestock on private or State lands. Or, the permittee could have a smaller livestock herd resulting in less overall profit because of fewer calves to sell, although costs associated with maintenance and feed would be commensurately reduced.

Direct and indirect effects from juniper management: Juniper treatments would require rest the year of the burn with a minimum of two growing seasons of rest following the burn. Combined with scheduled rest/rotation this would result in up to seven years of rest in Pastures 1A and 1B, and at least two to three years in the other treated pastures during the ten year period. The permittees would have to find alternate livestock forage during those years.

The increase in perennial grasses resulting from juniper treatments would reduce utilization levels and improve livestock distribution. Gathering livestock would also be easier due to

having less juniper cover for livestock to hide in and allowing permittees to see longer distances. The improved watershed condition would lead to increased recreation opportunity, providing better hunting, hiking, camping and sightseeing opportunity.

3.11.2.3 Alternative C

Direct and indirect effects from grazing management: Livestock grazing on the Trout Springs and Hanley FFR Allotments would not be authorized. The permittees would be required to find additional forage for approximately 545 cattle for approximately 173 days per year on the Trout Springs Allotment and 7 AUMs on the Hanley FFR Allotment, compared to Alternative A. Because they are issued a permit, the permittees would still be responsible for maintaining existing improvements on the allotments. This would be an added cost to permittees.

Ranching is a large part of the community. Losing the ability to graze livestock on this allotment would have negative implications to the local livestock industry, and to the local communities that depend on this revenue source. Although the allotment would be closed to livestock during this ten-year term, more forage may be available with improved resource conditions and future livestock grazing may be authorized, possibly resulting in a positive effect after the ten-year term. Additionally, no wildlife/livestock conflicts would occur and could result in improved socio-economic benefits because of possible increases to wildlife for hunting, fishing, sight-seeing, etc.

Direct and indirect effects from juniper management: No rest would be required the year of burning as livestock grazing would not be authorized on the allotment. Burned areas would be allowed to recover without livestock grazing impacts. The improved watershed condition would lead to increased recreation opportunity, providing better hunting, hiking, camping and sightseeing opportunity.

3.11.2.4 Alternative D

Direct and indirect effects from grazing management: Approximately 263 fewer cattle and 19 fewer days would be authorized within the Trout Springs Allotment, which would require the permittee to find additional forage, compared to Alternative A. A two-year grazing rotation would be implemented, with Pastures 1A, 1B, and 2A rested every other year, and deferment (after July 15) on Pastures 2B and 3. Livestock would be moved between pastures every 22-57 days. April 15th turnout is unlikely to meet Boise District Range Readiness Criteria and could delay turnout, resulting in increased livestock numbers or extending the season off-date, but not increasing AUMs.

Range improvement effects and effects from livestock trailing would be the same as Alternative B.

Effects for the Hanley FFR Allotment would be the same as Alternative B.

The permittees on the Trout Springs and Hanley FFR allotments have managed livestock at levels similar to those analyzed and paid a consistent value per active AUM for several years. The reduction in permitted AUMs would likely have little or no socioeconomic impact on their

operations. In addition, grazing schedules would remain the same and thus have no socioeconomic impact on the operation. The ranches would continue contributing to employment and the purchase and sale of goods and services in the counties where they are located.

Direct and indirect effects from juniper management: Effects of juniper treatment would be the same as Alternative B.

3.11.2.5 Alternative E

Direct and indirect effects from grazing and juniper management: This alternative proposes a two-year fall rest/rotation on Pastures 1A, 1B and 2A, and a 42% reduction (including unauthorized use) in active use as compared to Alternative A. Approximately 120 fewer cattle and 92 fewer days would be authorized, thus requiring the permittees to make arrangements to obtain additional forage outside of the BLM for a longer period of time. In addition to rest/rotation, deferment would occur on Pastures 2B and 3, requiring the permittees to provide forage for their livestock before turnout. Livestock would be moved between pastures every 11-30 days.

Possible effects to calving, weaning, and rotations would be the same as Alternative B.

Range improvement effects and effects from livestock trailing would be the same as Alternative B.

Effects for the Hanley FFR Allotment would be the same as Alternative B.

The grazing schedule has been altered in this alternative to provide rest for all pastures during the critical growing season and periodically throughout the grazing season to allow sagebrush steppe bunchgrass species and sage-grouse breeding habitat recovery, recruitment and maintenance of special status plant species, riparian area recovery and development, and soil protection. The operators would be required to move livestock to other grazing lands or back to the ranch and feed them hay or grain during the summer months when livestock have typically been grazed on The Trout Springs and Hanley FFR Allotments. An increase in costs because of absorption of more cattle elsewhere into the livestock operation and an increase in land/hay would be required to maintain livestock grazing during the time cattle are not on the allotment with more livestock on private or State lands. Or, the permittee could have a smaller livestock herd resulting in less overall profit.

Direct and indirect effects from juniper management: Effects of juniper treatment would be the same as Alternative B.

3.12 Air Quality

3.12.1 Affected Environment – Air Quality

Air quality in a given area is described by the concentration of various pollutants in the atmosphere. National Ambient Air Quality Standards (NAAQS) are established by the U.S. EPA for criteria pollutants (ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, lead, and particulate matter). These standards are generally expected to be met under the existing conditions in the area. Air quality in the project area is considered good due to the rural setting and distance from any affecting sources. Consequently, ambient pollutant concentrations have rarely been monitored. The nearest monitoring stations are located in Boise where particulate matter (PM10) and CO are of concern. Recent monitoring in the Treasure Valley area show two new pollutants of concern – fine particulate (PM2.5) and ozone. In accordance with the ORMP, the BLM would meet or exceed the NAAQS and the Prevention on Significant Deterioration (PSD) regulations with all authorized actions.

The IDEQ has the primary responsibility to carry out the requirements of the Federal Clean Air Act (CAA) in Idaho. The primary mechanism for implementation is known as the State Implementation Plan, which EPA requires each state to prepare.

The CAA also establishes a national goal of preventing any further degradation or impairment of visibility within federally designated attainment areas. Attainment areas are classified as Class I, II, or III and are subject to the PSD program. Class I areas include some national wilderness areas and national parks. Class III status is assigned to attainment areas to allow maximum industrial growth while maintaining compliance with NAAQS. All other attainment areas are designated Class II.

Lands within the OFO (including the Trout Springs and Hanley FFR Allotments) are designated as Class II, which allows moderate deterioration associated with moderate, well controlled industrial and population growth. Additionally, the BLM manages designated wilderness areas as Class II unless they are reclassified by the State as a result of the procedures prescribed in the CAA [BLM Manual 8560 Sec. (.36)(B)]. The Jarbidge Wilderness Area, in Nevada, (approximately 60 miles east) is the closest Class I designated area.

Currently, air quality parameters are in compliance and exceeding federal and State standards due to a lack of emission sources throughout much of the area based on its rural setting. The major emission sources in the area would be seasonal burning of farm fields. Most livestock operations in the area contribute small amounts of particulate matter into the atmosphere. Confined Animal Feeding Operations (i.e. dairy or feedlot) can contribute a major source of ammonia (IDEQ 2010), but these types of operations are not located near or within the project area.

Current knowledge of carbon storage and movement in the Great Basin is limited. The most relevant research on the carbon movement within these systems is being conducted by Ben Rau at the University of Nevada, Reno through the SageSTEP Project. Rau (2008) reported that woodland encroachment has caused an increase in above and below ground woody biomass which acts as a temporary carbon sink. This could be misconstrued as evidence that woodland encroachment is beneficial in offsetting some of the effects of climate change. Decades of fire suppression have caused build-ups of woody fuels on landscapes throughout the west. This

results in massive carbon emissions when high-severity wildfires occur. These high severity fires have been more common over the past twenty years. Rau estimated that these increases in high-severity wildfires are off-setting the carbon stored by expanding woodlands. Also, these wildfires may be releasing much of the carbon stored due to fire suppression from 1910 to the present. While more information is needed to determine the exact balance, it is known that the increasingly common high-intensity fires are more detrimental to ecosystems, require more time and money for recovery, and volatize more carbon than low intensity fire (Rau 2008).

3.12.2 Environmental Consequences – Air Quality

3.12.2.1 Alternative A

There would be minimal effects to air quality as a result of livestock grazing, from minor methane emissions and fugitive dust from cattle trailing. Currently air quality in this area is in compliance with and exceeding Federal and State standards and this trend would continue.

There are no proposed juniper treatment projects identified; therefore, no effects to air quality would occur.

3.12.2.2 Alternative B

Effects to air quality as a result of livestock grazing would be the same as described in Alternative A.

The use of prescribed fire during juniper treatment projects would result in a moderate short-term negative effect on air quality and visibility during and immediately following the actual activity. Air quality effects would be in the form of smoke and dust emissions which are predominantly in the PM10 and PM 2.5 size range. This activity is not expected to exceed any State and/or Federal air quality standards based on the types of fuels and size of burns. Smoke would be noticeable over a wide area of western Owyhee County for 1-2 days following the burns. No Class I airsheds would be affected.

The intensity of the prescribed fires would be expected to be lower than wildfire, and therefore release less carbon initially because less fuel would be consumed. Prescribed fire also reduces the probability of high-intensity wildfire; therefore, this may result in a slight indirect long-term reduction in carbon emissions. Additional carbon would be slowly released from incompletely consumed trees as they decompose, but some of the material may be returned and stored in the soil and converted to humus over time (Rau 2008).

More important however, is a long-term indirect benefit resulting from the relatively large amount of juniper root biomass in these juniper-dominated sites. While the above ground biomass will be immediately reduced and any carbon acquisition would be reduced over the short term, the Juniper root systems would not be consumed by fire and would therefore provide a long-term source of carbon storage (Rau 2008). In addition, the rapid recovery of deep-rooted grasses (and other herbaceous species) from the reduction in juniper competition would increase soil carbon storage from the growth and die back of perennial grass root systems each year.

The proposed juniper treatments would be expected to have a long-term indirect effect of decreased carbon emissions and increased soil carbon sequestration by potentially reducing high-intensity wildfires, slowing the rate of carbon turnover, and providing long-term carbon storage for the below-ground juniper biomass (roots). Most importantly, juniper treatments would restore the shrub steppe communities whose rapid root turnover would store carbon into the soil.

3.12.2.3 Alternative C

The elimination of livestock grazing within the Trout Springs Allotment would have minimal effects on air quality because the minor effects of methane emissions and fugitive dust from cattle trailing would not occur.

Effects to air quality as a result of juniper treatment projects would be the same as those described in Alternative B.

3.12.2.4 Alternative D

Effects to air quality would be the same as those identified in Alternative B.

3.12.2.5 Alternative E

Effects to air quality would be the same as those identified in Alternative B.

4.0 Cumulative Effects

4.1 Cumulative Effects Applicable to All or Most Resources

Cumulative effects from activities proposed in the Trout Springs Allotment in combination with other activities are discussed below for each resource. "Cumulative Effect" is defined as the "impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" (40 CFR 1508.7). The Council on Environmental Quality (CEQ) interprets this regulation as referring only to the cumulative impact of the direct and indirect effects of the proposed action and its alternatives when added to the aggregate effects of past, present, and reasonably foreseeable future actions.

Cumulative effects from grazing management changes on the Hanley FFR Allotment for all resources are expected to be very low, due to the limited acreage of public lands, and will not be discussed separately.

4.1.1 Scope

The scope (area and timeframe) of the cumulative effects analysis is described for each resource. Past, present, and reasonably foreseeable future activities and events in the general area that affect all or most resources include livestock grazing, wildfires, juniper treatments (cutting and prescribed burns), and transportation planning. Other activities that may affect only one or a few resources will be discussed in the individual resource sections based on that resource's cumulative effects analysis area and specific effects to that resource. Reasonably foreseeable

actions include activities with completed NEPA scoping or decisions, with implementation planned to begin within three years.

4.1.2 Past and Present Actions

Although specific resources have different cumulative effects analysis areas, tailored to the specific issues, a general area can be defined that includes most resources' cumulative effects analysis areas. This area is approximately delineated by Deep Creek on the east, East Fork Owyhee River on the south, main fork Owyhee River on the west, and the ridge defining the North Fork Owyhee watershed on the north. The analysis area was chosen because it was expected that any activities outside this area would generally not have additive effects to those activities proposed in this document. This area is approximately 411,331 acres.

Livestock grazing is the dominant land use activity in the area, and virtually all of the land area is managed for grazing. 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. Allotments that border the Trout Springs and Hanley FFR Allotments are Pole Creek, Bull Basin, Castlehead-Lambert, Nickel Creek., Nickel Creek FFR, Pleasant Valley, Pleasant Valley FFR, Cliffs, M Stanford FFR, and Squaw Creek FFR. Individual resources may have additional allotments in their cumulative effects analysis area; however, this analysis assumes grazing will occur on most areas, and therefore, grazing cumulative effects are not discussed on an allotment-by-allotment basis. Because of management changes in the last several years to address issues such as sage-grouse, this analysis assumes that allotments with final decisions that are implemented are meeting or making significant progress toward the Standards.

Wildfire records indicate that approximately 58,700 acres (20%) have burned within the 288,000-acre Juniper Mountain area (see Section 3.1.1) since the 1980s (Heide and Corbin 2009). Within and adjacent to the Juniper Mountain area, various juniper cuttings and other treatments also have occurred. Prescribed fires began with the University of Idaho's Juniper Mountain Trials in 1979, but most activity occurred in the 1980s (USDI-BLM 1999a). BLM records indicate that in the Juniper Mountain area approximately 39,000 acres of prescribed fire units were attempted, with about 5,000 acres of treatment recorded, thus affecting less than 2% of the landscape.

Noxious weed treatments have been ongoing in the cumulative effects area, using chemical and/or mechanical methods. The acreage treated is relatively small, so disturbance from these treatments is negligible at the landscape scale.

Past and present agricultural conversion has occurred on private lands, affecting 0.3% of the cumulative effects area. These are generally hay fields in areas that were previously wet meadows.

Expanding population in the Treasure Valley together with an increasing popularity of off-highway vehicles (OHVs) is creating additional pressures on the resources from recreation uses.

The recent Wilderness and Wild and Scenic River designation is also expected to increase recreation use of this general area.

4.1.3 Future Actions

Reasonably foreseeable future activities in the vicinity include livestock grazing permit renewal, up to 2.6 miles of fence construction, and juniper treatments (cutting and burning) for the Pole Creek Allotment. A potential of approximately 23,300 acres gross or up to about 11,650 acres net (actually cut and burned acres) could be affected by juniper treatments. The timeframe for the Pole Creek Allotment juniper activities is similar to the Trout Springs Allotment, with NEPA and a decision in 2012, and implementation planned within the following ten years. In addition, Oregon Department of State Lands plans to continue small-scale juniper cutting projects for the next three years in the general area that recent treatments have been conducted.

Although these are similar actions within the analysis area, they are completed and analyzed according to their own merits. Therefore, they are included in this analysis as cumulative, but not connected, actions.

A transportation plan for Owyhee County is expected in the near future which may alleviate some OHV resource concerns. However, products from travel management such as maps and signage are likely to result in increased visitor use, which may increase pressure on resources.

No energy development or other use is anticipated in the cumulative effects area.

4.2 Cumulative Effects – Watersheds/Soils/Riparian/Water Quality

Cumulative effects to watersheds, soils, riparian, and water quality resources are analyzed on a watershed scale. The cumulative analysis area includes four watersheds (fifth level HUCs): North Fork Owyhee River, Middle Fork Owyhee River, Red Canyon-Owyhee River, and Headwaters Deep Creek, with a cumulative area of 403,350 acres (Map 11). The Trout Springs Allotment serves as the headwaters for this four-watershed area and, thereby, greatly influences downstream waters. This analysis area was chosen because grazing management effects on riparian and watershed resources, as well as on specific impacts such as stream sediment and water temperature, can be experienced within these IDEQ fifth level HUCs. Outside of this area, however, effects of the grazing scheme would not be experienced and/or would be too small to create identifiable cumulative effects. The timeframe considered covers past activities since about 1980 to create current conditions, activities planned within the next three years (reasonably foreseeable activities are considered those that have been at least publicly scoped), and the expected duration of effects from those activities (generally 10 to 20 years).

Current Conditions

Past activities that have affected watersheds, soils, riparian, and water quality in the cumulative effects analysis area include livestock grazing and associated range improvements, juniper treatments including prescribed fires, roads and other infrastructure, agriculture, recreation, and wilderness designation. The impacts of these activities and resultant effects are summarized in

Table 4.2.1. The terms for magnitude of effect on watersheds (identified as the combination of soils, upland vegetation, riparian vegetation, and water quality resources) are defined as:

- Low – activity affects only a very small percentage of soils, vegetation, water quality in the area, or has only a temporary effect on these attributes in a larger area;
- Moderate – activity affects more than a small percentage but less than a majority of the area with noticeable changes in soil loss or degradation, vegetative structure, water quality, 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, large areas of noticeable soil loss or degradation, and streams with diminished water quality.

Table 4.2.1 - Past and present activities affecting water quality within the Cumulative Effects Area

Activity	Timeframe	Degree	Extent	Magnitude of Effect on Watersheds	Type of Effect
Livestock Grazing	Ongoing, continuous	34 active allotments; 58,057 active AUMs	Across analysis area	Moderate	Fewer large deep rooted bunchgrasses, more exposed soil, degraded willow communities and riparian areas, impaired water quality due to sediment, temperature, and/or fecal coliform.
Fences	Most constructed before 1980; a few additions each decade	Approximately 582 miles of fence	Distributed across analysis area, but cumulatively covering a small percentage of area	Low	Short-term, localized construction & maintenance disturbance; chronic cattle trails trampling vegetation and compacting soils.
Troughs, Cattleguards, Corrals	Most constructed before 1980; a few additions each decade	Estimated 350	Distributed across analysis area, but cumulatively covering a small percentage of area	Low	Short-term, localized construction & maintenance disturbance; chronic cattle congregation trampling vegetation and compacting soils

Activity	Timeframe	Degree	Extent	Magnitude of Effect on Watersheds	Type of Effect
Vegetation Treatments (prescribed fire and mechanical)	Intermittently since 1980s	Approximately 48,690 acres	Patchy within analysis area	High within specific areas; moderately low across entire area	Shift from juniper-dominated to grass/forb/shrub-dominated plant community, increase in soil cover, infiltration, and nutrient cycling.
Fire Suppression	Ongoing, continuous	Moderately effective at suppressing fires, given distance from fire stations, etc.	Across analysis area	Moderate	Long-term shift from shrub/grass to juniper-dominated plant communities, decrease in soil cover, infiltration, and nutrient cycling.
Roads	Nearly all in place before 1980	Approximately 515 miles of roads and routes	Distributed across analysis area, but cumulatively covering a small percentage of area	Moderate	Elimination of vegetation, artificial flow network increasing drainage densities in water basins, increasing surface erosion/stream sedimentation
Agriculture	Nearly all in place before 1980	Approximately 1,237 acres	At ranches near Mud Flat Road	Low	Hayfields replacing native vegetation, decrease in stream flows due to irrigation
Noxious Weed Treatment	Ongoing, continuous	263 infestations detected or treated from 2001 to 2010 on approximately 220 acres.	Patchy, mostly along Mud Flat Road	Low	Intact native plant communities, appropriate nutrient and hydrologic cycling
Recreation	Ongoing, continuous	Moderate visitor use of scenic byway summer-long; hunting season off-road travel and dispersed camping	Mostly near Mud Flat Road; hunting throughout area	Low	Localized vegetation trampling, erosional scars due to off road OHV use.

Activity	Timeframe	Degree	Extent	Magnitude of Effect on Watersheds	Type of Effect
Wilderness Designation	2009	72,840 acres	Along north and south edge of area	Low	Vehicle restrictions reduce plant disturbance, more strict water quality designation for river

Past and current water quality is affected by activities identified in the Table 4.2.1 above. Map 11 identifies the northern, southern, and western streams in the area are not meeting IDEQ water quality standards, primarily due to high water temperatures. Table 4.2.2 identifies pollutants for Middle and North Fork Owyhee River reaches in Oregon and their 303(d) status. Oregon DEQ identifies water temperature exceedances, flow and habitat modification, and sedimentation as common pollutants in these two watersheds. In summary, the analysis areas have approximately 179 miles of streams that fully support their beneficial uses, 299 miles have not been assessed, and 449 miles are not supporting all beneficial uses. Water temperature and sedimentation are influenced by a variety of factors such as stream morphology and vegetation, both of which have been affected by livestock grazing. All drainages have been affected by past and present livestock grazing contributing to changes in channel morphology and riparian vegetation.

Table 4.2.2 - Oregon DEQ 2010 integrated 303(d) report for various pollutants in the Middle and North Fork Owyhee Rivers*

Water Body	River Miles	Pollutant	Affected Beneficial Uses	Status
Middle Fork Owyhee River	0 - 13.5	Flow and Habitat Modification	Resident fish and aquatic life; Salmonid fish spawning; Salmonid fish rearing	Water quality limited not needing a TMDL
		Sedimentation	Resident fish and aquatic life; Salmonid fish rearing; Salmonid fish spawning	Insufficient data
		Temperature	Salmonid fish rearing	Insufficient data
North Fork Owyhee River	0 - 32	Alkalinity	Aquatic life	Attaining some criteria/uses
		Ammonia	Aquatic life	Attaining some criteria/uses
		Chloride	Aquatic life	Insufficient data
		Dissolved Oxygen	Cool-water aquatic life	Attaining some criteria/uses
		pH	Water contact recreation; Resident fish and aquatic life	Attaining some criteria/uses
		Phosphate Phosphorus	Aquatic life	Attaining some criteria/uses
		Temperature	Redband or Lahontan cutthroat trout	Water quality limited, 303(d) list, TMDL needed
	0 - 9.6	Sedimentation	Salmonid fish spawning; Salmonid fish rearing	Insufficient data

Water Body	River Miles	Pollutant	Affected Beneficial Uses	Status
		Flow and Habitat Modification	Resident fish and aquatic life; Salmonid fish rearing; Salmonid fish spawning	Water quality limited not needing a TMDL

*For more information: http://www.deq.state.or.us/wq/assessment/2010Report.htm.

Livestock grazing is the dominant land use activity in the area, and almost all of the land area is managed for grazing. All drainages have been affected by past and present livestock grazing through changes in channel morphology and riparian vegetation. In the 1990s, BLM initiated a series of range reform activities in response to poor range conditions. In this area, season-long grazing typically occurred. Since the Standards were implemented in 1997, Idaho BLM has reviewed and issued grazing permits on about 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. The allotments in the analysis area are in various stages of the 10-year 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. Currently, the allotments in the area are primarily grazed throughout the spring and summer. 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. Overall, past and some current grazing in the cumulative analysis area have had an adverse effect on riparian and watershed resources. Reasonably foreseeable future grazing is expected to improve the condition of the riparian and watershed at a minimum to make significant progress towards meeting the Idaho Rangeland Health Standards.

Non-anthropogenic influences such as wildlife grazing and wildfires have caused localized disturbances in the watersheds. In recent years, anthropogenic disturbances such as prescribed fires, juniper woodcutting, and land clearing activities (chaining) have had limited effects on the watersheds due to their localized and small areal extent. One of the greatest influences on the watersheds has been current and past fire suppression activities. As a result of these activities, the watersheds across the cumulative effects analysis area have been altered (as a result of the increase in juniper) from what would be expected under a natural disturbance regime, as described under Section 3.1.1. In addition, the majority of the streams in the area are not meeting IDEQ water quality standards, primarily due to high water temperatures. Water temperature is influenced by a variety of factors such as stream morphology and vegetation, both of which have been adversely affected by livestock grazing. The recent designation of North and East Fork of the Owyhee Rivers as a Wild Rivers along with various wilderness designations has limited landuse activities to preserve their outstandingly remarkable values and wilderness characteristics.

Reasonably foreseeable activities that would substantially affect watersheds include changes in livestock grazing management in the adjacent Pole Creek Allotment that include a change in season of use and an AUM reduction, small range improvements (<4 miles of fence construction), and juniper treatment (21,000 acres gross or <14,700 acres net). Permits for other allotments in the analysis area (including Castlehead/Lambert, Swisher Springs, Swisher FFR, Nickel Creek FFR, and part of Garrat) are also being processed, and adjustments in AUMs may

be made, but proposed decisions have not yet been issued. As a result of these upcoming activities, along with the past and present activities described above, watersheds in the analysis area are expected to be a mosaic of plant communities, primarily juniper woodlands, mountain big sagebrush, and low sagebrush, with an understory of mostly perennial bunchgrasses and forbs. Riparian vegetation communities would consist of carex, rushes, and various willows and hydric shrub vegetation that protect streambanks from erosion and shade water on the majority of streams. Waters that were previously not meeting their designated beneficial use would progress towards or exceed water quality standards, and all waters would be expected to meet their beneficial uses.

Cumulative Effects of Alternatives

Grazing activities analyzed in this EA would contribute toward cumulative effects on watersheds by incrementally influencing upland and riparian plant communities in the Juniper Mountain area, as described in direct and indirect effects. Range improvements, which have minor direct and indirect effects on watersheds, have minimal cumulative effects. Proposed juniper treatments would also contribute toward cumulative effects. The magnitude of Trout Springs' incremental additions to effects from other activities (described above) is presented in Table 4.2.3 and discussed below.

Table 4.2.3 - Cumulative effects of Alternatives on Watersheds (represented by soils, upland/riparian vegetation, and stream water quality)

Activity	Current Level (baseline)	Reasonably Foreseeable	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Livestock Grazing	58,057 AUMs[1]	Pole Creek[2] -576 AUMs from baseline; -1% change	+588 AUMs over baseline; +1% change	No change from baseline; 0% change	-1,430 AUMs from Baseline; -2.5% change	No change from baseline; 0% change	-283 AUMs from baseline; < -1% change
Range Improvements	582 miles fence 350 cattleguards, corrals	Pole Creek + 4 miles fence; <+1% change	No change from baseline; 0% change	+ 2 miles fence; <+1% change +2 cattleguards, +1 water haul site; <+1% change	No change from baseline; 0% change	+ 2 miles fence; <+1% change +2 cattleguards, +1 water haul site; <+1% change	+ 2 miles fence; <+1% change +2 cattleguards, +1 water haul site; <+1% change
Juniper Treatments	48,690 acres	Pole Creek +21,000; 43% increase	No change from baseline; 0% change	23,300 acres 48% increase	23,300 acres 48% increase	23,300 acres 48% increase	23,300 acres 48% increase

[1] Includes 1,430 AUMs for Trout Springs Allotment (based on 2003 decision).

[2] Several other allotments within the analysis area have also been scoped, but proposed decisions have not yet been issued, so estimates for changes in AUMs have not been made.

Livestock grazing impacts in multiple allotments, when added together, can affect water quality by influencing upland and riparian plant communities, changing channel shape by increasing width to depth ratios, and streambank alterations in the Juniper Mountain area, as described in direct and indirect effects. The magnitude of effects (in stream miles affected) to water quality from reasonably foreseeable future grazing permit renewals in Pole Creek, Castlehead/Lambert, Swisher Springs, Swisher Springs FFR, and Garat allotments and Trout Springs additions to potential water quality effects are discussed below.

Table 4.2.4 - Cumulative effects of alternatives on water quality

Water Quality	Current Condition	Reasonably Foreseeable[1]	Alternative A	Alternatives B-E
Meeting Standards:	179 miles	+60 miles; 239 total miles; 33.5% increase	-24miles; 155 total miles; 13.4% decrease	+25 miles; 204 total miles; 14.0% increase
Not Assessed:	299 miles	No Change[2]	No Change[2]	No Change[2]
Not Meeting Standards:	449 miles	-60 miles; 389 total miles; 13.4% decrease	+24 miles; 473 total miles; 5.3% increase	-25 miles; 424 total miles; 5.7% decrease

1 - Livestock management changes are assumed in Pole Creek, Castlehead/Lambert, Garat, Swisher Springs and Swisher Springs FFR allotments to be beneficial to water quality and to move towards or meet water quality standards.
2 - Stream segments identified as Not Assessed were not used in estimating future cumulative stream water quality miles.

Alternative A

The negative effects of this grazing scheme coupled with continuing incremental negative effects of juniper encroachment would contribute to a cumulative increase in upland and stream channel erosion. The excess sediment, altered streambanks, and lack of deep-rooted riparian vegetation would change stream channel morphology and continue to contribute to the degradation of riparian areas and water quality (increased turbidity and water temperatures) throughout the allotment and would affect downstream areas. The would be a potential increase of 24 miles of streams that would not meet their beneficial uses, a fairly conservative estimate when taking into account that the streams that were not assessed would also likely not meet water quality standards (Table 4.2.4). The increase in degraded stream miles superficially appears offset when compared to the 60 miles that would potentially improve and/or meet water quality standards from the allotments that are in the “reasonable foreseeable future” for grazing permit renewals. However, Trout Springs Allotment is the headwaters to several streams (Middle Fork Owyhee River, Squaw, West Fork Red Canyon, Twin Spring, Graves, Pleasant Valley, Thomas, Little Thomas, Smith, Little Smith, and Cottonwood Creeks) and influences downstream receiving areas (such as Pole Creek, Bull Basin, Pleasant Valley Allotments, and Oregon State land) to a

great extent, and the effects are not really offset. These streams would potentially experience similar fluvial morphological changes and associated adverse effects. Streams not meeting IDEQ water quality standards would continue to not make significant progress toward meeting Standards, while other streams would be in jeopardy of not making significant progress toward meeting Standards.

Alternatives B, C, D and E

The varying grazing schemes along with the proposed juniper treatments would improve (to a greater or lesser degree) upland and riparian vegetation, stream channel morphology, and water quality parameters such as sediment, turbidity, and temperature. The proposed grazing activities would contribute in varying magnitudes toward cumulative effects by influencing plant species composition and biodiversity in the watersheds. The 24 stream miles of improved water quality (Table 4.2.4) in Trout Springs Allotments, when added to the improved water quality in 60 stream miles from the "reasonable foreseeable future" grazing permit renewal allotments, would be a significant improvement in water quality in the four watersheds. As in Alternative A, this is a conservative estimate in that it does not take into account streams that have not been assessed, but would likely be meeting or be making significant progress towards meeting water quality standards with changes in grazing management. Additionally, juniper treatment effects combined with the grazing schemes would work synergistically causing plant communities to move closer to reference environmental conditions for the four watersheds. These effects would improve the capture, storage, and safe release of precipitation; and improve energy flow and nutrient cycling in the area. Also, improved grazing and juniper treatments planned in the Pole Creek Allotment would bring some of the watersheds closer to reference conditions and meeting rangeland health and water quality standards. Although Alternatives B, D, and E restrict livestock access to the North Fork Owyhee River from the Trout Springs Allotment, effects would likely continue to occur due to access from other adjacent allotments.

Despite the long-term benefits, in the short term there is potential for excessive erosion and sedimentation due to the juniper treatments because of juniper canopy cover loss and fire-induced/natural water repellency (Miller et al. 2005). These effects are expected to be limited, but additive, due to the concurrence of juniper treatments planned in both the Trout Springs and Pole Creek Allotments (approximately 23,000 acres). Drainages most affected are Squaw Creek and the Middle Fork Owyhee River because both are within the two allotments. Due to potential loss of streambank-binding, riparian vegetation and soil stabilizing upland vegetation, these stream channels are at-risk for widening and/or down cutting from a high intensity storm event (estimated 10-20 year storm event), and transporting large amounts of upland sediment. However, long-term juniper treatment effects combined with the improved grazing schemes would work synergistically causing plant communities to move closer to reference environmental conditions for the two watersheds. These effects (as described in the previous paragraph) would improve the capture, storage, and safe release of precipitation, and improve energy flow and nutrient cycling in the area.

Cumulative effects of Alternative C, with a combination of juniper treatment and extended rest from livestock grazing, would result in greater and faster improvement than any other alternative.

4.3 Cumulative Effects – Upland Vegetation, Noxious and Invasive Weeds

Scope

Cumulative effects of proposed activities on upland vegetation and noxious and invasive weeds are considered in the context of other activities and natural processes, described below. The area of analysis for cumulative effects to upland vegetation and weeds is the entire Juniper Mountain area (delineated roughly by the North Fork Owyhee River on the north, Deep Creek on the east, the Owyhee River on the south, and the Oregon border on the west), approximately 288,000 acres. This effects analysis area is appropriate for upland vegetation and noxious and invasive weeds because relevant disturbances, such as fire, livestock grazing, and weed movement, affect ecological processes at a landscape scale within this area, and it is expected that activities outside this area would generally not have additive effects to the activities proposed in this document. Within the cumulative effects analysis area, 89% of the area is public lands managed by BLM, 7% is private lands, and 4% is lands managed by the State of Idaho.

The timeframe considered covers past activities since about 1980 to create current conditions, activities planned within the next three years (reasonably foreseeable activities are considered those that have been at least publicly scoped), and the expected duration of effects from those activities (generally 10 to 20 years).

Current Conditions

Past activities that have affected upland vegetation in the cumulative effects analysis area include livestock grazing and associated range improvements, juniper treatments including prescribed fires, roads and other infrastructure, agriculture, recreation, and wilderness designation. The impacts of these activities and resultant effects on vegetation are summarized in Table 4.3.1, and briefly discussed below. 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 4.3.1 - Past Activities in Upland Vegetation Cumulative Effects Area

Activity	Timeframe	Degree	Extent	Magnitude of Effect on Vegetation	Type of Effect
Livestock Grazing	Ongoing, continuous	13 active allotments; 15,385 active AUMs	Across analysis area	Moderate	Species composition shifts to less palatable plants and fewer large bunchgrasses

Activity	Timeframe	Degree	Extent	Magnitude of Effect on Vegetation	Type of Effect
Fences	Most constructed before 1980; a few additions each decade	Approximately 462 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, cattleguards, corrals	Most constructed before 1980; a few additions each decade	Estimated 100-200 total	Distributed across analysis area, but cumulatively covering a small percentage of area	Low	Short-term, localized construction & maintenance disturbance; chronic cattle congregation trampling vegetation
Juniper Cutting	Intermittently since 1980s	Estimated <1,000 acres	Patchy within analysis area	High within cutting areas; moderately low across entire area	Shift from juniper-dominated to grass/forb/shrub-dominated plant community
Prescribed Burning	Mostly in 1980s	Estimated about 5,000 acres total burned	Patchy within analysis area	Moderately high within burn area; low across entire area	Shift from juniper-dominated to grass/forb/shrub-dominated plant community
Fire Suppression	Ongoing, continuous	Moderately effective at suppressing fires, given distance from fire stations, etc.	Across analysis area	Moderate	Long-term shift from shrub/grass to juniper-dominated plant communities
Roads	Nearly all in place before 1980	Approximately 410 miles of roads and routes total	Distributed across analysis area, but cumulatively covering a small percentage of area	High but localized, so overall moderately low	Elimination of vegetation; introduction of noxious and invasive weeds

Activity	Timeframe	Degree	Extent	Magnitude of Effect on Vegetation	Type of Effect
Structures	Nearly all in place before 1980	A few ranch buildings, a few small cabins, a repeater, a campground	Mostly near Mud Flat Road, but some scattered, occupying a small percentage of the area	Moderately high in localized areas; low across entire area	Localized elimination of vegetation
Agriculture	Nearly all in place before 1980	Approximately 450 acres total	At ranches near Mud Flat Road	Moderately high in localized areas; low across entire area	Hayfields replacing native vegetation
Noxious Weed Treatment	Ongoing, continuous	Estimated <100 acres treated since 1980s	Patchy, mostly along Mud Flat Road	Low	A few adjacent native plants killed; native plant communities saved from noxious weed invasion
Recreation	Ongoing, continuous	Moderate visitor use of scenic byway summer-long; hunting season off-road travel and dispersed camping	Mostly near Mud Flat Road; hunting throughout area	Low	Localized vegetation trampling
Wilderness Designation	2009	72,840 acres	Along north and south edge of area	Low	Vehicle restrictions reduce plant disturbance

Livestock grazing is the dominant land use activity in the area, and all of the land area is managed for grazing. Vegetation in the Juniper Mountain area has been affected by livestock grazing because livestock selectively eat larger bunchgrasses, altering the species composition. Until the last decade, most of that grazing has been spring and summer or season-long, and with relatively high numbers of animals. Rest and deferred use pastures have increased in more recent management, with implementation of 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. Native ungulates (deer and elk) are common in the Juniper Mountain area in moderately low numbers, and their browsing affects shrubs and aspen sprouts in some areas. Localized disturbances from wildfires, prescribed fires, and juniper cutting and chaining have created small pockets of early seral vegetation in recent years.

Prescribed fires began with the University of Idaho's Juniper Mountain Trials in 1979, but most activity occurred in the 1980s (USDI-BLM 1999a). BLM records indicate that in the Juniper Mountain area approximately 39,000 acres of prescribed fire units were attempted, with about 5,000 acres of treatment recorded, thus affecting less than 2% of the Juniper Mountain area. Besides a number of past and present designated firewood cutting areas on BLM- administered lands, some chaining (from the 1960s to early 1980s) also has taken place in the area. In addition, numerous small (≤ 100 ac) juniper cutting projects have occurred on private and State administered lands. Cumulatively, these treatments are estimated to have affected less than 10% of the cumulative effects area. Fire suppression activities have been applied to Juniper Mountain for decades. Grazing (yearly reduction of fine fuels) and fire suppression (limiting fire spread across the landscape) have altered the fire regime by making fires less frequent and more severe and large when they do escape initial suppression. Wildfire records indicate that approximately 58,700 acres (20%) have burned within the analysis area between the 1980s and 2009 (Heide and Corbin 2009). Much of that was the 39,500-acre Crutcher Fire in 2007. In addition, the 2012 Grasshopper Fire burned about 2,700 acres. Non-native invasive plants have been introduced and spread. Range improvements, roads, structures, and agriculture have created relatively small patches within the landscape where native vegetation has been removed. Ongoing noxious weed treatment (usually spot herbicide application) has been largely effective in keeping noxious weeds from spreading into intact native plant communities, with very minor collateral impact to adjacent non-targeted species. The acreage treated for noxious weeds is relatively small, so disturbance from these treatments is negligible at the cumulative effects analysis area scale.

The combination of activities described above has altered the vegetation on Juniper Mountain from what would be expected under a natural disturbance regime. The largest change is in the increase in density and area occupied by western juniper, as discussed in Section 1.1.1. Within the cumulative effects analysis area, juniper historically occupied approximately 7% of the area, but currently occupies 35% of the area (based on data from Major, in review, 2009). Changes in species composition, with shifts toward less palatable species and the presence of non-native plants, are also evident across Juniper Mountain, although few areas dominated by non-natives exist. Synergistic interactions of these changes over time have stressed the ecosystem (Miller and Narayanan 2008). An example of these interactions is the combination of increased juniper and selective grazing both negatively affecting large bunchgrasses.

Reasonably foreseeable activities that would substantially affect upland vegetation include grazing management changes (change in season of use and reduction in AUMs), range improvements (<4 miles of fence construction), and juniper treatment (21,000 acres gross or <14,700 acres net) in the adjacent Pole Creek Allotment. Permits for other allotments in the analysis area (including Castlehead/Lambert, Swisher Springs, Swisher FFR, and Nickel Creek FFR) are or have been evaluated, resulting in AUM reductions in some cases; others have not had decisions issued but include alternatives with reduced grazing levels. Expanding population in the Treasure Valley, the increasing popularity of off highway vehicles outside of wilderness area, and increased non-motorized use within wilderness areas, are together expected to create additional disturbances to vegetation within the cumulative effects analysis area, but at a fairly low magnitude because of the distance from major population areas; past recreation has had very little effect on vegetation in the cumulative effects area. As a result of these upcoming activities,

along with the past and present activities described above, upland vegetation in the cumulative effects analysis area is expected to be a mosaic of plant communities, primarily juniper woodlands, mountain big sagebrush, and low sagebrush, with an understory of mostly perennial bunchgrasses and forbs. Invasive weeds (cheatgrass and other annual grasses, bulbous bluegrass, etc.) are expected to be patchy, mostly at the lower elevations within the cumulative effects area, and generally subordinate to or occasionally co-dominant with native species, rather than defining the plant communities. Transportation planning and ongoing noxious weed treatments are expected to have little effect on upland vegetation within this cumulative effects analysis area. Noxious weed infestations would continue to be small and scattered, having little effect on overall vegetation.

Cumulative Effects of 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 Juniper Mountain area, as described in direct and indirect effects. Range improvements have minor direct and indirect effects on vegetation, which would have minimal cumulative effects. Proposed juniper treatments would also contribute toward cumulative effects. The magnitude of Trout Springs' incremental additions to effects from other activities (described above) is displayed in Table 4.3.2, and discussed below.

Grazing effects from Alternative A, an alternative that will not allow the allotment to meet Standard 4, would cumulatively add to effects from other activities by continuing to influence plant species composition, reducing more palatable and structurally desirable large bunchgrasses, and potentially increasing the spread of noxious and invasive weeds. Alternatives B, D and E, which would allow the allotment to make progress toward meeting Standard 4, would have little cumulative effect from grazing management. It would also have more rapid plant community improvement in Alternative E because of its relatively low intensity of use and favorable season of use. Alternative C, no grazing for the term of the permit, would have beneficial cumulative effects by contributing no detrimental grazing effects to the cumulative effects analysis area.

Because direct and indirect effects to upland vegetation and noxious and invasive weeds from fence construction and range improvements in Alternatives B, D and E are so low, cumulative effects from these activities would be inconsequential within the cumulative effects analysis area. No cumulative effects from fences or range improvements would occur in Alternatives A and C.

Table 4.3.2 - Cumulative Effects of Alternatives on Upland Vegetation, Noxious and Invasive Weeds

Activity	Current Level (baseline)	Reasonably Foreseeable	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Livestock Grazing	15,385 AUMs[1]	Pole Creek[2] -576 AUMs from	+588 AUMs over	No change from baseline;	-1,430 AUMs from	No change from baseline;	-283 AUMs from baseline;

Activity	Current Level (baseline)	Reasonably Foreseeable	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
		baseline; -3.7% change	baseline; +3.6% change	0% change	Baseline; -9.3% change	0% change	-1.8% change
Range Improvements	462 miles fence 100-200 cattleguards, corrals	Pole Creek + 4 miles fence; +0.8% change	No change from baseline; 0% change	+ 2 miles fence; +0.4% change +2 cattleguards, +1 water haul site; ~2% change	No change from baseline; 0% change	+ 2 miles fence; +0.4% change +2 cattleguards, +1 water haul site; ~2% change	+ 2 miles fence; +0.4% change +2 cattleguards, +1 water haul site; ~2% change
Juniper Treatments	<1,000 acres cutting, 5,000 acres prescribed fire	Pole Creek +21,000 acres gross, up to 14,700 acres net[3]; 234% increase	No change from baseline; 0% change	23,300 acres gross, up to 16,300 acres net[3]; 272% increase	23,300 acres gross, up to 16,300 acres net[3]; 272% increase	23,300 acres gross, up to 16,300 acres net[3]; 272% increase	23,300 acres gross, up to 16,300 acres net[3]; 272% increase

1 - Includes 1,430 AUMs for Trout Springs Allotment (based on 2003 decision).
2 - Several other allotments within the analysis area have also been scoped, but proposed decisions have not yet been issued, so estimates for changes in AUMs have not been made.
3 - Net acres estimated at 70% mosaic within treatment units.

Proposed juniper treatments (Alternatives B, C, D and E) would contribute incrementally to other disturbances in the Juniper Mountain area, in that short-term soil disturbance will add to other disturbances that provide the potential for invasive weed increases. Cumulative effects on community structure are expected to be positive, as the juniper treatments add structural diversity (patches of openings within the juniper woodlands) across the landscape. Because the current level of juniper mortality is lower than under a natural disturbance regime, and only a portion of the juniper in the landscape would be treated, the cumulative effect of the treatments is of moving closer to reference juniper seral stage proportions in the allotment and surrounding areas overall. Even after full project implementation, the landscape would still have an uncharacteristically high amount of dense juniper compared to younger sagebrush and grass patches. Table 4.3.3 shows the estimated historic, current, and post-treatment juniper cover within the cumulative effects analysis area. Continued juniper treatment, such as that planned in the Pole Creek Allotment, would bring the Juniper Mountain area closer toward reference proportions of juniper and sagebrush age classes across the landscape. However, juniper would continue to reproduce and expand, and without subsequent treatment or natural disturbance, would return to previous densities within a few decades. The expected increase in herbaceous vegetation (fine fuels) as a result of prescribed fire treatment and grazing management changes, along with a mosaic of seral stages provided by juniper treatments, would have a cumulative effect of producing a landscape with more natural fuel structure; the diversity in fuel structure

allows for more management opportunities to allow fire to play its natural role across the landscape.

Table 4.3.3 – Change in Juniper Cover after Treatments

Era	Percentage of Juniper Acres within Cumulative Effects Analysis Area
Historic	7%
Current	35%
Expected after implementation of Trout Springs and Pole Creek juniper treatments	24%

The cumulative effect of Alternative A with continued grazing and no juniper treatments would be continued decline in sagebrush/grass plant communities and biodiversity, as shrubs, aspen, and bunchgrasses are lost, and the Juniper Mountain area becomes dominated by juniper and bare ground, with little variety of understory plants. This would make the ecosystem less resilient to major disturbance, such as an uncharacteristically severe wildfire, so it would be less likely to recover to a native perennial plant community, and would be more susceptible to noxious weed invasion.

4.4 Cumulative Effects – Fish and Wildlife/Special Status Animals

Scope

The area considered for cumulative effects can vary greatly by wildlife species and their distribution across the landscape. Wildlife species discussed in this EA have been grouped into two general categories based on their mobility and distribution; each category will be discussed individually.

Highly mobile species (including greater sage-grouse)

The cumulative effects analysis area for greater sage-grouse and other large and/or highly mobile species (e.g., big game, raptors, and migratory birds) is delineated by the approximately 5.9 million acre greater sage-grouse Owyhee subpopulation (i.e., north-central Nevada/southeast Oregon/southwest Idaho) (Connelly, Knick, et al. 2004) (Map 13). 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 half of the BLM Bruneau Field Office in Idaho. This cumulative effects analysis area is appropriate for analyzing effects to wildlife (including special status animals) because relevant disturbances, such as fire, livestock grazing, and weed movement, affect ecological processes at a landscape scale within this area. Analysis timeframes include past activities since approximately 1980 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).

Given the current conservation importance of greater sage-grouse, it is logical 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. The selection of too small an area, such as a portion of a pasture, may almost always show effects, regardless of alternative.

Several authors (Connelly, Knick, et al. 2004) (Stiver, Apa, 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, which encompassed a large area overlying northern and southern Nevada, southeastern Oregon, northwestern Utah and southern Idaho, and 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 inferred about likely sage-grouse lek connectivity in the northern Great Basin (Makela and Major 2012); and the Connelly et al. (2004) "north-central Nevada/southeast Oregon/southwest Idaho" subpopulation provides meaningful context for the Owyhee analysis.

Broad Scale

The Trout Springs and Hanley FFR Allotments are located in the Western Association of Fish and Wildlife Management Agencies (WAFWA) Snake River Plain Management Zone (Zone IV; (Stiver, Apa, et al. 2006)). The Northern Great Basin population within Zone IV (Garton, et al. 2011) is a large population in Nevada, southeast Oregon, southwest Idaho, and northwest Utah (Map 13). 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 Trout Springs and Hanley FFR Allotments (Map 13).

The broad scale analysis area will be bounded by the north-central Nevada/southeast Oregon/ southwest Idaho (i.e. Owyhee) subpopulation of the Great Basin Core sage-grouse population as illustrated and described in Connelly et al. (2004) and Stiver et al. (2006). This 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 50% of the

Bruneau Field Office. This area also incorporates all of the approximately 3,728,000 acres of sage-grouse currently occupied habitat (USDI BLM 2009) within the Owyhee subpopulation.

Connelly et al., (2004) conducted a population analysis by state and not by management zone, population, or subpopulation; annual rates of change for sage-grouse in Idaho suggest a long-term decline for sage-grouse in Idaho. 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 average number of male sage-grouse per lek in Zone IV decreased by 54% and the average number of males per active lek decreased by 39% (Garton, et al. 2011). The average number of male sage-grouse per lek declined by 37% and the proportion of active leks decreased from 81% to 65% within the Northern Great Basin population of Zone IV (Garton, et al. 2011). Garton et al. (2011) also projected a 73% decline in sage-grouse carrying capacity by 2037 within the Northern Great Basin population. 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 Zone IV.

A summary of lek counts for the 514 documented leks contained within the Owyhee subpopulation can be found in Table 4.4.1. Because lek counts have only recently been conducted with any regularity, population trend information is not readily available for the Owyhee subpopulation of the Northern Great Basin population. Nevertheless, while the number of leks counted increased during the period from 2000-2010, the percentage of leks attended and the average number of sage-grouse per attended lek decreased substantially.

Table 4.4.1 - Summary of sage-grouse lek counts and attendance within the Owyhee subpopulation boundary

Survey Year	# of Leks Surveyed	# (%) of Leks Attended[1]	# of Male Sage-grouse Counted	Avg # of Male Sage-grouse/ Attended Lek
2000	47	35 (74%)	606	13
2001	77	59 (77%)	1,195	16
2002	42	33 (79%)	676	16
2003	95	68 (72%)	2,423	26
2004	105	72 (69%)	1,786	17
2005	209	106 (51%)	2,775	13
2006	109	67 (61%)	1,620	15
2007	178	92 (52%)	1,781	10
2008	274	94 (34%)	1,297	5
2009	180	50 (46%)	665	4
2010	318	98 (31%)	1,849	6

1 - Based on the presence of 2 or more males observed during surveys

Mid-Scale

The mid-scale analysis area is characterized by the 75% lek connectivity regions (general lek distributions across Zone IV) occurring within the Owyhee subpopulation boundary, based on an analysis by the Idaho BLM State Office (Makela 2012) (Map 13). This division is logical in light

of an apparent separation of lek connectivity within the Owyhee subpopulation due to topographic and habitat factors (i.e. mountains, juniper/conifer woodlands). A summary of sage-grouse habitat found within the 75% lek connectivity regions in the Owyhee subpopulation can be found in Table 4.4.2.

Table 4.4.2 - Summary of sage-grouse habitat types within 75% lek connectivity areas in the Owyhee sage-grouse subpopulation

75% Lek Connectivity Areas	Sage-grouse Habitat Types[1]				75% Lek Connectivity Area Acres
	Sagebrush	Perennial Grassland	Juniper/Conifer Woodlands	Annual Grassland	
Idaho	611,027 (73%)	72,095 (9%)	96,443 (11%)	5,611 (0.6%)	840,455
Oregon	490,697 (85%)	3,473 (0.6%)	11,323 (2%)	18,460 (3%)	579,408
Nevada	187,486 (72%)	804 (0.3%)	8,762 (3%)	0 (0%)	258,700

1 - Based on an interim, updated (2011) version of the ISHPM (ISAC 2006), Oregon Department of Fish and Wildlife 2011 Draft Sage-grouse Core Area Map (ODFW 2011), and Nevada Department of Wildlife Greater Sage-grouse Habitat Categorization Map (NDOW 2012).

A summary of lek counts for the 320 documented leks contained within the 75% lek connectivity regions within the Owyhee subpopulation can be found in Table 4.4.3. Because lek counts have only recently been conducted with any regularity, population trend information is not readily available for the Owyhee subpopulation of the Northern Great Basin population. Nevertheless, while the number of leks counted increased during the period from 2000-2010, the percentage of leks attended and the average number of sage-grouse per attended lek decreased substantially.

Table 4.4.3 - Summary of sage-grouse lek counts and attendance within 75% lek connectivity areas in the Owyhee sage-grouse subpopulation

Survey Year	# of Leks Surveyed	# (%) of Leks Attended[1]	# of Male Sage-grouse Counted	Avg. # of Male Sage-grouse/ Attended Lek
2000	41	30 (73%)	447	11
2001	50	41 (82%)	720	14
2002	24	19 (79%)	319	13
2003	75	57 (76%)	2,049	27
2004	58	45 (78%)	926	16
2005	117	61 (52%)	1,347	12
2006	75	53 (71%)	1,113	15
2007	97	52 (54%)	896	9
2008	200	73 (37%)	933	5
2009	104	41 (39%)	558	5
2010	209	71 (34%)	1,310	6

1 - Based on the presence of 2 or more males observed during surveys

Fine Scale
The fine scale analysis area will incorporate the approximately 29,886 acres bounded by the Trout Springs Allotment (Map 13). This cumulative effects analysis area is logical for analyzing direct and indirect effects to wildlife and fisheries (including special status animals) that occur within the allotment boundaries. No known leks occur within either the Trout Springs or Hanley FFR Allotments. However, 1 active lek and 2 undetermined leks do occur within 4 miles of the Trout Springs Allotment. Neither allotment falls within an Owyhee subpopulation 75% lek connectivity area. The proportion of sage-grouse habitat within both allotments is discussed in Section 3.4.1.

Less mobile species (including Columbia spotted frogs and pygmy rabbits)
The cumulative effects analysis area for smaller and more localized, less mobile species (e.g., small mammals, fish, reptiles, amphibians) is the entire Juniper Mountain area (delineated roughly by the North Fork Owyhee River on the north, Deep Creek on the east, the Owyhee River on the south, and the Oregon border on the west), approximately 288,000 acres (Map 13). This cumulative effects analysis area is appropriate for analyzing effects to wildlife and fisheries (including special status animals) because relevant disturbances, such as fire, livestock grazing, and weed movement, affect ecological processes at a landscape scale within this area. Analysis timeframes include past activities since approximately 1980 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

Highly mobile species (including greater sage-grouse)

Broad and Mid-Scale
Past, present, and reasonably foreseeable activities that have affected large and/or highly mobile wildlife species within the broad and mid-scale the cumulative effects analysis area include livestock grazing and associated range improvements, juniper treatments including prescribed fires, roads and other infrastructure, agriculture, recreation, and wilderness designation. The impacts of these activities and resultant effects are summarized in Table 4.4.4. The spatial extent of these actions was calculated using the best available BLM GIS data. The terms for magnitude of effect on fish and wildlife species are defined as:

- Low – activity affects only a very small percentage of fish and wildlife habitat in the area, or has only a temporary effect on these attributes in a larger area;
- Moderate – activity affects more than a small percentage but less than a majority of the area with noticeable changes in fish and wildlife habitat including soil loss or degradation, vegetative structure, water quality, 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, large areas of noticeable soil loss or degradation, and streams with diminished water quality.

Table 4.4.4 - Past, present, and foreseeable future actions within the broad and mid-scale cumulative effects analysis area for highly mobile wildlife species

Activity	Timeframe	Degree	Extent	Magnitude of Effect on Wildlife Habitat	Type of Effect
Livestock Grazing	Ongoing, continuous	251 active BLM allotments	Across analysis area	Moderate across entire area	Habitat degradation due to species composition shifts to less palatable plants and fewer large bunchgrasses
Wildfire	Intermittently since 1980s	Approximately 1,092,000 acres	Patchy within analysis area	Moderately high within burned areas, moderate across entire area	Shift from juniper/shrub-dominated to native or exotic grass/forb/shrub-dominated plant community
Vegetation Treatments (Prescribed Fire and Mechanical)	Intermittently since 1950s	At least 28,000 acres	Patchy within analysis area	Moderately high to high within treatments, low across entire area	Shift from juniper/shrub-dominated to native or exotic grass/forb/shrub-dominated plant community
Fire Suppression	Ongoing, continuous	Moderately effective at suppressing fires, given distance from fire stations, etc.	Across analysis area	Moderate across entire area	Long-term shift from shrub/grass to juniper-dominated plant communities
Roads	Nearly all in place before 1980	Approximately 8,100 miles of roads and routes total	Distributed across analysis area, but cumulatively covering a small percentage of area	High but localized, so overall moderately low	Habitat fragmentation due to elimination of vegetation; introduction of noxious and invasive weeds

Activity	Timeframe	Degree	Extent	Magnitude of Effect on Wildlife Habitat	Type of Effect
Agriculture	Ongoing, nearly all in place before 1980	Approximately 621,200 acres total	Distributed across analysis area, but cumulatively covering a small percentage of area	Moderately high in localized areas; low across entire area	Hayfields replacing native vegetation; anthropogenic disturbances
Recreation	Ongoing, continuous	Moderate visitor use of scenic byway summer-long; hunting season off-road travel and dispersed camping	Mostly near scenic byways; hunting throughout area	Low	Localized vegetation trampling; anthropogenic disturbances

In much of the analysis area, upland, riparian, and stream habitats have been adversely affected by grazing practices (e.g., season of use, stocking rates), rangeland management infrastructure (e.g., fences, water developments), wildfire, vegetation treatments (e.g., prescribed fires, shrub and conifer control, 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 (ISAC 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 and 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.

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 surrounding deep canyons of the Owyhee River system 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 flammulated owl) 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, and loggerhead shrike. 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 rangewide, 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 defoliation, 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 19 percent of the cumulative effects area has burned between 1985 and 2012. Wildfires have primarily removed shrub steppe habitats which 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 which precludes many of the obligate and dependent wildlife species that occupied the former shrub 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 provide valuable albeit marginal 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.

Reasonably foreseeable activities that would substantially affect wildlife habitat include grazing management changes (change in season of use and reduction in AUMs), range improvements (<4 miles of known fence construction), and vegetation treatments (21,000 acres gross or <14,700 acres net) in the Pole Creek Allotment. Permits for other allotments in the analysis area (including Castlehead/Lambert, Swisher Springs, Swisher FFR, and Nickel Creek FFR) are or have been evaluated, resulting in AUM reductions in some cases; others have not had decisions issued but include alternatives with reduced grazing levels. 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. Transportation planning and ongoing noxious weed treatments are expected to have little effect on wildlife habitat within this cumulative effects analysis area.

Fine Scale

The past, present, and reasonably foreseeable future actions within the fine scale cumulative effects analysis areas relevant to large and/or highly mobile wildlife species are presented in Table 4.4.5. Except where noted below, general effects within the fine scale cumulative effects analysis area for large and/or highly mobile wildlife species are the same as those identified in the broad and mid-scale analysis discussion. The spatial extent of these actions was calculated using the best available BLM GIS data.

Table 4.4.5 - Past, present, and foreseeable future actions within the fine scale cumulative effects analysis area for highly mobile wildlife species

Activity	Timeframe	Degree	Extent	Magnitude of Effect on Wildlife Habitat	Type of Effect
Livestock Grazing	Ongoing, continuous	2 active BLM allotments	Across analysis area	Moderate across entire area	Habitat degradation due to species composition shifts to less palatable plants and fewer large bunchgrasses

Activity	Timeframe	Degree	Extent	Magnitude of Effect on Wildlife Habitat	Type of Effect
Wildfire	Intermittently since 1980s	Approximately 3,000 acres	Patchy within analysis area	Moderately high within burned areas, low across entire area	Shift from juniper dominated to native grass/forb/shrub-dominated plant community
Vegetation Treatments (Prescribed Fire and Mechanical)	Intermittently since 1950s	At least 880 acres	Patchy within analysis area	Moderately high to high within treatments, low across entire area	Shift from juniper dominated to native grass/forb/shrub-dominated plant community
Fire Suppression	Ongoing, continuous	Moderately effective at suppressing fires, given distance from fire stations, etc.	Across analysis area	Moderate across entire area	Long-term shift from shrub/grass to juniper-dominated plant communities
Roads	Nearly all in place before 1980	Approximately 57 miles of roads and routes total	Distributed across analysis area, but cumulatively covering a small percentage of area	High but localized, so overall moderately low	Habitat fragmentation due to elimination of vegetation; introduction of noxious and invasive weeds
Agriculture	Ongoing, nearly all in place before 1980	Approximately 75 acres total	Hanley FFR and Pasture 4 of Trout Springs, cumulatively covers a small percentage of area	Moderately high in localized areas; low across entire area	Hayfields replacing native vegetation; anthropogenic disturbances
Recreation	Ongoing, continuous	Moderate visitor use of scenic byway summer-long; hunting season off-road travel and dispersed camping	Mostly near scenic byways; hunting throughout area	Low	Localized vegetation trampling; anthropogenic disturbances

Wildfire records maintained by the BLM indicate that approximately 10 percent of the cumulative effects area has burned between 1985 and 2012. Wildfires have primarily removed shrub steppe habitats which 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 which precludes many of the obligate and dependent wildlife species that occupied the former shrub and grasslands.

Approximately 3 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.

Less than 0.3 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 on private land along streams and reserboirs. 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 provide valuable albeit marginal habitat for many wildlife species.

Approximately 57 miles of roads of varying surface types and use levels occur within the cumulative effects area. Although the Mud Flat Road is a two-lane gravel road, 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.

Reasonably foreseeable activities that would substantially affect wildlife habitat include grazing management changes (change in season of use and reduction in AUMs), range improvements (<4 miles of fence construction), and juniper treatment (21,000 acres gross or <14,700 acres net) in the adjacent Pole Creek Allotment. 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. Transportation planning and ongoing noxious weed treatments are expected to have little effect on wildlife habitat within this cumulative effects analysis area.

<u>Less mobile wildlife species (including Columbia spotted frogs and pygmy rabbits)</u>
The past, present, and reasonably foreseeable future actions within the cumulative effects analysis area relevant to small and/or less mobile wildlife species are presented in Table 4.4.6.

Except where noted below, general effects within the cumulative effects analysis area for less mobile wildlife species are the same as those identified in the broad and mid-scale analysis discussion for large and/or highly mobile wildlife species. The spatial extent of these actions was calculated using the best available BLM GIS data.

Table 4.4.6 - Past, present, and foreseeable future actions within the cumulative effects analysis area for less mobile wildlife species

Activity	Timeframe	Degree	Extent	Magnitude of Effect on Wildlife Habitat	Type of Effect
Livestock Grazing	Ongoing, continuous	13 active allotments	Across analysis area	Moderate	Habitat degradation due to species composition shifts to less palatable plants and fewer large bunchgrasses
Fences	Most constructed before 1980; a few additions each decade	Approximately 460 miles of fence total	Distributed across analysis area, but cumulatively covering a small percentage of area	Moderate	Short-term, localized construction & maintenance disturbance; chronic cattle trails trampling vegetation, possible wildlife fence collisions
Troughs, cattleguards, corrals	Most constructed before 1980; a few additions each decade	Estimated 100-200 total	Distributed across analysis area, but cumulatively covering a small percentage of area	Low	Short-term, localized construction & maintenance disturbance; chronic cattle congregation trampling vegetation, potential wildlife water sources
Wildfire	Intermittently since 1980s	Approximately 56,900 acres	Patchy within analysis area	Moderately high within burned areas, low across entire area	Shift from juniper dominated to native grass/forb/shrub-dominated plant community
Vegetation Treatments (Prescribed Fire and Mechanical)	Intermittently since 1950s	At least 6,000 acres	Patchy within analysis area	Moderately high to high within treatments, low across entire area	Shift from juniper dominated to native grass/forb/shrub-dominated plant community

Activity	Timeframe	Degree	Extent	Magnitude of Effect on Wildlife Habitat	Type of Effect
Fire Suppression	Ongoing, continuous	Moderately effective at suppressing fires, given distance from fire stations, etc.	Across analysis area	Moderate	Long-term shift from shrub/grass to juniper-dominated plant communities
Roads	Nearly all in place before 1980	Approximately 410 miles of roads and routes total	Distributed across analysis area, but cumulatively covering a small percentage of area	High but localized, so overall moderately low	Habitat fragmentation due to elimination of vegetation; introduction of noxious and invasive weeds
Agriculture	Nearly all in place before 1980	Approximately 450 acres total	At ranches near Mud Flat Road	Moderately high in localized areas; low across entire area	Hayfields replacing native vegetation; anthropogenic disturbances
Noxious Weed Treatment	Ongoing, continuous	Estimated <100 acres treated since 1980s	Patchy, mostly along Mud Flat Road	Low	A few adjacent native plants killed; maintains native plant communities
Recreation	Ongoing, continuous	Moderate visitor use of scenic byway summer-long; hunting season off-road travel and dispersed camping	Mostly near Mud Flat Road; hunting throughout area	Low	Localized vegetation trampling; anthropogenic disturbances
Wilderness Designation	2009	72,840 acres	Along north and south edge of area	Low	Vehicle restrictions reduce wildlife disturbance

Wildfire records maintained by the BLM indicate that approximately 20 percent of the cumulative effects area has burned between 1985 and 2012. Wildfires have primarily removed shrub steppe habitats which 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 which precludes many of the obligate and dependent wildlife species that occupied the former shrub and grasslands.

Approximately 2 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.

Less than 0.2 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 provide valuable albeit marginal habitat for many wildlife species.

Approximately 410 miles of roads of varying surface types and use levels occur within the cumulative effects area. Although the Mud Flat Road is a two-lane gravel road, 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.

Reasonably foreseeable activities that would substantially affect wildlife habitat include grazing management changes (change in season of use and reduction in AUMs), range improvements (<4 miles of fence construction), and juniper treatment (21,000 acres gross or <14,700 acres net) in the Pole Creek Allotment. Permits for other allotments in the analysis area (including Castlehead/Lambert, Swisher Springs, Swisher FFR, and Nickel Creek FFR) are or have been evaluated, resulting in AUM reductions in some cases; others have not had decisions issued but include alternatives with reduced grazing levels. 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. Transportation planning and ongoing noxious weed treatments are expected to have little effect on wildlife habitat within this cumulative effects analysis area.

Alternative A

Under Alternative A, 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 degraded 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 all cumulative effects areas. 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 affects area, the downward trend in habitat conditions within the Trout Springs and Hanley FFR Allotments would not meet ORMP wildlife, fisheries, and special status species management objectives. 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. Nevertheless, due to the relatively small amount of sagebrush present and the size of the allotment, the effects to the majority of fish and wildlife populations, including the Owyhee sage-grouse subpopulation, would most likely be negligible across all cumulative effects analysis areas.

Alternatives B, D and E

Grazing management under Alternatives B, D, and E 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 will likely result in greater forage and cover for wildlife, due to a reduction in AUMs which would result in an overall increase in acres/AUM. Pastures with spring and early summer use (Alternative D) would contribute to adverse cumulative effects on birds during a sensitive nesting period, along with other allotments in the analysis area with similar seasons of use. Ground-nesting species, such as sage-grouse, would be exposed to a risk of egg and nest trampling, and would likely experience reduced nesting and foraging cover, all of which could lower productivity biennially. However, a fall season of use (Alternative B and E) would provide undisturbed breeding and rearing areas within the larger analysis area, potentially increasing wildlife productivity and populations. 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 breeding habitat would favor improvements in vegetation community composition, structure, and overall health.

The cumulative effects and risk of sage-grouse fence collisions would be negligible because only 0.5 miles of new fence construction would occur within currently marginal sage-grouse habitat. A recent fence collision risk model, created from a randomized sampling of fences near sage-grouse leks in Idaho (Stevens 2011, Stevens et al. 2012), identifies the risk of sage-grouse fence collisions in the Trout Springs Allotment as negligible throughout all pastures except Pasture 4. Sage-grouse fence collision risk in Pasture 4 is rated as low to high along the Trout Springs-Pleasant Valley boundary fence. However, collision risk might increase in other pastures of the allotment after successful juniper treatments at locations where sage-grouse habitat would be

restored. Therefore, to minimize collision risks at the allotment level as well as cumulatively, new fence construction would follow prescribed fence marking protocols according to IM ID-100-2011-001. In addition, the cumulative effects and risk of propagation and transmission of West Nile Virus (WNV) are not expected to increase with construction of the proposed range improvements because none involve water developments that would increase breeding habitat for WNV vector species.

Sage-grouse PPH within the Trout Springs Allotment is extremely limited (see Section 3.4.1) and is primarily connected to large areas of sagebrush habitat to the west in Oregon. Trend information for the Owyhee subpopulation is limited as leks are surveyed infrequently primarily due to inaccessibility. Sage-grouse habitat within the Trout Springs Allotment most likely represents the periphery of the range of the local population. Any adverse effects occurring in the allotment would probably have minimal consequences to the local 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 last 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 Trout Springs Allotment would have a negligible effect on the viability of the regional Northern Great Basin population or the species rangewide.

The proposed juniper treatment in conjunction with the treatments proposed for the Pole Creek Allotment and adjacent areas would have long-term beneficial effects to fish and wildlife habitats. Abundant juniper cover would remain throughout the allotment and cumulative effects analysis area for species that prefer forests and woodlands. Most wildlife species would benefit from the mosaic of habitats expected from the proposed treatments. Species such as sage-grouse, deer, pronghorn, and other sagebrush obligate species would benefit from the increase in open habitat initially, and subsequent shrub steppe habitat in the long term. Wildlife would benefit from more productive habitat types and greater habitat diversity across the landscape. These benefits could increase population numbers at the local and regional geographic scale.

Although improvement to wildlife habitats at the allotment level are expected under Alternatives B, D, and E and direct and indirect effects from the proposed grazing systems in conjunction with juniper treatments are expected to be relatively small and localized, cumulative effects from this project, along with other past and ongoing activities throughout the species' range regionally, are not likely to substantially affect these species' viability, nor lead to the need for listing under the ESA. Recovery of wildlife habitat within the Trout Springs and Hanley FFR Allotments could occur in the short term (3-5 years, 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. Nevertheless, due to the relatively small amount of sagebrush present and the size of the allotment, the effects to the majority of fish and wildlife populations, including the Owyhee sage-grouse subpopulation, would most likely be negligible across all cumulative effects analysis areas.

Alternative C

The extended rest proposed in Alternative C would depart markedly from the predominant grazing systems in all analysis areas, creating a unique, large area undisturbed by livestock grazing, which would provide a refuge for wildlife from surrounding areas. Extended rest would dramatically improve conditions for all species of wildlife throughout the Trout Springs Allotment. 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. Juniper treatments would have short-term disturbance, but long-term benefits would be as described above.

Cumulative effects to sage-grouse and their habitats within both cumulative effects areas would be the same as those described above for Alternatives B, D, and E. Wildlife and aquatic objectives would be met and there would be substantial progress toward meeting 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. The expected improvements considered cumulatively with other activities should benefit fish and wildlife habitat and populations within the Trout Springs and Hanley Allotments overall. However, due to the size of the size of the allotments, improving fish and wildlife populations within them would negligibly contribute to more robust regional fish and wildlife populations across all other cumulative effects analysis areas.

4.5 Cumulative Effects – Botany/ Special Status Plants

Scope

The cumulative effects analysis area for special status plants is the greater Juniper Mountain area, the same as described for Upland Vegetation, Noxious and Invasive Weeds. This area is appropriate for special status plants because the same types of disturbances and ecological processes function at this landscape scale on special status plant occurrences. The timeframe considered covers past activities since about 1980 to create current conditions, activities planned within the next three years (reasonably foreseeable activities are considered those that have been at least publically scoped), and the expected duration of effects from those activities (generally 10 to 20 years).

Current Conditions

Many of the same past activities that have affected upland vegetation have also affected special status plants in the cumulative effects analysis area; see Table 3.13.4 for a description of relevant past activities. However, because special status plants occupy a much smaller proportion of the area than upland vegetation, localized activities are less likely to impact special status plant occurrences unless they coincide with occurrence areas. Little or no monitoring information (either short or long term) is available for any of the special status plants in this area, so it is difficult to determine the degree of past and ongoing activities' effects to these species, but

general trends for special status plants are likely to be similar to upland vegetation. Table 4.5.1 displays the likely magnitude and type of effect of past and ongoing activities on special status plants in the cumulative effects analysis area.

Table 4.5.1 - Past and Ongoing Activities' Effects on Special Status Plants (SSP) in Cumulative Effects Analysis Area

Activity	Magnitude of Effect on SSP	Type of Effect
Livestock Grazing	Moderate, widespread	Trampling and grazing plants, potentially reducing vigor and reproduction of individuals; unknown effects on populations.
Infrastructure (fences, troughs, structures, roads, etc.)	Potentially high in a small percentage of occupied habitat	Elimination of individual plants and perhaps small occurrences.
Juniper cutting and prescribed burning	Moderately high within probably small patches of occupied habitat	Short-term (<3 years) disturbance of individual plants, mid-term (3-20 years) effects creating more open habitat, improving localized habitat for sun-loving species (ex: Mud Flat milkvetch, rabbitbrush goldenweed, short-lobed penstemon, etc.).
Fire Suppression	Moderate, widespread	Long-term (>20 years) effects increasing shade, reducing habitat for sun-loving SSP species.

Reasonably foreseeable future activities such as juniper treatment on the adjacent Pole Creek Allotment and permit renewal on Pole Creek, Castlehead/Lambert, Swisher Springs, Nickel Creek FFR, and other allotments in the cumulative effects analysis area would also add to cumulative effects on special status plants, but negative cumulative effects would be minor because avoiding special status plant locations is typically a standard design feature for range improvement construction and juniper treatments. Also, grazing permit renewals typically implement grazing systems that minimize impacts (trampling and grazing) to special status plants, by adjusting the timing and intensity of cattle use in occupied habitat, reducing cumulative effects from these activities.

As a result of past, ongoing, and reasonably foreseeable future activities, special status plant occurrences in the cumulative effects analysis area are probably stable to slightly declining, based on general vegetative trends (although again we have little or no monitoring data for these particular species). Note that the level of past and present disturbance from fires and machine disturbance is likely less frequent than what would be expected under a natural, historic disturbance regime (primarily fire). This reduction in periodic fire disturbance, combined with season-long livestock grazing disturbance (typical of most past and at least some current/future allotments), has created an altered disturbance regime that has likely stressed special status plant occurrences.

Cumulative Effects of Alternatives

Direct and indirect effects from grazing management activities and juniper treatments on special status plants in all alternatives except Alternative A are expected to be low, so the cumulative effects from these alternatives, when considered with past, ongoing, and reasonably foreseeable future activities, is also expected to be low. None of the alternatives is expected to affect a substantial portion of any special status plant's global or state-wide range, so cumulative effects analyzed in this document are not expected to substantially affect these plants' viability, nor lead to the need for listing under the ESA. The level of the direct/indirect effects, and thus cumulative effects, is related to the amount of livestock grazing active use or each alternative (along with grazing duration and season of use), number of proposed improvements, and acres of juniper treatments. The cumulative effects on special status plants from each alternative would be similar to the changes is disturbance level compared to baseline conditions as displayed in Table 4.5.1, although the degree of impact to special status plant occurrences is lower than the impact to general upland vegetation because occurrence areas are avoided for treatments and improvements.

Because Alternative A, which does not meet Standard 8 for special status plants, would have more impact on special status plants than other alternatives, its cumulative effects would also be greater than other alternatives. Growing season impacts from this alternative to special status plants would combine with ongoing grazing impacts to occurrences in other allotments, contributing to the long-term, slow decline in these populations.

Because Alternatives B and D would have relatively low direct and indirect effects to special status plants, these alternatives' cumulative effects would also be low. Minor impacts to special status plants would combine with ongoing grazing impacts to occurrences in other allotments. This would have very minor effects on the long-term trend of populations in the cumulative effects analysis area.

Alternatives C and E are expected to have only slight direct and indirect effects on special status plants, and produce significant improvement in habitat for these species compared to past management. Thus, these alternatives would have almost no negative cumulative effects on special status species.

Cumulative effects from juniper expansion in the absence of fire or clearing activities (as in Alternative A) are likely to have a greater effect on the long-term health of some special status plants than proposed activities. An increase in density of juniper stands is likely to make habitat less suitable for Mud Flat milkvetch and rabbitbrush goldenweed, and perhaps some of the other special status plant species. Because the juniper treatments planned in the Trout Springs and Pole Creek Allotments would treat only a portion of the seral juniper on Juniper Mountain and within the OFO area as a whole, this project would only slightly slow the overall juniper expansion rate (rather than reverse it), and have little cumulative effect.

4.6 Cumulative Effects – Recreation/Visual Resources/Wilderness and Wild and Scenic Rivers/LWCs

Scope

Cumulative effects to recreation, visual resources, and wilderness within the Trout Springs and adjacent 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 OPLMA that was passed by congress on March 30th, 2009. The passing of the Act designated roughly 517,000 acres of wilderness and 316 miles of wild and scenic rivers within Owyhee County. In addition, the Act also mandates the BLM to complete a transportation plan for all of Owyhee County. The area of analysis for cumulative effects is the entire Juniper Mountain area (delineated roughly by the North Fork Owyhee River on the north, Deep Creek on the east, the Owyhee River on the south, and the Oregon border on the west). This area is a good representation of the summer/fall recreation activity that occur within the area. Access to this area is provided via Mud Flat Road and the Owyhee River system serves as a natural boundary, there are a couple of crossings along the river system, however most recreational activity accessed from Mud Flat Road stays north of the river system. The timeframe considered covers activities since OPLMA for current conditions and activities planned within the next three years, and the expected duration of effects from those activities (generally 10 to 20 years).

Current Condition

Presently the main recreational activities within the Trout Springs Allotment and the analysis area include: backpacking, horseback riding, camping (North Fork Campground and dispersed camping), OHV use, hunting, fishing, and sightseeing. Recreationists utilizing the area can also travel the Backcountry Byway. Also within the area lie the recently designated "wild" North Fork Owyhee River and the North Fork Owyhee wilderness. The North Fork Owyhee River and its tributaries offer outstanding low-water backpacking and high water boating opportunities. Off-highway motor vehicle designations in the Trout Springs Allotment and surrounding area, with the exception of the wilderness area, are limited to existing roads and trails.

Much of the Trout Springs Allotment and surrounding area have been identified as LWCs. With the exception of private inholdings, a large amount of the area remains natural with limited improvements, roads, routes, and man-made features. Much of the area contains rugged terrain, deep canyons, and good vegetative screening, and offers outstanding opportunities for solitude. Outstanding opportunities for primitive and unconfined recreation exist throughout most of the area. The quality of recreational opportunities is generally considered outstanding because of the exceptional or unusual natural features and recreational attractions throughout the area.

All Alternatives

Recreation

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 which, depending on the timing, would affect the ability to access areas for

hunters and other recreationists. Range improvements 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.

Visual Resources
In the short term, some visual impacts would occur 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 allotment and minimal construction techniques, these types of features are substantially unnoticeable except at very close distances.

Juniper treatment projects would have extensive effects on visual resources. An estimated 50-70% 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% 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.

In the long term, the combined effects of the improved grazing management, designation of wilderness areas, wild and scenic rivers, travel management planning, and juniper treatments within the cumulative analysis area would be beneficial to the overall health and scenic quality of the area.

Wilderness and Wild and Scenic Rivers
Effects to Wilderness are expected to be negligible under all alternatives; therefore, no cumulative effects would occur. Some cumulative effects could occur to Wild and Scenic Rivers. Livestock access from adjacent allotments, as well as the Trout Springs Allotment (Alternative A), could negatively affect the North Fork Owyhee Wild River Corridor. These cumulative effects would be eliminated if a gap fence is constructed (as in Alternatives B, D and E) and livestock access to the river corridor is restricted from the Trout Springs Allotment. The benefits of the gap fence would far outweigh any negative effects associated with the proposed project as scenic quality, riparian habitat, water quality, fisheries and the overall ecological health of the wilderness and wild river corridor improve.

LWCs
Because few effects are expected from any alternatives, cumulative effects would be minimal for LWCs. The short-term impacts from Trout Springs in combination with anticipated impacts from Pole Creek and other proposed activities are not expected to be significant. In the long term, the combined effects of the improved grazing management, travel management planning,

and juniper treatments within the cumulative analysis area would be beneficial to LWCs and the overall ecological health, naturalness, and scenic quality of the area.

4.7 Cumulative Effects – Cultural Resources

Scope
The cumulative effects analysis area is the allotment boundary, and is appropriate for analyzing effects to cultural resources because the area does not dissect relevant historically known cultural boundaries or exclude areas expected to have potential impacts from any proposed activities. The limited direct and indirect effects the alternatives may have on cultural resources would not be felt outside the allotment boundary.

Current Conditions
Both historic and prehistoric sites in the area are generally represented by isolated lithics or open artifact scatters of resilient materials, a few of which have the potential for buried components containing more perishable materials that could be of scientific and cultural interest. Recorded sites' current conditions have been determined by natural weathering of perishable materials on the surface, probable displacement of artifacts by erosion, some cattle trampling that has probably resulted in minor artifact displacement and breakage (though wildlife can also cause such actions), and illegal artifact collecting on at least one site, possibly eliminating the site's potential for yielding information on chronology and cultural affiliation since diagnostic artifacts are most often removed.

In August of 2012, the Grasshopper Fire burned over a large area of the Trout Springs Allotment that included four isolated artifacts and a prehistoric lithic scatter with no features or subsurface components. Wildfires are part of the natural and cultural ecosystem in the area, and most of the sites in the allotment are hundreds to thousands of years old. Most sites would therefore have been subject to some level of fire in the past with little to no observable effects over the long term, though conditions would have been different than for current wild or prescribed fires. The site has not been revisited, but no ground disturbing fire suppression took place in the area and no lasting effects are expected from the fire.

Reasonably foreseeable projects include the Water Haul Site and fence projects discussed in Section 2.2.3 along with potential changes in grazing management and juniper treatments. As new projects are proposed cultural resources will be considered in compliance with NHPA Section 106, and any potential impacts will be mitigated on a case-by-case basis.

General Discussion of Impacts
Grazing has had a long history in the study area. By the 1840s, the Oregon Trail was bringing thousands of people, horses, mules, oxen, and cattle through Idaho (Vale 1975, Yensen 1982). Ranching and other historic industries have occasionally resulted in both site disturbance and in the presence of related historic sites in southwest Idaho. Current BLM policy and federal regulations require mitigation of impacts for proposed projects such as construction of range improvements. More generalized and lower impact activities like recreational use, grazing, and

prescribed fires might influence surface artifacts to some extent, but their impacts will be similar to wildfires, trampling by wildlife, and other natural changes that happened to site surfaces in the past and are unlikely to affect site eligibility unless combustible structures or other features are involved. As long as vegetation and soils at these sites are allowed to recover after such disturbances, erosion at sites from these activities resulting in loss of information potential or cultural context will not occur. The upper 10 centimeters of a site has usually already undergone some natural horizontal mixing, so cattle are only likely to significantly disturb sites where they congregate, particularly near water sources where soils are saturated or in areas more vulnerable to erosion. Cattle trampling and mixing sediments, wallowing, and disturbing vegetation can increase erosional susceptibility. However, no grazing impacts to sites have been noted during recent cultural resource inventories in the Trout Springs Allotment.

Alternative A – Cumulative Effects

If high AUMs were maintained over years to decades, increased erosion caused by vegetation loss and trampling could result in some artifacts and sites becoming exposed, disturbed, or lost. This could occur as streams continue to cut back into older terraces and sheet wash removes surface sediments over terrestrial sites. Allowing juniper encroachment could be detrimental to sites by increasing the potential of severe fire events and vegetation shifts including more bare ground that could facilitate erosion (see Section 3.10.2.1). Inadvertent damage to sites could also occur during wildfire-fighting efforts. Prescribed burns with smaller fuel loads and planned cultural resource avoidance and blacklining as proposed under other alternatives would pose fewer risks to sites. Under this alternative mitigation strategies might be developed protect some sites, but might not be adequate to compensate for loss of cultural resources to stream head cutting and other erosion. Over time, this alternative could have an overall effect on our ability to understand the history or prehistory of the area and could lead to irreversible harm to a very small number of sites that may be important to regional culture heritage.

Alternatives B-E – Cumulative Effects

Because there would be more opportunity for vegetation and soil recovery between grazing seasons under all other alternatives, cumulative effects expected from grazing would be minimal and the condition of cultural resources should remain relatively stable. Despite some expected surface artifact breakage and potential fire effects to a limited number of sites (those missed on survey, deemed insignificant, or in the case of accidental fire escape), the most significant elements of sites would remain intact provided soils and riparian areas are protected from significant erosion. Fence and water haul projects proposed under these alternatives have had cultural inventories and no sites will be affected. Even when combined with all other past, present and reasonably foreseeable actions, these alternatives would not have an overall effect on our ability to understand the history or prehistory of the area and the cultural values of the sites would be maintained over the long term.

4.8 Cumulative Effects – Grazing Management/Socio-economics

Scope

For grazing management, the analysis area, includes grazing allotments on and immediately adjacent to Juniper Mountain on the east and south, to the Oregon border to the west, and north to Cliffs, ID and is approximately 350,000 acres in size. It includes all or portions of 19 grazing allotments, including 10 allotments that have been fully processed (final decisions implemented). This is important to note because fully processed permits have provisions in place that ensure allotments are meeting or moving toward Standards.

The timeframe considered covers past activities since about 1997, when Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management were initiated, to create current conditions, activities planned within the next three years (reasonably foreseeable activities are considered those that have been at least publicly scoped), and the expected duration of effects from those activities (generally 10 to 20 years). It is important to note that by 2015 many of the grazing permits within the area should be implementing changes required by the Standards and Guidelines.

The scope of this analysis for socio-economics covers Owyhee County, ID, and Malheur County, OR because although the Owyhee Field Office has jurisdiction over just the allotments within the Owyhee Resource Area, one permittee applying for livestock grazing permit renewal maintains a ranch near Jordan Valley, Oregon. Actions taken regarding grazing permit renewals will affect the socioeconomic conditions in these counties because they influence decisions the operators make regarding their ranches.

For Alternatives A, B, D and E, as long as the ranch remains in business, it 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 C, not renewing the permit would mean that the BLM would no longer be contributing to the ranching community by providing low-cost grazing land, and permittees would be contributing less to employment or the purchase and sales of goods and services in the community. Ranching plays a large role in both counties; therefore, it is unlikely that no grazing on the allotments for 10 years would have a cumulative effect on the entire county.

Current Condition

Livestock grazing in the region dates back to the late 1800s and remains the dominant land use of the cumulative effects area. Throughout its history, ranching has been a dispersed activity characterized by rural communities; it provides important income to the area. Privately held grazing land is not federally administered, but can serve as base property from which ranching operations supplement their activities through the use of federal grazing allotments.

Prior to the Taylor Grazing Act, unregulated livestock grazing severely affected the vegetation resources within the cumulative effects area by eliminating or greatly reducing the primary understory plants. However, since that time, grazing management systems, such as those implemented on Nickel Creek and proposed on Pole Creek, have led to improved resource conditions and sustained livestock grazing and ranching communities in the cumulative effects area.

In addition to livestock grazing, other past activities that have occurred within the cumulative effects area include construction of range improvements to aid in livestock management, juniper treatments including prescribed fires, roads and other infrastructure, agriculture, recreation, and wilderness designation.

Alternative A
Alternative A with its lack of juniper treatment represent a small percentage (less than 6%) of the cumulative impacts analysis area for grazing and socio-economic resources. Although Standards are not expected to be met under this alternative, past and present actions, in combination with future planned activities would have minor effects on livestock/grazing management and income within the cumulative effects area. Surrounding allotments within the analysis area would be expected to have improving resource conditions, as new permits and terms and conditions are implemented, which would improve the overall ability to manage livestock and produce income, but not on this allotment under this alternative. No additional improvement in ecological conditions would occur and no additional benefit to the sustainability of the livestock/ranching industry and livestock management/socio-economics would ensue if this alternative is implemented.

Alternatives B, C, D and E
The proposed alternatives and juniper treatments represent a small percentage (less than 6%) of this analysis area. Past and present actions, in combination with future planned activities from livestock grazing, recreation, road construction/maintenance, mining activities, agriculture and vegetation projects would have negligible effects on livestock/grazing management and income within the cumulative effects area. Effects from grazing are likely to change and continue to improve throughout the area from present conditions. Implementation of vegetation projects would have short-term effects to livestock management, but would be a benefit in the long term which would improve the overall ability to manage livestock and produce an income. Cumulatively, approximately 2.0 miles of additional fence (except in Alternative C) in combination with current (563 miles of fence exist) and foreseeable fence construction (2.6 miles) would have negligible effects because numerous miles of fence already occur in the analysis area. This is a negligible increase to the fence network in the cumulative effects area, and there is no indication that the current fence density is having negative effects to grazing management and socio-economic resources.

Along with the past, present, and reasonable foreseeable future actions, there should be an incremental improvement in ecological condition over a period of time, therefore benefitting the sustainability of the livestock/ranching industry and livestock management/socio-economics.

4.9 Cumulative Effects – Air Quality

Effects to air quality resources are expected to be negligible under all alternatives; therefore, no cumulative effects would occur.

5.0 List of Preparers

Name	Title	Function
Steven Jirik	Assistant Field Manager	Team Lead, Fire Ecology, Edit and Review, Quality Control
Richard Jackson	Hydrologist/Soil Scientist	Riparian, Water Quality, Watersheds, Soils
Beth Corbin	Ecologist/Botanist	Upland Vegetation, Fire Ecology, Weeds, Special Status Plant Species
Chris Robbins, Tina Ruffing	Rangeland Management Specialists	Team Lead, Range/Livestock Management, Socio-Economic
Jason Sutter, Brad Jost	Wildlife Biologist	Fish and Wildlife, Special Status Animal Species
Ryan Homan	Outdoor Recreation Planner	Recreation, Visual Resource Management, Wilderness and Wild and Scenic Rivers, Air Quality
Brian McCabe, Kelli Barnes	Archaeologists	Cultural Resources

6.0 List of Agencies, Organizations, and Individuals Consulted

Received written comments during project scoping from:

- Idaho Department of Fish and Game
- Ron Kay, Idaho Department of Agriculture
- Western Watersheds Project

Additional comments were received on the Draft EA from:

- Idaho Department of Fish and Game, Southwest Region (IDFG)
- Owyhee Range Service (on behalf of Hanley Ranch Partnership) (HRP)
- Ted and Dorothy Payne
- Brett Nelson
- Western Watersheds Project (WWP) – Katie Fite

Copies of the Draft EA were also provided to the Shoshone-Bannock Tribes, Owyhee County Commissioners, Boise District Grazing Board, Idaho Cattlemen's Association, Idaho Department of Agriculture, Idaho Department of Lands, Oregon Division of State Lands, US Fish and Wildlife Service, The Nature Conservancy and the Wilderness Society among others. The project record contains a complete mailing list.

6.1 Tribal Consultation

Shoshone-Paiute Tribes at Wings and Roots Meetings on July 16, 2009 and September 17, 2009.

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8.0 Appendices

9.0 Maps