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U.S. Department of the Interior
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Environmental Assessment
DOI-BLM-ID-B030-2009-0030-EA

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

July 2012

U.S. Department of the Interior
Bureau of Land Management
Owyhee Field Office
20 First Avenue West
Marsing, ID 83639

NATIONAL SYSTEM OF PUBLIC LANDS

UNITED STATES DEPARTMENT OF THE INTERIOR
BLM, BOISE DISTRICT
EA DOI-BLM-ID-B030-2009-0003-EA

Applicant (if any):	Proposed Action: **Term Permit Renewals for Livestock Grazing in Trout Springs and Hanley FFR Allotments**			EA No. **DOI-BLM-ID-B030-2009-0003-EA (formerly ID-130-2009-EA-3680)**
State: **Idaho**	County: **Owyhee**	District: **Boise**	Field Office: **Owyhee**	Authority: **NEPA, FLPMA, & Taylor Grazing Act**
Prepared By: **OFO ID Team**	Title: **Various**			Report Date: **July 6, 2012**

LANDS INVOLVED

Meridian	Township	Range	Sections	Acres
Boise	**10S, 11S**	**4W, 5W**	**Various**	**27,892**
Boise	**9S**	**5W**	**Various**	**63**

Consideration of Critical Elements	N/A or Not Present	Applicable or Present, No Impact	Discussed in EA
Air Quality			X
Areas of Critical Environmental Concern	X		
Cultural Resources			X
Environmental Justice (E.O. 12898)		X	
Farm Lands (prime or unique)	X		
Floodplains	X		
Migratory Birds			X
Native American Religious Concerns			X
Invasive, Nonnative Species			X
Wastes, Hazardous or Solid	X		
Threatened or Endangered Species			X
Social and Economic			X
Water Quality (Drinking/Ground)			X
Wetlands/Riparian Zones			X
Wild and Scenic Rivers			X
Wilderness Areas			X

Environmental Assessment #DOI-BLM-ID-2009-0003-EA
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 its northern boundary, the southern boundary lies on the south side of Juniper Mountain, Squaw Creek forms a portion of the western boundary, 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. Table 1.1 shows the land ownership for both allotments.

Proposed pasture changes, analyzed in the alternatives, are reflected in Appendix B.

Table 1.1 – Ownership and Acres across allotments.

Allotment	Pastures	Ownership			Total Acres
		Federal	State	Private	
Trout Springs	1A – Middle Fork	5,730	0	0	**5,727**
	1B – Thomas Cr	7,730	0	124	**7,856**
	2 – Cottonwood	2,334	0	2	**2,585**
	3 – Twin Springs	11,852	65	109	**11,774**
	4 – Fairylawn	246	0	1,280	**1,526**
Totals		**27,892**	**65**	**1,515**	**29,472**
Hanley FFR	1	63	0	598	661

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. 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; 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.

A 2005 University of Idaho analysis of the juniper transitional phases indicates that 42% of the Trout Springs Allotment consists of Phase 3; 44% is in Phase 2; and only 14% 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. Accordingly, to re-establish a natural fire regime, improve rangeland health, and restore the declining shrub steppe, aspen, and riparian communities in the Trout Springs Allotment, pre-burn cutting is required in many areas to build a consistent fuel bed that would carry broadcast fire under prescribed fire conditions.

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 reference 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. Due to juniper expansion the BLM determined that land health standards cannot be met unless vegetative treatments are implemented.

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 EA, 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 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.

1.5 Summary of the Alternatives

BLM initially considered thirteen alternatives, 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. Alternatives are common to both the Trout Springs and Hanley FFR Allotments.

The five alternatives include:

Alternative A – represents the current situation or current management from 2002 to 2007 for the 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 FFR allotment to occur between June 1 and December 30 for a total of seven AUMs on BLM lands.

Alternative B - consists of 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 - consists of no grazing during the 10-year term of the permit.

Alternative D - was 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. 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 - is 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)

[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.

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 23,300 acres. (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

In 2002, a Final Decision was issued by the Owyhee Field Manager for the Trout Springs and Hanley FFR Allotments renewing grazing permits to Hanley Ranch Partnership (HRP) and Ted Payne. This Decision authorized 1,977Active AUMs in the interim for the 2003 grazing season (of which 114 Active AUMS were to be used by Mr. Ted Payne in the Squaw Creek “V” pasture), and a total of 1,430 Active AUMs between both HRP and Payne Family LLC for livestock grazing in Pastures 1, 2, 3, and 5 thereafter in the Trout Springs Allotment. Both parties and Owyhee County filed Appeals and Requests for Stay of the Final Decisions. The stay requests were denied for Ted Payne and Owyhee County, but granted for HRP. 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.*" BLM agreed to revisit the 2002 Final Decision and issue a new Proposed Decision by the end of October 2003. Therefore, in March 2003, all appellants withdrew their appeals and the proceedings were dismissed.

The settlement agreement outlined livestock management in specific rotations for ten years (beginning in 2003) with 2,116 Active AUMs in Years 1-6 and 2,663 Active AUMs in Years 7-9; Year 10 livestock grazing reverted back to Year 1. In November 2003, a Proposed Decision was issued to HRP and Ted Payne, and protested by WWP. After consideration of the protest points received, the Owyhee Field Manager decided not to issue a Final Decision; therefore, the 2002 Final Decision permitting 1,430 Active AUMs (Pastures 1, 2, 3, and 5) continued to be in effect.

Although the 2002 Final Decision was still in effect, the Owyhee Field Manager appeared to have followed the 2003 settlement agreement between BLM and permittees. Authorized AUMs from 2003-2007, therefore, reflect the AUMs outlined in the agreement. However, "Actual Use Reports" submitted by HRP from 2003-2007 documents that substantial livestock use occurred outside of the authorized dates. Consequently, Alternative A in this document (current situation) articulates how the livestock actually grazed the allotment, not how livestock were authorized.

In April 2008, WWP filed a motion in District Court with Judge B. Lynn Winmill for partial summary judgment and injunctive relief for the Trout Springs Allotment. WWP claimed that BLM was violating the Fundamentals of Rangeland Health, the ORMP, and the Clean Water Act in authorizing livestock grazing on the allotment. Furthermore, WWP requested a preliminary injunction closing the allotment to livestock grazing in 2008 and such future years as necessary. On May 5, 2008, the Owyhee Field Manager issued a Final Full Force and Effect Decision to remediate livestock-induced resource damage and provide immediate resource protection. The decision closed Pastures 1, 2, and 3 in the Trout Springs Allotment for the 2008 and 2009 grazing seasons, and limited livestock grazing on Pasture 4 (Fairylawn) to 25 AUMs on public lands. Then on May15, 2008, BLM and WWP reached a compromise settlement which stated that livestock grazing in the Trout Springs Allotment during the 2010 grazing season and beyond would be contingent upon the completion of an appropriate environmental analysis, final grazing decision, and issuance of a new grazing permit. WWP agreed to withdraw its motion for summary judgment and dismiss without prejudice all claims raised in the First Amended Supplemental Complaint.

In June 2008, Payne Family Limited Liability Company (LLC) and HRP appealed the May 5, 2008 Final Decision, and a Request for Partial Stay was submitted by the Payne Family LLC. In July 2008, BLM, HRP, and Payne Family LLC agreed to a settlement with the following stipulations, which were approved by Administrative Law Judge Harvey Sweitzer:

1. The BLM intended to issue a new grazing decision for the Trout Springs Allotment before December 31, 2009;
2. HRP, Payne Family LLC, and BLM agreed to a stay of these proceedings, including Payne's Petition for Partial Stay, pending issuance of a new grazing decision for the Trout Springs Allotment before December 31, 2009.
3. Between June 2008 and December 31, 2009, Hanley and Payne agreed to graze the Trout Springs Allotment, consistent with the May 5, 2008 decision, subject to the following:
   a. Hanley and Payne denied the entire basis for the decision dated May 5, 2008, and agreed to take *Voluntary Non-Use* for livestock fluctuation reasons during the 2008 and 2009 grazing seasons, as related to Pastures 1, 2, 3 of the Trout Springs Allotment.
   b. The BLM will not issue livestock trailing permits for the Trout Springs Allotment but authorizations are not required for trailing on county roads.
   c. The BLM agreed to coordinate with Hanley for the continued grazing use of Pasture 4 (Fairylawn) of the Trout Springs Allotment, and to authorize any Exchange of Use authorizations for this pasture in accordance with 43 CFR § 4130.6-1.

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 due to an unsatisfactory record of performance with his current 10 year permit. HRP appealed the BLM decision, and on April 6, 2011, the Honorable Robert G. Holt, Administrative Law Judge issued an Order granting the motion of the Bureau of Land Management for summary judgment. The Hanley Ranch Partnership's summary judgment was denied. Hanley Ranch Partnership has since appealed the Order dated April 16, 2011 to Interior Board of Land Appeals. The Interior Board of Land Appeals has not ruled to date on Hanley Ranch Partnership's appeal.

Payne Family LLC was determined to have a satisfactory record of performance and this environmental document analyzes both 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 the 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 Description of the 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 last in place on the allotment. Alternatives B, C D 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.

2.2 Management Common to All 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.
   b. Surveys to inventory raptor nest sites 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.

c. Appropriate measures (such as altering juniper cutting and ignitions or moving the fence location) would be implemented as practicable around raptor nests and Columbia spotted frog occupied habitat (see Section 2.2.2.1).
d. Special status plant surveys have been conducted at all proposed range improvement sites and representative juniper treatment areas, and in some situations fence locations have been adjusted to minimize effects to special status plants (Corbin 2010a, 2010b).
e. Cultural inventories have been performed in all pastures. Inventories are coordinated in consultation with the Idaho State Historic Preservation Office (SHPO). Known significant archaeological sites would be avoided within the cutting areas. Identified sites with combustible features would be protected during the deployment of prescribed fire by black-lining resources or other suitable measures and use of appropriate ignition techniques. The OFO Archaeologist would review burn plans prior to project implementation. If significant cultural resources were encountered within areas of potential effect, project implementation would be postponed and the OFO Archaeologist would be notified. Prior to resuming work, historic property documentation and evaluation would be completed. Mitigation plans would be developed in consultation with the Idaho SHPO and affected Tribes, if necessary. Monitoring of significant sites would be conducted to assess any damage that may be attributed to juniper treatments, livestock management activities or natural processes.

3. Noxious weed 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 Geographic Information System (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. The below 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. Exceeding 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 during the critical growth period (when perennial grasses are actively growing) every year.
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 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). Construction of new improvements would utilize techniques to minimize disturbance, as practicable.

Range improvements would be at least a quarter mile from the Wild and Scenic River corridor on both sides of the river. 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 would be constructed, 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 fence reconstruction 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. One 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 Phase 2 and early stage Phase 3 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 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. Jackpot burning or slash burning would consist of burning downed trees and parts thereof. The purpose of this treatment would be to consume remnant slash from cutting treatments. This treatment 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.

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). 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.

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 on seral juniper rather than patches of sagebrush or mahogany within the broadcast burn units.

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 the concentrations of debris created, or jackpots, would be burned in the late fall or early spring. 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 just a 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 preferred treatment would be girdling without burning.

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, where practicable, inclusions of old growth juniper and old growth mahogany that lack much encroaching juniper within the larger broadcast and jackpot burn units.

Although no pre-burn cutting or intentional lighting would occur within these areas, fire may inadvertently carry into some of these sites because no fire control lines would be constructed around them. However, since no pre-burn cutting would occur, it is unlikely that fire would carry far into these non-targeted stands under the weather conditions specified in the burn prescription.

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 vehicles associated with burning efforts. 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 mid-line of the road to quick start the revegetation of the center line, etc.
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 Boise District Fire Management Plan (DOI-BLM, 2011), besides prescribed burns, wildfire would 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 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]
Ferruginous Hawk	Apr 1 – Aug 15	0.50
Golden Eagle	Feb 1 – Aug 15	0.50
Northern Goshawk	Apr 1 – Aug 15	0.50
Other Raptors	Apr 1 – Aug 15	0.25

[1]Indicates timeframes for prohibiting broadcast burning 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. All archaeological inventories would be coordinated in consultation with affected Tribes and the Idaho State Historic Preservation Office. The OFO Archaeologist would review burn plans prior to project implementation. Sites with combustible features would be protected during the deployment of prescribed fire by black-lining resources and use of appropriate ignition techniques. If significant cultural resources are encountered within areas of potential effect, project implementation would be postponed and the OFO Archaeologist would be notified. Prior to resuming work, appropriate historic property documentation and evaluation would be completed. Mitigation plans would be developed in consultation with the Idaho State Historic Preservation Office and the Tribes, as necessary.

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. Evaluation guidelines for resuming grazing include:
    a. Canopy and ground cover of herbaceous vegetation should be approximately 80% of what is found in the unburned islands and adjacent areas after the second growing season. Aspen leaders should reach an average height of four feet or more 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.
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 would remain on the stump after the juniper tree is cut.
8. Cutting crew camp locations would be pre-approved by the Authorized Officer.
9. Cutting within identified key sage-grouse habitat (Map 6) 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 ¼ mile of active ferruginous hawk, golden eagle, or northern goshawk breeding attempts or ⅛ mile of other active raptor breeding attempts until failure or dispersal of young. For cutting treatments scheduled to occur during the breeding season, activity status would be confirmed between April 15 and August 15 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 broadcast burning treatments would occur within the next ten years.
14. 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 may be authorized, as the pasture would still receive the second growing season of rest. Grazing in the treated pasture(s) would depend on monitoring data, and success of the treatment. As identified in Section 2.2.1. above, these objectives would include a post-burn canopy and ground cover conditions for herbaceous vegetation of at least 80% of unburned areas and aspen leaders that are at least four feet in height on areas accessible to livestock.
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.

2.2.1 Livestock Trailing/Crossing (Alternatives B, C, D and E)

BLM analyzed livestock trailing/crossing in Environmental Assessment # DOI-BLM-ID-B030-2012-0011-EA (Trailing EA) (USDI-BLM 2012). Livestock are trailed through the Trout Springs Allotment on the Owyhee Uplands Backcountry Byway (also known as the Mud Flat Road) and its right-of-way as indicated on Map 12. The Trailing EA determined that up to 540 head of cattle would be authorized to trail along the Mud Flat road between June 6 and June 25, with a total duration of two days. Annual authorizations (bills) would be issued prior to trailing/crossing. Although 36 AUMs would be authorized for trailing/crossing, cattle would be actively trailing at all times and much less than 36 AUMs are expected to be utilized.

Additional Terms and Conditions identified to reduce environmental effects include:

1. <u>Livestock Grazing - Terms and Conditions</u>
    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 known 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. They include:

A. 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.

B. 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. Recent 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 piled 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.

C. 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 this treatment method 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.

D. 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.

E. 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 (Appendix A). 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.

F. Grazing Use as authorized in 2002 - 2007. For the reasons 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 authorized 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 in addition to hot season use would not make significant progress toward meeting Standards.

G. 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.

H. 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. Therefore, this proposed component was not incorporated into any alternatives, but may be considered in a future NEPA document.

I. 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. A detailed analysis of this alternative can be found in the Project Record.

J. 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. A detailed analysis of this alternative can be found in the Project Record.

K. 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. 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 toward meeting Standards while meeting the purpose and need of this EA. The grazing permits would be issued for a term of ten years. 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 as described in Alternative A. There would be no AUMs in the suspended category. 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.

2.4 Description of Alternatives

This section describes in detail the proposed action and 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. Scheduled rotations pursuant to the 2003 Settlement Agreement and billing authorizations were not followed by one permittee, and based on reviews of monitoring and actual use data, large numbers of cattle remained in pastures after the scheduled removal date. Alternative A is a continuation of typical grazing practices that occurred from 2002-2007. The 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. 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 seven 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, Cottonwood Creek Headwaters, Cottonwood/Albiston Spring exclosures, and North Fork Owyhee River. 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.
12. 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.

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.

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	1053	2841	3894
	9 cattle*	9/15 – 12/5	100	25		25
Permit #2	133 cattle	9/15 – 12/5	100	352	694	1046
Totals	**530 cattle**	**9/15 – 12/5**	**100**	**1,430**	**3535**	**4965**
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% 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 during the critical growth period (when perennial grasses are actively growing) every year.
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.
7. 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.
8. 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.
9. 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.
10. 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.
11. Changes to scheduled grazing use require prior approval by the Authorized Officer.
12. Livestock turnout dates are subject to Boise District Range Readiness Criteria.
13. 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.

14. 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.
15. 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.
16. 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.
17. Motorized or mechanized transport and motorized equipment is not allowed in wilderness areas without prior authorization.
18. 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 2.4 - 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. No range improvements would occur. 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. 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.

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. A total of 3,535 AUMs would be suspended. 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 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.
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.
11. 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 2.6 - 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 use data were used with the desired utilization level to calculate carrying capacity. Actual use data include use by cattle. 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 exists. 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. Up to 475 cows may be licensed for a shorter period of time, but would not exceed 1,147 AUMs. This would result in a 42% reduction in Active AUMs as compared to the average actual use described in Alternative A. 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 #1	310 cattle	9/15 – 12/5	100	835	2,841	448
	9 cattle[1]	9/15 – 12/5	100	25		
Permit #2	106 cattle	9/15 – 12/5	100	287	694	699
Totals	425 cattle[2]	9/15 – 12/5	100	1,147	3535	1,147
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. A total of 1,122 AUMs would not be exceeded in these pastures.

Other Terms and Conditions

1. Utilization of key upland herbaceous forage species by livestock of no more than 40% if pasture includes rest or deferred rotation.
2. Utilization of key upland herbaceous forage species by livestock of no more than 35% if pasture is grazed during the critical growth period (when perennial grasses are actively growing) every year.
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.
7. 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.
8. 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.
9. 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.
10. Changes to scheduled grazing use require prior approval by the Authorized Officer.
11. Livestock turnout dates are subject to Boise District Range Readiness Criteria.
12. 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.

13. 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.
14. 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.
15. 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.
16. Motorized or mechanized transport and motorized equipment is not allowed in wilderness areas without prior authorization.
17. 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
Pasture/Number of Days	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
Pasture/AUMs	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)

Comparison by Alternative	Alternative A		Alternative B		Alternative C	Alternative D		Alternative E	
	2	640	2A	0 (yr 1) 188 (yr 2)		2A	0 (yr 1) 195 (yr 2)	2A	0 (yr 1) 150 (yr 2)
	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 Permit	1,430		1,147	
Suspended AUMs	2,977		0		No Permit	3,535		0	
Voluntarily Withheld AUMs	0		0		No Permit	0		0	
Permitted AUMs	4,965		1,430		No Permit	4,965		1,147	
% 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 3950 acres in the Trout Springs Allotment and 0 acres in the Hanley FFR are greater than 30%. The hazard of wind erosion is low in both allotments.

Trout Springs and Hanley FFR Allotment Determinations identified that both allotments did not meet 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 H).

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. These areas would continue to not make significant progress toward meeting Standard 1. Watershed impairing effects due to western juniper encroachment, combined with the utilization of the 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 Indicators of 40% and 50% use (Appendix F). Therefore, under Alternative A, utilization is expected to exceed the management indicator 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 H). 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). These conditions would likely continue in the short and long terms (up to five years and ten years and beyond, respectively) under current management.

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 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. 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. 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 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 thereby leaving more residual material on the ground for watershed protection, aiding in better hydrologic function in the long term.

Effects from livestock trailing/crossing would include minor soil disturbance due to hoof impacts. Because trailing is limited in area (a 240-foot-wide corridor along the Mud Flat Road, and most cattle will stay on or near the cleared roadbed), duration (two days per year), and intensity (up to 540 head per year), 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 excessive 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.

Hanley FFR

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 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 number, 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, 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 due to the decreased livestock numbers and the incorporation of rest/rotation in Pastures 1A, 1B, and 2A, and deferment in Pastures 2B and 3. Also, additional rest from the juniper treatments (as identified in the interim management) along with rest/rotation implemented in the proposed grazing schedule could result in a possible six to seven years 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 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. Due to the area's high elevation and juniper densities which tend to accumulate snow and retard snow melt, as well as field observations from April 14, 2010, Range Readiness Criteria may not be met by April 15 every year (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 has fewer livestock resulting in a lower stocking rate, which should reduce grazing and related effects to vegetation and soil surface, allowing 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 are 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, climate (precipitation and temperature), and under a natural disturbance regime. The Trout Springs Allotment is composed of two primary and three secondary ecological sites (Table 3.2.1; Map 7). The primary sites are a Loamy 13-16" precipitation mountain big sagebrush/bluebunch wheatgrass and Idaho fescue site and a mahogany savanna site; the secondary sites are a Shallow Claypan low sagebrush site, a Very Shallow Stony Loam low sagebrush site, and Steep Rocky Canyons. See Appendix I for a more detailed description of the dominant ecological sites, and Appendix N 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%
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 UV2.

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

Vegetation Cover Type	Percent of Allotment
Juniper	34%
Mountain big sagebrush	31%
Mountain mahogany shrub	21%
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.

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. 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). This is 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.

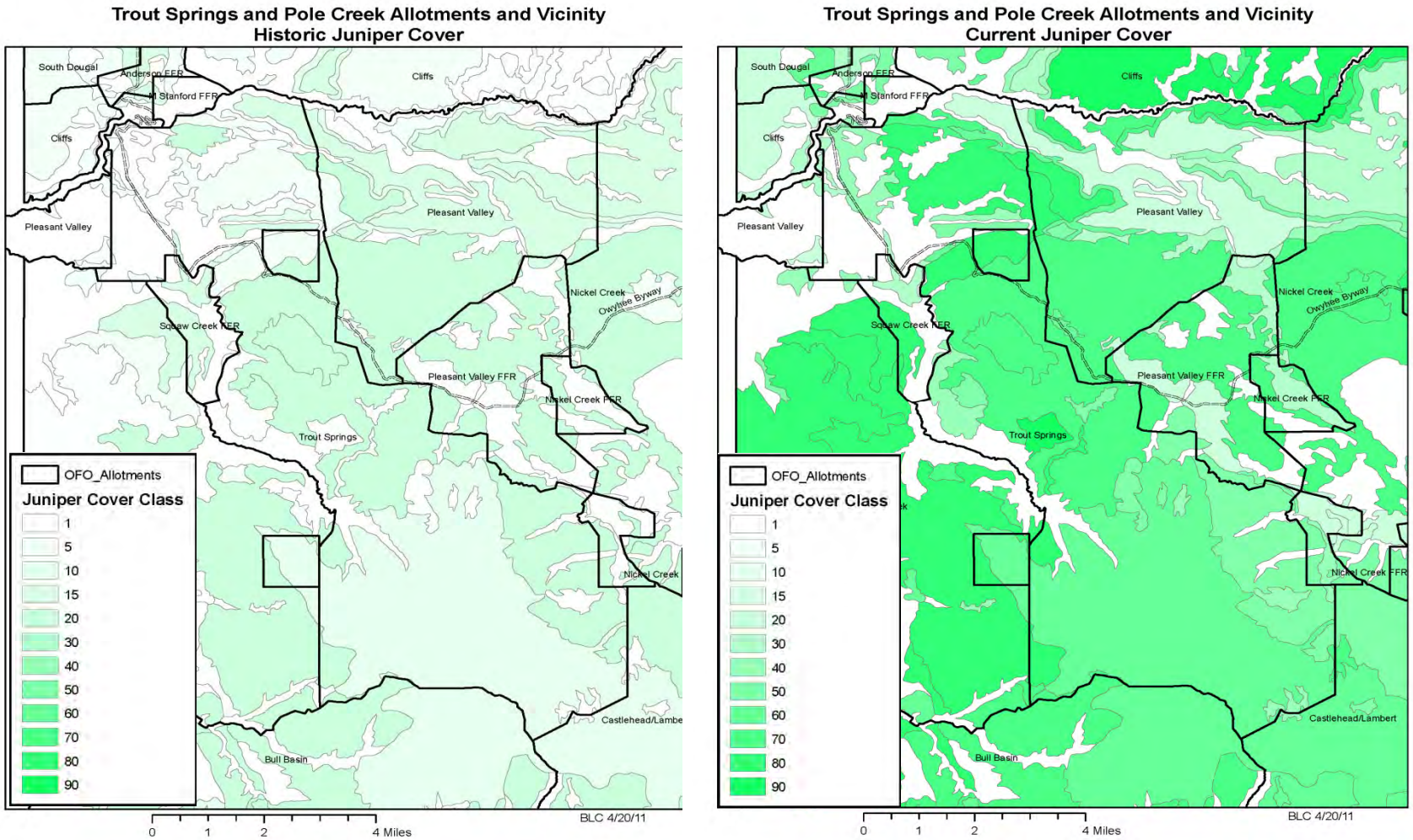

Figure 3.2.1 – Juniper Coverage Change. GIS data is from Major, in review. Cover class of Current Conditions do not reflect Juniper coverage since the 2007 Crutcher Fire (Tongure Fire Complex) which affected a very small portion of the Trout Springs Allotment. Cover Class is represented as a percent.

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 UV3 and Appendix J).

The increase in juniper density within the Trout Springs Allotment is also illustrated by the proportion of juniper transitional phases (Map 4). Forty-two percent of the allotment is mapped in Phase 3 (juniper dominant); 44%, Phase 2 (juniper co-dominant with shrubs and herbs); and only 14% 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 a 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) 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. 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.

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

Non-native invasive plants not designated as noxious include 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. Ventenata occurs in patches within Pasture 2 (Cottonwood). Medusahead is present in very limited low elevation areas, such as near Grave Creek Reservoir. Prickly lettuce occurs in scattered locations, such as within the Crutcher Fire area. Japanese or field brome is also scattered at lower elevations. None of these weeds, except bulbous bluegrass in localized areas, currently dominate any plant communities within the Trout Springs Allotment. 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.

Disturbance History and Fire Regime Condition Class

The disturbance history of uplands in the Trout Springs Allotment is not well documented. The wildfire history GIS layer (1957-2009) 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, these activities have affected a fairly small percentage of the allotment, estimated at less than 10%. No formal monitoring information following these 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 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 of early 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 (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 H 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 four most recent readings were in 1995, 2000, 2005, and 2009. Statistical analysis was conducted on changes in data between 2000 to 2005 and 2005 to 2009.

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, bunchgrasses generally showed stable to increasing frequency. Perennial herbaceous canopy cover showed generally stable trends between 2005 and 2009 (earlier data not available). 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.

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 fairly stable trends for mountain big sagebrush at two locations, a reduction at one location, and increase at the fourth location between 2005 and 2009, while 2000 to 2005 was generally stable. 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, but showed significant increases at two of four sites (otherwise stable) between 2000 and 2005.

Ground cover measurements showed bare ground from about 8 to 28% at the four sites in various years, with little significant change between years. Basal perennial vegetation, primarily perennial grasses and forbs, showed a significant increase in ground cover between 2005 and 2009 at three of four sites. 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, 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. Overall, ground cover data (Appendix H) 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.

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 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, 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.

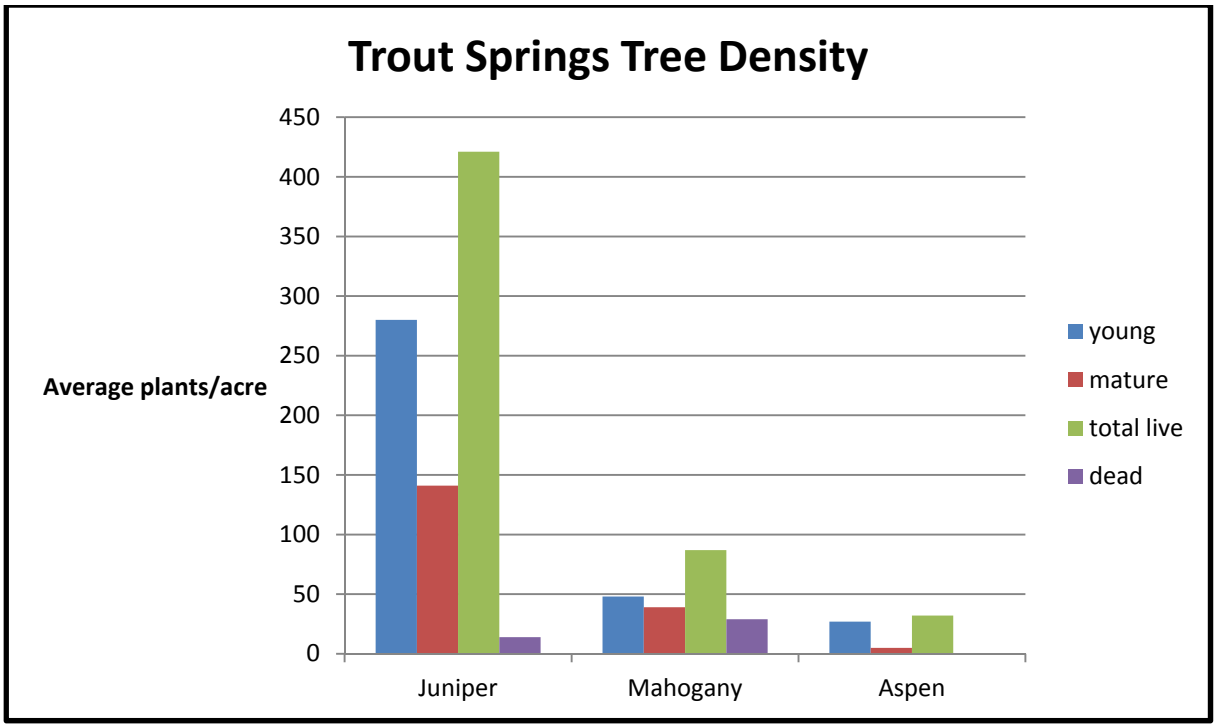

Figure 3.2.3 - Tree density throughout the Trout Springs Allotment

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 on (Appendix F) for the Trout Springs Allotment. Utilization in 2006 averaged 66% (53.8 to 74.3% at five stops) for Idaho fescue under 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, under a total of 1,754 AUMs of actual use. These figures indicate that under 1,754 AUMs or more, utilization exceeds the 50% utilization specified in ORMP Objective LVST 1 (ORMP p. 24) and in Management Objectives for this allotment (Section 2.2.2).

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 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 management indicators 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. 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 H), 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. 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. 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.

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. Sagebrushes, cornerstone species in the mountain big sagebrush and low sagebrush ecological sites that should 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.

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 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 improvement in 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. 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. 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. 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.

Direct effects from 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/crossing 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 (a 240-foot-wide corridor along the Mud Flat Road, and most cattle will stay on or near the cleared roadbed), duration (two days per year), and intensity (up to 540 head per year), 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. Removal of young juniper adjacent to old growth would reduce fuel continuity around the older trees, and reduce the chance of future crown fires 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.

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 the short term (10-30 years) within burn areas. This short-term shrub reduction would have effects on wildlife. Burning would remove above-ground biomass of most plants, and kill non-resprouting shrubs. The broadcast burn is intended to be relatively patchy within the larger burn unit, creating a mosaic of burned and unburned areas which would provide a seed source for revegetation. Jackpot burn areas would be even more patchy, with a much smaller proportional burn area. Since fuel piling is not planned, 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 management 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.

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 10-30-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).

Post-fire response in sagebrush and juniper systems depend 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 reducing the fire frequency and seral stage diversity departures, compared to reference conditions. If 50% of the seral juniper is killed, the reduction in departure 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. Soil cover from vegetative litter would remain high every year, producing 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. 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 (bluebunch wheatgrass, Idaho fescue, and needlegrasses) 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.

Hanley FFR

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, D or E. Although it has relatively low animal numbers, rest or deferral, and juniper treatment, all of which are beneficial to upland vegetation, it 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 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 (compared with most other alternatives), 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) compared to other alternatives, 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 G, and reduced by 42% compared to Alternative A. Utilization levels would be expected to be below 40% under this alternative.

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 RIP1. 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 2012 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 (see Figure 3.3.1). Such are likely to be inaccessible or have limited livestock accessibility.

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	5	42	6	47	11	89

Streams	Percent Vegetated/ Stable	Percent Vegetated/ Unstable	Percent Unvegetated/ Stable	Percent Unvegetated/ Unstable	Percent Streambank Stable[2]	Percent Streambank Unstable
Owyhee River Squaw Creek[1]	48	20	7	9	55	29
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 2003-2007. 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).

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
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). Currently, 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 and trampling by livestock. Although the five years of non-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. 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 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 a 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 of cooler air temperatures, livestock water demands tend to be lower, and 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.

One 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, Mud Flat reservoir can be a dependable source of livestock water, and livestock use in riparian areas should be limited with a November 13-

December 5 grazing schedule. The proposed water source may decrease grazing impacts (hoof impacts and riparian vegetation use) in livestock accessible areas of Cottonwood Creek and lentic areas.

Pasture division fences (Pasture 2B/3 and 2A/2B) and fence reconstruction in Pasture 2A direct effects would be minor. 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 (a 240-foot-wide corridor along the Mud Flat Road, and most cattle will stay on or near the cleared roadbed), duration (two days per year), and intensity (up to 540 head per year), 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 would meet or exceed IDEQ water quality standards. 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, and 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 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 excessive 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, 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. In the absence of streambank-binding riparian vegetation, high intensity storm events (estimated 10-20 year storm event) would degrade water quality due to excessive sediment. 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 are 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

There are no Threatened and Endangered Animal species identified in the Trout Springs and Hanley FFR Allotments. Special Status Animal Species (including the Greater Sage-grouse, a candidate species) and their habitat are discussed in the following paragraphs.

The Trout Springs and Hanley FFR Allotments are located within the Owyhee Uplands and Canyons and Semiarid Uplands Level IV Ecoregions of Idaho (McGrath et al. 2002). Within the allotments, these ecoregions are characterized by rolling shrub steppe uplands interrupted by low hills, rocky outcrops and precipitous river canyons. Currently, the expansion of juniper into former shrub communities has transformed much of the area into woodlands ranging from open, savanna-like conditions to dense, nearly closed canopy forest. These woodlands cover the relatively low profile flanks of the mountain and riparian areas occur throughout the area along many perennial streams. Wildlife habitats within the Trout Springs Allotment include juniper woodlands, mountain shrublands, sagebrush steppe, grassland meadow complexes, riparian areas, springs and seeps, and a few small but permanent reservoirs. Upland and riparian vegetation within the allotments have been discussed in detail in Sections 3.2 and 3.3.

Habitat within the Hanley FFR Allotment is composed primarily of sagebrush and juniper. 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.

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 allotment, state, and region. Consequently, the relationship of most of these species to the permit renewal is not discussed in the same depth as species upon which the BLM places management emphasis. Special status species, migratory birds, raptors, and species of economic interest or unique value such as big game, large predators, and fur-bearers will be discussed in greater detail.

Description of the current condition of species and their habitats are based on the 2010 and 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 and 4, the allotments currently are not meeting Standard 8 for many special status animal species dependent upon upland and riparian habitats.

Special Status Animal Species

Although no Threatened and Endangered Species listed under the Endangered Species Act (ESA) occur in the 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 2010a). BLM, USFWS, and IDFG Conservation Data Center maintain an active interest in other special status species (SSS) 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 (BLM Manual 6840), which are designated as BLM sensitive by the State Director(s).

Special status species discussed in this document include those listed on the Idaho BLM State Sensitive Species List (including Watch List Species) (USDI-BLM 2003) for the OFO. Two bird and one amphibian species listed as candidates under the ESA, and 11 mammals, 25 birds, and one fish with special status potentially may occur within the allotments. Special status animal species, their status, and key habitat associations are summarized in Appendix K.

With the exception of a few well-studied species, current occurrence and population data for most special status animal species within the allotments are limited due to a deficiency of targeted surveys and directed research. Nevertheless, wildlife habitat for many species is currently in poor condition due to season-long livestock grazing and juniper encroachment. These issues were noted as early as 1969 in the Juniper Mountain Wildlife Habitat Management Plan (JMWHP) developed by the BLM (USDI-BLM 1969).

Although some species populations are poorly documented, most species that are likely to occur in the allotments display broad ecological tolerance and are widely distributed throughout the

Great Basin region. Candidate species will be discussed in more detail individually, while other SSS will be included in a general discussion by taxonomic groupings.

Greater Sage-grouse: On March 5, 2010 the U.S. Fish and Wildlife Service submitted a new finding to the Federal Register which found that the greater sage-grouse (hereafter sage-grouse) was warranted but precluded from ESA listing by the need to take action on other species facing more immediate and severe extinction threats. The finding has changed the status of sage-grouse from a BLM Sensitive species to a Candidate species under the ESA. Historically, the Trout Springs Allotment provided suitable habitat for sage-grouse and supported significant populations (USDI-BLM 1969).

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 and Hanley FFR Allotments and surrounding area. Currently, the majority of both 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 Idaho Sage-grouse Habitat Planning Map (ISAC 2006), approximately 1% (263 acres) of BLM lands within the Trout Springs Allotment are currently classified as key sage-grouse habitat, and 14% (3,859 acres) of BLM lands are classified as areas where juniper has encroached into sage-grouse habitat. The remaining 85% (23,580 acres) of the Trout Springs Allotment is not considered sage-grouse habitat. Approximately 30% (8,423 acres) of BLM lands within the Trout Springs Allotment were identified as Preliminary General Habitat and none of the allotment was identified as Preliminary Priority Habitat (Makela and Major 2012).

Based on an interim, updated (2011) version of the Idaho Sage-grouse Habitat Planning Map (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 where juniper has encroached into sage-grouse habitat. Approximately 2% (1 acre) of BLM lands within the Hanley FFR Allotment were identified as Preliminary Priority Habitat and 98% (60 acres) were identified as Preliminary General Habitat (Makela and Major 2012).

Typically, greater sage-grouse in the vicinity of the 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 (i.e., forb- and insect-rich upland areas surrounding nest sites) to late brood-rearing and summer habitats (i.e., wet meadows and riparian areas) from June to August.

Three leks (i.e., 2O227, 2O632, and 2O463) are located within five miles of the Trout Springs Allotment (Map 8). Because few systematic counts have been conducted at these leks over the last 15 years, trends in lek attendance are difficult to extrapolate. Two of the leks, 2O227 and 2O632, were surveyed in 2010 and 2011. Strutting males were observed only at 2O227 in 2010. In 2011, no displaying males were observed at either lek. Currently, only 2O227 is considered

occupied based on the presence of males observed during surveys in the last five years. No leks are within 5 miles of the Hanley FFR Allotment.

Currently, potential sage-grouse use is limited to the northern portion of the allotment (Pastures 3 and 4) where junipers are absent or are in an early seral stage and have not completely replaced sagebrush habitat (Map 8). Habitat within the remainder of the allotment (i.e., 1A, 1B, 2A, and 2B) is unsuitable for sage-grouse. Habitat within Pastures 1A, 1B, and 2A 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 currently is composed of dense juniper woodlands with relatively sparse understory cover, restoration efforts probably could re-establish some patches of sagebrush habitat and attract sage-grouse to suitable areas. The abundance and density of junipers on the BLM lands within the Hanley FFR certainly limit and probably exclude sage-grouse use.

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. Excessive livestock grazing in the allotment is also a limiting factor for sage-grouse use because heavy grazing reduces nesting and hiding cover which also increases exposure to predators.

Three breeding habitat assessments and one late brood-rearing habitat assessment were completed within the Trout Springs Allotment in 2000 (Map 8). Breeding habitat assessments were reassessed in 2008. The finding of the 2000 and 2008 assessments were similar. Breeding habitats were determined to be in a marginal condition due to the limited area of suitable habitat. Breeding habitat has been restricted by juniper encroachment. Because juniper is present throughout the Trout Springs Allotment, these areas are unsuitable habitat and avoided by sage-grouse. The Conservation Plan for Greater Sage-grouse in Idaho (ISAC 2006) identifies juniper as a serious threat to sage-grouse habitat.

Brood-rearing assessments usually focus on mesic areas because they provide suitable forage when other areas have been desiccated by summer heat. Habitat types such as riparian areas and wet meadows provide important brood-rearing areas (Connelly et al. 2000). Late brood-rearing habitat was rated as marginal based on an assessment completed in 2000. Although there was a fairly good composition of herbaceous wetland species present, the area had been heavily grazed and trampled. Based on the 2012 Determination, and recent sage-grouse habitat surveys (2009), sage-grouse habitat in the Trout Springs Allotment is in need of restoration through improved livestock management and juniper reduction.

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.

Yellow-billed Cuckoo: Yellow-billed cuckoo (western population) is a riparian-obligate species usually found in large tracts of cottonwood and willow habitat. Suspected yellow-billed cuckoo breeding has been documented relatively nearby along Battle Creek. However, riparian habitat within the allotment currently is in poor condition (see Section 3.3.1), and probably is limiting 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 the perennial streams where cottonwoods could occur lack the extensive sandy floodplains mature cottonwood groves require for development. The loss of willows due to livestock grazing and juniper encroachment also has reduced suitable nesting sites.

Columbia Spotted Frog: Columbia spotted frogs have been documented in Cottonwood Creek and near the boundary in Pleasant Valley, Smith, and Little Thomas Creeks. Spotted frogs are associated with slow-moving water, marshes, reservoirs and ponds. Wetland and riparian habitat degradation is the most serious threat to healthy and viable populations. Habitat for spotted frogs currently is in poor condition (see Section 3.3.1). Loss of willows and aspen in riparian areas due to livestock grazing and juniper encroachment also has reduced available food and resources for beaver. Beaver ponds create good habitat for spotted frogs. Habitat for spotted frogs in upper Cottonwood Creek is in poor condition and beaver ponds that were once present are now gone.

Special Status Birds: A variety of special status bird species occurs or is likely to occur within the allotments (Appendix K). The majority of species is associated with shrub steppe, grassland or riparian habitats. Brewer's sparrow, sage sparrow, and sage thrasher are heavily reliant on sagebrush steppe for nesting and foraging. Loggerhead shrike, black-throated sparrow, and green-tailed towhee are less reliant on sagebrush, but are dependent on shrubland habitat. Although juniper encroachment has lowered the habitat quality for most of these species, many are relatively common. Grassland species include long-billed curlew and grasshopper sparrow. Because grasslands are not abundant, the likelihood of occurrence of these species is quite low.

Brewer's blackbird, calliope hummingbird, and willow flycatcher typically are associated with riparian areas, and white-faced ibis and Wilson's phalarope are associated with ponds and wetlands. Properly functioning riparian and wetland areas are limited (see Section 3.3.1) and provide marginal habitat for these species. The Determination (Appendix A) indicated that riparian habitat has been heavily grazed, which in conjunction with juniper expansion, has reduced herbaceous cover, vegetative structure, plant species diversity, and nesting habitat. In many areas, the current conditions of riparian habitats are not providing suitable habitat for many riparian associated bird species.

Cassin's finch, Lewis' woodpecker, and red-naped sapsucker prefer forest habitat. The juniper woodlands within the allotments provide substantial amounts of suitable habitat for these species.

Special status raptor species occurring or potential occurring include bald eagle, golden eagle, prairie falcon, northern goshawk, ferruginous hawk, Swainson's hawk, flammulated owl, short-eared owl, and western burrowing owl. Both eagle species are afforded additional protection under the Bald and Golden Eagle Protection Act. Although bald eagles have been documented in the area during winter months, their use of the area is not well known. However, bald eagle breeding within the allotments is highly improbable. Golden eagles and prairie falcons nest on cliffs and rocky outcrops throughout southwest Idaho. Currently, no nests of either species have been documented. Potential nesting habitat for these species is abundant in the nearby deep canyons (i.e., East Fork Owyhee River, Deep Creek) within eight miles of the allotments.

Prairie falcons prey on small mammals, especially ground squirrels, but a large portion of their diet also can be comprised of birds. Golden eagles, prairie falcons, ferruginous hawks, and Swainson's hawks prefer open shrub steppe, sagebrush and grassland habitats. Foraging habitat within the allotments is relatively limited for these species due to the predominance of juniper woodland habitat. Golden eagle numbers fluctuate with population cycles of jackrabbits and availability of other prey species.

Northern goshawks prefer mixed open forest to more dense forest. Several goshawk nests have been documented within the Trout Springs Allotment in mature aspen stands. The expanding juniper woodlands provide suitable foraging habitat for this species.

Short-eared owl and western burrowing owl prefer open habitats. Short-eared owls are ground nesters and need adequate cover for suitable nest sites. Burrowing owls nest in burrows dug by other animals, usually badgers, and they hunt in grasslands and sagebrush steppe areas. Expansion of juniper woodlands probably has restricted the distribution of these open habitat species within the allotments. Flammulated owls prefer dense forest and probably have occupied the area recently as juniper has expanded and become thicker.

Special Status Mammals: California bighorn sheep inhabit the open canyons to the south, east, and west of the Trout Springs Allotment. Historically, bighorn sheep may have used some of the rocky canyons and steeper terrain within the Trout Springs Allotment. However, the expansion of juniper woodlands has decreased the availability of suitable open habitat and currently precludes use by this species. Because neither bighorn nor domestic sheep occur in the allotments, bighorn sheep will not be discussed further.

The pygmy rabbit is a sagebrush-obligate species that prefers tall stands of big sagebrush on deep, friable soils where they dig extensive burrow systems. 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. Although sites with loamy soils occur throughout much of the allotments, the moderate to dense juniper woodlands that have replaced big sagebrush communities currently make these areas unsuitable pygmy rabbit habitat. However, because pygmy rabbits have been documented in the Owyhee Uplands, some pygmy rabbits may persist in areas with suitable shrub steppe habitat.

Special status bat species occurring or potentially occurring within the allotments include California myotis, fringed myotis, long-eared myotis, long-legged myotis, spotted bat, Townsend's big-eared bat, western pipistrelle, western small-footed myotis, and Yuma myotis. Although several of these species have been detected within the Trout Springs Allotment and general area, 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 basalt cliffs, rock outcrops, and seral junipers found in the Trout Springs 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.

Special Status Fish: Within the Trout Springs Allotment, redband trout occur in North Fork Owyhee River, Cottonwood Creek, Squaw Creek, Hells Creek, Smith Creek, Little Smith Creek, and West Fork Red Canyon Creek (Map 10). This trout 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). Overall, habitat for redband trout is degraded due to grazing effects in riparian areas and juniper encroachment (see Section 3.3.1).

Although redband trout have not been documented in Little Thomas Creek, Thomas Creek, Pleasant Valley Creek, and Middle Fork Owyhee River within the Trout Springs Allotment, these waters do support redband fisheries downstream of the boundary. Fish and fish habitat in those streams are affected by activities taking place upstream.

Migratory Birds, Raptors and other Birds

The Trout Springs Allotment is dominated by juniper woodlands. Mountain big sagebrush, low sagebrush, and mountain shrub communities with inclusions of grasslands, riparian areas, and aspen comprise the remaining wildlife habitat types. A variety of migratory birds fulfill nesting requirements within these habitats from late-April to mid-July and/or during spring and fall migrations. While some migratory bird species utilize 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. Migratory bird species of special conservation value and interest that have been documented or probably spend some portion of their life cycle in the allotments are identified in Appendix L.

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 within the allotments. Most of these ground nesting or shrub-dependent species rely on the vegetative structure and cover found in these habitat types for successful breeding. In the 2012 Trout Springs Determination, grassland and shrub steppe obligate bird species were found

to have been adversely affected due to reduced native perennial grass and forb cover, vegetative structure, and suitable nest sites, and an increase of non-native grasses and juniper (Appendix A). Lower than expected species diversity and population size of some bird species may be the result of the current habitat conditions. Among birds, grassland and shrubland species are declining faster than any other group of species in North America (Dobkin and Sauder 2004).

Healthy riparian areas are important migratory bird habitats that support high densities of breeding birds (Mosconi and Hutto 1982). In Idaho, 60% of migratory landbirds are associated with riparian habitats (IDFG 1992). In general, breeding and foraging habitats for migratory birds are in a deteriorated condition based on Standards 2, 4, and 8 (Appendix A), and riparian data collected since 2000. Current habitat condition apparently is due to season-long grazing through the summer months, heavy grazing, and livestock remaining on the Trout Springs Allotment past the authorization date.

In addition to special status raptors, a variety of other raptors have been documented in the allotments including American kestrel, Cooper's hawk, northern harrier, red-tailed hawk, and sharp-shinned hawk. Other owls that may occur in the area include great horned owl, long-eared owl, northern saw-whet owl, and western screech owl.

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

The accipiter species, Cooper's Hawk, and sharp-shinned hawk, and most owls prefer mixed open forest to more dense forest. In semiarid areas, these species often focus hunting efforts in riparian areas due to the abundance of prey found there. Juniper woodlands also provide suitable foraging habitat. Accipiters primarily prey upon birds but also will take small mammals. The remaining species listed above prefer open woodland or shrub steppe to dense forest. American kestrel, northern harrier, and red-tailed hawk usually are found in more open areas such as sagebrush steppe, meadows, or open riparian areas and prey on a wide variety of small mammals, reptiles, and birds. Northern harriers are ground nesters and need adequate cover for suitable nest sites.

Big Game, Large Predators, Fur-Bearers and other Mammals

The Trout Springs and Hanley FFR Allotments have long supported populations of a wide variety of big game species. Rocky Mountain elk and mule deer use the Trout Springs Allotment during spring, summer, and fall. Habitat for big game in the allotments has been affected and reduced due to heavy livestock utilization and encroachment of western juniper. Habitat for deer and elk were found to be in a deteriorated condition (Appendix A). Elk use in the area was identified as minimal in JMWHP in 1969 (USDI-BLM 1969), but has been increasing due to greater levels of suitable cover provided by juniper. While juniper does provide hiding and thermal cover for elk and deer, juniper encroachment reduces the available

amount of wildlife forage and habitat diversity. Browse species important to deer such as mountain big sagebrush, mountain mahogany, and bitterbrush have decreased because of juniper encroachment.

Pronghorn probably used the Juniper Mountain area more extensively when open grassland and shrub steppe habitat were more prevalent. Currently, pronghorn use has been reduced in Phase 2 and Phase 3 juniper woodlands. Population declines were noted in the JMWHP in 1969 (USDI-BLM 1969). The JMWHP documents degraded range conditions and competition for forage as the reasons for pronghorn decline.

Large predators that occur within the allotments include bobcat, coyote, and mountain lion. 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. Predator numbers probably are reduced due to degraded habitat conditions and reduced numbers of prey. Nevertheless, because abundant habitat exists adjacent to the allotments in the surrounding canyonlands and throughout the region, these species are relatively common.

Beavers are not as widespread throughout the area as they were in the past. The JMWHP (USDI-BLM 1969) identified that limited populations were present along some of the streams (i.e., Stoneman Creek) although habitat along many of the streams had deteriorated to the point that only remnant populations remained. Habitat for beavers in the Trout Springs Allotment has been affected from livestock use and encroachment of juniper. Loss of aspen, cottonwood, and willow 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.

Fisheries

Other fish species that occur or potentially could occur within 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 2009, unpublished data). 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. Fish habitat is degraded within the majority of the 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.

3.4.2 Environmental Consequences – Fish and Wildlife/Special Status Animals

3.4.2.1 Alternative A

Grazing at the current management level has reduced cover and forage for wildlife in upland and riparian areas, led to trampling and breakdown of stream banks, led to reduced numbers and vigor of native plant species from consumption and trampling, increased sediment into streams,

and enabled invasive plant species to better compete due to reduced vigor of native species (see Sections 3.2.1 and 3.3.1). 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 (special status animals) for the Trout Springs and Hanley FFR Allotments.

Trout Springs
Direct and indirect effects from grazing management:

Special Status Animal Species (ESA Candidate Species only)
Greater Sage-grouse: Although some positive effects to sage-grouse habitat from livestock grazing have been documented (e.g., 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 (> 50%) to severe grazing levels (Connelly et al. 2007). 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 caused by deteriorated wet meadow hydrology, heavily grazed meadows in poor condition, introduction of non-native weeds, and increased densities of nest-depredating ground squirrels following heavy grazing (Beck and Mitchell 2000).

The minimal amount of existing habitat for sage-grouse would continue to be affected under Alternative A. Under Alternative A BLM expects utilization levels to be similar to the 2006-2007 levels (Appendix F) on a yearly basis, and such heavy utilization would reduce cover and habitat for nesting and brood rearing (Beck and Mitchell 2000, Connelly et al. 2000), and reduce native vegetation across the landscape. 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. Effects would be long-term, potentially lasting for decades. Other effects of livestock grazing that are likely to continue include deteriorated wet meadow hydrology, trampling of eggs, nest desertion, and reduced nesting cover.

Yellow-billed Cuckoo: Direct loss and degradation of riparian woodland habitat 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, 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). Riparian areas accessible to livestock would continue to deteriorate and remain poor to unsuitable habitat for yellow-billed cuckoos.

Columbia Spotted Frog: Healthy and viable populations of spotted frogs depend on properly functioning wetland and riparian areas. Habitat for spotted frogs would continue to deteriorate from loss of cover, degraded aquatic habitat, and reductions of prey items. Effects would be long-term (>10 years) and habitat would continue to be degraded as it has been under current management. Cottonwood Creek would continue to be degraded due to the fragile soils and streambanks in the headwaters.

Migratory Birds, Raptors, and other Birds (including Special Status Species)
Birds do not generally respond 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 et al. 1993, RHJV 2004). Many species dependent on herbaceous ground cover for nesting and/or foraging are negatively affected by moderate to heavy levels of livestock grazing like those currently found within the Trout Springs and Hanley FFR Allotments (Bock et al. 1993). The loss of canopy structure at various heights effects 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. Habitat for most bird species in the allotments would remain in a degraded condition. Effects of Alternative A include reduced cover from grasses and forbs; reduced nesting habitat; increased non-native grasses and forbs; reduced forage; simplified structural diversity; disturbance to breeding, nesting, and foraging activities; and trampling of nests.

Heavy livestock grazing as expected under this alternative has been shown to degrade sagebrush and shrub steppe habitat which is detrimental to sagebrush-obligate species (Braun et al. 1976, Paige and Ritter 1999). Specifically, heavy grazing reduces native perennial grass and forb cover, vegetative structure, and suitable nest sites, and increases non-native grasses and juniper expansion. Research on bird species in shrub steppe habitats found differing responses to moderate levels of grazing (Bock et al. 1993). Based on the results of this study, sensitive 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 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 et al. 2003, Earnst et al. 2005). An evaluation of the effects of moderate levels of grazing on migratory birds breeding in riparian areas found positive effects for Brewer's blackbird and Lewis' woodpecker, negative effects for calliope hummingbird and willow flycatcher, and mixed or uncertain response by red-naped sapsucker (Bock et al. 1993). Grazing effects on riparian habitat specialists tended to be greater than on habitat generalists (Bock et al. 1993). Species that use riparian as well as other open habitat types such as Brewer's blackbird

and Lewis' woodpecker would probably benefit from moderate to heavy utilization. While these species are often found in riparian areas, they are not restricted to them and can be found in a wide variety of habitats.

Species preferring woodland habitat would benefit temporarily because grazing reduces fine fuels, decreases the likelihood of fire, and promotes juniper recruitment and expansion. However, as Phase 3 juniper woodlands develop, 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 the current level of grazing to raptors would mainly result from effects to habitat of prey species. Prey including small rodents, birds, and reptiles would decrease from loss of cover and forage. 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 successfully fledge more young when jackrabbit numbers are high (Steenhof et al. 1997). Kochert and Pellant (1986) found that cattle grazing degraded habitat for raptors and their prey species in the Snake River Plain. These effects would be observed if the allotment is grazed under this alternative and would affect raptors that are within foraging range of the allotments. Ground nesting raptors including northern harriers and short-eared owls would experience reduced amounts of suitable nesting cover on an annual basis from grazing. In addition, livestock may disturb or trample these species' nests. Burrowing owls might be disturbed by cattle, but their nests are protected from trampling by being deep in burrows.

Big Game, Large Predators, Fur-Bearers and other Mammals (including Special Status Species)
In general, livestock grazing is a competitive action with other herbivores throughout the allotments that reduces available forage and reduces cover and habitat structure needed by smaller herbivores (Medin and Clary 1989, Schulz and Leininger 1991, Hayward et al. 1997). Under Alternative A continued heavy levels of utilization as seen in 2006 and 2007 would have detrimental effects to pygmy rabbits and big game species. There would be reduced amounts of forage (i.e., grasses, forbs), browse (i.e., sagebrush, bitterbrush, mountain mahogany), and cover. Intensive livestock grazing on browse species can reduce critical winter food supplies for deer and elk.

The proposed level of grazing would reduce cover in riparian areas, which are extremely important for mule deer for foraging and as fawning habitat. Population numbers for elk and deer probably have been affected to some degree by poor habitat conditions. Because elk have the competitive advantage over mule deer, effects to deer populations probably would be greater (MDWG 2004). The current level of grazing also would increase resource partitioning and probably result in spatial displacement of deer and elk (Stewart et al. 2002).

Because numbers of prey species would be reduced, there would be continued effects to all large predators throughout the allotments. Grass, shrub, and riparian cover for predators would be

reduced. Although juniper could be used as cover by predators, it would not provide the same screening cover as shrubs and grasses.

Because small and medium herbivores (i.e., 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. The effects of grazing under Alternative A would continue habitat deterioration for many small to medium herbivores. High intensity grazing increases livestock trampling effects such as reduced shrub cover and collapse of pygmy rabbit burrows (Siegel Thines et al. 2004, Hagar and Lienkaemper 2007). In addition, intense grazing and juniper encroachment would degrade habitat by reducing forage for pygmy rabbits.

Habitat for beavers would continue to deteriorate under Alternative A due to effects to willows and aspen, and degradation of waterways caused by bank trampling (see Section 3.3.2.1). The removal of fine fuels under current grazing management would continue to contribute to a reduced fire frequency and subsequent juniper expansion into riparian areas, and lead to degraded watershed conditions and reductions in aspen and willow. Effects would be long-term (>10 years).

Fisheries (including Special Status Species)

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 would be the case under Alternative A (and as actually occurred from 2002-2007), 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 while eggs or fry are present may occur. 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 also reduces hiding cover and increases water temperatures.

Habitat for redband trout and other fish species would continue to deteriorate in streams within the allotment boundaries and for several miles downstream of the allotment (see Section 3.3.2.1). 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. 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. 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. 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 condition would continue to degrade during the term of the permit.

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. 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 (special status animals) in the Trout Springs Allotment, and would be expected to meet the Standard. The proposed fall use would augment recovery of vegetation by allowing most if not all plants to complete their lifecycle prior to grazing (Section 3.2.2.4). 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.

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.

Trout Springs

Direct and indirect effects from grazing management:

Special Status Animal Species (ESA Candidate Species only)

Greater Sage-grouse: Sage-grouse would benefit due to lack of livestock disturbance during nesting and brood-rearing because the season of use under Alternative B in Pastures 2B and 3 is in the fall (October-November) and sage-grouse nest and rear their young in the spring and summer (March-September). 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 et al. 2010).

General grazing management recommendations for nesting/early brood-rearing habitat includes maintaining the sagebrush/bunchgrass plant community wherever currently 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 for hiding cover (Cagney et al. 2010). Under this alternative, light use levels and the pasture rest rotation schedule would promote high plant community vigor and be appropriate for providing an adequate standing crop during the subsequent nesting/early brood-rearing season, particularly in comparison to Alternative A. Improved riparian habitat in Pastures 2B and 3 (see Section 3.3.2.4) also would benefit sage-grouse by slowly improving late-brood rearing habitat in comparison to Alternative A.

Yellow-billed Cuckoo: Riparian areas throughout the allotment would be expected to improve (see Section 3.3.2.4). The development of mature cottonwood stands suitable for cuckoos 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: Since spotted frogs are active primarily from spring through early fall, there would be little disturbance from livestock and management activities. Spotted frog habitat would improve in all pastures due to rest and changes in season of use (see Section 3.3.2.4). Spotted frogs would be able to reproduce without impacts from livestock, and probably would be hibernating before cows begin grazing. The reduced effects of livestock on the species probably would result in population increases.

Migratory Birds, Raptors and other Birds (including Special Status Species)
Birds would benefit from the amount of spring growth cover that would be present throughout the breeding season. In addition, cover would remain until most migratory birds had left the area when cattle grazing would begin. Habitat structure and complexity from the current season of growth would be improved. Reproductive efforts would not be disturbed by livestock or management activities. Forage would likely be more abundant and reproductive success probably would increase. However, utilization of browse could affect nesting areas for some species by reducing nest-screening cover for the next breeding season. However, the rest designed into this alternative would leave sufficient nesting cover the following year. Raptors would benefit from improved habitat conditions, fewer disturbances from livestock and associated activities, and increased levels of prey species. Raptor reproduction probably would increase over time as conditions improved across the allotment.

Big Game, Large Predators, Fur-Bearers and other Mammals (including Special Status Species)
Herbivores would benefit from the increase in cover and forage throughout the allotment from current year's growth because of the fall season of use compared to Alternative A. Herbaceous forage would be more plentiful and cover probably would improve with current year's growth, especially in rested riparian areas. Competition between livestock and big game for browse would be greater compared to spring or summer seasons. Competition may cause displacement of big game 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, pygmy rabbits 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.

Fisheries (including Special Status Species)
Conditions for redband trout and other fish species would generally improve due to rested riparian areas and the absence of livestock during spawning in the spring. Shade and cover would be improved during rest years and maintained during grazed years. Stream channel characteristics would improve by increasing pools, undercut banks, and habitat complexity which would improve instream habitat for fish (see Section 3.3.2.4) by providing lower water temperatures and more areas for escape and cover. Sediment levels would be reduced, making gravel areas more suitable for spawning and creating better habitat for macroinvertebrates. Conditions for fish populations downstream of the allotment boundaries also would improve.

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, improved habitat and reduced competition between cattle and big game would be realized from better distribution of livestock grazing within the allotment.

The risk of sage-grouse fence collisions would be negligible because new fence construction would occur within currently marginal habitat. However, collision risk might increase after successful juniper treatments at locations where sage-grouse habitat would be restored. Nevertheless, the risk would remain minimal as sage-grouse populations in the vicinity are relatively low and restored habitat areas would occur adjacent to unsuitable juniper woodlands.

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 mesic areas or other breeding habitats for *Culex tarsalis* populations.

Effects to wildlife from livestock trailing/crossing 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 (a 240-foot-wide corridor along the Mud Flat Road, and most cattle will stay on or near the cleared roadbed), duration (two days per year), and intensity (up to 540 head per year), 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.

Special Status Animal Species (ESA Candidate Species only)
Greater Sage-grouse: Because jackpot rather than broadcast burning would occur in areas of Phase 1 juniper encroachment, current sage-grouse key habitat would be maintained or improved 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 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 appears 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 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.

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 are implemented, leading to a decrease in 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 L) 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, Large Predators, Fur-Bearers 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 be released providing higher quality forage for deer and elk.

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, pygmy rabbits 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). Habitat suitability for pygmy rabbits would increase over time as areas formerly composed of juniper woodlands reverted to big sagebrush.

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.

Fisheries (including Special Status Species)

Juniper treatments would benefit redband trout and other fish species by reducing the amount of water used by junipers and 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.

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 make significant progress toward meeting Standard 8 (special status animals) at a faster rate than any other alternative. Extended rest in conjunction with juniper treatment would dramatically improve conditions for all species of wildlife throughout the Trout Springs Allotment. Vegetative structure and diversity, 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. In general, all of the negative effects associated with grazing identified in this EA would not occur across the allotments. The effects of previous season-long cattle grazing would improve over time. Overall, the allotments would become much more diverse and productive as wildlife habitats improve and population numbers for most species would be expected to increase.

Trout Springs

Direct and indirect effects from grazing management:

Special Status Animal Species (ESA Candidate Species only)
Greater Sage-grouse: Effects of livestock grazing would no longer occur to sage-grouse or their habitat. Nesting and hiding cover would be expected to increase with the absence of livestock grazing as would the amounts and diversity of forbs. Trampling of eggs and nests due to livestock would not occur. Improved habitat would result in higher nesting success and productivity which could increase local population numbers.

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). Response of riparian corridors in the Southwestern U.S. to the elimination of livestock grazing has been shown to restore understory cover to riparian woodlands and increased 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: Spotted frogs would benefit from the removal of livestock because riparian habitat would improve (see Section 3.3.2.3). Improvements to spotted frog habitat include increased levels of cover and forage, and lack of livestock trampling effects.

Migratory Birds, Raptors and other Birds (including Special Status Species)
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 increase when livestock are removed from an area (Bock et al. 1993, Earnst et al. 2002). Nesting structure and cover would increase and lead to greater reproductive success and improved population numbers. Improved habitat conditions also would benefit all raptor species. Nesting conditions would improve and prey numbers would increase, leading to greater levels of successful reproduction and survival of offspring.

Big Game, Large Predators, Fur-Bearers and other Mammals (including Special Status Species)
All big game species and herbivores would benefit from removal of livestock from the allotment. There would be more available forage for all herbivore species and increased levels of cover. Desirable plant species would increase over time. Population numbers of big game and other herbivores would be expected to increase. Livestock trampling of cover and collapse of pygmy rabbit burrows (if present) would not occur. Willow and aspen would be expected to increase across the allotment. This probably would lead to increased numbers of beaver in the area and lead to habitat improvements for many species including spotted frog and redband trout. As numbers of herbivores and other prey species increased in the area, large predators would benefit. There would be much more cover and suitable habitat for predators throughout the allotment.

Fisheries (including Special Status Species)
Habitat conditions for redband trout and other fish species would improve as stream channels would not be degraded by livestock grazing. Habitat features such as pools, undercut banks, and overhead cover would increase. Vegetation would return and increase along streambanks,

creating greater stabilization, which would reduce sediment inputs and lead to improved channel conditions. As habitat improves, numbers of redband trout and other fish species would increase.

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 (special status animals). 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 very slow improvements to cover and forage for wildlife in upland and riparian areas (see Section 3.2.2.2 and 3.3.2.2). 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.

Trout Springs
Direct and indirect effects from grazing management:

Special Status Animal Species (ESA Candidate Species only)
Greater Sage-grouse: Sage-grouse habitat in upland and riparian areas would improve slowly compared to Alternative A because of fewer AUMs and the addition of rest (see Sections 3.2.2.2and 3.3.2.2). However, habitat improvements would occur at a slower rate than Alternatives C or E because of higher AUMs (1,430 vs. 0-1,147) and earlier season of use (spring/summer vs. late-summer/fall). Potential effects of spring use (alternating between Pasture 2B and 3 every 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 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.

Yellow-billed Cuckoo: Because riparian areas would be improving slowly, habitat could only become suitable for yellow-billed cuckoos with successful cottonwood recruitment in the long term (40-50 years).

Columbia Spotted Frog: Because riparian areas and water quality are expected to improve slowly (see Section 3.3.2.4), only minor improvements are expected for spotted frog habitat.

Migratory Birds, Raptors and other Birds (including Special Status Species)
Habitat for many bird species in the allotment, especially species associated with riparian areas, would experience slight improvements. The benefits from the lower stocking rate and rest compared to Alternative A would be slightly diminished by the earlier season of use; however, bird habitats overall would improve in the long term. Potential effects to birds from early livestock use include reduced cover from grasses and forbs; reduced nesting habitat; simplified structural diversity; disturbance to breeding, nesting, and foraging activities; and trampling of nests. Effects to most raptors would be minimal as the territories of most species extend beyond the allotment boundaries. The season of use would expose ground-nesting raptors to a risk of trampling.

Big Game, Large Predators, Fur-Bearers and other Mammals (including Special Status Species)
Habitat for big game would slightly improve at a slow rate over current conditions. The amount of uplands forage and cover probably would be similar to Alternative B (see Section 3.2.2.2). Hot season use of riparian areas (grazed years) would decrease cover for fawns and elk calves during spring and summer months. Riparian areas also would provide adequate forage for big game during the entire year in rested pastures. Riparian areas would slowly improve (see Section 3.3.2.2), but beaver colonization would be unlikely in the short term. There would be fewer effects from resource partitioning to deer and elk because there would be fewer cattle. Habitat conditions would slightly improve for several small to medium herbivores (e.g., voles, mice, pygmy rabbits, jackrabbits). Effects to large predators from grazing would be similar to Alternative B.

Fisheries (including Special Status Species)
Habitat for redband trout and other fish species would improve minimally in streams. Potential effects to fish due to early and extended season 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.

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 Alternative B.

3.4.2.5 Alternative E

Under Alternative E, the Trout Springs Allotment would make significant progress toward meeting Standard 8 (special status animals). 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.

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.

Trout Springs
Direct and indirect effects from grazing management:
Special Status Animal Species (ESA Candidate Species only)
Greater Sage-grouse: Sage-grouse would benefit since there would be no livestock disturbance during nesting and brood rearing. Residual cover and new vegetation growth would increase and improve nesting conditions in comparison to Alternative B. Rested riparian areas and improved riparian habitat also would benefit sage-grouse by improving late brood-rearing habitat. Conditions would improve at greater levels than Alternative B.

Yellow-billed Cuckoo: Riparian areas throughout the allotment would be expected to improve (see Section 3.3.2.5). The development of mature cottonwood stands suitable for cuckoos 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: Effects to spotted frogs would be similar to those identified in Alternative B. Improvements to riparian areas (see Section 3.3.2.5) would benefit spotted frogs and their habitat and would occur at a faster rate in comparison to Alternative B.

Migratory Birds, Raptors and other Birds (including Special Status Species)
Effects to birds would be similar to those identified in Alternative B, but habitat conditions would improve at greater levels and occur at a faster rate.

Big Game, Large Predators, Fur-Bearers and other Mammals (including Special Status Species)
Effects to mammals would be similar to those identified in Alternative B, but habitat conditions would improve at greater levels and occur at a faster rate.

Fisheries (including Special Status Species)
Effects to fisheries would be similar to those identified in Alternative B, but habitat conditions would improve at greater levels and occur at a faster rate.

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 Alternative B.

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*, listed 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 2010b). 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

[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).

loamy soils in mountain big sagebrush and low sagebrush communities. It has been recorded in 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).

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. 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.

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 specials 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 (consumption) 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 (rather than growing season) use is likely to have few indirect effects on special status plants. Perennial grass is expected to increase (rather than decrease) 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 open 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 this is likely to be counteracted by continued grazing.

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 less 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 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. This 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 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. Under this classification, construction of new rangeland (livestock, watershed, wild horse, and wildlife) facilities, roads, recreation sites, and vegetation treatment projects is not permitted.

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 heavy livestock use. 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 effects to visual resources would occur.

3.7.2.2 Alternative B

The proposed 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 effects associated with 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.

Livestock would continue to have access to the North Fork Owyhee River corridor, which could lead to potential degradation of the natural resources and ORVs. Throughout much of the 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.

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 100ft in length and would also be constructed using native materials in order to make the fence as unobtrusive as possible.

In the long term the fence prevents the degradation of ORVs within the wild river corridor, which would in turn improves 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 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 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. Visual effects would improve 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 affects to upland vegetation and riparian areas from livestock, thus improving the overall health and visual quality throughout both allotments.

There are 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 M. 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. The highly unlikely, but 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.

Livestock would continue to access the North Fork Owyhee River corridor from the Trout Springs Allotment under this alternative; this would potentially lead to the degradation of the river's ORVs. Naturalness and scenic quality would be affected as riparian habitat and water quality would be impacted.

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 1970's 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 (four within Pole Creek Allotment), 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 affect 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 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 AUM's 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 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 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).

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, if juniper treatments are not done, and 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 negatively impact sites through increased erosion. The likelihood of a severe wildfire event would also increase without juniper treatments, though the lack of known sites with combustible features makes this a relatively minimal risk for cultural resources in this particular area.

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 effects to sites in terms of NRHP eligibility, aesthetics, or scientific or cultural merits. Trailing effects 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 impacted. 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 have recently been reported in good condition so such effects would not be expected. However, there is a chance that 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).

Because there are few sites 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 will 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.

3.10.2.2 Alternative B

Trampling effects to cultural resources would be similar to Alternative A because of the similar AUMs. However, erosional effects would be ameliorated due to the change in grazing management, particularly with expected improvements to vegetation condition and lessened impacts 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. 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, cultural resources in the planning area could benefit from landscape scale juniper treatments as structures and other cultural resources would become less likely to sustain damage from a severe wildfire event and consequent fire suppression activities. 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 from livestock grazing related activities, such as trampling, and there would be no range development projects implemented. 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 lower potential trampling and erosional effects because of the reduced livestock use.

3.10.2.5 Alternative E

Effects to cultural resources would be similar to those described in Alternative B with slightly lower potential trampling and erosional effects because of the reduced livestock use.

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.

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).

Economic profiles

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%
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 - 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 - Average Annual Wages, 2010 (2011 $s) and percent total employment

	Owyhee County, ID	Malheur County, OR	County Region	U.S.
Total Private & Public	$25,885	$30,132	$38,194	$48,218
Total Private	$25,566	$26,926	$37,419	$47,917
Farm	$34,861	$24,801	$27,980	$27,389
Crop Production	$37,729	$24,044	$26,519	$25,896
Animal Production	$33,984	$28,849	$29,265	$30,900
Non-Farm	$35,668	$24,923	$37,911	$48,065

Percent of Total Employment, 2010	Owyhee County, ID	Malheur County, OR	County Region	U.S.
Total Private	76.7%	72.8%	78.5%	83.1%
Farm	18.7%	5.5%	4.2%	0.6%
Crop Production	4.2%	4.6%	1.9%	0.4%
Animal Production	14.6%	0.9%	2.2%	0.2%
Non-Farm	10.7%	47.4%	59.3%	82.5%
This table shows employment data from the Bureau of Labor Statistics, which does not report data for proprietors or the value of benefits and uses slightly different industry categories than those shown on previous pages of this report.				

Source: *(EPS-HDT 2012)*

In 2010, livestock cash receipts in the state if 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, 134,732 cattle and calves were sold in Owyhee County that year, which brought almost $67 million to the county, 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. In 2007, sales of 203,743 cattle and calves in Malheur County totaled $179 million. Livestock operation owners do business in Idaho by purchasing supplies, equipment, and gasoline for vehicles, as well as visiting local establishments for food and entertainment, although there is no way to quantify how much these purchases and activities contribute to the Owyhee County economy.

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).

[3] Includes animal unit plus cow-calf rates; cow-calf rate converted to AUM using (1 AUM = cow-calf *0.833)

Social Value of Ranching
Livestock grazing often plays an important social role 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.

Environmental Justice
The Executive Order 12898 of February 11, 1994, established the requirement to address environmental justice concerns within the context of federal agency operations. This means that agencies must:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations;
- Ensure the full and fair participation by all potentially affected communities in the decision-making process; and
- Prevent the denial of, reduction in or significant delay in the receipt of benefits of the project by minority and low-income populations.

Evaluation of these impacts requires the identification of minority and low-income populations (including Native American tribes) within the affected area and evaluation of the potential for the alternatives to have disproportionately high and adverse impacts on such populations. Low-income populations are determined based on annual statistical poverty thresholds developed by the Bureau of Census. A low-income community may include either a group of individuals living in geographic proximity to one another or dispersed individuals (such as migrant workers or Native Americans) where the group experiences a common effect or environmental exposure. Minorities are individuals who are members of the following population groups: American Indian, Alaskan Native, Asian, Pacific Islander, Black, or Hispanic. (Council on Environmental Quality 1997)

Table 3.11.1 above shows the median household incomes and poverty rates for all three counties addressed in this document. Owyhee and Malheur counties are largely agriculturally based economies, so incomes are lower and poverty rates are higher.

Table 3.11.5 shows the breakdown in race and ethnicity for both counties. None 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.

Although the permittees on the Trout Springs and Hanley FFR allotments have managed livestock at proposed levels, they have not paid for all used AUMs, so 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.

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, but no reduction compared to the current active use. 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. The permittee and the BLM would also have immediate, direct costs for construction and maintenance of rangeland improvement projects. 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 to the 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 less maintenance and feed would be necessary.

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.

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 permittee(s) 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. No range improvements would be constructed.

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.

3.11.2.4 Alternative D

Direct and indirect effects from grazing management: This alternative proposes a two-year rest/rotation on Pastures1A, 1B and 2A, and a 28% reduction in active use as compared to Alternative A, but no reduction compared to the current active use. 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 these levels and paid the same amount for active use AUMs at some time in the recent past, so the change 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 in active use as compared to Alternative A, and a 20% reduction compared to the current active use. 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 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 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 (ie, 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.

3.13 Cumulative Effects

Cumulative Effects Applicable to All or Most Resources

Cumulative effects from activities proposed in the Trout Springs and Hanley FFR 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.

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 additions include activities with completed NEPA scoping or decisions, with implementation planned to begin within three years.

Cumulative Effect Activities

Although different resources used 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 not have any additive effects to those activities proposed in this document. This area is approximately 411,331 acres. Figures in the following table of past, present, and reasonably foreseeable future actions within that general area relevant to cumulative effects discussions for this EA are calculated from BLM GIS data. Figures are approximate.

Table 3.13.1 - Past, Present, and Foreseeable Actions.

Type of Activity	Past and Present	Reasonably foreseeable additions
Grazing Allotments	30 active BLM allotments (Idaho); one recently closed, another with a small portion bought-out and closed.	Permits are renewed/modified as they expire: 16 to be processed by 2013.
Grazing Animal Unit Months	27,020 active AUMs	Adjustments in AUMs may be

Type of Activity	Past and Present	Reasonably foreseeable additions
		made as permits are processed.
Fences	563 miles (Idaho side only) (public, private and state land)	2.6 miles (Pole Creek Allotment)
Wildfire	58,700 acres (Idaho only, between 1986-2011)	Unknown
Juniper Treatments (mechanical and prescribed fire)	<41,000 acres (estimated, Idaho and Oregon)	23,300 acres gross, <11,650 net (Pole Creek); <5,000 (Oregon, estimated)
Noxious Weed Treatments	87 infestations covering <82 acres treated since 1996 (Idaho).	<10 acres/year anticipated
Agriculture	1,261 acres	None
Roads (all are unpaved)	507 miles (Idaho) plus 105 miles (Oregon)	None

Current Conditions

Livestock grazing is the dominant land use activity in the area, and virtually all of the land area is managed for grazing. In the 1990s, BLM initiated a series of range reform activities in response to poor range conditions. Since the Standards were implemented in 1997, Idaho BLM has reviewed and issued grazing permits on 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. Allotments in this 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. Allotments that border the Trout Springs and Hanley FFR Allotments within Idaho 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 increased NEPA analysis has occurred the last several years to address issues such as sage-grouse, this analysis assumes that allotments with final decisions that are implemented are making significant progress toward the Standards. Oregon State Lands (also grazed by livestock) make up the majority of the west boundary of the Pole Creek Allotment. Another cumulative effect is the North Fork Owyhee River buyout which would eliminate livestock grazing on a small portion (611.5 acres) of public land in the M Stanford FFR Allotment. Because of the limited acres of public land, the effects of this action would be inconsequential and will not be considered further.

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). Much of that was the 39,500-acre Crutcher Fire in 2007, which did not reach the Pole Creek Allotment. Over the longer term, fire suppression activities have been applied to the area since at least the 1930s, contributing to changes to the vegetation (primarily an increase in juniper).

Within and adjacent to the Juniper Mountain area, various juniper cuttings and other treatments also have occurred. 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 in Idaho and Oregon. Most recently, small-scale juniper cuttings have been conducted north of North Fork Owyhee River and south of Pole Creek on lands administered by the Oregon Department of State Lands (Wiest 2010). Approximately 14,000 acres extending from Jordan Creek south to the North Fork Owyhee River (about 10 miles northwest) on lands administered by Oregon BLM has undergone cutting and very limited jackpot burning in open-stand juniper areas from 2006-2009 (LaChapelle 2010). Cumulatively, these treatments are estimated to have affected less than 10% of the landscape.

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 (0.02% of the Idaho cumulative effects area), 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. However, in the past, recreation has had virtually no effect on the cumulative effects area.

Future Actions

Reasonably foreseeable future activities in the vicinity include livestock grazing permit renewal, up to 2.6 miles of fence construction, and the possibility of juniper treatments (cutting and burning) for the Pole Creek Allotment, similar to that proposed in the Trout Springs Allotment. A potential of approximately 23,300 acres gross or up to about 11,650 acres net 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 planned for 2012, and implementation 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.

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.

3.13.1 Cumulative Effects – Watersheds/Soils/Riparian/Water Quality

Scope

Cumulative effects to watersheds, soils, riparian, and water quality resources are analyzed on a watershed scale. The cumulative analysis area includes four watersheds: 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. Analysis timeframes include past activities occurring that have created the present conditions, and future activities planned within the next ten years including the expected duration of effects from future activities (generally up to 20 years).

Current Conditions

All drainages have been affected by past and present livestock grazing through changes in channel morphology and riparian vegetation. 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. The recent designation of North Fork of the Owyhee River as a Wild and Scenic River along with various wilderness designations has imposed specific landuse activity limitations.

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 northern, southern, and western streams in the area are not meeting IDEQ water quality standards, primarily due to high water temperatures. Table 3.13.2 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. 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 through changes in channel morphology and riparian vegetation. However, grazing management on BLM-administered lands is periodically changing in order to meet Standards. These periodic management changes to meet Standards eventually improve overall resource conditions in the watersheds. Additionally, the recent designation of North Fork of the Owyhee River as a Wild and Scenic River along with wilderness designation should improve conditions in these areas by limiting specific land use activities.

Table 3.13.2 - 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
		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.

Alternative A

The negative effects of the 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. The 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). 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 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. Even alternatives that do not make significant progress toward meeting Standards would have varying degrees of improvement (increased soil surface protection, channel morphology begins to narrow and deepen, overall sedimentation decreases throughout the allotment) over Alternative A. 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 and E restrict livestock access to the North Fork Owyhee River from the Trout Springs Allotment, effects would 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. 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.

3.13.2 Cumulative Effects – Upland Vegetation, Noxious and Invasive Weeds

Scope
Cumulative effects of proposed activities on upland vegetation and noxious weeds are considered in the context of other activities and natural processes, described below. 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), 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. 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 Idaho State.

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 3.13.3, and briefly discussed below.

Table 3.13.3 - 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 virtually entire analysis area	Moderate	Species composition shifts to less palatable plants and fewer large bunchgrasses
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

Activity	Timeframe	Degree	Extent	Magnitude of Effect on Vegetation	Type of Effect
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 virtually entire 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
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

Activity	Timeframe	Degree	Extent	Magnitude of Effect on Vegetation	Type of Effect
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

Vegetation in the Juniper Mountain area has been affected by livestock grazing because livestock selectively eat larger bunchgrasses, altering the species composition. Until recently, most of that grazing has been season-long, and with relatively high numbers of animals. Rest and deferred use pastures have increased in more recent management. 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. 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 have burned within the analysis area since the 1980s (Heide and Corbin 2009). Much of that was the 39,500-acre Crutcher Fire in 2007. Non-native invasive plants have been

introduced and spread. Range improvements, roads, structures, and agriculture have created relatively small patches within the landscape where 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 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 potential juniper woodlands areas in Owyhee County, juniper historically occupied approximately 10% of the area, but currently occupies 55% of those areas (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 also being processed, and adjustments in AUMs may be made, but proposed decisions have not yet been issued. Transportation planning and ongoing noxious weed treatments are expected to have little effect on vegetation within this cumulative effects analysis area.

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 3.13.4, and discussed below.

Grazing effects from Alternative A (which does not meet Standard 4) would cumulatively add to effects from other activities by continuing to influence plant species composition by reducing more palatable and structurally desirable large bunchgrasses, and potentially increasing the spread of noxious and invasive weeds. Alternatives B, D and E, which do meet Standard 4, would have little cumulative effect from grazing management, with faster plant community improvement (least direct/indirect and thus cumulative effects) 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 be quite different from typical management in the cumulative effects

analysis area, and have beneficial cumulative effects by contributing no detrimental grazing effects and moving fastest toward reference conditions.

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 negligible at the landscape scale. No cumulative effects from fences or range improvements would occur in Alternatives A and C.

Table 3.13.4 - 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 baseline; -3.7% change	+588 AUMs over baseline; +3.6% change	No change from baseline; 0% change	-1,430 AUMs from Baseline; -9.3% change	No change from baseline; 0% change	-283 AUMs from baseline; -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. 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.

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.

3.13.3 Cumulative Effects – Fish and Wildlife/Special Status Animals

Scope

The area considered for cumulative effects can vary greatly by species and their distribution across the landscape. The analysis area for fish and wildlife resources encompasses a ten mile area surrounding the allotment. Ten miles greatly exceeds the range of many species, but may encompass only some habitat types and partial annual ranges for large and/or highly mobile species (e.g., big game, raptors, and migratory birds). Analysis timeframes include past activities occurring that have created the present conditions, and future activities planned within the next three years including the expected duration of effects from future activities (generally 10 to 20 years).

Current Conditions

Wildlife, fisheries, and special status animal species and their habitats in the analysis area have been affected by livestock grazing for over a century. In much of the analysis area, upland, riparian, and stream habitats have been adversely affected by grazing practices (season of use, stocking rates), fire suppression, and juniper treatments (cutting and prescribed fires). As a result, wildlife habitat in the analysis area has been altered from what would be expected under a natural disturbance regime. Native ungulates (deer, elk, pronghorn, and bighorn sheep) are common in the analysis area and long-distance, interstate movements to seasonal ranges have been documented. Big game species have provided abundant prey to support and maintain predator (mountain lion and coyote) populations. The surrounding deep canyons of the Owyhee River system provide relatively undisturbed cliff nesting habitat for a variety of raptors (golden eagle and prairie falcon) and bird species. The abundant juniper woodlands provide an increasing habitat type for forest-associated species (northern goshawk and special status bats) in

a shrub steppe matrix. Woodland species' populations have benefited from fire suppression activities that have promoted juniper expansion at the expense of shrub-dependent species such as sage-grouse, Brewer's and sage sparrows, loggerhead shrike and pygmy rabbits. Riparian areas, although many not in properly functioning condition, do support limited populations of spotted frog and redband trout. Recent improved livestock management has more than likely benefitted the fish and wildlife populations of the analysis area overall. Although populations of some notable species (sage-grouse) have declined rangewide, population trends in the analysis area for most wildlife, fish, and special status animals are unknown, since long-term monitoring data are lacking.

Alternative A

The negative effects of the grazing scheme coupled with continual incremental negative effects of juniper encroachment, would contribute to the cumulative effect of increasingly degraded wildlife habitat. Loss of forage and cover for wildlife from grazing and juniper encroachment would further reduce availability of suitable habitat and productivity of wildlife throughout the area. Because habitat would continue to deteriorate in both uplands and riparian areas within the allotments, no contribution to improved cumulative conditions would occur. Heavy grazing would continue to augment the spread of juniper across the landscape, leading to reduced habitat diversity and productivity. These effects would lead to an overall decrease in the quality of fish and wildlife habitat throughout the cumulative effects area. In addition, the number of individuals to support neighboring populations and maintain genetic diversity of existing populations across the landscape could decrease. The continued expansion of juniper across the analysis area would lead to further habitat degradation for many species of wildlife, especially sage-grouse and other sagebrush-obligate species, because soils would become drier and understory forbs, shrubs, and grasses would decline, and suitable habitat and habitat diversity would be reduced.

Alternatives B, D and E

The expected improvements from proposed grazing management and juniper treatment considered cumulatively with other activities should overall benefit fish and wildlife habitat and populations. Benefits would be the same as those discussed in the Direct and Indirect Effects section above, but would occur over a larger analysis area (approximately ten miles) as improving fish and wildlife populations within the allotment contributed to a more robust regional fish and wildlife population. The alternative grazing systems proposed have livestock use levels similar to or less than recent management in the analysis area, so cumulative effects on wildlife, fisheries and special status animals from grazing are likely to be similar to or less than current conditions. 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.

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. However, collision risk might increase 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 WNV vector species.

An adequate cumulative effects analysis of sage-grouse habitat must incorporate the multiple spatial scales of sagebrush habitats that the species uses. Fine scale, site-specific effects to sage-grouse have been analyzed above (see Section 3.5.2); however, mid-scale and broad scale analyses provide information regarding effects at the subpopulation and population level, respectively. As shown in Appendix 13, Greater sage-grouse within Trout Springs and Hanley FFR Allotments belong to the Owyhee subpopulation (north-central Nevada/southeast Oregon/southwest Idaho subpopulation *sensu* Connelly et al. 2004) of the Northern Great Basin population (Garton et al. 2011).

Suitable sage-grouse habitat 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. Adjacent shrublands in Oregon are comprised of large areas of contiguous, intact sagebrush habitats. Trend information for the Owyhee subpopulation is limited as leks are surveyed infrequently primarily due to inaccessibility. Nevertheless, sage-grouse habitat within the allotment most likely represents the periphery of the range of local populations. Any adverse effects occurring in the allotment would probably have minimal consequences to the local population whose core range is within the large area of suitable habitat in Oregon.

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 and the Owyhee subpopulation 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 Trout Springs 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.

The suite of proposed grazing systems in conjunction with juniper treatments would result in minimal to substantial improvements to wildlife habitat at the allotment level. However, because direct and indirect effects from grazing management and juniper treatment of this project are expected to be relatively small and localized, cumulative effects from this project along with other past and ongoing activities throughout the range of wildlife species present within the Trout Springs Allotment regionally are not likely to substantially affect these species' viability, nor lead to the need for listing under the ESA.

Alternative C

The extended rest would depart markedly from the predominant grazing systems in the analysis area, creating a unique, large area undisturbed by livestock grazing, which would provide a refuge for wildlife from surrounding areas. The undisturbed mosaic of habitats could augment fish and wildlife populations in the allotment, and could provide a productive source area for surrounding allotments. Improvements to headwaters would benefit aquatic habitats and species in the allotment and downstream. Juniper treatments would have short-term disturbance, but long-term benefits would be as described above.

3.13.4 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 3.13.3 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 3.13.5 displays the likely magnitude and type of effect of past and ongoing activities on special status plants in the cumulative effects analysis area.

Table 3.13.5 - 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 3.13.4, 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.

3.13.5 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). The timeframe considered is 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 (Alternatives A, B and E), 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.

3.13.6 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.

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. 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 will not affect site eligibility. 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. 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. Generally the upper 10 centimeters of a site can be considered already disturbed, so grazing is unlikely to impact sites except possibly at congregation areas such as range improvements, where soils are saturated, or along drainages due to potential sediment mixing and erosion. However, recent cultural resource inventory in the Trout Springs Allotment has not resulted in any reports of such impacts to sites.

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 firefighting 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. Although individual sites would be affected under this alternative, even when combined with all other past, present, and reasonably foreseeable actions (such as construction of range improvements, recreational use, and roads), this would not have an overall effect on our ability to understand the history or prehistory of the area, and sites relating to important individuals or events would not be damaged.

Alternatives B-E – Cumulative Effects
Because there would be more opportunity for vegetation and soil recovery between grazing seasons under all other alternatives, no cumulative effects are expected from grazing. Prescribed fires could pass through some sites 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. Although individual

sites would be affected, even when combined with all other past, present, and reasonably foreseeable actions, this would not have an overall effect on our ability to understand the history or prehistory of the area, and sites relating to important individuals or events would not be damaged.

3.13.7 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 allotments that10 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, 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 gazing 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 this analysis area. Although Standards are not expected to be met under this alternative, past and present actions, in combination with future planned activities (as identified in Table 3.13.1) 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 (as identified in Table 3.13.1) 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.

3.13.8 Cumulative Effects – Air Quality

Effects to air quality resources are expected to be negligible under all alternatives; therefore, no cumulative effects would occur.

4.0 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 Kathi Kershaw	Ecologist/Botanist	Upland Vegetation, Fire Ecology, Weeds, Special Status Plant Species
Chris Robbins, Tina Ruffing	Rangeland Management Specialists	Range/Livestock Management, Social 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

5.0 List of Agencies, Organizations, and Individuals Consulted

Received written comments from:

- Idaho Department of Fish and Game
- Ron Kay, Idaho Department of Agriculture
- Western Watersheds Project

Table 5.1 - Record of OFO Interdisciplinary (ID) Team Meetings with permittees and other publics. This does not include meetings with ID team members only.

Meeting Date	Location	Attendance	Discussion Topics
2/23/2009	Owyhee Field Office	Ted & Dorothy Payne, Mike Hanley, and Dr. Chad Gibson (range consultant)	BLM presented results of the 2001 S&G Determination, Upland & Riparian monitoring summary. Permittees presented their information .
3/16/2009	Payne Ranch, Idaho		Discussed management objectives and RMP objectives including: Livestock grazing, stream/riparian, Upland & riparian wildlife, and juniper management objectives. Also discussed U of I & OSU juniper related research findings for this area. Emphasized that all grazing alternatives must meet these objectives.
4/30/2009	Owyhee Field Office		Discussed & clarified current grazing management. Requested permittees to submit their preferred alternative.
6/3/2009	Jordan Valley, OR		Further discussion on objectives and request for permittees proposal.
6/18/2009	Jordan Valley, OR		Discussed the permittees grazing proposal and subsequent Alternative B.
6/25/2009	Owyhee Field Office	Dr. Chad Gibson	Discussed in greater detail Dr. Chad Gibson's Alternative (Alternative B) for Hanley Ranch Partnership in association with Payne Family LLC.
11/9/2009	Trout Springs Allotment tour	Katie Fite & other members of WWP, Ted & Dorothy Payne, Mike Hanley	Discussed alternatives and juniper treatments.
3/8/2010	Owyhee Field Office	Ted & Dorothy Payne	Assisted the Payne's in clarifying their alternative (Alternative D).

5.1 Tribal Consultation

Shoshone-Paiute Tribes at Wings and Roots Meetings on July 16, 2009 and September 17, 2009.

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7.0 Appendices

Appendix A – Rangeland Health Determinations (Hanley FFR 2001 and 2010, Trout Springs 2012)
Appendix B – Trout Springs Streams by Pasture
Appendix C – Response to Comments
Appendix D – Trout Springs Water Quality Restoration Plan
Appendix E – Trout Springs Actual Use Record
Appendix F – Trout Springs 2002 - 2007 Utilization Record
Appendix G – Trout Springs Trend Summary
Appendix H – Trout Springs Rangeland Trend Data
Appendix I– Ecological Site Descriptions
Appendix J– Trout Springs Juniper Expansion Time Series Photography
Appendix K – Special Status Animal Species
Appendix L – Migratory Bird Species
Appendix M – Minimum Requirements Decision Guide, North Fork Wilderness Gap Fence
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DETERMINATION

Achieving Standards for Rangeland Health
and
Conforming with Guidelines for Livestock Grazing Management

Resource Area: **Owyhee** Watershed Name/Number: _____

Grazing Allotment Name/Number: **Trout Springs Allotment (0539)**

Public Land (acres): **29,034**

Streams on Public Land (miles): **48**

Date(s) of Assessment: **The assessment is based on data collected over several years.**

Name of Permittee(s): **Hanley Ranch Partnership**
Ted Payne

Assessment Participants (Name & Discipline or Interest):

BLM

Bill Reimers	Rangeland Management Specialist
Paul Seronko	Soil Scientist
Leo Coleman	Natural Resource Specialist
Mike Mathis	Wildlife Biologist
Janis Reimers	Ecologist
Ann Debolt	Botanist

Standard 1 (Watersheds)

Watersheds provide for the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling and energy flow.

Check those that apply: [*One or more boxes must be checked.*] ☐ Standard doesn't apply

☐ Meeting the Standard

☐ Not Meeting the Standard, but Making Significant Progress towards

☐ Conforms with Guidelines for Livestock Grazing Management

☒ Not Meeting the Standard, Livestock Grazing Management Practices are Significant Factors

☐ Not Meeting the Standard, Livestock Grazing Management Practices are **not** Significant Factors

☒ Does not conform with Guidelines for Livestock Grazing Management Guideline No(s). 1, 3

Rationale/Information Sources:

Livestock grazing occurs on all pastures on this allotment every year. The season of use in Pasture 4 is generally April and May with use occurring throughout the summer in some years. The season of use in Pasture 2 is generally mid June through the end of July with grazing occurring again in the fall as cattle drift down the mountain. It is also common to see a few cattle in this pasture after gathering has occurred in late July and before cattle begin their drift down the mountain in the fall. The season of use in Pastures 1 and 3 is generally August through mid November with some use beginning in June and ending in December. Pastures 2 and 4 are grazed during the critical growing season every year.

In all pastures livestock grazing has resulted in reduced plant vigor, a loss of forage plants and the loss of litter and cover necessary for nutrient cycling and site protection. This coupled with soil surface damage caused by livestock hoof action in Pastures 2, 3 and 4 has resulted in water flow patterns, pedastalled plants and increased bare ground which are indicators of accelerated erosion.

Adequate amounts of ground cover are not being maintained to stabilize soils and therefore grazing management practices do not conform with Guideline #1.

Additionally, grazing practices do not maintain adequate plant vigor or cover to support water infiltration, therefore grazing management practices do not conform with Guideline #3.

Standard 2 (Riparian Areas and Wetlands)

Riparian-wetland areas are in properly functioning condition appropriate to soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Check those that apply: [*One or more boxes must be checked.*] ☐ Standard doesn't apply

☐ Meeting the Standard

☐ Not Meeting the Standard, but Making Significant Progress towards

☐ Conforms with Guidelines for Livestock Grazing Management

☒ Not Meeting the Standard, Livestock Grazing Management Practices are Significant Factors

☐ Not Meeting the Standard, Livestock Grazing Management Practices are not Significant Factors

☒ Does not conform with Guidelines for Livestock Grazing Management Guideline No(s). 4, 5

Rationale/Information Sources:

Under current livestock grazing practices, this standard is not being met on 22.45 miles of the 23.18 miles of stream in pasture 1, on 7.36 miles of the 10.64 miles in the pasture 2, and on 8.73 miles of the 8.73 miles in pasture 3. The standard appears to be met on the 1.70 miles of stream in pasture 4. On the streams classified as functional-at-risk or not functioning, early seral species generally dominate the herbaceous component of the plant community. There is insufficient deep rooted riparian-wetland vegetation present to protect stream banks and dissipate energy during periods of high flow. Point bars are commonly not vegetated.

In Pastures 1, 2 and 3 grazing has generally occurred during the hottest time of the year. (See the discussion of livestock season of use under Standard 1.) Cattle tend to congregate along the narrow mountain streams during this time of year, for water, cooler temperatures and palatable forage. Cattle concentrating along the streams has resulted in heavy to severe utilization on the herbaceous component of the riparian community. The assessment indicates that this has resulted in low plant vigor, and sites potentially dominated by deep-rooted hydric species are now dominated by shallow-rooted early seral species. These utilization studies indicate light to moderate use of the shrub component by livestock. Stream bank damage studies conducted in 2000 indicate moderate to severe stream bank damage from livestock trampling. The assessment indicates that the shrub component is insufficient. The younger willow are poorly represented and evidence of recruitment is lacking. The lack of woody species, the dominance of shallow-rooted herbaceous species and impacts due to livestock trampling result in a lack of shading for the streams, increasing water temperatures.

Cattle are removed from the allotment (Pasture 1, 2 and 3) late in the year so the riparian species are not allowed a sufficient timeframe to regrow to achieve and maintain healthy properly functioning conditions, and therefore grazing practices do not conform with Guideline #4.

The heavy and severe utilization by livestock along the streams does not provide sufficient residual vegetation to improve, restore or maintain healthy riparian functions, and therefore grazing practices do not conform with Guideline #5.

Standard 3 (Stream Channel/Floodplain)

Stream channels and floodplains are properly functioning relative to the geomorphology (e.g., gradient, size shape, roughness, confinement, and sinuosity) and climate to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Check those that apply: [*One or more boxes must be checked.*] ☐ Standard doesn't apply

☐ Meeting the Standard

☐ Not Meeting the Standard, but Making Significant Progress towards

☐ Conforms with Guidelines for Livestock Grazing Management

☒ Not Meeting the Standard, Livestock Grazing Management Practices are Significant Factors

☐ Not Meeting the Standard, Livestock Grazing Management Practices are **not** Significant Factors

☒ Does not conform with Guidelines for Livestock Grazing Management Guideline No(s). 7

Rationale/Information Sources:

Under current livestock grazing practices, this standard is not being met on 22.45 miles of the 23.18 miles of stream in pasture 1, on 7.36 miles of the 10.64 miles in the pasture 2,and on 8.73 miles of the 8.73 miles in pasture 3. The standard appears to be met on the 1.70 miles of stream in pasture 4. The functional-at-risk segments lack the hydric species in the herbaceous community which are necessary to aid in riparian zone development. Some segments are incised and exhibit little floodplain development. Some are overly wide and lack sufficient sinuosity. Stream substrates are commonly gravels or other fine materials and the lack of stabilizing vegetation allows erosion. The livestock season of use discussion under Standard 1 also applies here. Cattle congregating along the narrow streams cause streambank alteration through trampling (pugging, shearing, etc.) which in turn tends to increase stream width and decrease depth which exposes more water to solar radiation thus increasing water temperature in the summer and contributing to freezing in the winter. In addition to altering the water temperature, the water tables are also lowered resulting in greater fluctuations of water flows with lower flows in the summer and greater flows in the spring.

The grazing management practices do not promote progress toward appropriate stream channel and streambank morphology and functions, therefore grazing practices do not conform with Guideline #7.

Standard 4 (Native Plant Communities)

Healthy, productive, and diverse native animal habitat and populations of native plants are maintained or promoted as appropriate to soil type, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Check those that apply: [*One or more boxes must be checked.*] ☐ Standard doesn't apply

☐ Meeting the Standard

☐ Not Meeting the Standard, but Making Significant Progress towards

☐ Conforms with Guidelines for Livestock Grazing Management

☒ Not Meeting the Standard, Livestock Grazing Management Practices are Significant Factors

☐ Not Meeting the Standard, Livestock Grazing Management Practices are **not** Significant Factors

☒ Does not conform with Guidelines for Livestock Grazing Management Guideline No(s). 4, 9

Rationale/Information Sources:

Under current livestock grazing management, this standard is not being met in this allotment. In Pasture 1, livestock grazing is negatively influencing plant community integrity, native species diversity and plant vigor. When decreaser grasses are present in the interspatial areas, they are generally few in number, and they demonstrate poor vigor with small size, few leaves and no seedstalks. Recent reproduction is not apparent. In many areas, decreaser grasses are present mostly under the protection of shrubs, and they are absent from other locations including the trend study. Utilization information indicates moderate to heavy utilization occurs on the decreaser grass species in most years. This heavy grazing has resulted in reduced vigor and limited reproduction and recruitment of decreaser grass species. Invasive species include western juniper, bulbous bluegrass and cheatgrass. Bulbous bluegrass and cheatgrass have a minimal impact on the plant community, but western juniper is negatively influencing the plant community integrity by impacting shrub densities.

In Pasture 2, decreaser grasses are sparsely populated with Idaho fescue showing signs of mortality, no seedstalks and no sign of recent recruitment. Plant vigor and interspatial litter are being impacted by heavy grazing. Livestock are negatively influencing plant community integrity where heavy grazing has resulted in reduced vigor, density, reproduction and recruitment of decreaser grass species. Utilization information indicates moderate to heavy utilization occurs on the decreaser grass species in most years and this pasture is used during the growing season in each year. Native species diversity and soil surface integrity were also rated as inadequate with minimal perennial forbs and microbiotic crust lacking. Interspatial areas lack vegetation cover and litter. Invasive plants include western juniper, rabbitbrush, bulbous bluegrass and cheatgrass. Of the invasive plants, only western juniper is having a negative influence on plant community integrity by reducing the shrub component in some areas.

In Pasture 3, decreaser plants are present, but the numbers are less than expected and the plants show signs of mortality and reduced vigor. However, in the assessment, these indicators were

found to be less evident than in Pasture 2. Decreaser grasses were found to be vigorous when not grazed due to protection provided by the lower canopy of shrubs and juniper in the deeper loamy sites. Some areas showed signs of soil surface erosion with pedestaling, active flow patterns, high percentage of surface gravels and bare areas common. Western juniper, bulbous bluegrass and cheatgrass invasives were found throughout the pasture with encroaching juniper having a negative influence on the plant community integrity by reducing the shrub component in some areas.

In Pasture 4, decreaser grass plants are present but Idaho fescue is found in limited numbers and has poor vigor, show signs of mortality, and exhibits few to no seedstalks with no sign of reproduction or recruitment. An increaser grass, bottlebrush squirreltail, showed significant decline at the trend site. Microbiotic crusts were minimal to absent, bare ground was common and interspatial litter was absent. The soil's surface contained areas with surface crusts, subsurface compaction and mechanical damage due to livestock hoof action. Pedestaled plants were also common in some areas. This pasture is used in the spring each year.

In all pastures livestock grazing has resulted in a decline of plant vigor, a reduction in size of individual plants, the loss of plants and a reduction in litter in the interspatial areas with the furthest departure from acceptable conditions being found in Pasture 2. Heavy livestock grazing is wholly or partially responsible for unacceptable ratings to indicators of the native plant community standard including plant community integrity, native species diversity, plant vigor, invasive plants and soil surface integrity. The assessment indicates that western juniper development continues to expand in the shrub-steppe in Pastures 1, 2 and 3 and, in many areas, these communities could be classified as juniper woodlands. This development has resulted in a decline in shrubs on some sites and has contributed along with livestock grazing to reduced plant community integrity.

In Pastures 2 and 4, grazing management practices are not providing rest or sufficient deferment during the critical growth stages to maintain plant vigor and adequate vegetation cover, therefore grazing practices do not conform with Guideline #4.

Grazing management practices are not maintaining adequate plant vigor for seed production and seed dispersal and for seedling survival of desired species, therefore grazing practices do not conform with Guideline #9.

Standard 5 (Seedings)

Rangelands seeded with mixtures, including predominately non-native plants, are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow, and the hydrologic cycle.

Check those that apply: [*One or more boxes must be checked.*] ☒ Standard doesn't apply

☐ Meeting the Standard

☐ Not Meeting the Standard, but Making Significant Progress towards

☐ Conforms with Guidelines for Livestock Grazing Management

☐ Not Meeting the Standard, Livestock Grazing Management Practices are Significant Factors

☐ Not Meeting the Standard, Livestock Grazing Management Practices are **not** Significant Factors

☐ Does not conform with Guidelines for Livestock Grazing Management Guideline No(s)._____

Rationale/Information Sources:

This standard does not apply to this allotment.

Standard 6 (Exotic Plant Communities, Other than Seedings)

Exotic plant communities, other than seedings, will meet minimum requirements of soil stability and maintenance of existing native and seeded plants. These communities will be rehabilitated to perennial communities when feasible cost effective methods are developed.

Check those that apply: [*One or more boxes must be checked.*] ☒ Standard doesn't apply

☐ Meeting the Standard

☐ Not Meeting the Standard, but Making Significant Progress towards

☐ Conforms with Guidelines for Livestock Grazing Management

☐ Not Meeting the Standard, Livestock Grazing Management Practices are Significant Factors

☐ Not Meeting the Standard, Livestock Grazing Management Practices are **not** Significant Factors

☐ Does not conform with Guidelines for Livestock Grazing Management Guideline No(s)._____

Rationale/Information Sources:

This standard does not apply to this allotment.

Standard 7 (Water Quality)

Surface and ground water on public lands comply with the Idaho Water Quality Standards.

Check those that apply: [*One or more boxes must be checked.*] ☐ Standard doesn't apply

☐ Meeting the Standard

☐ Not Meeting the Standard, but Making Significant Progress towards

☐ Conforms with Guidelines for Livestock Grazing Management

☒ Not Meeting the Standard, Livestock Grazing Management Practices are Significant Factors

☐ Not Meeting the Standard, Livestock Grazing Management Practices are **not** Significant Factors

☒ Does not conform with Guidelines for Livestock Grazing Management Guideline No(s). 10

Rationale/Information Sources:

Under current livestock grazing management, this Standard is not being met in any of the pastures. The "North and Middle Fork Owyhee Subbasin Assessment and Total Maximum Daily Load" (TMDL) prepared by Idaho Department of Environmental Quality (DEQ) identified water bodies within the Trout Springs Allotment which exceed the criteria for stream temperatures. These include Middle Fork Owyhee River, North Fork Owyhee River, Pleasant Valley Creek, and Squaw Creek. DEQ also identified sediment and flow alteration as pollutants of concern for Middle Fork Owyhee River, Pleasant Valley Creek, and Squaw Creek.

Tributaries of Deep Creek and Red Canyon Creek were not considered in the TMDL, however thermograph data indicates that these streams probably do not meet the criteria for Salmonid Spawning and do not appear to meet the criteria for Cold Water Biota.

Thermal modification is probably the result of a loss of shade producing vegetation such as shrubs and herbaceous grasslike species at the waters edge. Utilization studies indicate herbaceous species commonly receive heavy to severe grazing and shrub species utilization varied considerably from site to site and from year to year by livestock. Additionally, streambank alteration caused by livestock trampling (pugging, shearing, etc.) tends to increase stream width and decrease depth which exposes more water to solar radiation thus increasing water temperature. Soil particles dislodged as a result of streambank trampling contributes to sedimentation.

Stream temperatures are not meeting TMDL, therefore, grazing management practices do not conform with Guideline #10.

Standard 8 (Threatened and Endangered Plants and Animals)

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

Check those that apply: [*One or more boxes must be checked.*] ☐ Standard doesn't apply

☐ Meeting the Standard

☐ Not Meeting the Standard, but Making Significant Progress towards

☐ Conforms with Guidelines for Livestock Grazing Management

☒ Not Meeting the Standard, Livestock Grazing Management Practices are Significant Factors

☐ Not Meeting the Standard, Livestock Grazing Management Practices are **not** Significant Factors

☒ Does not conform with Guidelines for Livestock Grazing Management Guideline No(s). 5, 12

Rationale/Information Sources:

Approximately 14 percent or 5.7 miles of the 40.3 miles of stream riparian habitat within this allotment have been determined to be in proper functioning condition, therefore, this standard is likely not being met for most, if not all of those special status animal species dependant upon these habitats including redband trout, spotted frogs, neotropical migratory birds and others. A large unfenced meadow at the head of Cottonwood Creek is heavily grazed and trampled by livestock and not providing suitable habitat for many of these same dependant special status animal species. Within upland communities, the limited abundance and vigor of desirable native bunchgrasses and forbs and loss of shrubs and associated community structure would indicate 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.

It is unknown whether the standard is being met for special status plant species. Dimeresia and Osgood Mountains milkvetch, both BLM "sensitive" plant species, are known from the area, however no threats were identified at the time of the observation. In general, available data collected from all sources at known locations of special status plants within the Trout Springs allotment indicate that impacts from livestock remain unknown.

Determination:

I have determined that all of the applicable Standards for Rangeland Health are not being met and are not making significant progress and livestock management practices do not conform with all applicable Guidelines for Livestock Grazing Management in the Trout Springs (0539) allotment. Livestock grazing practices are a significant factor in achieving the Standards for Rangeland Health and do not conform with the Guidelines for Livestock Grazing Management.

Field Manager

7/3/01
Date

#0453 Hanley FFR Allotment
DETERMINATION DOCUMENT

SECTION 1

___ All Standards are met or making significant progress towards meeting and there is conformance with the guidelines. (No Determination is required, review is complete)

_X_ One or more Standards is not being met or there is non-conformance with the guidelines. (An Authorized Officer's Determination is required, complete Section 2)

SECTION 2

1. Documentation of causal factors *(other than livestock grazing).*

Juniper expansion is also a causal factor. The 2009 field assessment noted western juniper as a co-dominant (10-40% of the composition) species, in an ecological site that should be dominated by low sagebrush and tall perennial grasses. This increase in juniper compared to historical reference conditions is similar to that seen in many areas across the west. The invasive plant indicator was rated as moderate to extreme departure from expected, based on juniper encroaching. No quantitative data on juniper density is available, but photos from the 2009 field assessment and aerial photography (2009 NAIP image) show a moderately low density of primarily young juniper, with overall cover estimated at less than 10%.

2a. Is it more likely than not that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the Standards or conform to the guidelines? *(Yes/No) Provide rationale.*

Yes. Juniper expansion and livestock management practices have played a significant role in the alteration of native plant communities; current as well as historic grazing management practices are the primary causal factor in not meeting standards 1, 4 and 8. Livestock grazing in this FFR is currently at the discretion of the permittee throughout the year.

The standard for watersheds (Standard 1) is not being met, but is making significant progress toward being met, based on an improvement (between 2001 and 2009) in some soil and hydrologic indicators. Frost heaving was evident by observed pedestalled rocks, while more historic pedestals were observed around Sandberg bluegrass plants. Areas of bare ground were small and moderately connected. Percent bare ground was more than what was expected while the amount of litter was less than what was expected. However, vegetation and gravel cover were adequate to prevent accelerated soil erosion. Although the current vegetation community is adequate in maintaining water infiltration, the lack of deep-rooted perennial grasses and juniper encroachment will eventually affect the immediate area's nutrient and hydrologic cycles.

The standard for native plant community health (Standard 4) is not being met, as shown by an abundance of Sandberg bluegrass (and juniper), and a deficit of bluebunch wheatgrass, Idaho fescue, perennial forb diversity, and litter amounts. Livestock grazing is logically the primary

factor contributing to the shift from more palatable species (bluebunch wheatgrass, Idaho fescue) to less palatable ones (Sandberg bluegrass, as well as juniper) and reduction of perennial forb diversity and litter. Since no significant improvement in the native plant community (based on a comparison of biotic integrity indicators between 2001 and 2009 assessments) is apparent, current livestock grazing (as well as historic) appears to be a significant factor in not meeting the standard.

The timing and intensity of livestock grazing can affect the long-term health and vigor of native and perennial plants. The spring/early summer use period coincides with the critical growth period of perennial bunchgrasses. Grazing during this period each year can affect the ability of perennial grasses to recover growth, set seed, and replace carbohydrate root reserves, especially of newly established plants. Over time, plants become weakened and are unable to withstand drought or other stresses.

The late fall/winter use period occurs during the dormant season for perennial grasses, which generally has little impact on vigor and health of these grasses. However, the combination of spring and fall use depletes root reserves more rapidly, and few plants are permitted to reach seed ripe/seed dispersal stages without being grazed. Consequently, perennial bunchgrasses become weaker, smaller, and eventually die. The loss of these plants from the community leaves open spaces exposing the soil surface to increased risk of wind and rain erosion, and leaves plant communities vulnerable to the introduction and spread of invasive species.

Livestock-induced changes to the native plant community (as discussed above) also contribute to the failure to meet the standard for special status animals (Standard 8). 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.

2b. Is there conformance with Idaho Guidelines for Livestock Grazing Management? *(Yes/No) if not list the guidelines that are not in conformance and provide evidence)*

No. Livestock grazing management is not in compliance with the following guidelines:

Guideline 4 – Implement grazing management practices that provide periodic rest or deferment during critical growth stages to allow sufficient regrowth to achieve and maintain healthy, properly functioning conditions, including good plant vigor and adequate vegetative cover appropriate to site potential.

Historical season-long grazing and a lack of rest or deferment has likely affected plant species composition, causing a shift from deep rooted perennial bunch grasses to shallow rooted perennial grasses. A reduction in desirable native bunchgrasses has resulted in a reduction of litter amounts and adequate ground cover; it has also had an effect on plant production and vigor.

Guideline 9 – Apply grazing management practices to maintain adequate plant vigor for seed production, seed dispersal, and seedling survival of desired species relative to soil type, climate, and landform.

See Number 4, above. The field assessment recorded the reproductive capability of perennial plants appears adequate for the current ecological site, but noted that Sandberg bluegrass has filled the niche vacated by Idaho fescue and bluebunch wheatgrass, and noted crown die-off in Idaho fescue and Sandberg bluegrass, suggesting low vigor and reproduction of tall perennial bunchgrasses under the current grazing management.

Guideline 11- Use grazing management practices developed in recovery plans, conservation agreements, and Endangered Species Act, Section 7 consultations to maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals

Current grazing management appears to be inadequate for maintaining or improving animal special species habitat. The conversion of a low sagebrush and tall perennial bunchgrass community to one heavily influenced by juniper and low grasses has reduced the potential for these areas to support populations of special status animals. Absence of a boundary fence between public and private land precludes direct management of public land within this custodial allotment. The minimal acreage of public land has not made it feasible or cost effective to fence off this small parcel.

Guideline 12 – Apply grazing management practices and/or facilities that maintain or promote the physical and biological conditions necessary to sustain native plant populations and wildlife habitats in native plant communities.

See Guidelines 9 and 11.

Buddy W. Green

Authorized Officer: Buddy W. Green
Owyhee Field Manager

September 30, 2010
Date

SUMMARY OF EVALUATION AND DETERMINATION

Check Box 1, 2, 3, 4, or 5 (Do not add data or explanatory remarks here.)	STANDARDS							
	1	2	3	4	5	6	7	8
1) Meeting the Standard		N/A	N/A		N/A	N/A	N/A	
2) Not Meeting the Standard, **but making significant progress towards**	X							
3) Not Meeting the Standard, current livestock grazing management practices **are not** significant factors								
4) Not meeting the Standard, current livestock grazing management practices **are** a significant factor				X				X
5) Not meeting the Standard, cause not determined								
Guidelines for Livestock Grazing								
6) Conforms with Guidelines for Livestock Grazing Management								No
7) If no, list the guidelines not in conformance: 4, 9, 11, and 12.								

EVALUATION REPORT

Achieving the Idaho Standards for Rangeland Health

Field Office: ID-130 Owyhee Field Office

Allotment Name and Number: Hanley FFR #0453

Name of Permittee(s): Hanley Ranch Partnership #1101414

Introduction

The Hanley FFR Allotment (#0453) is located approximately 25 miles south of Jordan Valley, Oregon. The Hanley FFR Allotment consists of one pasture comprised of 63 federal acres and 598 private acres, totaling approximately 661 acres. Active permitted use totals 7 AUMs annually. The allotment is comprised of approximately 10% public land. Although current livestock grazing is authorized from December 1 through December 31 annually, the permit states "the number of livestock and season of use on the Fenced in Federal Range (FFR) Allotment #0453 is at your discretion." Therefore, the allotment is currently being used at the permittee's discretion.

Applicable Standards:

The Standards for Rangeland Health and Guidelines for Livestock Grazing Management are used as management goals to maintain or improve biological and water resources, protect cultural resources, and sustain productivity of the land. Standards that are appropriate to a particular allotment provide information to determine the health and condition of public lands. This document is the evaluation of information presented in the rangeland health assessment used to determine whether rangeland health standards are being achieved. Significant factors or causal agents for standards not being met and whether livestock management practices are in conformance with applicable guidelines are presented in the Determination Document.

Standards 1 (Watersheds), 4 (Native Plant Communities), and 8 (Threatened and Endangered Species) apply to this allotment. Standards 2 (Riparian Areas and Wetlands), 3 (Streams Channels and Floodplains), 5 (Rangeland Seeding), 6 (Exotic Plant Communities), and 7 (Water Quality) do not apply.

EVALUATION OF STANDARDS

Standard 1: Watersheds ___ Standard does not apply

Watersheds provide for the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Evaluation and Information Sources

The 2009 Field Evaluation consisted of one site visited by an IDT on 4/13/2009. Additionally, the 2000/2001 Assessment and Determination were also considered.

Rangeland Health
The Hanley FFR is entirely within the Middle Fork of the Owyhee River Sub-Basin (HUC: 17050107). One Rangeland Health Assessment was completed in 2009 on a shallow claypan 12-16" ecological site. Frost heaving was evident by observed pedestalled rocks, while more historic pedestals were observed around Sandberg bluegrass plants. Areas of bare ground were small and moderately connected. Percent bare ground was more than what was expected while the amount of litter was less than what was expected. However, vegetation and gravel cover were adequate to prevent accelerated soil erosion. Although the current vegetation community is adequate in maintaining water infiltration, the lack of deep-rooted perennial grasses and Juniper encroachment will eventually affect the immediate area's nutrient and hydrologic cycles.

Rangeland Health Changes
The 2000-2001 Assessment and Determination indicated the major indicators not meeting Rangeland Health Standards were water flow patterns, pedestals, bare ground, soil surface impacts, and plant community factors. Apparent rangeland health changes between 2000 and 2009 include improvement in the departure rating for water flow patterns, pedestals, and soil surface impacts. Ratings for bare ground, lack of perennial bunch grasses, and litter amounts were all similar between 2000 and 2009 field assessments. The 2000 field assessment identified a platy hard layer 2 to 4 inches in the soil profile. No compaction layer was identified in the 2009 assessment. Additionally, soil damage due to hoof action was not observed.

Evaluation Finding – Allotment/watershed is:
____ Meeting the Standard
_X_ Not Meeting the Standard, but making significant progress towards meeting
____ Not Meeting the Standard

Rationale for Evaluation Finding
Soil and hydrologic impacts were both rated none to slight. Some of the previously identified soil and hydrologic indicators appeared to improve. The overriding issue is the vegetation departure from what is expected for that ecological site, mainly the lack of deep-rooted perennial bunch grasses and the presence of juniper.

Standard 2: Riparian Areas and Wetlands X Standard does not apply
Riparian-wetland areas are in properly functioning condition appropriate to soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Rationale: No riparian areas or wetlands occur on the public land portion of the Hanley FFR.

Standard 3: Stream Channel and Floodplains X Standard does not apply
Stream channels and floodplains are properly functioning relative to the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity) and climate to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Rationale: No stream channels or floodplains occur on the public land portion of the Hanley FFR.

Standard 4: Native Plant Communities ___ Standard does not apply

Healthy, productive, and diverse native animal habitat and populations of native plants are maintained or promoted as appropriate to soil type, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Evaluation and Information Sources

The 2009 Field Evaluation consisted of one site visited by an IDT on 4/13/2009. No trend (nested frequency, density, or cover) data, utilization data, or actual use (use dates were submitted, but livestock numbers were not) records are available. The 2000/2001 Assessment and Determination were also considered. The 2000 Field Evaluation was one site visited 9/18/2000. A full Assessment document was completed May 2001, and the determination signed 7/5/2001.

Rangeland Health

The ecological site for all of the public land within the Hanley FFR Allotment is mapped as a shallow claypan 12-16" ARAR8/FEID. The expected vegetation for this site is low sagebrush (15-30% of composition, plus small amounts of other shrubs) with an understory of bluebunch wheatgrass (20-30% of composition) and Idaho fescue (another 20-30% composition) and lesser amounts of Sandberg or Nevada bluegrass (2-5% composition each), and other perennial grasses (squirreltail, Thurber's needlegrass, etc.). Forb diversity is expected to be high, of mostly perennial natives; collectively their composition is important, but no one or few species is expected to dominate. Functional/structural groups should be dominated by cool season deep-rooted perennial bunchgrasses, followed in dominance (respectively) by medium shrubs, then perennial forbs, and shallow-rooted bunchgrasses. Bare ground may be 40-50%, but more data are needed to define reference conditions.

Actual composition from the 2009 field evaluation indicates low sagebrush and Sandberg bluegrass are dominant, with western juniper and Idaho fescue subdominant, bitterbrush as a minor component, and bluebunch wheatgrass and other perennial grasses and forbs present in only trace amounts. This shows a distinct reduction in deep-rooted perennial grasses, especially bluebunch wheatgrass, and encroachment by western juniper. Forb diversity is apparently also reduced, although that may partially reflect the timing of the field visit. The current dominance by woody species (low sagebrush and juniper) and shallow-rooted perennial grasses (Sandberg bluegrass) with Idaho fescue indicates departure from expected conditions in both the plant community structure and function, and in species composition. The change in structure and composition also likely affect the annual production, which was indicated as slightly to moderately reduced from expected. No non-native plants (such as cheatgrass or other annual grasses) or noxious weeds were recorded (although an extensive or intensive inventory was not completed).

Mosses were recorded as present as a biological crust, but abundance was not noted; reference conditions do not have data on biological crusts expected, so departure is difficult to assess. Other soil attributes affecting biotic integrity, such as erosion and compaction, do not appear to be limiting plant growth, although reduced litter was indicated. Reduced litter production is likely a product of the change in species composition, particularly the decline in deep-rooted perennial bunchgrasses, although a field note indicated that the site has the potential to produce adequate litter.

The reproductive capability of perennial plants appeared adequate for the current ecological site, but slight to moderate plant mortality as indicated by crown die-out in some bunchgrasses was noted.

Rangeland Health Changes
The 2000-2001 Assessment and Determination indicated conditions similar to those described in 2009. Soil surface resistance to erosion, soil surface structure, soil compaction, and perennial plant reproduction indicators had higher departure than the 2009 field assessment, while the indicators for functional/structural groups, amount of litter, and invasive species had lower departure. The site was described as dominated by shrubs and increaser species, containing scattered western juniper, but with limited deep-rooted perennial grasses (Idaho fescue and bluebunch wheatgrass) and a lack of microbiotic crusts and perennial forbs. No noxious weeds were recorded. Bare ground was greater than expected, with a lack of litter and biotic crusts. Bunchgrass vigor and production were recorded as poor except under the protection of shrubs. Pockets of soil surface loss and weak structure were noted.

Apparent rangeland health changes between 2000 and 2009 include a slight improvement in soil characteristics related to biotic integrity, but declines in desirable functional/structural groups and litter (soil cover), and an increase in juniper encroachment. The differences between the two assessments may reflect actual changes in the vegetation and/or differences in the times of year visited. Based on the two field assessments, no significant improvement in the native plant community has occurred.

Evaluation Finding – Allotment/watershed is:
____ Meeting the Standard
____ Not Meeting the Standard, but making significant progress towards meeting
_X_ Not Meeting the Standard

Rationale for Evaluation Finding
The Hanley FFR is not meeting the Standard for native plant community health, as shown by an abundance of seral juniper and Sandberg bluegrass, and a deficit of bluebunch wheatgrass, Idaho fescue, perennial forb diversity, and litter amounts. Although soil factors (besides litter) do not appear to be limiting the native plant community, the change in structure from a tall bunchgrass community to one heavily influenced by juniper and low grasses indicates the Standard is not being met.

Standard 5: Seedings X Standard does not apply
Rangelands seeded with mixtures, including predominately non-native plants, are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow, and the hydrologic cycle.

Rationale: No seedings occur on the public land portion of the Hanley FFR.

Standard 6: Exotic Plant Communities, Other than Seedings X Standard does not apply
Exotic plant communities, other than seedings, will meet minimum requirements of soil stability and maintenance of existing native and seeded plants.

Rationale: No significant exotic plant communities occur on the public land portion of the Hanley FFR.

Standard 7: Water Quality X Standard does not apply
Surface and ground water on public lands comply with the Idaho Water Quality Standards.

Rationale: No streams occur on the public land portion of the Hanley FFR.

Standard 8: Threatened and Endangered Plants and Animals ___ Standard does not apply
Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.

Evaluation and Information Sources
Information sources for plants and animals include Idaho Conservation Data Center GIS files, BLM clearance records and other rare plant and animals records, the 4/13/2009 Field Evaluation, and the 2000/2001Assessment. No botanical or wildlife surveys have been conducted.

Rangeland Health
Plants
No federally listed Threatened, Endangered, Proposed, or Candidate plant species are known or expected in the Hanley FFR Allotment. No specific records of special status plants occurrences within the allotment are known. Idaho CDC database includes a non-specific reference for reference for a 1977 collection of *Downingia bacigalupii* from Dougherty Creek, mapped as a large circle that includes this allotment. This plant's habitat is seasonally wet mudflats or reservoir edges; potential habitat could exist along the ephemeral drainage that runs through the center of the public land parcel, although it is unlikely. Other rare plants mapped nearby (within 5 miles) with potential habitat in the allotment include *Pyrrocoma linearis* and *Dimeresia howellii*. Habitat for *P. linearis* is wet to dry meadows or stream banks (often in alkaline soil). Habitat for *Dimeresia* is dry, rocky, cindery, or gravelly soils in desert foothills. Given this information and the small size of the public land parcel, the allotment likely has low (but not absent) potential to contain special status plant species.

Wildlife
No federally listed Threatened, Endangered, Proposed, or Candidate animal species have been documented within the Hanley FFR Allotment. However, several BLM Special Status Animal Species and State of Idaho Species of Greatest Conservation Need were recorded within one mile of the allotment in areas of similar habitat. BSU Herpetafauna Surveys (1997) and Breeding Bird Surveys (1997, 1998, 2003, 2005) documented several species (e.g., western toad, Brewer's sparrow, sage thrasher, Brewer's blackbird) that are likely to occur within the allotment due to proximity and habitat types that potentially are capable of supporting viable population of these species.

As described under Standard 4, perennial forbs are generally lacking and tall perennial bunchgrasses are limited. Interspatial herbaceous ground cover is generally lacking although fair woody structure and cover is provided by sagebrush and juniper. The limited cover and production of desirable herbaceous species adversely affects habitat for a diversity of species including sage-grouse, Brewer's sparrow, sage sparrows and others by reducing nesting and hiding cover and limiting the production and availability of forbs, seeds and insects that are critical food items many birds, bats

(insects only) and for small mammals that are critical prey for most raptors including prairie falcons, northern harriers and ferruginous hawks.

No sage-grouse leks have been documented within five miles of the allotment and the area provides poor to marginal breeding habitat for sage-grouse due to western juniper encroachment and low perennial bunchgrass cover. A general lack of forb species also indicates that potential brood-rearing habitat is limited. Although western juniper is reducing the suitability of sagebrush communities as habitat for sage-grouse and other shrub-dependant special status animal species, juniper woodland communities provide important habitat for a diversity of other special status birds and bats.

***Fish*: N/A**

Rangeland Health Changes

Plants

The 2001 Assessment/Determination considered the Hanley FFR Allotment within the potential range of *Spiranthes diluvialis*, a Threatened species. No systematic surveys had been conducted, but low potential for sensitive plants was assumed, due to a lack of specialized habitats.

Owyhee County is no longer considered potential habitat for *Spiranthes diluvialis*. No changes for range land health relating to species status plants are known.

Wildlife

The 2000-2001 Assessment and Determination indicated conditions similar to those described in 2009. The site was described as having limited cover, vigor and production of grasses, juniper encroachment, and a lack of perennial forbs which limits the its ability to provide suitable habitat for a diversity of special status animals species including sage-grouse, and other ground nesting and foraging birds.

Although apparent rangeland health changes between 2000 and 2009 include some improvement in the departure rating for biotic integrity, particularly in the native plant community understory, an increase in juniper indicates continuing conversion of the expected shrub steppe habitat types to seral juniper woodlands which limit populations of local sagebrush dependent special status animals species.

Evaluation Finding – Allotment/watershed is:

____ Meeting the Standard
____ Not Meeting the Standard, but making significant progress towards meeting
_X_ Not Meeting the Standard

Rationale for Evaluation Finding

The conversion of a low sagebrush and tall perennial bunchgrass community to one heavily influenced by juniper and low grasses has reduced the potential for these areas to support populations of special status animals. Therefore, the allotment is not meeting the Standard for special status animals.

HANLEY FFR 00453

INITIAL
ALLOTMENT AND PERMIT/LEASE REVIEW
and
RANGELAND HEALTH ASSESSMENT

Field Office: **Owyhee** Date: September 2010

1. Allotment Name/Number: **Hanley FFR / 00453**
2. Name(s) of Permittee(s)/Preference Code: **Hanley Ranch Partnership / 1101414**
3. Permit Expiration Date(s): **2012**
4. Acres of: Public: **63** Private: **593** State: Other:
5. Percent public land in the allotment: **100% on permit. Approximately ten percent public land within the allotment.**
6. Is public land large contiguous block(s) of public land, isolated parcel(s) or both?

   The allotment is primarily private land that includes one parcel of public land. The public land within the allotment is one separate tract bordered by allotment boundary fences and private land.

7. Is the public land fenced separately from the private land? **NO**
8. Is any public land within the allotment identified for exchange/disposal in the land use plan? **YES** Percent of public land **100%** If yes, two year notification sent? **NO**
9. Does BLM have administrative access separate from the grazing permit/lease? **Yes**
10. Does public have legal access to the allotment? **Yes**
11. Is the public land physically isolated from the adjoining public land?

    The 63 acres in the Hanley FFR are largely surrounded by private land. Portions to the south and west are adjacent to other public land parcels.

12. What is the livestock grazing management category (M, I, or C)? **C**
13. List all Land Use Plan (LUP) objectives and decisions (consider resource list for No. 14 below for objectives and decisions in the LUP), other grazing decisions, and other NEPA documents pertaining to the allotment:
    - **1999 Owyhee Resource Management Plan**
    - **1997 Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management**
    - **March 12, 2002 Notice of Field Manager's Final Decision for the Trout Springs and Hanley FFR Allotments.**

14. Check the Standards, Guidelines, and Resources that are applicable to this allotment. Following ID Team disclosure of information and data (monitoring data, studies, inventories, etc., information from other agencies, local governments, and the public) and the ensuing discussions, briefly describe in the comment section any issues (with supporting information). This information will be used to determine if existing data is adequate, or if more information is needed to determine compliance with the Idaho Standards and Guidelines for Rangeland Health.

Standard, Guideline, or Resource Issue	**Check (if applicable)**	**Comments**
Watershed (Standard 1)	X	One RLH evaluation was completed in 2009 in a shallow claypan 12-16" ecological site. Frost heaving was evident by observed pedestalled rocks, while more historic pedestals were observed around Sandberg bluegrass plants. Areas of bare ground were small and moderately connected. Percent bare ground was more than what was expected while the amount of litter was less than what was expected. Vegetation and gravel cover were adequate to prevent accelerated soil erosion. The current vegetation community was adequate to maintain water infiltration.
Riparian Areas, Wetland (Standard 2)		NA
Stream Channel, Flood Plains (Standard 3)		NA
Native Plant Communities (Standard 4)	X	The main indicators relating to biotic integrity affecting the site are juniper encroachment, function/structural groups, and litter amount. The reference plant community for this ecological site (shallow claypan 12-16" ARAR8/FEID) is dominated by bluebunch wheatgrass, Idaho fescue, and low sagebrush, with a diversity of perennial forbs and other perennial grasses (including minor amounts of Sandberg bluegrass). The site currently shows a substantial increase in western juniper and Sandberg bluegrass, and reductions in deep-rooted perennial grasses (particularly bluebunch wheatgrass) and the diversity of perennial forbs. Litter amounts are reduced (corresponding to the decline in large, deep-rooted perennial grasses), but other soil factors do not appear to be limiting the native plant community.
Seedings (Standard 5)		NA
Exotic Plant Communities (Standard 6)		NA
Water Quality (Standard 7)		NA

Threatened & Endangered Plant & Animals (Standard 8)	X	No special status plant inventories or specific occurrence locations are recorded within the Hanley FFR. Occurrences of three sensitive plants are known from within five miles of the allotment, and there may be potential habitat for these species within the Hanley FFR Allotment. A number of special status animal species may occur within the Hanley FFR Allotment. However, no special status animal inventories have been completed. The 2006 Idaho sage-grouse plan identifies this area as key habitat undergoing juniper expansion. No sage grouse sign was observed during the field assessment. Plant species composition, particularly the reduction in perennial grass and forb diversity has affected potential habitat for some species by reducing nesting and hiding cover and limiting important food sources. Western juniper is reducing the suitability of habitat for sagebrush dependent species.

Guidelines (1-20)		Data Adequacy/Comments/Concerns
1	Use grazing management practices and/or facilities to maintain or promote significant progress toward adequate amounts of ground cover to support infiltration, maintain soil moisture storage and stabilize soils.	Minimal data exist. Grazing practices appear to be appropriate to maintain soil resources at this site. See Standard 1 above.
2	Locate livestock management facilities away from riparian areas wherever they conflict with achieving or maintaining riparian-wetland functions	NA
3	Use grazing management practices and/or facilities to maintain or promote soil conditions that support water infiltration, plant vigor, and permeability rates and minimize soil compaction appropriate to site potential.	See Number 1, above
4	Implement grazing management practices that provide periodic rest or deferment during critical growth stages to allow sufficient regrowth to achieve and maintain healthy, properly functioning conditions, including good plant vigor and adequate vegetative cover appropriate to site potential.	Lack of rest or deferment has likely affected plant species composition (reduction of tall bunchgrasses) and reduction of litter, with some reduction in production and vigor.
5	Maintain or promote grazing management practices that provide sufficient residual vegetation to improve, restore, or maintain healthy riparian-wetland functions and structure for energy dissipation, sediment capture, ground water recharge, streambank stability, and wildlife habitat appropriate to site potential.	NA
6	The development of springs, seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions, wildlife habitat, and significant cultural and historical/ archaeological/ paleontological values associated with the water source.	NA
7	Apply grazing management practices to maintain, promote, or progress toward appropriate stream channel and streambank morphology and functions. Adverse impacts due to livestock grazing will be addressed.	NA
8	Apply grazing management practices that maintain or promote the interaction of the hydrologic cycle, nutrient cycle, and energy flow that will support the appropriate types and amounts of soil organisms, plants and animals appropriate to soil type, climate and landform.	See Number 1, above

9	Apply grazing management practices to maintain adequate plant vigor for seed production, seed dispersal, and seedling survival of desired species relative to soil type, climate and landform.	Minimal data exist. Grazing practices appear to be affecting species composition.
10	Implement grazing management practices and/or facilities that provide for complying with the Idaho Water Quality Standards.	NA
11	Use grazing management practices developed in recovery plans, conservation agreements, and Endangered Species Act, Section 7 consultations to maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.	Although data for sensitive plants and animals are incomplete, current grazing management may not be adequate for maintaining or improving special species habitat. Absence of a boundary fence between public and private land precludes direct management of public land within this custodial allotment. The minimal acreage of public land has not made it feasible or cost effective to fence off this small parcel.
12	Apply grazing management practices and/or facilities that maintain or promote the physical and biological conditions necessary to sustain native plant populations and wildlife habitats in native plant communities.	See Guidelines 9 and 11.
13	On areas seeded predominantly with non-native plants, use grazing management practices to maintain or promote the physical and biological conditions to achieve healthy rangelands.	NA
14	Where native communities exist, the conversion to exotic communities after disturbance will be minimized.	NA
15	Use non-native plant species for rehabilitation only in those situations where: a) native species are not readily available in sufficient quantities, b) native plant species cannot maintain or achieve the standards or c) non-native plant species provide for management and protection of native rangelands Include a diversity of appropriate grasses, forbs, and shrubs in rehabilitation efforts.	NA
16	On burned areas, allow natural regeneration when it is determined that populations of native perennial shrubs, grasses, and forbs are sufficient to re-vegetated the site. Rest burned or rehabilitated areas to allow recovery or establishment of perennial plant species.	NA
17	Carefully consider the effects of new management facilities (e.g., water developments, fences) on healthy and properly functioning rangelands prior to implementation.	NA
18	Use grazing management practices, where feasible for wildfire control, and to reduce the spread of targeted undesirable plants (e.g., cheatgrass, medusahead wildrye, and noxious weeds) while enhancing vigor and abundance of desirable native or seeded species.	NA
19	Employ grazing management practices that promote natural forest regeneration and protect reforestation projects until the Idaho Forest Practices Act requirements for timber stand replacement are met.	NA
20	Design management fences to minimize adverse impacts, such as habitat fragmentation, to maintain habitat integrity and connectivity for native plants and animals.	NA

Land Use Plan Review		
Livestock Grazing	X	Active Permitted Use - 7 AUMs The Hanley FFR Allotment is identified by the 1999 Owyhee RMP as a "Custodial" category allotment. Approximately 10% of this allotment contains public lands intermingled with unfenced private lands. Livestock grazing is generally authorized as year-long and at the grazing permittee's discretion, as long as grazing management guidelines are adhered to. Pertinent RMP objectives include: LVST 1: Provide for sustained level of livestock use compatible with meeting other resource objectives. VEGE 1: Improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas. SOIL 1: Improve unsatisfactory and maintain satisfactory watershed health/condition on all areas. SOIL 2: Achieve stabilization of current, and prevent the potential for future, localized accelerated soil erosion problems (particularly on streambanks, roads, and trails).
Botanical	X	There are no recorded sites within the allotment boundaries.
Cultural	X	There are no recorded sites within the allotment boundaries.
Fire, Fuel		NA
Fisheries		NA
Forestry		NA
Land	X	Under Objective LAND 2 of the Owyhee RMP, the public land within this allotment is identified for disposal, including sale.
Minerals		NA
Recreation		NA
Special Status Species	X	See Botany and Wildlife
Wild Horses		NA
Wildlife	X	WLDF1: Maintain or enhance the condition, abundance, structural stage and distribution of plant communities and special habitat features required to support a high diversity and desired populations of wildlife.
Water Quality		NA
Riparian		NA
Soils/Watershed	X	SOIL 1-Improve unsatisfactory and maintain satisfactory watershed health/condition on all areas.

15. Describe BLM's ability or inability to manage the allotment by considering the following, as applicable: Whether there is legal access; whether % federal land comprises majority of the allotment; whether the public land acreage is small (less than 640 acres) and surrounded by private land(isolated); whether the federal land is fenced separate from the private land; etc.

    The allotment is accessible but contains only 63 acres of public land, which account for approximately 10 percent of the total allotment acreage. The BLM has legal access to the allotment. BLM is unable to effectively manage the allotment due to its limited land ownership and a lack of fence separating private/public lands. The actions on the private lands determine how the allotment is used and managed.

Based on the information above the following is recommended to the field manager: (check the appropriate category)

1. ____ Review of existing information indicates that there is no livestock grazing or other issue. Available information is adequate to complete the evaluation and determination. (see numbers 5,6,7,8, 11, and 15 above). **This is the RHA. Complete the evaluation/Determination Form.**

2. __X_ Review of available information indicates that grazing or other issues are known to exist. However, the allotment has no or limited potential for management (see numbers 5, 6, 7, 8, 11, and 15 above). Available information is adequate to complete the evaluation and determination. **This is the RHA for this allotment. Complete the Evaluation/Determination form and consider the public land for disposal.**

3. ____ Review of existing information indicates the physical characteristics (e.g., slope, rock, location on the landscape, and lack of livestock forage) of the tract deter livestock grazing use on the public land. **Consider not issuing a new livestock grazing permit or lease. Further documentation is not recommended.**

4. ____ Review of existing information indicates that an issue(s) may or may not exist. The allotment is considered manageable (see #s 5,6,7,8,11, and 15 above). **Available information is adequate to complete the RHA. Complete RHA and the evaluation/determination.**

5. ____Review of existing information indicates that an issue(s) exists. The allotment is considered manageable (see #s 5,6,7,8,11, and 15 above). More information is needed to determine current conditions. **Gather additional information and data. Complete the RHA and evaluation/determination.**

List the names and title of the member of the ID team involved with this review:

Name	Title
Mike McGee	Wildlife Biologist
Beth Corbin	Botanist/Ecologist
Raul Trevino	Rangeland Management Specialist
Richard Jackson	Natural Resource Specialist
Brian McCabe	Archaeology
Melissa Richert	Rangeland Management Specialist
Chris Robbins/Jake Vialpando	Supervisory Rangeland Management Specialist
Steven Jirik	Assistant Field Manager

Prepared by: OFO ID Team March 30, 2010

Modified by: OFO ID Team September 29, 2010

Field Manager's Finding and Rationale:

Based on the limited information/data available, the Hanley FFR Allotment's soil stability and hydrologic function appear to be close to expected values, since rock cover and vegetation provide adequate soil stabilization. Biotic integrity has been altered from reference conditions, as indicated by juniper encroachment, changes in species composition (structural/functional groups), and a lack of litter. The site is dominated by Sandberg bluegrass and subdominated by western juniper, with a relative lack of bluebunch wheatgrass, a low diversity of forbs, and less Idaho fescue than expected. Given the low potential for efficient management of this allotment, we recommend pursuing disposal for this parcel. We recommend that this document suffice for the RHA.

This allotment includes only 10% federal land (63 BLM, and 593 private). The BLM has legal access to the allotment but is unable to effectively manage the allotment due to its limited land ownership and lack of fence separating private/public lands. The actions on the private lands largely determine how the allotment is used and managed.

Therefore, my conclusion is to: (1) accept the above-mentioned recommendation from the ID Team that there are grazing or other issues known to exist, however, the allotment has limited potential for management; (2) acknowledge that the available information is adequate to complete the evaluation and determination; (3) accept this Initial Allotment Review as the Rangeland Health Assessment; and (4), move forward and complete the Evaluation and Determination for this allotment.

Buddy W. Green
Field Manager

September 30, 2010
Date

Evaluation and Determination
Trout Springs Allotment
June 29, 2012

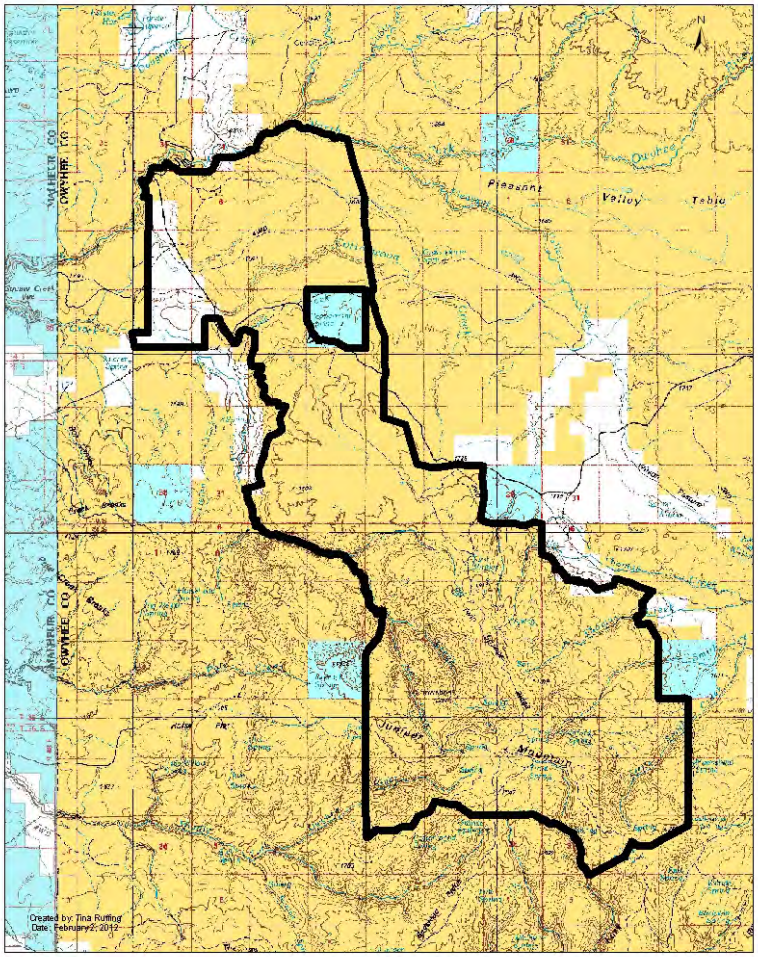
Interdisciplinary Team:

Tina Ruffing – Rangeland Management Specialist
Beth Corbin – Botanist/Ecologist
Rich Jackson – Hydrologist
Bradley Jost – Wildlife Biologist

Background:

The Trout Springs Allotment is located in southwestern Owyhee County, Idaho, approximately 30 miles south of Jordan Valley, Oregon. The allotment lies in the Owyhee Mountains and includes Juniper Mountain. The North Fork of the Owyhee River forms the allotment's northern boundary, the southern boundary lies on the south side of Juniper Mountain, the eastern side is bounded partially by the Owyhee Uplands National Backcountry Byway (aka Mud Flat Road) and Squaw Creek forms a portion of the western boundary (Map 1).

Map 1. Trout Springs Allotment, general location



Elevations range from 4,900 feet in Pasture 4 in the northwest corner of the allotment to over 6,700 feet in Pasture 1 on Juniper Mountain. Annual precipitation across the allotment ranges from approximately 12 in lower elevations to 20 inches in higher elevations. Table 1 outlines the ownership and acreage in each pasture of the Trout Springs allotment.

Table 1. Ownership and Acres, Trout Springs Allotment

Allotment	Pastures	Ownership			Total Acres
		Federal	State	Private	
Trout Springs	1A – Middle Fork	5,730	0	0	**5,727**
	1B – Thomas Cr	7,730	0	124	**7,856**
	2 – Cottonwood	2,334	0	2	**2,585**
	3 – Twin Springs	11,852	65	109	**11,774**
	4 – Fairylawn	246	0	1,280	**1,526**
Totals		**27,892**	**65**	**1,515**	**29,472**

A Rangeland Health Assessment (Assessment) was completed for the Trout Springs Allotment in 2001. Since that time, many changes have occurred on the Trout Springs Allotment. Livestock grazing continued on the entire allotment through 2007. Since 2008, livestock grazing has not been authorized on the Trout Springs Allotment with the exception of Pasture 4, which is still being grazed in conjunction with adjacent private property that is not fenced separately. Additional data have been collected in uplands and riparian systems. For these reasons, the Interdisciplinary Team has determined that the existing Evaluation and Determination should be updated for the Trout Springs Allotment.

This Evaluation and Determination is updated based on data collected through 2008, even though additional data has been collected through 2010. Analysis of these data is more reflective of what conditions are when livestock grazing is occurring. Although it can be assumed that resource conditions on the allotment have improved significantly in the absence of authorized grazing in the past four years, it can also be assumed that this rate of recovery will decrease to some extent if livestock are once again allowed to graze the Trout Springs Allotment.

A significant amount of work, including field visits, utilization measurements, trend data, and riparian monitoring (Multiple Indicator Monitoring {MIM}, which measures stubble height, streambank trampling, woody browse and other parameters, and Proper Functioning Condition {PFC}) has been conducted in the past several years. These data have been used to update, supplement, and replace the data used for the 2001 Assessment, Evaluation and Determination to determine if the allotment is meeting, not meeting, or making significant progress towards the Idaho Standards for Rangeland Health (Standards). For Standards not meeting or making significant progress, the causal factor(s) are determined. Information gathered since the 2001 Assessment is discussed in the Environmental Assessment's (EA's) Affected Environment sections for the applicable resource for each Standard; thus the 2011 Assessment is found in the Affected Environment section of EA # ID-130-2009-EA-3680. This report uses that information, and constitutes a new Evaluation and Determination for the Trout Springs Allotment based on conditions through 2007. "Current" livestock grazing management practices in this document refer to 2000-2007 management.

Standard 1 – Watersheds

Overview

The majority of the Trout Springs Allotment is within North Fork Owyhee River watershed. Headwaters Deep Creek, Middle Fork Owyhee River, and Red Canyon-Owyhee River watersheds make up the remainder of the allotment area at 22%, 6%, and 5%, respectively. Headwaters Deep Creek watershed represents less than 1% of the area within the allotment. Soils within the allotment 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. 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. These soils are generally loamy with high amounts of coarse fragments, both on the surface and in the profile. 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. The hazard of wind erosion is low.

Evaluation:

The 2001 Assessment with updated trend, density, utilization, actual use, and juniper cover, as discussed in the EA, are used to evaluate the watershed Standard.

Vegetation is the primary factor that influences the spatial and temporal variability of soil processes and as vegetation condition changes, so does runoff, erosion, and infiltration. In all pastures, large perennial bunchgrasses have been 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 biological 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. The fact that many ground cover element trends were stable but most changes that did occur indicated less suitable ground cover suggests a slightly declining system, from a watershed and native plant community standpoint.

The 2001 Trout Springs Assessment identified that, on many areas in the allotment, pedestalled interspatial bunchgrass and surface flow patterns were observed, 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. 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.

Evaluation Finding – Allotment is (check one):
___ Meeting the Standard
___ Not meeting the Standard, but making significant progress toward meeting
_X_Not meeting the Standard

Evaluation Rationale
Standard 1 is not being met on the majority of the allotment as indicated by the evidence of accelerated soil erosion, decreases in native perennial bunchgrass cover, and juniper encroachment. Signs of accelerated erosion such as water flow patterns and pedestaled bunchgrasses were observed in the allotment. The decrease of the deep-rooted perennial bunch grasses reduces soil cover and litter necessary for soil site stability. Replacement of mountain big sagebrush by juniper and the continual encroachment of juniper are changing the nutrient cycling, hydrologic cycling, and nutrient flow from what is expected for the area.

Determination:
Standard 1 is not being met throughout the allotment. The primary causes for not meeting the Standard are accelerated soil erosion and the lack of native bunchgrasses due to livestock management, and an increase in juniper from what is expected for the site.

Determination Finding: The Trout Springs Allotment is (check one or more):
___ Meeting the Standard
___ Not Meeting the Standard, but making significant progress toward
___ Conforms with Guidelines for Livestock Grazing Management
_X_Not Meeting the Standard; Current Livestock Grazing Management Practices are Significant Factors
___ Not Meeting the Standard; Current Livestock Grazing Management Practices are **not** Significant Factors
_X_Does not conform with Guidelines for Livestock Grazing Management Guidelines No(s). **1, 3, 8.**

Determination Rationale
Accelerated soil erosion such as water flow patterns and pedestalled bunchgrasses were identified throughout the allotment. Reduction of deep-rooted perennial bunch grasses likely due to livestock grazing has reduced soil cover and litter necessary for soil site stability and resulted in accelerated soil erosion. Additionally, replacement of mountain big sagebrush with juniper and the continued juniper encroachment has decreased soil cover and litter.

Standard 2 – Riparian Areas and Wetlands and
Standard 3 – Stream Channel/Floodplain

Overview
Trout Springs Allotment has about 37 miles of perennial and intermittent streams. Major drainages include the North and Middle Fork Owyhee Rivers and Squaw Creek. The streams generally drain west from Idaho into Oregon. 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). Trout Springs Allotment has 14 developed springs and numerous (≈60) undeveloped springs, many of which are headwaters to various streams. The majority of springs are located in the southern half of the allotment. Two of the larger springs are Trout Springs and Three Springs, both of which have fenced exclosures.

There are two reservoirs north of Mud Flat Road, and another reservoir and several 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.

Evaluation:
The 2001 Assessment with updated lotic and lentic PFC assessments, greenline monitoring data, MIM data, herbaceous stubble height, woody browse, and streambank alteration information, found in the 2012 EA, are used to evaluate the riparian areas and wetlands and stream channel/floodplain standards.

PFC assessments were conducted between 1996 and 2000, and most 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 all were assessed as properly functioning, and a 1.1 mile segment of the North Fork Owyhee River that was 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 or increaser 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.

In addition to the perennial stream PFC assessments, PFC assessments were also conducted on the intermittent 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 a 2009 Trout Springs Allotment tour.

Herbaceous stubble heights, streambank alteration, and riparian woody browse utilization were measured on various stream reaches in 2000-2002. The data indicate heavy livestock use (low stubble height and high bank alterations) in all stream reaches during 2000-2002 time periods.

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. 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.

Data from various sources were gathered from 2003-2007. 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.

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 were used to measure and calculate median herbaceous riparian stubble height, streambank alteration, and wood browse. The 2008 data were collected in the absence of any authorized grazing. However, bank alteration data indicated unauthorized livestock 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. Few bank alterations were observed in Pleasant Valley and Squaw Creek reaches, and were as expected in non-grazed pastures.

Previous reports (1996-2000) have identified that many springs have been negatively impacted by cattle 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.

In addition, juniper encroachment is occurring in and near riparian areas. Although it is having some effect, the encroachment is not yet a significant causal factor affecting the functioning condition of riparian areas and stream channels.

Evaluation Finding – Allotment is (check one):
___ Meeting the Standards
___ Not meeting the Standards, but making significant progress toward meeting
_X_Not meeting the Standards

Evaluation Rationale
Standards 2 and 3 are not being met in riparian areas accessible to livestock grazing throughout the allotment. In a majority of the stream reaches, riparian vegetation is not controlling erosion, stabilizing streambanks, or dissipating energy. Streambanks are not within the appropriate range of stability as indicated by individual reach functional rating. In addition, multiple stream reaches on multiple years have had less than 4-inch median herbaceous stubble height and greater than 10% streambank alterations.

Determination:
Significant progress is not being made towards Standards 2 and 3. Due to the hot season use, livestock accessible riparian areas are negatively affected by subsequent heavy utilization and/or streambank/wetland physical disturbance. Conversely, areas that are inaccessible to livestock, either from fencing or terrain, are usually meeting Standards 2 and 3.

Although juniper encroachment is not yet significantly affecting functioning condition of riparian areas and stream channels, the incremental increase in juniper will eventually affect precipitation runoff and increase erosion/sedimentation in the stream channels.

Determination Finding: The Trout Springs Allotment is (check one or more):
___ Meeting the Standards
___ Not Meeting the Standards, but making significant progress toward
___ Conforms with Guidelines for Livestock Grazing Management
_X_Not Meeting the Standards; Current Livestock Grazing Management Practices are Significant Factors
___ Not Meeting the Standards; Current Livestock Grazing Management Practices are **not** Significant Factors
_X_Does not conform with Guidelines for Livestock Grazing Management Guidelines No(s) **5, 7.**

Determination Rationale
In this allotment, grazing occurs at the hottest time of year. Due to topography and hot season use, livestock tend to congregate and concentrate their use in narrow riparian areas, increasing riparian vegetation use and streambank trampling to unacceptable levels. 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 reaches 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.

Juniper encroachment is slowly changing the hydrology of the area by increasing surface runoff and associated sediment input into the stream channels. Due to the degraded riparian conditions on the majority of streams, there will be little buffering capability, and sediment from potential increase in overland flow would enter stream systems. Unless changes to management occur, in

some of the stream systems, rapid runoff coupled with unstable streambanks and general lack of deep-rooted riparian plants would cause channel widening or incision to the point where little soil is left in the riparian areas.

Standard 4 – Native Plant Communities

Overview

Ecological sites are a description of the expected vegetation based on soils, climate (precipitation and temperature), and a natural disturbance regime. The Trout Springs Allotment is composed of two primary and three secondary ecological sites. The primary ecological sites are a loamy soil mountain big sagebrush/bluebunch wheatgrass and Idaho fescue site and a mahogany savanna with Idaho fescue site; these sites make up about 76% of the allotment. A shallow claypan low sagebrush/Idaho fescue site, a very shallow stony loam low sagebrush/Sandberg bluegrass and bluebunch wheatgrass site, and a steep rocky canyon site make up most of the remaining 24% of the allotment.

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, and riparian areas, are expected to occur as unmapped inclusions within the larger ecological sites.

Evaluation:

Information sources for this evaluation and determination include the 2001 Trout Springs Assessment (which incorporated trend, photo, ground cover, actual use, and rangeland health indicators data collected up to that point), 2006-2007 utilization, 2002-2007 actual use, and 2005 (and 2009, but considering no authorized grazing for 2008 and 2009) trend data (nested frequency, photos, cover, and density data). These data are discussed in detail in the Upland Vegetation/Noxious Weeds Affected Environment section of the 2012 EA.

In all pastures, large perennial bunchgrasses have been reduced compared to reference conditions. Reference conditions in the loamy mountain big sagebrush/bluebunch wheatgrass and Idaho fescue site, for example, describe composition by weight as 55-65% grass, 10-20% forb, and 20-30% shrub. Currently, juniper makes up much of the composition, with large reductions in grasses, forbs, and sagebrush. Bluebunch wheatgrass, which is expected to be co-dominant over much of the area, is highly reduced to absent in most of the allotment. There is more Idaho fescue than bluebunch wheatgrass, but it is still reduced compared to reference conditions. Within the grass layer, large grasses have chiefly been replaced by smaller bunchgrasses; these include medium bunchgrasses/graminoids like needlegrass, squirreltail, melicgrass, and Ross' sedge, or small bunchgrasses like Sandberg bluegrass and the non-native bulbous bluegrass. Forb species diversity is fairly similar to reference conditions, but forb cover/abundance has been reduced. Weedy annual grasses (cheatgrass, other annual bromes, ventenata, medusahead) or non-native forbs are present in scattered patches but are not common. Noxious weeds are limited to a few small infestations of whitetop and Canada thistle. Of the non-native weeds, only bulbous bluegrass noticeably affects native plant communities in the Trout Springs Allotment; bulbous bluegrass is rather common within the allotment, particularly

along roads and drainages, and is co-dominant with native bunchgrasses in areas, but nowhere has it entirely replaced native grasses.

Trend data between 2000 and 2005 showed generally stable or decreasing frequency for bunchgrasses and perennial forbs, indicating that native plant community conditions were not improving. Ground cover between 2000 and 2005 shows somewhat of a replacement of more stable ground cover elements (gravel, rock, persistent litter, and biological crust) with less stable (non-persistent litter) cover at two of the four monitoring sites, while the other two sites showed no significant change in these elements. Bare ground and basal perennial vegetation were stable at three sites and declining at one site. That many ground cover elements were statistically stable but most changes that did occur indicated less suitable ground cover suggests a slightly declining system, from a watershed and native plant community standpoint.

Trend data between 2005 and 2009 showed bunchgrass and perennial forbs with generally stable to increasing frequency in monitoring plots. Perennial herbaceous (grass and forb) canopy cover was also generally stable between 2005 and 2009. Ground cover data between 2005 and 2009 indicated ambiguous changes, with improvement (or no significant change) in basal vegetation but reduction (or no significant change) in stable ground cover elements; bare ground was statistically unchanged, and non-persistent litter trends were variable between sites. Notice that this time period partially includes different management than the focus of this evaluation.

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. Juniper has replaced shrubs primarily in deeper soil areas which make up the dominant ecological sites, loamy mountain big sagebrush and mahogany savanna. Shallow claypan and very shallow stony loam low sagebrush sites, along with 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 into these areas to the same extent that it has in deeper soil areas, so less low sagebrush has been lost than big sagebrush or mahogany.

Evaluation Finding – Allotment is (check one):
___ Meeting the Standard
___ Not meeting the Standard, but making significant progress toward meeting
_X_ Not meeting the Standard

Evaluation Rationale:
Standard 4 is not being met throughout the Trout Springs Allotment, as indicated by the reduction in large perennial bunchgrasses, particularly bluebunch wheatgrass, and the reduction of shrubs expected for the ecological sites, particularly mountain big sagebrush and mountain mahogany.

Determination:
Standard 4 is not being met due to a combination of grazing management and juniper encroachment. Grazing has occurred season-long every year in most pastures, often with moderate or higher utilization (ex: 54-74% utilization in 2006), leading to a reduction in the most

palatable grasses. Juniper has replaced much of the shrub component expected for the ecological site, and also affected native grass and forb abundance.

Determination Finding: The Trout Springs Allotment is (check one or more):
___ Meeting the Standard
___ Not Meeting the Standard, but making significant progress toward
___ Conforms with Guidelines for Livestock Grazing Management
_X_ Not Meeting the Standard; Current Livestock Grazing Management Practices are Significant Factors
___Not Meeting the Standard; Current Livestock Grazing Management Practices are **not** Significant Factors
_X_ Does not conform with Guidelines for Livestock Grazing Management Guidelines No(s). **4, 9 .**

Determination Rationale
The reduction in large bunchgrasses (primarily bluebunch wheatgrass, and to a lesser degree Idaho fescue) is mainly a result of grazing management. Moderate or higher utilization (see EA Appendix F), grazing during the critical growing season, a long season of use that leads to potential re-grazing of plants multiple times, and no rest have caused a reduction in the density of the largest, most palatable native bunchgrasses; these bunchgrasses are important for providing plant community structure, wildlife cover, and soil cover. Trend data between 2000 and 2005 show stable to declining trends in frequency for bunchgrasses, particularly large and medium bunchgrasses, indicating that loss of desirable grasses would continue under similar management. Ground cover data showed similar trends.

Trend and ground cover data between 2005 and 2009 show more mixed results, with no apparent trend. This may be because management between 2005 and 2009 included three years of use similar the time period of 2000-2005, followed by (almost) two years of non-use. We would expect to see improvements in large bunchgrasses after rest, but the 2009 data reflect less than two years of rest, and effects of juniper continue, so no improvement is obvious, although an increase in basal vegetation at three of the four sites (no significant change at the fourth site) suggests improvement may be occurring.

Juniper cover has increased significantly in the Trout Springs Allotment, compared to reference conditions. The current density and cover of juniper has substantially affected native plant community structure, by largely replacing big sagebrush and mountain mahogany by shading out these species and competing for water and nutrients. Juniper encroachment has also contributed to reduced bunchgrass and forb abundance, and replaced low sagebrush in localized areas.

Bulbous bluegrass affects parts of the Trout Springs Allotment, competing with native bunchgrasses and influencing native plant community structure in some areas. Smaller areas of invasive annual grasses or forbs have very limited, localized effects. These weeds are not a significant causal factor for not meeting Standard 4 in the allotment as a whole because of the relatively low proportion of the landscape affected.

Standard 5 – Seedings
Not Applicable

Standard 6 – Exotic Plant Communities, Other than Seedings
Not Applicable

Standard 7 – Water Quality

Overview
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 designated the North Fork of the Owyhee River as a Wild and Scenic River.

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; Thomas and Smith Creeks and associated tributaries from source to Nickel Creek; and Red Canyon Creek from the headwaters to the East Fork Owyhee River. Flow alteration and thermal modification are the primary pollutants in the North and Middle Fork Owyhee Rivers, Pleasant Valley Creek, and West Fork Red Canyon Creek. Thomas and Smith Creeks' primary pollutants are thermal modification and sedimentation/siltation. Total maximum daily loads (TMDLs) were developed for stream temperature in North and Middle Fork Owyhee Rivers, Pleasant Valley Creek, Smith Creek, Thomas Creek, and West Fork Red Canyon Creek. Smith and Thomas Creeks also have an approved TMDL for sediment/siltation.

Waters in Squaw Creek are not considered impaired by IDEQ and fully support their beneficial uses.

Evaluation:
The 2001 Assessment with updated 2010 IDEQ water standard information and PFCs, MIMs, and Greenline riparian monitoring data are used to evaluate the water quality standard.

Thermal modification in the North and Middle Fork Owyhee Rivers, West Fork Red Canyon Creek, Pleasant Valley Creek, Smith Creek, Thomas Creek and their tributaries is likely due to the loss of shade-producing vegetation such as shrubs and herbaceous grass-like species along streambanks. Additionally, streambank alteration caused by livestock (trampling, pugging, shearing, etc.) has likely increased stream width and decreased depth, thereby exposing more water to solar radiation and increasing water temperature.

Although only Smith and Thomas Creeks have been identified as having excess sedimentation/siltation, excessive sedimentation is likely occurring in remainder of the stream

reaches that are livestock accessible due to poor riparian conditions. The major sediment contributor is unstable, eroding streambanks resulting from excessive livestock use and juniper encroachment. Excessive bank alterations from livestock trampling, pugging, and shearing exposes bare soil and increases the likelihood for sedimentation.

Evaluation Finding – Allotment is (check one):
___ Meeting the Standard
___ Not meeting the Standard, but making significant progress toward meeting
_X_Not meeting the Standard

Evaluation Rationale
Standard 7 is not being met based on findings from IDEQ which state North and Middle Fork Owyhee Rivers, Pleasant Valley Creek, Smith Creek, Thomas Creek, and West Fork Red Canyon Creek are not meeting all of their beneficial uses. In addition, North and Middle Fork Owyhee Rivers, Pleasant Valley Creek, Smith Creek, Thomas Creek, and West Fork Red Canyon Creek are on the 303(d) list as water quality limited due to thermal modification. Smith and Thomas Creeks are also water quality limited for sedimentation/siltation. Other streams within the allotment are likely not meeting water quality standards due to poor riparian conditions and excessive streambank alterations that contribute to increased water temperatures and sedimentation.

Determination:
Waters within the Trout Springs Allotment are not meeting Standard 7 and livestock grazing is a significant factor. Hot season grazing concentrates livestock in the riparian areas, causing heavy utilization and/or streambank/wetland physical disturbance.

Although juniper encroachment is not yet significantly affecting water quality, the incremental increase in juniper will eventually affect precipitation runoff and increase erosion/sedimentation in the stream channels, increasing turbidity and stream temperatures.

Determination Finding: The Trout Springs Allotment is (check one or more):
___ Meeting the Standard
___ Not Meeting the Standard, but making significant progress toward
___ Conforms with Guidelines for Livestock Grazing Management
_X_Not Meeting the Standard; Current Livestock Grazing Management Practices are Significant Factors
___ Not Meeting the Standard; Current Livestock Grazing Management Practices are **not** Significant Factors
_X_Does not conform with Guidelines for Livestock Grazing Management Guidelines No(s) **10.**

Determination Rationale
Hot season grazing has concentrated livestock use in riparian areas, resulting in reduced riparian zone buffering capacity and increased sedimentation and stream temperatures. Thermal modification due to the loss of shade-producing vegetation, such as shrubs and herbaceous grass-like species along streambanks, is occurring. Additionally, sediment deposits from streambank alterations (i.e., trampling and shearing) has increased 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 increase, and streams are likely to be more turbid and sediment laden.

Juniper encroachment is slowly changing the hydrology of the area by increasing surface runoff and associated sediment input into stream channels. Due to the majority of the streams' degraded riparian conditions, there is little buffering capability, and sediment from overland flow freely enters stream systems. In some of the stream systems, rapid runoff, coupled with unstable streambanks and the general lack of deep-rooted riparian plants, causes channel widening or incision to the point where little soil is left in the riparian areas.

Standard 8 – Threatened and Endangered Plants and Animals

Overview: *Special Status Animals*
The Trout Springs Allotment is located within the Owyhee Uplands and Canyons and Semiarid Uplands Level IV Ecoregions of Idaho. Within the allotment, these ecoregions are characterized by rolling shrub steppe uplands interrupted by low hills, rocky outcrops and precipitous river canyons. Wildlife habitats within the Trout Springs Allotment include juniper woodlands, mountain shrublands, sagebrush steppe, grassland meadow complexes, riparian areas, springs and seeps, and a few small reservoirs. Many wildlife species utilize a variety of habitats in the allotment. 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.

No Threatened and Endangered Species listed under the Endangered Species Act (ESA) occur in the allotment. However, two bird and one amphibian species listed as candidates under the Endangered Species Act, and 11 mammals, 25 birds, and one fish with BLM special status (including Watch List Species) may potentially occur within the allotment. Special status wildlife species, their status, key habitat associations and current information regarding habitat conditions and occurrence potential within the allotment are explained in detail in the Affected Environment for Fish and Wildlife Section in the EA. Special status wildlife information is based on the 2001 Assessment, field observations, BLM records, and data on file with the Idaho Fish and Wildlife Information System.

Overview: *Botany*
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*), thinleaf goldenhead (*Pyrrocoma linearis*), rabbitbrush goldenweed (*Ericameria bloomeri*), short-lobed penstemon (*Penstemon seorsus*), and diverse-leaved pondweed (*Potamogeton diversifolius*). Information on special status plants is based on field work by BLM staff, data on file with Idaho Department of Fish and Game Idaho Fish and Wildlife Information System Plant Conservation Database, the USDA PLANTS database, and published references.

Evaluation: *Special Status Animals*
The 2001 Assessment with current terrestrial and aquatic wildlife occurrence data and updated upland, riparian, and stream channel/floodplain information relevant to habitat conditions, as discussed in the EA, are used to evaluate the threatened and endangered wildlife Standard.

Upland wildlife habitats within the allotment have departed substantially from what would be expected under a natural disturbance regime. Wildlife habitat for many species is currently in poor condition due to a combination of season-long livestock grazing and juniper encroachment. Based on ecological site descriptions, sagebrush steppe communities that would be expected at higher elevations throughout the allotment have been predominantly converted to juniper woodlands. The increase in juniper cover may have benefited some woodland associated species such as northern goshawks, Lewis' woodpeckers and Cassin's finches. Conversely for these species, juniper encroachment is threatening riparian areas and aspen stands limiting the amount of nesting and foraging habitat these species require.

Juniper encroachment has certainly reduced the quantity and quality of habitat for a variety of shrub-obligate species including greater sage-grouse, sage sparrows, and Brewer's sparrows. At lower elevations within Pastures 2 and 4, sagebrush habitat persists with varying amounts of juniper encroachment. Although juniper encroachment has lowered the habitat quality for most of these species, many are relatively common. Excessive livestock grazing in the allotment is also a limiting factor for sage-grouse use because heavy grazing reduces nesting and hiding cover which also increases exposure to predators. Sagebrush steppe habitats within these pastures will continue to be degraded as junipers are established and increase in density, and perennial bunchgrasses are replaced by non-native perennials and exotic annuals that do not provide the same quality of cover.

In areas accessible to livestock, lentic and lotic riparian wildlife habitats lack sufficient vegetative cover, deep-rooted vegetation, and species diversity. These highly degraded habitats are due to hot season grazing which has concentrated livestock use in riparian areas and resulted in heavy riparian vegetation utilization. Heavy utilization has reduced forage, nesting substrate, and cover for riparian dependent species, migratory songbirds and special status species such as calliope hummingbird and willow flycatchers. In these areas, instream aquatic habitats are subject to increased temperatures due to the loss of shade-producing vegetation such as shrubs and herbaceous grass-like species along streambanks. Additionally, streambank alteration caused by livestock (trampling, pugging, shearing, etc.) increases stream width and decreases depth, thereby exposing more water to solar radiation and increasing water temperature. Livestock trampling in riparian areas also increases sediment loads to aquatic habitats. These factors have decreased the quantity of lentic habitats in Cottonwood Creek for spotted frog reproduction and have limited suitable habitat for redband trout by degrading lotic habitats in Cottonwood, Squaw, Hells, Smith, Little Smith, and West Fork Red Canyon Creek and North Fork Owyhee River.

Evaluation Finding – Allotment is (check one):
___ Meeting the Standard
___ Not meeting the Standard, but making significant progress toward meeting
_X_ Not meeting the Standard

Evaluation Rationale
Standard 8 (special status animals) is not being met on higher elevation upland habitats due to excessive livestock grazing, juniper encroachment, and conversion to woodlands. These woodland habitats are unsuitable for shrub-obligate species that would be present in the expected shrub steppe habitat. Although lower elevation upland habitats may be providing marginal habitat for shrub-

obligate species, the continuation of juniper encroachment and localized increases of invasive grasses at the expense of desirable perennial bunchgrasses will lead to further degradation of nesting and foraging conditions. In addition, Standard 8 (special status animals) is not being met in riparian areas accessible to livestock grazing. Heavy herbaceous riparian vegetation use and streambank trampling has reduced nesting substrate, protective cover, and foraging areas for many riparian-dependent species. Heavy use and trampling in riparian areas has also increased stream temperatures, channel width to depth ratios, and sediment loads which degrade suitable habitat for aquatic species such as amphibians and fish.

Evaluation: *Botany*
Special status plants and their habitats have been or potentially are affected by direct disturbance, reduced ground cover, increase of weeds (such as bulbous bluegrass), disturbance to pollinators, conversion to tree-dominated (juniper) plant communities, and alterations of the fire regime in the Trout Springs Allotment. Although no quantitative data on special status plant occurrence trends within the allotment is available, the plants' habitats are all within plant communities (upland or riparian) that have been altered from reference conditions (see Standards 2 and 4). As a result, habitat for special status plants has been degraded.

Evaluation Finding – Allotment is (check one):
___ Meeting the Standard
___ Not meeting the Standard, but making significant progress toward meeting
_X_ Not meeting the Standard

Evaluation Rationale
Mud Flat milkvetch is somewhat resistant to disturbance since it is often found in previously disturbed openings, but is shade intolerant, so likely has been negatively impacted by juniper expansion. Dimeresia is a small annual that is sensitive to trampling on its sandy soil habitat during flowering and fruiting. Thinleaf goldenhead is affected by grazing during its growing and flowering period, which reduces plant vigor by removing carbohydrates and reduces seed set by eliminating flowering heads. Rabbitbrush goldenweed may be impacted by grazing, particularly later in the season as herbaceous plants dry and animals eat more shrubs, and is shade intolerant and negatively impacted by juniper expansion. Short-lobe penstemon is sensitive to grazing, particularly during its flowering period, and negatively affected by juniper shade. Diverse-leaved pondweed is subject to trampling and incidental grazing as cattle water at its reservoir habitat.

Determination: *Special Status Animals*
Standard 8 (special status animals) is not being met throughout the allotment and livestock grazing is a significant factor in both upland and riparian areas. Hot season grazing concentrates livestock in the riparian areas, causing heavy utilization and streambank/wetland physical disturbance which limits or excludes use by species dependent on these habitats. Standard 8 (special status animals) is not being met in upland habitats due to excessive livestock use which has reduced perennial bunchgrasses and juniper encroachment which has converted the expected sagebrush steppe communities to woodlands. In addition, Standard 8 (special status animals) is not being met in riparian areas accessible to livestock grazing. Heavy herbaceous riparian vegetation use and streambank trampling has reduced nesting substrate, protective cover, and foraging areas for many

riparian-dependent species. Reductions in perennial bunchgrasses limit cover and foraging areas and drastic changes in plant communities typically are associated with changes in wildlife communities.

Determination Finding: The Trout Springs Allotment is (check one or more):
___ Meeting the Standard
___ Not Meeting the Standard, but making significant progress toward
___ Conforms with Guidelines for Livestock Grazing Management
_X_ Not Meeting the Standard; Current Livestock Grazing Management Practices are Significant Factors
___ Not Meeting the Standard; Current Livestock Grazing Management Practices are **not** Significant Factors
_X_ Does not conform with Guidelines for Livestock Grazing Management Guidelines No(s). **5, 6, 8, 12.**

Determination Rationale:
Within the Trout Springs Allotment, juniper cover has increased substantially. Higher elevation upland habitats have been replaced by juniper woodlands. Woodland habitats do not provide the proper biological and structural plant community shrub-obligate species such as greater sage-grouse and sage sparrows require. Another important upland habitat component, large perennial bunchgrasses, has been reduced as a result of grazing management. Decreased perennial bunchgrasses and juniper encroachment have diminished the quality of upland habitats by reducing cover and foraging areas for many species of birds and small mammals.

Hot season grazing has concentrated livestock in riparian areas. Heavy utilization in riparian areas has reduced vegetation that provides nesting substrate, protective cover, and foraging areas for many riparian-dependent bird species. Reduced cover and streambank trampling in riparian areas (lotic and lentic) due to heavy utilization by livestock increases water temperatures and sediment loads and reduces water quality. Spotted frog habitat quality is degraded by sedimentation which reduces breeding pool depths; aquatic habitat quality for fish such as redband trout also is degraded by sedimentation which can cover spawning substrates and redds and negatively affect reproduction. Reduced shade from the lack of riparian vegetation allows greater solar radiation to reach the affected wide and shallow streams, potentially surpassing temperature thresholds and precluding use by aquatic species.

Determination: *Botany*
Standard 8 is not being met for special status plants due to a combination of grazing management and juniper encroachment.

Determination Finding: The Trout Springs Allotment is (check one or more):
___ Meeting the Standard
___ Not Meeting the Standard, but making significant progress toward
___ Conforms with Guidelines for Livestock Grazing Management
_X_ Not Meeting the Standard; Current Livestock Grazing Management Practices are Significant Factors
___ Not Meeting the Standard; Current Livestock Grazing Management Practices are **not** Significant Factors

_X_ Does not conform with Guidelines for Livestock Grazing Management Guidelines No(s). **4, 9, 12.**

Determination Rationale:
Grazing has occurred season-long every year in most pastures, often with moderate or higher upland utilization (ex: 54-74% utilization in 2006), and riparian areas have been heavily used due to hot-season grazing, leading to potentially high incidence of grazing and trampling on special status plants and their habitats. Under this grazing system, special status plants have no opportunity for rest or deferment during critical growing stages to recover vigor and provide for reproduction. Grazing has affected special status plant habitat by increasing bare ground, potentially increasing weeds, and may be impacting critical pollinators. Juniper has encroached into some special status plant habitats, reducing suitability for shade-intolerant species.

Summary of Evaluation and Determination

	Standards							
Check one box for each	1	2	3	4	5	6	7	8
	Watersheds	Riparian	Stream Channel	Native Plant Communities	Seedings	Exotics (not seeded)	Water Quality	T& E
Meeting the Standard								
Not Meeting the Standard, but making **significant progress** toward								
Not Meeting the Standard; current livestock grazing practices **are not** significant factors								
Not Meeting the Standard; current livestock grazing practices **are** a significant factor	X	X	X	X			X	X
Not Meeting the Standard; cause not determined								
Standard does not apply					X	X		
Guidelines for Livestock Grazing								
Conforms with Guidelines for Livestock Grazing Management?							**NO**	
If no, list the Guidelines not in conformance: **1, 3, 4, 5, 6, 7, 8, 9, 10, 12**								

/s/ Loretta V. Chandler 7/9/2012

Owyhee Field Manager Date

Appendix B. Stream segments by pasture under the 2001 Trout Springs Determination and under various Alternatives in this Environmental Assessment.

	Pasture Identification						
2001 Determination	**1**		**2**		**3**	**4 (V-Pasture)**	**5 (Fairylawn)**
Alternative A	**1A**	**1B**	**2**		**3**	**Removed**	**4 (Fairylawn)**
Alternatives B-E	**Middle Fork 1A**	**Thomas Creek 1B**	**Grave Creek 2B**	**Cottonwood 3**	**Twin Spring 2A**	**Removed**	**Fairylawn 4**
Stream Segments	Middle Fork Owyhee River & Tributaries Hells Creek &Tributaries Squaw Creek Salt Creek	Thomas Creek Little Thomas Creek Tributary Smith Creek & Tributaries Little Smith Creek & Tributaries West Fork Red Canyon Creek	Squaw Creek & Tributaries Twin Springs Creek Headwaters of Cottonwood Creek* Grave Creek*	Cottonwood Creek* North Fork Owyhee River	Squaw Creek & Tributaries Pleasant Valley Creek & Tributaries Twin Springs Creek Little Thomas Creek	Squaw Creek	None

* Intermittent stream

Appendix C. Responses to Scoping Comments

BLM response to comments received from the August 14, 2009 scoping document for EA #ID-130-2009-EA3680 Term Permit Renewals for Livestock Grazing in Trout Springs and Hanley FFR Allotments

The following guidelines were used by Owyhee Field Manager and Trout Springs ID Team in considering, reviewing, and responding to Scoping Document comments:

> *1) considered pertinent suggestions which could be incorporated into the alternatives;*
> *2) considered as Other Alternatives Considered, but not analyzed;*
> *3) considered as issues to be addressed in the effects analysis;*
> *4) considered as indicators of where BLM needed to provide better clarification in the environmental assessment; or,*
> *5) considered concerns in which BLM provided a specific response to in AppendixB.*

The Trout Springs ID Team met on September 22-23, 2009, and reviewed Scoping Comments received from the following:

- Western Watershed Projects, Katie Fite received via email on August 26, 2009.
- Western Watershed Projects, Katie Fite received via email on August 31, 2009.
- Owyhee Range Service, Chad Gibson received via email on September 2, 2009.
- State of Idaho, Dept. Of Agriculture, Ron Kay received via email on September 14, 2009.
- Hanley Ranch, Mike Hanley received via hardcopy on September 15, 2009.
- Western Watershed Projects received via fax/email on September 22, 2009.

Comments which were categorized under Guidelines No. 1-4 above have been considered and/or addressed in the final EA. The following responses address comments which were categorized as Guideline No. 5 above.

Mike Hanley – Hanley Ranch Comments:

1. *Monitoring of the two years of rest (2008-2009) on the allotment show positive recovery and should be included in the document. Also it should be mentioned that BLM and permittees in 2002 agreed to divide pasture 1 into two parts. This was to provide every other year rest to the pastures 1A and 1B. Also it was stressed that it would enhance riparian issues in both pastures and allows relaxation of stringent riparian policy in the use pasture.*

   Monitoring of the allotment has shown improvement to resources from the 2 plus years of rest and is included in the document. Pasture 1 was split into Pastures 1A and 1B to provide rest every other year in each pasture; improvement to riparian conditions would occur during the rest years, but we have no information to show that the pastures were actually rested. Management indicators such as percent utilization, stubble height, stream bank alteration, etc. identified in the EA are used to periodically evaluate whether terms and conditions (particularly animal numbers and dates) are resulting in the expected management effects, and apply during years of use in all pastures, and are not negated or relaxed due to the presence of rest the year before or after it is used. Relaxing these criteria during use years would diminish any improvements made during the rest years.

2. *The document doesn't mention the well Hanley Ranch established and developed on its Fairylawn deeded land. The well, with its environmentally correct solar power, provides stockwater for three sections adjacent to formerly unwatered federal land in the allotment. The well was drilled after the 2002 decision and its contribution must be recognized. It has resulted in even distribution of grazing on the north western segment of the allotment adjacent to the Fairylawn.*

   The well's overall effect on livestock distribution and subsequent range condition are accounted for in the utilization and trend studies for the allotment.

3. *For years I have tried to get BLM to recognize the northern boundary of the allotment as the southern rim of the north fork canyon. To graze the river but it's used as a limiting factor for grazing on the allotment. I want the boundary changed to the rim as proposed.*

   The North Fork of the Owyhee River is the established North Boundary of the Trout Springs Allotment. Livestock access is limited to only a few known locations.

4. *Establishing proposed fencing will facilitate management. I don't think it necessary to tear out the old fence in Hanley holding field upon completion of the extension. Leaving the old fence allows for management.*

   Alternatives B-H would include an exclosure around a portion of headwaters of Cottonwood Creek to facilitate improvements on the riparian area and headcuts. To accomplish this, most of the old fence will serve as a boundary of the exclosure and the holding field.

5. *I know it's a lot to suggest but I believe it would help if Range Cons went over boundary fences prior to turnout.*

   It is the responsibility of the permittee to ensure ALL boundary and pasture fences are maintained prior to livestock turnout per 43 CFR 4120.3. It is the BLM's responsibility to ensure the permittee complies with the federal regulations that require maintenance.

6. *Recreation use in the area has increased, putting more demand on the land. It's relatively easy to manage grazing, hunting, and tree cutting because permits are issued that can be managed. However, it is difficult to manage RV use that is increasing by leaps and bounds. Not only does it result in new roads and trails, which cause erosion, but brings in invasive species. I don't know how to manage it but as a permittee I'm a fixed target while other users have minimal restrictions. Permittees have an Act of Congress (Taylor Grazing Act) authorizing us…others on the allotment don't.*

   Recreational use is beyond the scope of this document. However, the Owyhee Field Office is aware of and shares your concerns on the inappropriate and misuse of recreational vehicles. The Owyhee Field Office has recently completed two Travel Management Plans for portions of the Owyhee Front to address these concerns. All of Owyhee County will undergo travel planning as directed by Congress in the Omnibus Public Lands Act that was passed on March 30, 2009.

Chad Gibson – Owyhee Range Service Comments:

1. *Standard 1 (Watersheds). The Scoping document should note that past grazing practices (prior to 2000) not livestock grazing in general "appear to have" contributed to loss of upland forage etc. The RHE procedure does not lead to scientifically verifiable conclusion that some condition does or does not in fact exist or that some particular factor did or did not directly cause that condition. The RHE only provides a subjective indication of site conditions and suggests potential causal factors. The scoping document should not definitively state that that a Range Health Standard is not being met but should state that conclusions based on qualitative RHE information indicate that a standard or standards were not being met. The RHE does not provide quantitative statistically verifiable results but provides subjective qualitative information, which can only support a subjective conclusion. The representation of RHE results in the Scoping Document purports a level of certainty that is not supported by the process or the available data. A more accurate representation of the data and conclusions would not change the outcome in regard to management changes but would allow the reader to better understand and consider the reported results.*

   It is correct to conclude that the RHE (Rangeland Health Evaluation) is "subjective," but it is a tool that the BLM utilizes to aid in the determination of rangeland health conditions. The purpose of the scoping document was to "inform the grazing permittees, local government, tribes and interested public of the proposal and to solicit comments for consideration in preparation of the environmental assessment." It was not practical, nor possible to include all monitoring data for the entire allotment within the scoping document. Data was still being collected and analyzed during the scoping development process. The scoping document stated that "no Standards are being met and livestock grazing management practices are significant causal factors" as per the Trout Springs Allotment Rangeland Health Determination of 2001. Although the Determination is nine years old, due to the data outlined in the appendices and analysis outlined in the Affected Environment and Environmental Consequences – Alternative A, the Standards for Rangeland Health are expected to not be met and livestock grazing practices are expected to be significant factors. Therefore, not only past grazing practices (prior to 2000), but also livestock grazing prior to 2008 has contributed to poor resource conditions.

2. *Under Livestock Grazing bullet #3. There is no Objective of this nature on page 24 of the Owyhee RMP in regard to livestock grazing. The ORMP does not provide a method for estimating utilization during the growing season. The ORMP and the EIS repeatedly state that the method for completing utilization studies is the Key Forage Plant Method, which cannot be used when cattle leave a pasture prior to the end of the growing season. Thus, it cannot be relied on to measure utilization during the growing season and still conform to the ORMP. The only applicable method for evaluating grazed plant removal during the growing season would be to clip and weight forage species, which would require placement of a large number of exclosure sites. It is highly unlikely that such utilization studies would ever be completed and even if they were they would not conform to the method required by the ORMP. Since, it is virtually certain that Objective bullet #3 as stated in the Scoping Document will never be measured it should be removed and replaced with the objective actually stated in the ORMP Livestock 1, page 24, which can be reasonably evaluated.*

You are correct, the upland utilization (and key browse utilization) Livestock Grazing Objective should have referenced ORMP, WDLF 1, page 16, #4. The Key Forage Plant Method does not state that it cannot be used when livestock leave a pasture prior to the end of the growing season. Utilization cages, exclosures, or fenced areas may be used to reference ungrazed plant growth compared to grazed plants. The examiner must be able to distinguish the growth of the plant in its ungrazed state on the same site (ie. utilization cage) and compare it to the grazed area, as long as the study is conducted prior to any regrowth. It is Boise District policy that utilization within allotments be conducted within two weeks of the off-date unless it is after the growing season.

Ron Kay—Idaho Department of Agriculture Comments:

1. *The third paragraph on page 15, under Redband Trout appears to be speculative on if red band trout exist or not. There is no reference when the trout had been in the streams and no information on existing conditions. Since there have been changes in the grazing system, plus rest for the past couple of years, the statements are very absolute with very little current or past information.*

   Riparian monitoring information and other data collected by BLM and Idaho Department of Fish and Game indicate that the stream segments in question could provide habitat for red band trout whether the fish currently occupy these areas or not. Additionally, Fish and Game have previously identified red band trout occurrence in various stream segments throughout the Trout Springs Allotment as shown on Map No. 6 in the EA.

2. *Pages 23 -25 address the Preliminary Resource Issues and Preliminary Livestock Management Issues. You have addressed three alternative, juniper management and range improvements to address these issues, but this document does not show how these alternatives or projects will mitigate the issues identified. These mitigations measures can also become the bases for the rationale section in your decision documents for the grazing permit.*

   The effects of the alternative grazing management systems, juniper treatments, and range improvement projects on resources are discussed in the analysis. Alternatives were developed to mitigate impacts to the resources, while meeting the purpose and need.

3. *The Social and Economic section on page 22 should address the three alternatives and note how each alternative is economically effecting the ranch operation. You mention the season of use which is your proposal, but you do not mention the season of use that the permittees have proposed. This section should use the document that you referenced to analysis the economic effects to the ranches on the changes that will occur in each alternative to the grazing permits.*

   The alternatives are analyzed in the Economic Analysis and other sections of the EA.

Western Watershed Projects – August 26, 2009, Comments:

1. *Please systematically collect adequate baseline data on the current health of these lands, watersheds and waters, and the role of livestock as a causal agent in: any habitat, hazardous fuels, understory depletion, desertification, rangeland health, woody species "invasion" and*

other problems that may exist on these lands. There is no evidence that this has been done in a comprehensive way.

Baseline data used for this analysis come from a variety of sources of the best available science,-well within BLM's standard procedures. Primary information sources include:

- Trout Springs Rangeland Health Assessment summary (2000)
- Trout Springs Determination of Rangeland Health (2001)
- Hanley FFR Rangeland Health Assessments (2000 and 2009)
- Hanley FFR Determinations of Rangeland Health (2001 and 2010)
- Rangeland Trend data from 1986-2009
- Utilization data (2006 & 2007)
- Actual use, based on the permittee's yearly actual grazing use reports (2002-2007)
- Riparian MIM data collected (2008)
- Properly Function Condition – Lentic Assessment (2008)
- Riparian Greenline Transects (2002)
- Corporate GIS layers (vegetation, ecological sites, springs, fire history, etc.)
- Academic studies specific to this area – Bunting 2007, Miller 2004, Furniss 1985, etc.
- Extensive relevant literature - see Literature Cited.
- Resource-specific field surveys (ex: Botany 2009 & 2010, Archaeology 2009, Juniper & understory density plots 2009, Goshawk Surveys 2010, Columbia Spotted Frog Surveys 2010)
- NRCS (Natural Resources Conservation Service) Ecological Site Descriptions
- Idaho's Conservation Data Center (for known rare plant and animal locations)

2. *Restoration of native vegetation communities and ecological processes must be the goal of all treatments. Restoration means restoring and maintaining ecological integrity. Ecological integrity is the ability of an ecosystem to support and maintain a balanced, adaptive community of organisms having a species composition, diversity and functional organization comparable to that of natural habitats within the region.*

   We agree, and the management actions developed for the various alternatives reflect that.

3. *We believe that until effective answers are found for the vexing problems of noxious weeds and exotic annual grasses, a cautious and prudent fire suppression plan must be in place. This is also necessary because of the dramatically altered and unnatural condition of many sites caused by 150 years of livestock grazing. We ask that you develop a full range of actions based on a precautionary approach.*

   The risk of noxious and invasive weed infestations associated with wild and prescribed fire is addressed in the 2010 Boise District Fire Management Plan for the Fire Management Units throughout the Boise District. This EA analyzes a range of alternatives including no prescribed fire and a combination of cutting and prescribed fire.

4. *Due to drought, insect infestations, climate change, grazing degradation/desertification of sites, there have been recent large-scale die-offs of pinyon, and increasingly western juniper, aspen, and sagebrush in many western lands. Western juniper in the Owyhees is now suffering from die-*

offs in some areas – something that had not been observed up until a few years ago. WWP has raised this issue repeatedly, and BLM has not addressed it.

BLM has addressed these WWP claims in the past, and found no evidence to support them. To date, no substantial die-offs of western juniper have occurred or are occurring in the Owyhee Uplands. In 2002-2003 BLM personnel observed some individual juniper trees which appeared to be topped or killed by bark beetles. BLM was not able to find any information about these beetles. This infestation was rare and has not diminished the unprecedented expansion of western juniper. BLM knows of no other insects, fungus, or diseases affecting juniper. Aspen and sagebrush health issues in this area are strongly related to shading and competition effects of juniper, and the alternatives incorporating juniper management are intended to restore long-term health of those species by treating the juniper.

5. *The role of continued livestock grazing post-treatment in continuing weed invasion must be addressed – how will this foreseeably increase the chemicals used?*

   Livestock grazing does affect the potential for weed invasion; see the environmental effects discussion. The amount of livestock use proposed is not more than has occurred in the past, so an increase in the rate of weed invasion is not expected, and no significant increase in chemical treatment of noxious weeds is anticipated. Chemical treatment of noxious weeds is covered in the District's noxious weed EA and is beyond the scope of this analysis.

6. *Current agency enforcement of grazing closure restrictions is often lax. The problems of dealing with trespass livestock are enormous. Thus, we have no assurances that any livestock-related post-treatment measures will be followed, and these can not be used as "mitigation" for treatments.*

   The Owyhee Field Office takes appropriate action when unauthorized livestock grazing (trespass) occurs in accordance with 43 CFR 4140.1 (Acts Prohibited on Public Lands). The Field Office has pursued four trespasses since last fall and will continue to take appropriate action when unauthorized livestock grazing is identified.

7. *Please develop a comprehensive monitoring plan, with all monitoring to be funded as part of the original "treatment" cost over an extended period of time. Otherwise, timely and necessary monitoring will never occur.*

   Upland monitoring will be in accordance with the Idaho Minimum Monitoring Standards and IM ID-2008-022 (USDI, BLM 2008). Riparian monitoring will occur on the same 3-5 year cycle as the upland trend monitoring, and as funding permits. See Section 2.2.1.1 in the EA.

8. *What is meant by "encroached", or "invaded", and what is the evidence of this?*

   Juniper encroachment or invasion into sagebrush, aspen, and mahogany stands is defined as the expansion of its range and increase in density since about 1870 (post-settlement),

caused primarily by the disruption in the natural fire cycle. The evidence of this encroachment is discussed in the EA.

Western Watershed Projects – August 31, 2009, Comments:

1. *The BLM documents are not Scoping. Each is a fully fleshed out proposal for continuing gross and abusive overstocking of the public lands. It was clearly worked out to overwhelmingly benefit a single permittee at the expense of ALL the other important values of the public lands.*

   BLM manages the public lands for multiple use, not a single use. The purpose of a scoping document is to notify the public and solicit their comments on a proposed action. As such, a scoping document needs to contain enough information to provide for meaningful public input. All comments including yours were considered. Relevant comments were addressed in a number of ways. They were either: considered pertinent suggestions which were incorporated into the alternatives of the EA, were developed into alternatives considered by not analyzed in detail, were used as issues to be addressed in the effects analysis, were used as indicators of where BLM needed to provide better clarification in the EA, or were considered concerns which BLM responded to in this Appendix.

2. *The document lacks critical information necessary to understand the assessment process. Why has BLM suddenly stopped sending out draft assessments for the public? Stopped conducting real scoping? Is this really Scoping/Draft Assessment – or is it just a near-final EA to rubberstamp massive killing of woody vegetation and gross overstocking of the public lands?*

   BLM has followed its current Scoping Process. When one compares the scoping document against the EA, it is evident the scoping document is nowhere near a final EA. Scoping comments that we received were seriously considered. Relevant comments were used by Interdisciplinary Team in developing a wider range of and additional alternatives.

Western Watershed Projects – September 22, 2009, Comments:

1. *WWP requests that both of these documents be withdrawn and revised to allow for full public scoping. The documents as issued are not scoping documents, but rather full fledged Environmental Assessment equivalents with well-developed alternatives that prejudice the public's ability to affect the agency's consideration of reasonable alternatives through scoping in compliance with the National Environmental Policy Act (NEPA).*

   WWP's allegation that the scoping document is equivalent to a fully fledged Environmental Assessment with well-developed alternatives that prejudice the public's ability to affect the agency's consideration of reasonable alternatives through scoping in compliance with the National Environmental Policy Act (NEPA) is an inaccurate statement. BLM has followed their current Scoping Process and there are no plans to withdraw the Scoping Document. In addition, BLM granted WWP request for an

additional week in which to provide further comments during the scoping process. Their comments and other interested public comments obtained during the scoping process were considered in the development of this EA.

2. *WWP is especially concerned that the BLM has already committed to one pre-determined outcome for livestock management on each of these allotments. The already completed surveying of fencing locations and stock tanks and pipelines on the Pole Creek allotment creates an incentive if not a conclusion that the management decision has already been made. This makes the need for reasonable alternatives all the more necessary in any NEPA compliant analysis including an acknowledgment and analysis of the impacts of the already completed surveying.*

   We assume you mean Trout Springs Allotment. No pipelines are proposed, but additional stock tanks for water haul sites are identified. The surveying of potential fences incorporated in some of the alternatives was necessary to determine their feasibility on the ground and to accurately analyze their effects. For instance the effects of a fence line that crosses a sensitive plant or cultural site would need to be adequately analyzed or moved to a different location.

   The process that the BLM has carried out in preparing the EA has been transparent, inclusive, and iterative. An examination of this process does not provide evidence to support the claim that BLM is committed to a pre-determined outcome. Various alternatives presented in the EA were developed in response to scoping. Subsequent efforts by the ID team have led to the development of additional alternatives and their ensuing analysis according to NEPA. The final decision will be based on this analysis.

3. *The BLM needs to include in all alternatives specific and annually measurable mandatory terms and conditions to address all of the failures to comply with the ISHR due to livestock mismanagement. The mandatory terms and conditions need to include minimum allowable stubble heights of vegetation in all riparian areas including mesic meadows and mesic floodplain areas; bank trampling standards, woody browse utilization standards and sage grouse nesting, brood rearing and wintering habitat needs.*

   In accordance with 43 CFR 4130.3 and 4130.3-2, the alternatives identified in the scoping document and subsequent EA contain terms and conditions that will help achieve the purpose and need, and will make progress towards meeting Rangeland Health Standards and Guidelines for Livestock Grazing Management. All alternatives contain mandatory terms and conditions that specify the kind and number of livestock, the period(s) of use, the allotment(s) to be used, and the amount of use (animal unit months) for every grazing permit or lease. The authorized officer may also specify in grazing permits or leases other terms and conditions which will assist in achieving management objectives, provide for proper range management or assist in the orderly administration of the public rangelands.

   Stubble heights, bank trampling, woody browse utilization, etc. will be measured as management indicators for effectiveness monitoring to help determine whether animal numbers and dates (the terms and conditions) are resulting in the expected management effects (such as utilization). These management indicators articulate allotment-specific

objectives, but they are not terms and conditions of the permit. This information will be used to inform future decisions. See Section 2.2.1.2 in the EA.

4. *The BLM needs to include and analyze in all alternatives the establishment of livestock-free areas that can used as reference areas in order to provide a benchmark for BLM management of livestock in similar unprotected areas on the allotments. For example, if a degraded stream is to grazed by livestock under any alternative, the BLM should create an exclosure on that stream of at least half of its watershed that can be monitored to ensure that recovery of the grazed area comports to the recovery in the ungrazed area. The BLM needs to establish a measurable and annually quantifiable protocol to ensure meeting a fixed percentage of recovery in grazed areas as compared with ungrazed areas of similar character. WWP recommends that all alternatives have mandatory terms and conditions that all grazed areas that have been determined not to meet the ISHR and where livestock are the cause be recovered at an annual rate not less than 80% of the rate of recovery of areas that are ungrazed by livestock and used as a reference area.*

   The Cottonwood Headwaters Exclosure would be established to protect the area from livestock impacts. Additionally, the exclosure could be used as an upland reference area. Mandatory terms and conditions are discussed above.

5. *In any alternatives in which the BLM is advocating resting certain area on either of these allotments the NEPA analysis needs to address the effect of higher concentrations of livestock in the areas that are still being made available to livestock grazing where the total authorized use is proposed to be the same as currently authorized (as currently proposed in these documents). Those impacts will affect whether significant progress is being made to meet the ISHR.*

   All of the alternatives (except A) include resting one or more pastures every other year. If a pasture(s) is/are rested one year, the AUMs are also rested. The AUMs from the rested pasture(s) is/are NOT used on a different pasture that is utilized that year. The analysis for each critical element for each alternative is fully analyzed in detail within the EA for the appropriate use proposed in each pasture.

6. *The BLM must establish and analyze in all alternatives the specific annual, three-year, five-year and ten year monitoring that will be carried out to ensure that significant progress will be made each of those periods of time to meet or exceed the ISHR. The "scoping" documents as provided do not provide for monitoring of the impacts of livestock grazing on any schedule whatsoever.*

   Monitoring is discussed in the Section 2.2.1.1 – Management Common to All Alternatives.

7. *All alternatives developed by the BLM for these two allotments need to analyze management of livestock so that the objective for all wildlife and aquatic habitats is excellent condition and not just good condition as described by the Zoellick and Cade Condition rating protocol of 2006.*

   The objective is to improve habitat conditions over time, making measurable progress toward excellent habitat conditions. This is something that will take years to accomplish and measurable progress toward excellent habitat conditions would be the expected outcome of the selected alternative. However, there is no requirement that all alternatives analyzed must lead to the development of excellent wildlife habitat or aquatic conditions.

There will be differences in alternatives and that is why some alternatives are preferred over others.

8. *All alternatives need to provide and analyze the consequences that will occur if any terms and conditions of the grazing permit are not met. This is especially important for annual terms and conditions as well as three, five and ten-year mandatory terms and conditions of the permit.*

   The comment that all alternatives need to provide and analyze the consequences that will occur if any terms and conditions of the grazing permit are not met is not necessary. Our current grazing regulations (43 CFR 4100) provide for enforcement when prohibited acts or violations occur on the public lands. Specifically, 43 CFR 4140.1 clearly identify the acts that are prohibited on public lands along with 43 CFR 4150.1 which explains unauthorized grazing use on public lands. The authorized officer shall determine whether a violation has occurred and violators are liable in damages to the United States.

9. *In all alternatives the BLM must assess the values to wildlife of keeping juniper dominant areas intact.*

   The value of juniper to wildlife is discussed in the document, as are the negative effects of juniper expansion into other habitat types. The treatment of juniper as proposed would leave 30 to 50% of existing juniper across the treatment area and provide for a diversity of habitat that would benefit wildlife more than the current condition. Joy Belsky (1996) of the Oregon Natural Desert Association stated that biodiversity most likely would be optimized by a landscape containing a mosaic of woodlands, grasslands, and intermediate seral communities.

   The values of not treating juniper are identified in the appropriate sections of the document but there is no requirement that they be repeated in each alternative.

   Changing grazing management (including extended rest) without treating juniper would not make significant progress toward meeting all Standards and identified objectives in the long term because shrub steppe, aspen, and riparian communities would continue to be replaced by expanding juniper. Because western juniper expansion is a major causal factor for the allotment not meeting Standards, forgoing juniper treatments within the Trout Springs Allotment would not address long-term resource objectives. This alternative would not move the allotment toward meeting Standards, would not meet the ORMP objectives, and would be inconsistent with the 2006 Idaho Sage-grouse Conservation Plan, 2004 Owyhee County Sage-grouse LWG Plan, 2004 North American Mule Deer Conservation Plan, and 2005 Coordinated Implementation Plan for Bird Conservation in Idaho, as discussed in 1.5.7 and 1.5.8.

10. *BLM must provide in each alternative what the timeframe is for reaching all wildlife and aquatic habitat objectives. Currently the BLM has no timeframe developed for attaining these objectives.*

    Timeframes for achieving wildlife and aquatic habitat objectives will vary by alternative. Habitat objectives currently being met will be maintained. Objectives that aim at improving or enhancing habitat would be realized during the term of the permit. The

various alternatives were designed to reach objectives at different paces. Consequently, some alternatives will reach objectives sooner than others. However, ultimately it is the intent of the prescribed management to accomplish and/or make significant progress toward achieving all objectives within the term of the permit.

Water Quality Restoration Plan-Proposed Alternative B

A. Introduction

This water quality restoration plan is for portions of the North Fork and Middle Fork of the Owyhee River Sub-Basin (HUC 17050107) and the Upper Owyhee Sub-Basin (HUC 17050104).

Streams on the Trout Springs Allotment include all or portions of the following streams: North Fork of the Owyhee River, Pleasant Valley Creek, Squaw Creek, Cottonwood Creek, Middle Fork of the Owyhee River, West Fork of Red Canyon Creek, Little Thomas Creek, Thomas Creek, Smith Creek, and Little Smith Creek and all associated tributaries.

The North and Middle Forks of the Owyhee River generally drain to the west, from Idaho into Oregon. The Middle Fork of the Owyhee River drains the western slope of Juniper Mountain, while the North Fork of the Owyhee River drains the north slope of Juniper Mountain and south slope of South Mountain. Red Canyon drains the south slope of Juniper Mountain. Primary uses for the streams listed above are water for livestock and habitat for fish and wildlife.

The 2010 Integrated Report by Idaho Department of Environmental Quality (IDEQ) lists impared waters and the current status of state waters. The North Fork and Middle Fork Owyhee Rivers, Pleasant Valley Creek and tributaries, and Red Canyon Creek were classified by the Environmental Protection Agency (EPA) under 303(d) of the Clean Water Act, as water quality limited due to exceedances in water temperature and flow alterations.

Water temperature exceedances are the result of streambank damage and a loss of streambank shade, due to livestock grazing (see North and Middle Fork Owyhee Subbasin Assessment and Total Maximum Daily Load and Upper Owyhee Watershed Subbasin Assessment and Total Maximum Daily Loads).

The IDEQ identified existing uses for the North Fork of the Owyhee River and its tributaries, as well as the Middle Fork of the Owyhee River to include the following:

- cold water biota;
- salmonid spawning and rearing for redband trout;
- secondary contact recreation;
- agricultural water supply.

Existing uses for the North and Middle Forks of the Owyhee River also include primary contact recreation, domestic water supply, and special resource waters. Existing uses for Red Canyon Creek include: primary contact recreation, domestic water supply, salmonid spawning, aesthetics and wildlife habitat.

All water bodies are required to meet Idaho water quality standards for designated beneficial uses within the State of Idaho. According to Section 401, of the Clean Water Act, in the case of interstate waters where State criteria differ, the more restrictive standard must be met at the border. In the case of the North and Middle Forks of the Owyhee River, which flow through Idaho and Oregon, the State of Oregon included the North Fork of the Owyhee River on their

2004 303(d) list, due to high stream temperatures. Therefore, the North Fork of the Owyhee River must meet standards for the State of Oregon at the Idaho-Oregon border.

Stream temperature data collected from water bodies within the North Fork Owyhee Hydrologic Unit indicate that stream temperatures exceed the current Idaho and Oregon water quality standards for cold water biota, and salmonid rearing and spawning during the designated spawning period. For this reason, the "North and Middle Fork Subbasin Assessment and Total Maximum Daily Load (TMDL)" document was prepared. EPA does not require flow alteration to be addressed as a TMDL pollutant; therefore flow alteration is not addressed.

All pollutants listed on the 303(d) list are non-point sources, originating on public, state, or private lands within fifth order hydrologic units (HUC 17050107.06 &.08); which in part, include the North and Middle Forks of the Owyhee River and their tributaries, and HUC 17050104.01, which includes Red Canyon Creek in southwest Idaho.

B. Recovery Goals and Objectives

Recovery goals include compliance with the Clean Water Act and Idaho Water Quality Standards on all streams crossing public lands in the Trout Springs Allotment.

Objectives include: reduce streambank damage; reduce bacteria contamination of the streams; improve herbaceous and woody species diversity, composition, density, vigor, cover, structure and root mass.

The vegetative community needed to meet the standard for temperature is expected to be:

- Increase woody species density and canopy cover providing stream shading;
- A preponderance of late seral hydric herbaceous and woody species along the streambanks.

C. Restoration Plan

The following Best Management Practices, to address pollutant sources, are in compliance with the Natural Resources Conservation Service, Conservation Practice Standards for Prescribed Grazing, Code 528A:

- The Trout Springs Allotment would be grazed according to the proposed management in Alternative D described in this EA. Secure pasture boundaries, a pasture addition, and juniper treatment will aid in stream recovery. A gap fence preventing livestock access from the Trout Spring Allotment to the North Fork Owyhee River would aid in riparian vegetation growth and development.
- 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.
- Utilization of key upland herbaceous forage species by livestock of no more than 50% if pasture includes rest or deferred rotation.
- Utilization of key upland herbaceous forage species by livestock of no more than 40% if pasture is grazed during the critical growth period (when perennial grasses are actively growing) every year.
- Utilization of key browse species of no more than 30% in deer winter range and no more than 50% in other habitats.

- Streambank alteration by hoof impacts less than 10% in linear area.
- Herbaceous riparian residual stubble height of at least 4" (where applicable) at the end of the growing season.
- Utilization of riparian willows less than 25% on shrubs under five feet in height.
- Seral juniper mortality of 50-70% within Phase 2 and 3 juniper encroachment areas post-treatment.
- 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.
- Post-broadcast burn aspen leaders an average height of at least four feet on areas accessible to livestock after the second growing season.

D. Margin of Safety

Grazing management proposed in Alternative D will allow for reduced forage utilization and less grazing pressure on the streams through rest-rotation livestock grazing schedule and fall season of use (compared to previous management). 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 of cooler air temperatures, livestock water demands tend to be lower, and 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. 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.

The grazing schedule would result in five years of rest from grazing in Pastures 1A, 1B, and 2A. Grazing would occur after the critical growing period in all pastures for upland grasses and forbs, allowing for reproduction, improved vigor and health. Pasture rest from grazing would aid in riparian vegetation health, vigor, reproduction and establishment. Retention of at least 4 inches of stubble height on herbaceous riparian species and 75% of the current year's growth of shrubs at the end of the grazing season would result in improved vegetation composition, vigor, cover, structure, density and root mass. Utilization of woody species would be reduced, at least partially due to pasture rest, thus allowing them opportunity for maximum growth during the critical growth period. Improved vegetative conditions would result in improved buffering of erosive forces of high flows and increased filtering of sediment allowing for bank stabilization and aggradation, improved shade, water storage, and riparian expansion. Streambank stability would improve, water infiltration and bank storage would increase, and water quality and fishery habitat would improve. The narrowing and deepening of the streams associated with bank stabilization and aggradation along with improved stream cover (shade) would improve the fluvial morphology and reduce water temperature.

Juniper treatments are likely to increase availability of herbaceous plants in the uplands and would induce livestock to spend more time out of the riparian zone, thus reduce the use of riparian plants and reduce the amount of soil compaction and bank trampling. Rest associated with juniper treatments would also allow time for riparian vegetation to establish and grow.

E. Implementation Plan

The grazing system will be implemented in 2013.

F. Estimated Recovery Time

Observed vegetative response to the management changes could be as soon as 5 to 10 years and full recovery would be expected in 30 or more years. Although there is extensive rest from livestock grazing, fencing and juniper treatments, changes to channel formation due to aggradation from vegetation improvement in conjunction with livestock grazing is a slow process.

G. Cumulative impacts of past, present, and future management

Past and present management have resulted in degraded stream and riparian conditions, increased streambank erosion and decreased riparian vegetation. It is expected that all streams in the Trout Springs Allotment would recover from past and present impacts under the proposed management system. The Trout Springs Allotment represents 16.5% of the North Fork Owyhee hydrologic unit, and 7% of the Middle Fork Owyhee hydrologic unit, or 9.3% of the public land in the Middle Owyhee HUC# 17050107. It also includes 7% of the Nickel Creek hydrologic unit, 3% of the Red Canyon hydrologic unit, and 0.2% of the Deep Creek hydrologic unit of the Upper Owyhee HUC# 17050104. Although the Trout Springs Allotment constitutes only small percentages of several watersheds, it serves as the headwaters for this larger area and greatly influences downstream waters.

BLM land management throughout the watersheds is incorporating best management practices, which would eventually result in overall improved water quality. 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 move portions of the watersheds closer to reference conditions. Eventually, with the increased cover of deep rooted species such as sedges, rushes and willows, the streambanks would begin to stabilize and channels would deepen and narrow. This would provide for better stream shading and subsequent lowering of stream temperatures, and reduced sediment input, improving water quality on a watershed scale.

H. Monitoring Plan

MIM and modified MIM sites have been established on:

- Hells Creek
- Middle Fork Owyhee River
- Pleasant Valley Creek
- Smith Creek
- Squaw Creek
- West Fork of Red Canyon Creek

All MIM monitoring will be in accordance with Technical Reference 1737-23 (Multiple Indicator Monitoring of Stream Channels and Streamside Vegetation, 2009) and conducted in 5 year intervals. Modified MIM monitoring typically includes herbaceous stubble height, woody browse, stream bank alteration, and possibly other fluvial morphological attributes.

Stream temperatures will be monitored on Middle Fork Owyhee River, Pleasant Valley Creek, Squaw Creek, and West Fork Red Canyon Creek at 5 year intervals, or as deemed necessary to gather data and to determine compliance with Idaho Water Quality Standards.

Functioning Condition assessments will be conducted in 10 year intervals or when a change in functioning condition is apparent, whichever occurs first.

All monitoring is subject to future funding and available personnel.

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The vegetative community needed to meet the standard for temperature is expected to be:

- Increase woody species density and canopy cover providing stream shading;
- A preponderance of late seral hydric herbaceous and woody species along the streambanks.

C. Restoration Plan

The following Best Management Practices, to address pollutant sources, are in compliance with the Natural Resources Conservation Service, Conservation Practice Standards for Prescribed Grazing, Code 528A:

- The Trout Springs Allotment would be grazed according to the proposed management in Alternative G described in this environmental assessment. Secure pasture boundaries, livestock grazing rest, a pasture addition, and juniper treatments would aid in stream recovery. A gap fence preventing livestock access from the Trout Spring Allotment to the North Fork Owyhee River would aid in riparian vegetation growth and development.
- 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.
- Utilization of key upland herbaceous forage species by livestock of no more than 50% if pasture includes rest or deferred rotation.
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- Streambank alteration by hoof impacts less than 10% in linear area.

- Herbaceous riparian residual stubble height of at least 4” (where applicable) at the end of the growing season.
- Utilization of riparian willows less than 25% on shrubs under five feet in height.
- Seral juniper mortality of 50-70% within Phase 2 and 3 juniper encroachment areas post-treatment.
- 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.
- Post-broadcast burn aspen leaders an average height of at least four feet on areas accessible to livestock after the second growing season.

D. Margin of Safety

Grazing management proposed in Alternative G will allow for reduced forage utilization and less grazing pressure on the streams through rotation and rest (compared to previous management). Upland and riparian vegetation would improve due to the decreased livestock numbers, additional rest on years five and ten, deferment in Pastures 2B and 3, rest from juniper treatments, and the incorporation of a rest/rotation in Pastures 1A, 1B, and 2A, which would be grazed no more than four years, non-sequentially, during this ten year grazing permit. Improved vegetation (upland and riparian) would result in reduced runoff and erosion, increased infiltration, and recovery of native perennial vegetation. Early livestock turnout (April 15) every other year on Pastures 2B and 3 would allow riparian vegetation to improve because livestock tend to spend more time in the uplands due to similar or better forage quality.

Riparian vegetation would have time to regrow when used early and riparian vegetation would be less palatable to livestock and soils more stable in the late fall. Resting pastures six or seven years would allow riparian vegetation to grow and develop. Retention of at least 4 inches of stubble height on herbaceous riparian species and 75% of the current year’s growth of shrubs at the end of the grazing season would result in improved vegetation composition, vigor, cover, structure, density and root mass. Utilization of woody species would be reduced, at least partially, thus allowing them opportunity for maximum growth during the critical growth period. Improved vegetative conditions would result in improved buffering of erosive forces of high flows and increased filtering of sediment allowing for bank stabilization and aggradation, improved shade, water storage, and riparian expansion. Streambank stability would improve, water infiltration and bank storage would increase, and water quality and fishery habitat would improve. The narrowing and deepening of the streams associated with bank stabilization and aggradation along with improved stream cover (shade) would improve the fluvial morphology and reduce water temperature.

Juniper treatments are likely to increase availability of herbaceous plants in the uplands and would induce livestock to spend more time out of the riparian zone, thus reduce the use of riparian plants and reduce the amount of soil compaction and bank trampling. Rest associated with juniper treatments would also allow time for riparian vegetation to establish and grow.

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The grazing system will be implemented in 2013.

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Observed vegetative response to the management changes could be as soon as 5 to 10 years and full recovery would be expected in 30 or more years. Although there is extensive rest from livestock grazing, fencing and juniper treatments, changes to channel formation due to

aggradation from vegetation improvement in conjunction with livestock grazing is a slow process.

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Past and present management have resulted in degraded stream and riparian conditions, increased streambank erosion and decreased riparian vegetation. It is expected that all streams in the Trout Springs Allotment would recover from past and present impacts under the proposed management system. The Trout Springs Allotment represents 16.5% of the North Fork Owyhee hydrologic unit, and 7% of the Middle Fork Owyhee hydrologic unit, or 9.3% of the public land in the Middle Owyhee HUC# 17050107. It also includes 7% of the Nickel Creek hydrologic unit, 3% of the Red Canyon hydrologic unit, and 0.2% of the Deep Creek hydrologic unit of the Upper Owyhee HUC# 17050104. Although the Trout Springs Allotment constitutes only small percentages of several watersheds, it serves as the headwaters for this larger area and greatly influences downstream waters.

BLM land management throughout the watersheds is incorporating best management practices, which would eventually result in overall improved water quality. 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 move portions of the watersheds closer to reference conditions. Eventually, with the increased cover of deep rooted species such as sedges, rushes and willows, the streambanks would begin to stabilize and channels would deepen and narrow. This would provide for better stream shading and subsequent lowering of stream temperatures, and reduced sediment input, improving water quality on a watershed scale.

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- Smith Creek
- Squaw Creek
- West Fork of Red Canyon Creek

All MIM monitoring will be in accordance with Technical Reference 1737-23 (Multiple Indicator Monitoring of Stream Channels and Streamside Vegetation, 2011) and conducted in 5 year intervals. Modified MIM monitoring typically includes herbaceous stubble height, woody browse, stream bank alteration, and possibly other fluvial morphological attributes.

Stream temperatures will be monitored on Middle Fork Owyhee River, Pleasant Valley Creek, Squaw Creek, and West Fork Red Canyon Creek at 5 year intervals, or as deemed necessary to gather data and to determine compliance with Idaho Water Quality Standards.

Functioning Condition assessments will be conducted in 10 year intervals or when a change in functioning condition is apparent, whichever occurs first.

All monitoring is subject to future funding and available personnel.

A. Introduction

This water quality restoration plan is for portions of the North Fork and Middle Fork of the Owyhee River Sub-Basin (HUC 17050107) and the Upper Owyhee Sub-Basin (HUC 17050104).

Streams on the Trout Springs Allotment include all or portions of the following streams: North Fork of the Owyhee River, Pleasant Valley Creek, Squaw Creek, Cottonwood Creek, Middle Fork of the Owyhee River, West Fork of Red Canyon Creek, Little Thomas Creek, Thomas Creek, Smith Creek, and Little Smith Creek and all associated tributaries.

The North and Middle Forks of the Owyhee River generally drain to the west, from Idaho into Oregon. The Middle Fork of the Owyhee River drains the western slope of Juniper Mountain, while the North Fork of the Owyhee River drains the north slope of Juniper Mountain and south slope of South Mountain. Red Canyon drains the south slope of Juniper Mountain. Primary uses for the streams listed above are water for livestock and habitat for fish and wildlife.

The 2010 Integrated Report by Idaho Department of Environmental Quality (IDEQ) lists impared waters and the current status of state waters. The North Fork and Middle Fork Owyhee Rivers, Pleasant Valley Creek and tributaries, and Red Canyon Creek were classified by the Environmental Protection Agency (EPA) under 303(d) of the Clean Water Act, as water quality limited due to exceedances in water temperature and flow alterations.

Water temperature exceedances are the result of streambank damage and a loss of streambank shade, due to livestock grazing (see North and Middle Fork Owyhee Subbasin Assessment and Total Maximum Daily Load and Upper Owyhee Watershed Subbasin Assessment and Total Maximum Daily Loads).

The IDEQ identified existing uses for the North Fork of the Owyhee River and its tributaries, as well as the Middle Fork of the Owyhee River to include the following:

- cold water biota;
- salmonid spawning and rearing for redband trout;
- secondary contact recreation;
- agricultural water supply.

Existing uses for the North and Middle Forks of the Owyhee River also include primary contact recreation, domestic water supply, and special resource waters. Existing uses for Red Canyon Creek include: primary contact recreation, domestic water supply, salmonid spawning, aesthetics and wildlife habitat.

All water bodies are required to meet Idaho water quality standards for designated beneficial uses within the State of Idaho. According to Section 401, of the Clean Water Act, in the case of interstate waters where State criteria differ, the more restrictive standard must be met at the border. In the case of the North and Middle Forks of the Owyhee River, which flow through Idaho and Oregon, the State of Oregon included the North Fork of the Owyhee River on their

2004 303(d) list, due to high stream temperatures. Therefore, the North Fork of the Owyhee River must meet standards for the State of Oregon at the Idaho-Oregon border.

Stream temperature data collected from water bodies within the North Fork Owyhee Hydrologic Unit indicate that stream temperatures exceed the current Idaho and Oregon water quality standards for cold water biota, and salmonid rearing and spawning during the designated spawning period. For this reason, the "North and Middle Fork Subbasin Assessment and Total Maximum Daily Load (TMDL)" document was prepared. EPA does not require flow alteration to be addressed as a TMDL pollutant; therefore flow alteration is not addressed.

All pollutants listed on the 303(d) list are non-point sources, originating on public, state, or private lands within fifth order hydrologic units (HUC 17050107.06 &.08); which in part, include the North and Middle Forks of the Owyhee River and their tributaries, and HUC 17050104.01, which includes Red Canyon Creek in southwest Idaho.

B. Recovery Goals and Objectives

Recovery goals include compliance with the Clean Water Act and Idaho Water Quality Standards on all streams crossing public lands in the Trout Springs Allotment.

Objectives include: reduce streambank damage; reduce bacteria contamination of the streams; improve herbaceous and woody species diversity, composition, density, vigor, cover, structure and root mass.

The vegetative community needed to meet the standard for temperature is expected to be:

- Increase woody species density and canopy cover providing stream shading;
- A preponderance of late seral hydric herbaceous and woody species along the streambanks.

C. Restoration Plan

The following Best Management Practices, to address pollutant sources, are in compliance with the Natural Resources Conservation Service, Conservation Practice Standards for Prescribed Grazing, Code 528A:

- The Trout Springs Allotment would be grazed according to the proposed management in Alternative H described in this EA. Secure pasture boundaries, a pasture addition, and juniper treatment will aid in stream recovery. A gap fence preventing livestock access from the Trout Spring Allotment to the North Fork Owyhee River would aid in riparian vegetation growth and development.
- 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.
- Utilization of key upland herbaceous forage species by livestock of no more than 50% if pasture includes rest or deferred rotation.
- Utilization of key upland herbaceous forage species by livestock of no more than 40% if pasture is grazed during the critical growth period (when perennial grasses are actively growing) every year.
- Utilization of key browse species of no more than 30% in deer winter range and no more than 50% in other habitats.

- Streambank alteration by hoof impacts less than 10% in linear area.
- Herbaceous riparian residual stubble height of at least 4" (where applicable) at the end of the growing season.
- Utilization of riparian willows less than 25% on shrubs under five feet in height.
- Seral juniper mortality of 50-70% within Phase 2 and 3 juniper encroachment areas post-treatment.
- 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.
- Post-broadcast burn aspen leaders an average height of at least four feet on areas accessible to livestock after the second growing season.

D. Margin of Safety

Grazing management proposed in Alternative H will allow for reduced forage utilization and less grazing pressure on the streams through rotation and rest, reduced livestock numbers, and fall season of use (compared to previous management). 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 of cooler air temperatures, livestock water demands tend to be lower, and 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. Lower stocking rates 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.

The grazing schedule would result in five years of rest from grazing in Pastures 1A, 1B, and 2A. Grazing would occur after the critical growing period in all pastures for upland grasses and forbs, allowing for reproduction, improved vigor and health. Pasture rest from grazing would aid in riparian vegetation health, vigor, reproduction and establishment. Retention of at least 4 inches of stubble height on herbaceous riparian species and 75% of the current year's growth of shrubs at the end of the grazing season would result in improved vegetation composition, vigor, cover, structure, density and root mass. Utilization of woody species would be reduced, at least partially due to pasture rest, thus allowing them opportunity for maximum growth during the critical growth period. Improved vegetative conditions would result in improved buffering of erosive forces of high flows and increased filtering of sediment allowing for bank stabilization and aggradation, improved shade, water storage, and riparian expansion. Streambank stability would improve, water infiltration and bank storage would increase, and water quality and fishery habitat would improve. The narrowing and deepening of the streams associated with bank stabilization and aggradation along with improved stream cover (shade) would improve the fluvial morphology and reduce water temperature.

Juniper treatments are likely to increase availability of herbaceous plants in the uplands and would induce livestock to spend more time out of the riparian zone, thus reduce the use of riparian plants and reduce the amount of soil compaction and bank trampling. Rest associated with juniper treatments would also allow time for riparian vegetation to establish and grow.

E. Implementation Plan

The grazing system will be implemented in 2013.

F. Estimated Recovery Time

Observed vegetative response to the management changes could be as soon as 5 to 10 years and full recovery would be expected in 30 or more years. Although there is extensive rest from livestock grazing, fencing and juniper treatments, changes to channel formation due to aggradation from vegetation improvement in conjunction with livestock grazing is a slow process.

G. Cumulative impacts of past, present, and future management

Past and present management have resulted in degraded stream and riparian conditions, increased streambank erosion and decreased riparian vegetation. It is expected that all streams in the Trout Springs Allotment would recover from past and present impacts under the proposed management system. The Trout Springs Allotment represents 16.5% of the North Fork Owyhee hydrologic unit, and 7% of the Middle Fork Owyhee hydrologic unit, or 9.3% of the public land in the Middle Owyhee HUC# 17050107. It also includes 7% of the Nickel Creek hydrologic unit, 3% of the Red Canyon hydrologic unit, and 0.2% of the Deep Creek hydrologic unit of the Upper Owyhee HUC# 17050104. Although the Trout Springs Allotment constitutes only small percentages of several watersheds, it serves as the headwaters for this larger area and greatly influences downstream waters.

BLM land management throughout the watersheds is incorporating best management practices, which would eventually result in overall improved water quality. 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 move portions of the watersheds closer to reference conditions. Eventually, with the increased cover of deep rooted species such as sedges, rushes and willows, the streambanks would begin to stabilize and channels would deepen and narrow. This would provide for better stream shading and subsequent lowering of stream temperatures, and reduced sediment input, improving water quality on a watershed scale.

H. Monitoring Plan

MIM and modified MIM sites have been established on:

- Hells Creek
- Middle Fork Owyhee River
- Pleasant Valley Creek
- Smith Creek
- Squaw Creek
- West Fork of Red Canyon Creek

All MIM monitoring will be in accordance with Technical Reference 1737-23 (Multiple Indicator Monitoring of Stream Channels and Streamside Vegetation, 2009) and conducted in 5 year intervals. Modified MIM monitoring typically includes herbaceous stubble height, woody browse, stream bank alteration, and possibly other fluvial morphological attributes.

Stream temperatures will be monitored on Middle Fork Owyhee River, Pleasant Valley Creek, Squaw Creek, and West Fork Red Canyon Creek at 5 year intervals, or as deemed necessary to gather data and to determine compliance with Idaho Water Quality Standards.

Functioning Condition assessments will be conducted in 10 year intervals or when a change in functioning condition is apparent, whichever occurs first.

All monitoring is subject to future funding and available personnel.

Appendix E.

Trout Springs Allotment (0539) – 2002- 2007 Actual Use

Year	Actual Use (AUMs)
2002	2,012
2003	1,851
2004	1,998
2005	2,179
2006	2,133
2007	1,754
2008	Pastures 1, 2, & 3 were closed
2009	Pastures 1, 2, & 3 were closed
Average (2002-2007)	***1,988**

* The average actual use was calculated using actual use submitted by the permittee from 2002-2007. No actual use was submitted in 2008 and 2009 because Pastures 1, 2, and 3 were closed per a Full Force and Effect (FFE) Final Decision issued on May 5, 2008.

Hanley FFR Allotment (0453) – 2004- 2008 Actual Use

Year	Actual Use (Season)
2004	6/15 – 11/20
2005	6/15 – 11/20
2006	6/15 – 6/20, 10/15 – 11/15
2007	6/1 – 12/30
2008	6/12 – 11/15
2009	Not submitted

Livestock numbers were not submitted in the actual use forms. Therefore, no AUMs could be calculated, but the form was used to determine when livestock grazed the Hanley FFR Allotment.

Appendix F. Trout Springs Allotment (0539) – 2006 & 2007 Utilization

2006: Pasture 2 (only)

Site Stop No.	Date	Species	% Utilization	Comments
1	11/3/2006	Feid	53.8	Photo 1
2	11/3/2006	Feid	63.7	Photo 2
3	11/3/2006	Feid	71.9	Photo 3
4	11/3/2006	Feid	74.3	Photo 4
5	11/3/2006	Feid	65.8	Photos 5-6
6	11/3/2006	Unidentified Perennial	62.9	Photo 7

2007: Pastures 2, Gathering Field, 3, and 1A/1B (see Attached Map)

Site Stop No.	Date	Species	% Utilization	Comments
Pasture 2				
1	10/2/2007	Pose	40	Photo 1
2-3	10/2/2007	Agsp	30	Photos 2-3
4-5	10/2/2007	Pose	40	Photos 4-5
6	10/2/2007	Agsp – Pose	65	Photo 6
7-8	10/2/2007	Agsp – Pose	95 & 75 resp.	Photos 7-8
9-10	10/3/2007	Agsp – Pose	75	Photos 9-10
11	10/3/2007	Agsp	40	Photo 11
12	10/4/2007	Agsp – Pose	65	Photo 12
Gathering Field				
13	10/4/2007	Agsp	15	Photo 13
14	10/4/2007	Agsp	15	Photo 14
Pasture 3				
15	10/4/2007	Agsp	20	Photo 15
16	10/4/2007	Agsp – Pose	30	Photo 16
17	10/9/2007	Pose	65	Photo 17
18	10/9/2007	Pose	65	Photo 18
19	10/9/2007	Pose	65	Photo 19
20	10/9/2007	Pose	65	Photo 20
Pasture 1A				
21	10/9/2007	NA	NA	NA
Pasture 1B				
22	10/10/2007	Pose	65	Photo 22
23	10/10/2007	Pose	65	Photo 23
24	10/10/2007	Pose	65	Photo 24
25	10/10/2007	Agsp – Pose	65	Photo 25
26	10/10/2007	Agsp – Pose	65	Photo 26

* See file records for photos of each utilization site.

Appendix G. Trout Springs Allotment range trend summary.

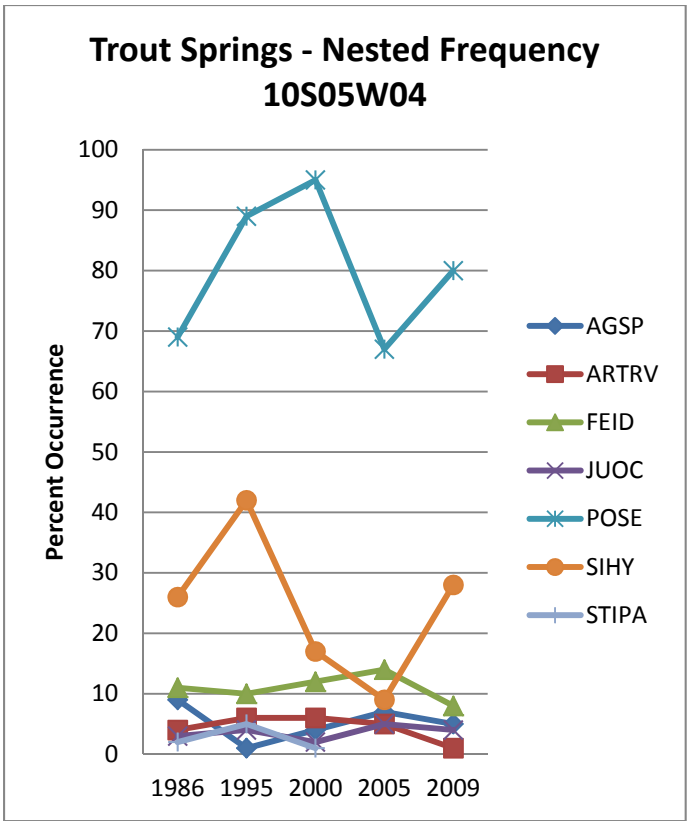
Trend studies have been established at seven sites within the Trout Springs Allotment. Four of these sites are nested plot frequency sites and three are photo trend sites. A summary of the four frequency sites follows.

The frequency data shown is for a 50 cm by 50 cm plot size, and is based on 100 plots at each site. The shrub and tree density data is based on two 0.01 or 0.02-acre plots at each site.

Plant Species codes:

Code	**Scientific Name**	**Common Name**
AGSP	Agropyron spicatum = Pseudoroegneria spicata	bluebunch wheatgrass
ARTR or ARTRV	Artemisia tridentata ssp. vaseyana	mountain big sagebrush
CHVI8	Chrysothamnus viscidiflorus	green rabbitbrush
FEID	Festuca idahoensis	Idaho fescue
JUOC (or JUOCM)	Juniperus occidentalis	western juniper
POSE	Poa secunda	Sandberg's bluegrass
PUTR	Purshia tridentata	bitterbrush
SIHY	Sitanion hystrix = Elymus elymoides	squirreltail
STTH2 or STIPA*	Stipa thurberiana = Achnatherum thurberianum	Thurber's needlegrass
SYMPH	Symphoricarpos sp.	snowberry

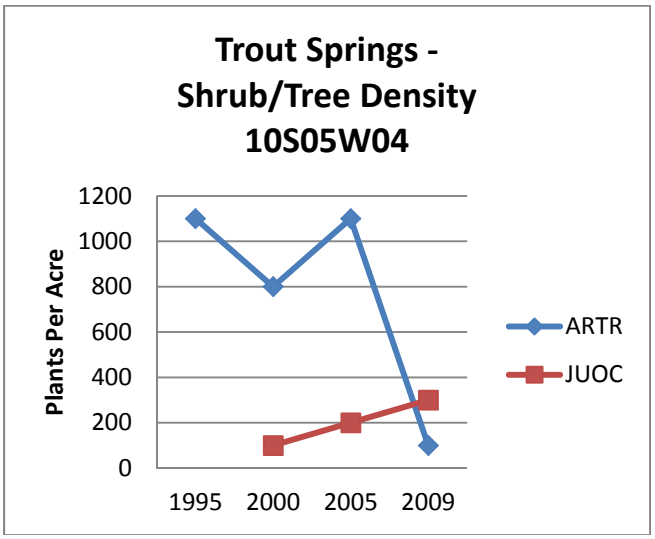
*STTH2 and STIPA probably include several needlegrass species, as used here.



Trout Springs – Pasture 2

Frequency (Percent of Occurrence):

Species	1986	1995	2000	2005	2009
AGSP	9	1	4	7	5
ARTRV	4	6	6	5	1
FEID	11	10	12	14	8
JUOC	3	4	2	5	4
POSE	69	89	95	67	80
SIHY	26	42	17	9	28
STIPA	2	5	1		



Shrub and Tree Density (Plants per Acre):

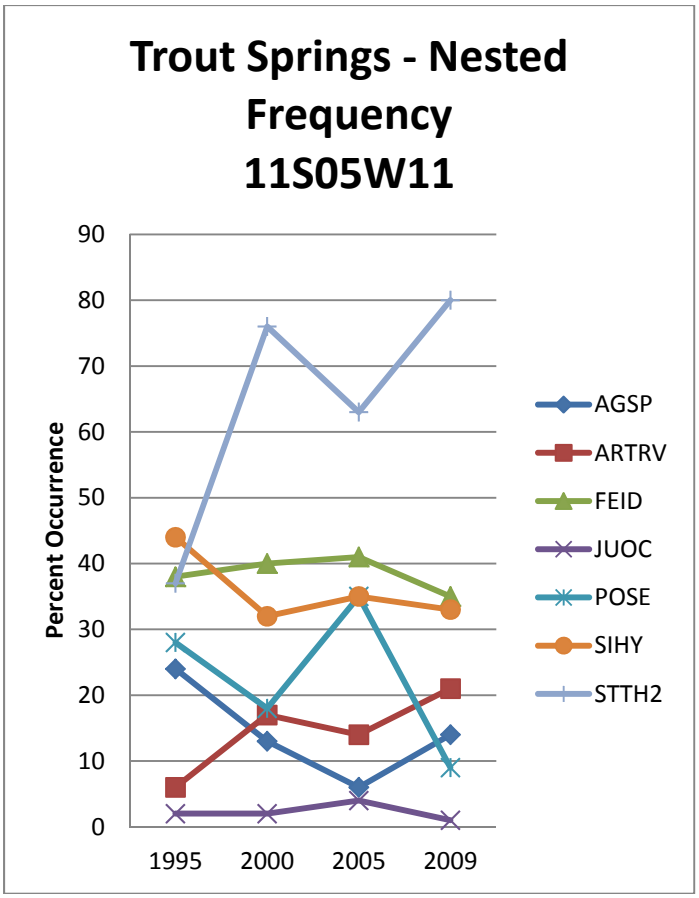
Species	1995	2000	2005	2009
ARTR	1100	800	1100	100
JUOC		100	200	300

Summary and Interpretation:

Apparent Trend
Grasses: Undetermined. Deep-rooted perennials static, but low frequency. Sandberg's bluegrass and squirreltail higher frequency, but variable.
Woody Vegetation: Juniper increasing. Sagebrush variable, but with a sharp decline between 2005 and 2009.

Condition Compared to Potential Natural Conditions:
Low – Site is dominated by increased bunchgrasses (Sandberg's bluegrass and squirreltail), with low frequency of Idaho fescue and bluebunch wheatgrass. Juniper encroachment and sagebrush decline continue.

Ecological Site: Loamy 13-16" ARTRV/PSSPS-FEID



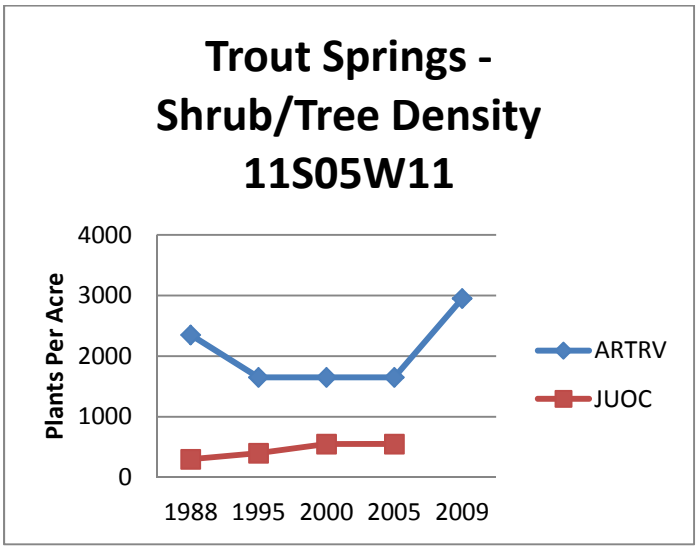
Trout Springs – Pasture 3

Frequency (Percent of Occurrence):

Species	1995	2000	2005	2009
AGSP	24	13	6	14
ARTRV	6	17	14	21
FEID	38	40	41	35
JUOC	2	2	4	1
POSE	28	18	35	9
SIHY	44	32	35	33
STTH2	37	76	63	80

Shrub and Tree Density (Plants per Acre):

Species	1988	1995	2000	2005	2009
ARTRV	2350	1650	1650	1650	2950
JUOC	300	400	550	550	

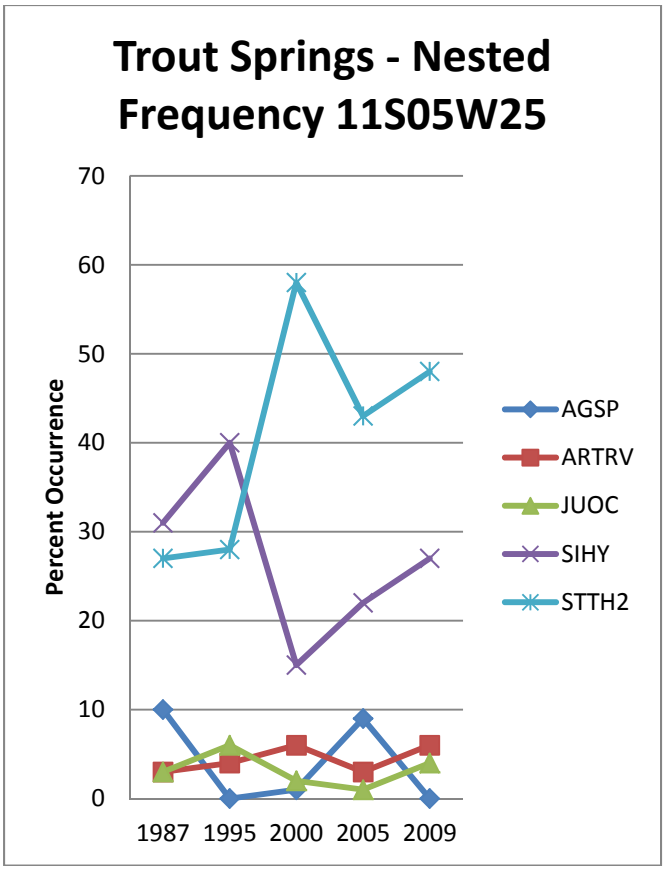


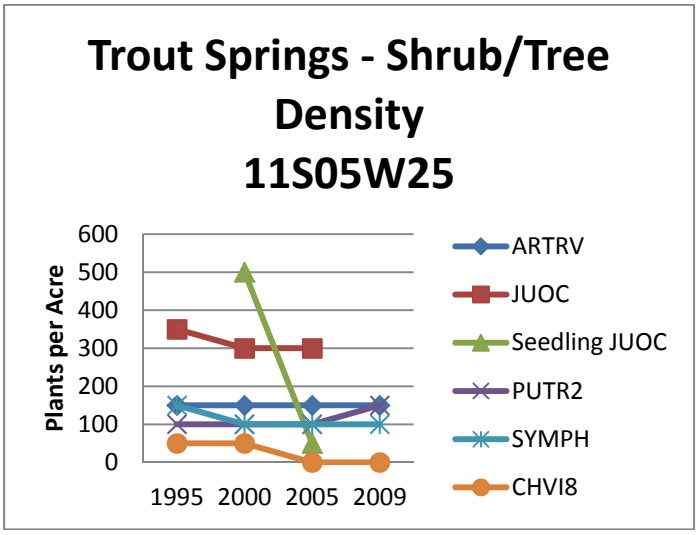
Ecological Site: Loamy 13-16" ARTRV/PSSPS-FEID

Summary and Interpretation:

Apparent Trend:
Grasses: Mostly static, but somewhat variable. Needlegrass dominant, and generally upward trend. Idaho fescue and squirreltail static with moderate frequency. Bluebunch wheatgrass with upward trend since 2005, following a downward trend from 1995 to 2005. Sandberg's bluegrass undetermined trend. Woody Vegetation: Sagebrush with slight upwards trend. Juniper static.

Condition Compared to Potential Natural Conditions:
Mid – The site is dominated by decreaser bunchgrasses (needlegrass and Idaho fescue) and squirreltail, with relative low frequency of bluebunch wheatgrass (a decreaser) and Sandberg's bluegrass (an increaser). Juniper density is high, but not increasing, while sagebrush density remains high and recently increasing.





Ecological Site: Loamy 13-16" ARTRV/PSSPS-FEID, within mapped Mahogany savanna, 16-22" CELE3-SYOR2/FEID-STIPA

Trout Springs – Pasture 1A

Frequency (Percent Occurrence):

Species	1987	1995	2000	2005	2009
AGSP	10	0	1	9	0
ARTRV	3	4	6	3	6
JUOC	3	6	2	1	4
seedling JUOC					
SIHY	31	40	15	22	27
STTH2	27	28	58	43	48

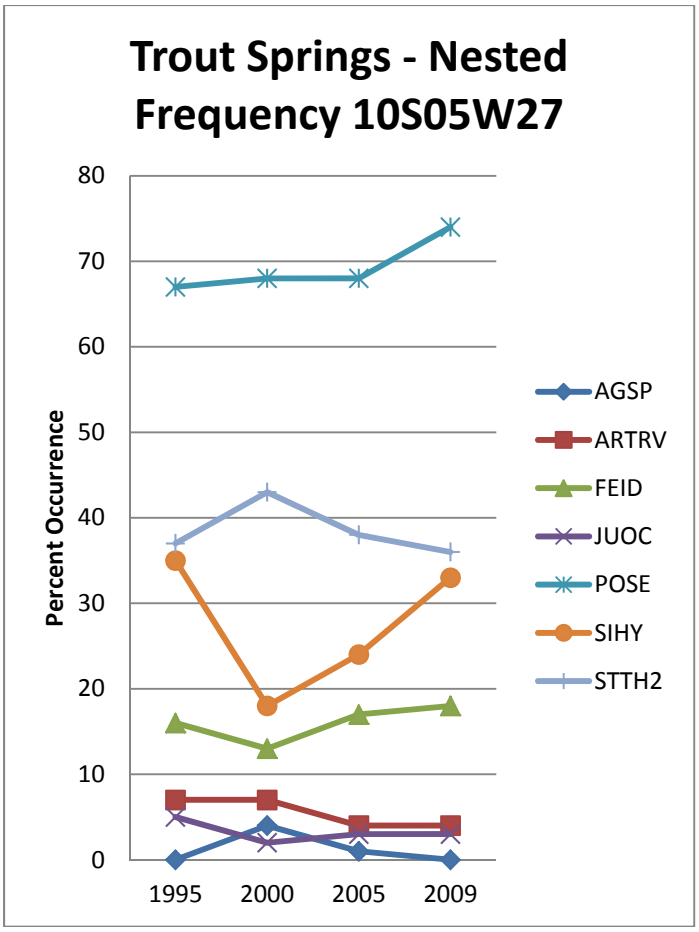
Shrub/Tree Density (Plants per Acre):

Species	1995	2000	2005	2009
ARTRV	150	150	150	150
JUOC	350	300	300 *	
Seedling JUOC		500	50 *	
PUTR2	100	100	100	150
SYMPH	150	100	100	100
CHVI8	50	50	0	0

Summary and Interpretation:

Apparent Trend
Grasses: Undetermined. Variable for all species. Needlegrass and squirreltail upward since 2005, but bluebunch wheatgrass downward.
Woody Vegetation: Static

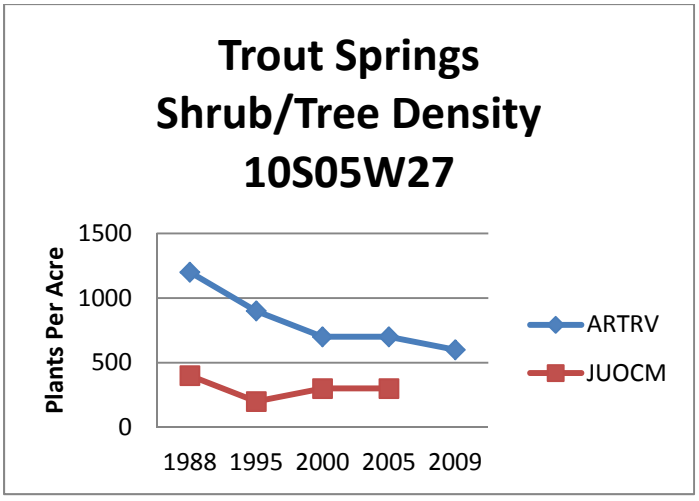
Condition Compared to Potential Natural Conditions:
Low – Juniper density is relatively high, and shrub density and frequency low, but shrubs are not showing a decline and have good diversity. Grass frequency is moderately low, dominated by needlegrass (decreaser) and squirreltail (increaser), with very low bluebunch frequency. No Idaho fescue recorded, which should be a site dominant.



Trout Springs – Pasture 2

Frequency (Percent Occurrence):

Species	1995	2000	2005	2009
AGSP	0	4	1	0
ARTRV	7	7	4	4
FEID	16	13	17	18
JUOC	5	2	3	3
POSE	67	68	68	74
SIHY	35	18	24	33
STTH2	37	43	38	36



Shrub/Tree Density (Plants per Acre):

Species	1988	1995	2000	2005	2009
ARTRV	1200	900	700	700	600
JUOCM	400	200	300	300	

Summary and Interpretation:

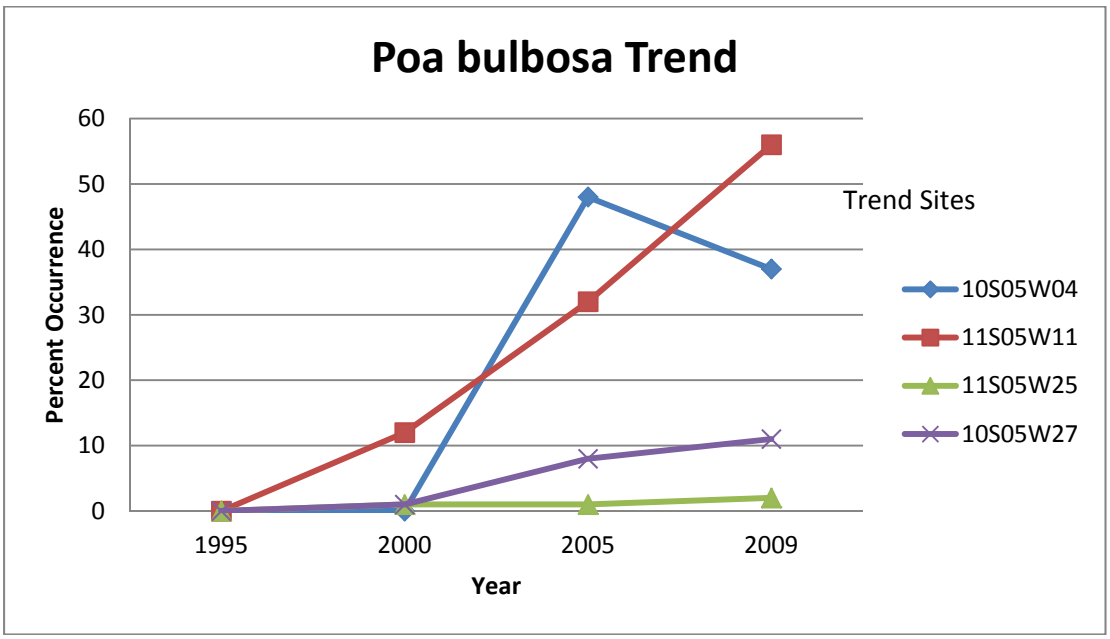
Apparent Trend
Grasses: Mostly static.
Woody Vegetation: Juniper static. Sagebrush downward.

Condition Compared to Potential Natural Conditions:
Low – Site is dominated by increaser bunchgrass (Sandberg's bluegrass), with moderate needlegrass and squirreltail, and low frequency of decreaser grasses that should be dominant on this site (Idaho fescue and bluebunch wheatgrass). Juniper encroachment minimal since 1998, but still much higher than natural conditions. Sagebrush continues a steady decline.

Ecological Site: Loamy 13-16" ARTRV/PSSPS-FEID

Trout Springs – Poa bulbosa Trend

Bulbous bluegrass (*Poa bulbosa*) is a non-native perennial grass that has been widely seeded in the past, and has persisted and spread, particularly in disturbed areas. Trend data for *Poa bulbosa* show increasing frequency at the monitored sites. (It is not clear whether the zero frequency in 1995 reflects actual absence or a lack of recording just this species, since early trend records concentrated on native perennial grasses.)



Poa bulbosa Frequency

Site/ Year	1995	2000	2005	2009
10S05W04	0	0	48	37
11S05W11	0	12	32	56
11S05W25	0	1	1	2
10S05W27	0	1	8	11

Appendix H
Trout Springs Allotment
Trend Data – Summary, Analysis, and Discussion
Beth Corbin
4/24/2012

Monitoring Sites:
Nine trend monitoring sites have been established in the Trout Springs Allotment. Four of these sites are nested plot frequency sites and five are photo trend sites. The nested frequency plots are in the loamy 13-16" mountain big sagebrush/bluebunch-Idaho fescue ecological site, while the photo plots are in either that ecological site or the mahogany savanna ecological site, based on vegetation and soils (not necessarily as mapped at the scale in BLM's GIS layer). No plots are located in a low sagebrush ecological site, although low sagebrush ecological sites are mapped as about 17% of the allotment. Plots are in Pastures 1A (Middle Fork), 2 (Cottonwood), and 3 (Twin Springs) (using Alternative A pasture numbers). No plots are in Pasture 1B (Thomas Creek) or Pasture 4 (Fairylawn). See Figure 1 – Map of Monitoring Locations.

Trout Springs Trend Monitoring Sites: North to South

Monitoring Plot	Pasture #	Type	Ecological Site	Dates Read (post 1990)
10S05W04	2	NPFT	Loamy 13-16" ARTRV/PSSPS-FEID	7/11/1995 7/11/2000 8/8/2005 7/21/2009
10S05W27	2	NPFT	Loamy 13-16" ARTRV/PSSPS-FEID	7/12/1995 6/28/2000 8/1/2005 7/15/2009
11S05W02B	3	PP	Mahogany savanna 16-22" CELE3-SYOR2/FEID-STIPA	7/13/1995 6/28/2000 8/1/2005 7/14/2009
11S05W02A	3	PP	Mahogany savanna 16-22" CELE3-SYOR2/FEID-STIPA	7/12/1995 6/28/2000 8/1/2005 7/14/2009
11S05W11A	3	NPFT	Loamy 13-16" ARTRV/PSSPS-FEID	7/12/1995 6/28/2000 7/28/2005 7/14/2009
11S05W11B	1A	PP	Loamy 13-16" ARTRV/PSSPS-FEID	7/12/1995 6/28/2000 7/28/2005 7/14/2009
11S05W24A	1A	PP	Mahogany savanna 16-22" CELE3-SYOR2/FEID-STIPA	7/13/1995 6/23/2000 7/25/2005 7/13/2009
11S05W24B	1A	PP	Mahogany savanna 16-22" CELE3-SYOR2/FEID-STIPA	7/13/1995 6/28/2000 7/25/2005 7/13/2009
11S05W25	1A	NPFT	Loamy 13-16" ARTRV/PSSPS-FEID	7/14/1995 6/28/2000 7/27/2005 7/13/2009

Frequency:

Methods

Trend data for the four nested frequency monitoring sites within the Trout Springs Allotment were summarized and analyzed. Each of these four sites has data collected for four different years over a 15-year period (1995, 2000, 2005, and 2009). Earlier data are also available for these sites, but were not included in the statistical analysis because they are less relevant to the current decision.

A non-statistical display shows the frequency of the most frequent species for each site. This gives an overall visual of apparent trend and an implication of relative abundance, which may be useful for qualitative assessment, but is not statistically meaningful. See Figure Set 2 – Frequency Graphs. In Pasture 2, the graphs for the two sites show Sandberg bluegrass with much higher frequency than other grasses, while larger bunchgrasses (bluebunch wheatgrass, Idaho fescue, and needlegrass) have low frequency, but appear mostly stable. Sagebrush appears stable to declining, while forbs appear variable, with no apparent trend. In Pasture 3, the site shows needlegrass as the most frequent grass with no apparent trend; other bunchgrasses are variable as well. Sagebrush appears to have a slow decline in frequency, and forbs also appear variable. The site in Pasture 1A shows melicgrass and needlegrass as the most frequent grasses, again with variable apparent trend, and other bunchgrasses as moderate frequency with apparently variable trend. Sagebrush and juniper appear stable with low frequency, but juniper seedlings are more frequent. Lupine is the most abundant forb and appears stable; other forbs are variable except Agoseris shows a sharp decline (but 2009's Microseris probably includes what had previously been called Agoseris, so the apparent decline may simply be an artifact).

To statistically compare frequency between years, the most abundant and/or ecologically important grasses, shrub, and forbs were selected for further analysis. Where present at a site in multiple years, these species were used:

Large bunchgrasses: Idaho fescue, bluebunch wheatgrass, needlegrass
Medium bunchgrasses/sedge: squirreltail, melicgrass, Ross' sedge
Small bunchgrass: Sandberg bluegrass
Shrub: Mountain big sagebrush
Perennial forbs: Lupine, phlox (longleaf and/or Hood's), Agoseris

At each site and for each species, the total number of hits for the 20 quadrats per belt was used as the sampling unit, providing an n=5 for each site/species/year combination. The largest plot size (plot 4, 50 cm x 50 cm) of the nested frequency set was used for each species, except for Sandberg bluegrass an additional comparison using plot 2 (25cm x 25 cm) was used where plot 4 frequencies approached 20 (100%). The five samples per site were averaged, and the standard deviation calculated. Then a paired, two-tailed Student's T test was run (using Excel) to determine whether the difference between the means of the two adjacent sampling years (i.e. 1995 to 2000, 2000 to 2005, and 2005 to 2009) was significantly different at $p<0.1$. The Student's T test assumes that the two populations sampled have similar variances, and that samples for each mean are normally distributed. For this analysis, these parameters were assumed, but not tested or verified. The attached table shows the result of the T test comparisons: See Figure Set 3 – Statistical Comparison of Differences between Frequency Means for Representative Species.

Results
In Pasture 2, the two sites showed no significant change in Idaho fescue, needlegrass, and bluebunch wheatgrass between years (although bluebunch numbers were so low that the statistics are questionably applicable). Squirreltail showed a significant drop in frequency between 1995 and 2000 at both sites, but a significant increase (rebound) in frequency between 2005 and 2009 at both sites. Sandberg bluegrass was stable at one site, and showed a decrease between 2000 and 2005 (significant at the plot 4 but not plot 2 frame) and an increase between 2005 and 2009 (significant at plot 2 but not plot 4 frame) at the other site. The Sandberg bluegrass figures are confounded by the fact that bulbous bluegrass was lumped with Sandberg bluegrass before 2005, so these data should be viewed with caution. Mountain big sagebrush had low frequency with a stable trend at both sites in Pasture 2. Lupine was stable at one site, and had a significant increase between 1995 and 2000 with a significant decrease between 2000 and 2005 at the other site. Phlox was stable with low frequency at one site, and showed a significant drop between 2000 and 2005 but an increase between 2005 and 2009 at the other site.

In Pasture 3, the one site showed a significant decrease in frequency of Idaho fescue and bluebunch wheatgrass between 2000 and 2005, although bluebunch wheatgrass rebounded between 2005 and 2009; Idaho fescue was statistically unchanged from 2005 to 2009. Needlegrass showed significant increases from 1995 to 2000 and from 2005 to 2009; it decreased (although not significantly) between 2000 and 2005. Squirreltail was stable between all years. Sandberg bluegrass declined between 1995 and 2000, rebounded in 2005, and declined again in 2009; note that the combination with bulbous bluegrass (apparently since 2000) confounds these numbers. Mountain big sagebrush and lupine were stable, while longleaf phlox showed a significant increase between 2005 and 2009 and was otherwise statistically stable.

In Pasture 1A, Idaho fescue was not recorded at the one monitoring site. Melicgrass was generally the most frequent bunchgrass, and showed a significant drop between 2000 and 2005 and a significant increase between 2005 and 2009. Needlegrass increased between 1995 and 2000, but was otherwise stable. Bluebunch wheatgrass disappeared in 2009, from very low frequencies in 2000 and 2005 (not statistically significant). Ross' sedge increased significantly in 2000 and 2005 from previous readings; it also increased in 2009, although not significantly. Squirreltail decreased between 1995 and 2000 but was otherwise stable. Sandberg bluegrass was recorded at too low a frequency for changes to be statistically meaningful. Mountain big sagebrush also had very low frequency and was mostly stable, but showed a decline between 2000 and 2005. Lupine increased between 2000 and 2005, but was otherwise stable. Agoseris decreased between 1995 and 2000, and increased between 2005 and 2009; it had a non-significant decrease between 2000 and 2005.

Interpretation
No clear trend is obvious, either within a given pasture or site or for any particular species (or species group) across sites between multiple readings. However, looking in particular at the most recent reading between 2005 and 2009, large and medium bunchgrasses were either statistically stable or increased in frequency. This may reflect the recovery that is occurring (and presumably continuing since 2009) in the absence of (authorized) grazing between 2008 and 2011, although the 2009 reading would reflect less than two years rest thus far. On the other hand, the disappearance of bluebunch wheatgrass in 2009 from the site in Pasture 1A and one of the two sites in Pasture 2, although not statistically significant because it was at such low frequency to begin with, is troubling and curious. Forb trends are similarly mostly stable to improving between 2005 and 2009, with statistical increases in frequency for phlox (two of three sites) and Agoseris (one site), although lupine frequency decreased at one site (stable at the other

three sites). Note that these general stable or increases in frequency in 2009 follow a trend of mostly stable to decreasing frequency between 2000 and 2005. The 2005 reading showed reduced frequency (compared to 2000) at one site each for Idaho fescue, bluebunch wheatgrass, melicgrass, sagebrush, lupine, and phlox, while Ross' sedge and lupine showed an increase in frequency in 2005 at one site each. Most other species and sites were statistically stable between 2000 and 2005. Sandberg bluegrass results were mixed, with one decrease and one increase in frequency in both 2005 and 2009, compared to previous readings, but because Sandberg bluegrass readings are confounded with bulbous bluegrass, these results are questionable.

To summarize, plot data showed generally stable to decreasing frequency trends between 2000 and 2005, during a time when grazing use was about 1,750-2,200 AUMs (See EA Appendix E), while plot data showed generally stable to increasing frequency trends between 2005 and 2009, a time period with similar use for two years, followed by non-use.

Notice that bluebunch wheatgrass has low frequency at all four monitoring sites. This species is expected to be dominant or co-dominant grass under reference conditions, but has been highly reduced, presumably due to past grazing management and juniper encroachment. It did improve at one monitoring site (Pasture 3) in 2009, but disappeared (from previously very low numbers) at two other monitoring sites. Its ecological function providing large bunchgrass structure has apparently been replaced by Idaho fescue (which is expected to be co-dominant with bluebunch wheatgrass), needlegrass, and/or melicgrass.

Sandberg bluegrass is recorded as the most frequent bunchgrass at the two sites in Pasture 2, indicating that large bunchgrasses have mainly been replaced by this low bunchgrass.

Mountain big sagebrush frequency is mostly stable at these four sites, although Pasture 1A showed a decline in frequency between 2000 and 2005, followed by a non-statistically significant rebound in 2009. Sagebrush frequency is low (3-17%) at all sites, reflecting replacement by juniper canopy. Compare the sagebrush frequency to sagebrush density data, described below.

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

Photo Plots

Photographs were taken each year at each of the nine monitoring sites, both photo trend and nested plot frequency sites. At each monitoring site, photographs were taken of the fixed 3'x3' photo plot, and landscape photos from each end of the monitoring baseline (centerline). A sketch of plants, rocks, etc. within the photo plot was also made.

Most of the photos show high juniper cover, although two (11S05W24A and 11S05W24B) are in openings that had burned sometime recently before the 1986 photographs. Most sites show low cover of sagebrush, except the burned openings, which showed moderate to high sagebrush cover by 2009. Bunchgrass density appears moderate to sparse, as do perennial forbs. Bare ground appears to range from high to moderately low.

Comparing photographs between years for the last three readings, the 2009 photographs generally show somewhat higher grass vigor and somewhat reduced bare ground compared to 2005 in most photos, reflecting the recent rest. These changes are fairly subtle in the photographs, however. Little difference between 2000 and 2005 is apparent in the photos. Examples of 2009 photos from three sites are shown below.

Site 11S05W25 July 13, 2009

Site 11S05W02B July 14, 2009

Site 11S05W24B July 13, 2009

Weeds

Bulbous bluegrass, a non-native perennial grass, was often lumped within Sandberg bluegrass in data before 2005, so only 2005 and 2009 nested frequency data for bulbous bluegrass are consistently available. It appears with low to moderately high frequency in those two years. It is never the most frequent, or dominant, grass in these plots, but in some cases is co-dominant with native bunchgrasses.

Bulbous bluegrass Frequency

Site	2005 % Frequency	2009 % Frequency
10S05W04	48	37
10S05W27	8	11
11S05W11A	32	56
11S05W25	1	2

Because annuals were generally not recorded before 2000, long-term trends in annuals cannot be determined. However, the 2005 and 2009 data show few non-native annuals, each with only low frequency. These species include cheatgrass (1 site), unspecified brome grass (2 sites), tumble mustard (1 site), prickly lettuce (1 site), dandelion (1 site), and salsify (2 sites). Because they are present in such low abundance, these annual weeds are having little or no impact to native plant communities.

No weeds (non-native plants) besides bulbous bluegrass (only at site 11S05W11B) are obvious in the photos.

No noxious weeds were recorded in trend plots in 2005 or 2009. In 2000, houndstongue was recorded in one plot at one site. No further observations of this plant have been recorded in the Trout Springs Allotment, so it does not appear to have persisted (if in fact it really was houndstongue).

BLM's noxious weed GIS layer shows a few small infestations of whitetop and Canada thistle on BLM lands in the Trout Springs Allotment. Leafy spurge and Russian knapweed are recorded near but not on BLM lands in the allotment.

Shrub and Tree Density:
Shrub and tree densities were counted in two 0.01-acre plots at each nested frequency monitoring site. Data are shown in Figure Set 4 – Shrub and Tree Density. No statistical tests were run on these data, since only two samples per site were taken, so interpretations are only visual. Density should logically show similar trends to frequency for the woody species measured, but the difference in plot sizes between the two methods may influence the results. Similar to the frequency data, juniper (in either the mature or seedling class) were too uncommon in the density plots to reliably show trend. It appears that the monitoring sites specifically avoided dense juniper areas, so the density values shown probably do not represent juniper density across the allotment. It also appears that in 2009, juniper was not recorded in three of the four sites but only because it was not considered a shrub, not because it was absent.

Based on simple graph interpretation, mature sagebrush appears to be stable at one site (Pasture 1A), steadily declining 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). The decline in sagebrush frequency seen in 2005 in Pasture 1A data is not reflected in sagebrush density data. The density data is sampled at a more appropriate plot site for shrubs than frequency data, so is likely more representative, although the sample size is low. Sagebrush density appears somewhat variable overall, with no clear trend. Sagebrush seedlings were rarely recorded.

The density of mature juniper is mostly stable, as would be expected, although one site showed a consistent increase. Juniper seedlings were infrequently recorded, except at one site (Pasture 1A) in 2000; apparently few of these juniper seedlings survived into 2005.

Ground Cover and Canopy Cover:
Ground cover and canopy cover were compared for 2000 to 2005 and for 2005 to 2009 at each of the four nested frequency monitoring sites. Ground and canopy cover are recorded as a point intercept for 80 points at each of the five belts, resulting in 400 hits per site. At each point, ground cover, herbaceous perennial canopy cover, and woody canopy cover were recorded. Paired, two-tailed Student's T tests were calculated on the mean percentages of each belt. Changes were considered statistically significant at $p<0.1$. See Figure Set 5 – Ground Cover Comparisons.

Each of the four sites showed little significant changes in bare ground between years; only one site (Pasture 3) showed a significant drop in bare ground between 2000 and 2005. This decline in bare ground was replaced by an increase in non-persistent litter at this site. Bare ground averaged from 8.5% to 27.5% at the four sites in various years.

Basal perennial vegetation, primarily perennial grasses and forbs, showed a significant increase in ground cover between 2005 and 2009 at three of the four sites. This may reflect an improvement in perennial grass conditions as a result of no (authorized) grazing in 2008 and 2009. One of the four sites (Pasture 3) showed a significant decrease in basal vegetation ground cover between 2000 and 2005, while the other three sites were statistically unchanged between those years. Basal perennial vegetation was generally low, ranging from zero (one site in one year) to 19% ground cover.

Stable ground cover elements (besides vascular vegetation) are gravel, rock, persistent litter, and biological crust. The ground cover of these elements combined shows an inconsistent declining pattern, with cover at two of the four sites decreasing between 2000 and 2005, and the other two

sites decreasing between 2005 and 2009; other changes were not statistically significant. Stable ground cover elements were generally moderately high, with averages ranging from 26% to 72% combined ground cover.

Non-persistent litter is the most ephemeral of the ground covers, and can reflect precipitation and invasion of annual weeds (which are not a factor in this allotment; see above). Non-persistent litter patterns in this allotment appear to have somewhat of an inverse relationship to the stable ground cover elements, with three sites showing increased non-persistent litter between 2000 and 2005. In 2009, one site showed an increase and one a decrease in non-persistent litter, compared to 2005. Other changes were not statistically significant. Non-persistent litter cover ranged from approximately 8% to 54%.

Overall, this suggests that between 2000 and 2005, ground cover elements showed somewhat of a replacement of more stable ground cover elements with less stable (non-persistent litter) cover at two of the four sites, while bare ground and basal vegetation were stable at three sites and declining at one site (Pasture 3). Considering that many elements were statistically stable, this suggests a slightly declining system, from a watershed 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, suggesting more ambiguous results.

Perennial herbaceous canopy cover ("middle layer") was grouped for analysis into structural groups of large, medium, and small bunchgrasses and perennial forbs. (Annual plants are by definition non-persistent litter.) Data are available only for 2005 and 2009, so change only between those years is indicated. See Figure Set 6 – Perennial Herbaceous Canopy Cover. Large bunchgrass canopy cover was fairly low, ranging between 1% and 10.25% cover; it was virtually unchanged at three of the four sites, and declined at one site (Pasture 3). Medium bunchgrass canopy cover was very low, ranging between zero and 5.25% cover; it increased at two sites, decreased at one site, and was statistically unchanged at the fourth site. Small bunchgrass canopy cover ranged from zero to 10.5% cover; it decreased at two sites and was stable at two sites between 2005 and 2009. Perennial forb canopy cover averages ranged from approximately 3% to 8% canopy cover, and were statistically unchanged at all sites between 2005 and 2009. Overall, these data indicate generally stable trends for perennial herbaceous canopy cover.

Woody canopy cover showed no significant change between 2005 and 2009, but two of the four sites (Pastures 1A and 2) had a significant increase in woody canopy cover between 2000 and 2005. Woody canopy cover varied from approximately 23% to 65% cover, and was primarily juniper.

Attached Figures:

- Figure 1 - Map of Monitoring Locations
- Figure Set 2 – Frequency Graphs
- Figure Set 3 – Statistical Comparison of Differences between Frequency Means for Representative Species
- Figure Set 4 – Shrub and Tree Density
- Figure Set 5 – Ground Cover Comparisons
- Figure Set 6 – Perennial Herbaceous Canopy Cover

Appendix I. Condensed ecological site descriptions of the major ecological sites of the Trout Springs Allotment.

- Loamy 13-16” precipitation ARTRV/PSSPS-FEID
- Mahogany Savanna 16-22” precipitation
- Shallow claypan 12-16” precipitation ARAR8/FEID
- Very shallow stony loam 10-14” precipitation ARAR8/POSE-PSSPS
- A description does not exist for the “Steep Rocky Canyons” ecological site.

USDA – NRCS - Ecological Site Description

Site Name: Loamy 13-16 ARTRV/PSSPS-FEID

Physiographic Features
This site occurs on dissected high lava plateaus and semi-arid mountains, primarily on volcanic landforms (intrusive and extrusive) and secondarily on associated relict fluvial landforms. The landscape topography is undulating to steep on all aspects at upper elevations. This site is very extensive. Slopes are 2-30 percent. Elevation ranges from 5000-6600 feet (1524-2012 meters).

Landform: benches, foothills, mountains

	Minimum	Maximum
Elevation (feet):	5000	6600
Slope (percent):	2	30
Water Table Depth (inches):	>60”	
Flooding and Ponding:	None	None
Runoff Class:	Low	Very High

Aspect: All

Climatic Features
Annual precipitation of this site ranges from 13-16 inches (33-41 cm.) with the majority falling as snow and early spring rain.

Plant growth period begins as early as March 15. Grasses and forbs mature by July 15. Shrubs continue to grow during the summer period but at a much reduced rate. Grasses may green up again when fall rains are sufficient. Frost free period is 50-90 days.

Representative Soil Features
The soils supporting this range site are moderately deep to very deep, well or somewhat excessively drained with impermeable to moderately rapid permeability above bedrock or a duripan. Runoff is low to very high. The erosion hazard by water is slight to high, and by wind is moderate to high. The available water capacity is very low to moderate. The surface texture is generally loamy with many to no stones. These soils are usually 20-60 inches deep to either bedrock or a duripan. The subsoil is usually moderately well to very well developed with clay ranging from approximately 18-48 percent (a few soils have claypans). These soils are characterized by a xeric soil moisture regime and limited growing season. Soil temperature regime is frigid.

Parent Material Kind: colluvium
Parent Material Origin: breccia, rhyolite, welded rhyoltic and vitric tuff
Surface Texture: Silt loam, loam, sandy loam
Surface Texture Modifier: None, very gravelly, to very stony

Plant Communities

Ecological dynamics of the site:
The dominant visual aspect of this site is bluebunch wheatgrass, Idaho fescue and mountain big sagebrush. Composition by weight is approximately 55-65 percent grass, 10-20 percent forbs and 20-30 percent shrubs. In the last few thousand years, this site has evolved in an arid climate characterized by dry summers and cold, wet winters. Herbivory has historically occurred on this site at

low levels of utilization. Herbivores include pronghorn antelope, mule deer, Rocky Mountain elk and lagomorphs. Fire has historically occurred on the site at intervals of 20-50 years.

The Historic Climax Plant Community (HCPC) moves through many phases depending on the natural and man-made forces that impact the community over time. This plant community is dominated by bluebunch wheatgrass, Idaho fescue and mountain big sagebrush. Antelope bitterbrush is a subdominant overstory species. Subdominant species include Sandberg bluegrass, bottlebrush squirreltail, arrowleaf balsamroot and lupine.

Total annual production is 1100 pounds per acre (1232 kilograms per hectare) in a normal year. Production in a favorable year is 1400 pounds per acre (1568 kilograms per hectare). Production in an unfavorable year is 800 pounds per acre (896 kilograms per hectare. Structurally, cool season deep rooted perennial bunchgrasses are very dominant, followed by tall shrubs being more dominant than perennial forbs while shallow rooted bunchgrasses are subdominant.

Rangeland Health Indicators.

Rills: rarely occur on this site. If rills are present they are likely to occur on slopes greater than 20 percent and immediately following wildfire. Rills are most likely to occur on soils with surface textures of silt loam and clay loam.

Water flow patterns: rarely occur on this site. When they occur they are short and disrupted by cool season grasses, tall shrubs and surface gravels or stones and are not extensive.

Pedestals: are rare on this site. In areas where slopes approach 20 percent and where flow patterns and/or rills are present, few pedestals may be expected. Terracettes are rare.

Bare ground: data is not available. On sites in mid-seral status bare ground may range from 25-45 percent.

Number of gullies and erosion associated with gullies: None

Wind scour: blowouts and depositional areas are usually not present. Immediately following wildfire some soil movement may occur on lighter textured soils.

Litter movement: Fine litter in the interspaces may move up to 2 feet following a significant run-off event. Coarse litter generally does not move.

Soil surface stability: Values should range from 4 to 6 but needs to be tested.

Soil surface structure and SOM content : The surface horizon is typically 4 to 9 inches thick. Structure typically includes weak thin and moderate platy, weak to strong fine and medium granular, and weak fine to medium subangular blocky. Soil organic matter (SOM) ranges from 1 to 5 percent.

Effect of plant community on infiltration: Bunchgrasses, especially deep-rooted, slow run-off and increase infiltration. Tall shrubs accumulate snow in the interspaces.

Compaction layer: is not present.

Functional/ structural groups: Cool season deep rooted perennial bunchgrasses>>tall shrubs>perennial forbs>shallow rooted bunchgrasses.

Plant mortality/ decadence: Mountain big sagebrush will become decadent in the absence of fire and ungulate grazing. Grass and forb mortality will occur as tall shrubs increase.

Litter cover: Additional litter cover data is needed but is expected to be 20-25 percent to a depth of 0.2 inches. Under mature shrubs litter is >0.5 inches deep and is 90-100 percent ground cover.

Expected annual production: is 1100 pounds per acre (1232 kilograms per hectare) in a year with normal temperatures and precipitation. Perennial grasses produce 55-65 percent of the total production, forbs 10-20 percent and shrubs 20-30 percent.

Invasive and/or noxious species: include bulbous bluegrass, whitetop, rush skeletonweed, musk and scotch thistle and diffuse and spotted knapweed.

Perennial plants: in all functional groups have the potential to reproduce in most years.

Function:

This site is well suited for big game summer and fall range. It is also well suited for livestock and recreation use in the late spring, summer and fall. Due to the relatively high rainfall, elevation and gentle topography on this site, it is fairly resistant to disturbances that can potentially degrade the site. Due to the gentle topography, infiltration is normally high and runoff low. Runoff, when it does occur is non-erosive except during high intensity convection storms. Snow accumulates on the site due to high elevation and presence of tall shrubs.

Impacts on the Plant Community.

Fire: In the absence of normal fire frequency, bitterbrush increases to the point of being co-dominant with mountain big sagebrush. Juniper can also increase if a seed source is in the proximity. Grasses and forbs decrease as shrubs increase. With the continued absence of fire, juniper can displace most of the shrubs and other understory species. See “Influence of juniper invasion” below.

When fire frequency is greater than historic levels, mountain big sagebrush and bitterbrush are reduced significantly. With continued short fire frequency, big sagebrush and bitterbrush can be completely eliminated along with many of the desirable understory species such as bluebunch wheatgrass and Idaho fescue. These species may be replaced by cheatgrass, Sandberg bluegrass and bulbous bluegrass along with a variety of annual and perennial forbs including noxious and invasive weeds.

Grazing: Season-long grazing can be very detrimental to this site. Excessive utilization is also detrimental. This type of management leads to reduced vigor of the bunchgrasses and possibly bitterbrush. With reduced vigor, recruitment of these species declines. As these species decline, the plant community becomes susceptible to juniper invasion, an increase in mountain big sagebrush and noxious and invasive weeds,. Continued improper grazing management influences fire frequency by reducing fine fuels that carry fire.

Good grazing management that addresses frequency, duration, and intensity of grazing can also keep fine fuels from developing, thus reducing fire frequency. This can lead to gradual increases in mountain big sagebrush and/or western juniper. A planned grazing system can be developed to intentionally accumulate fine fuels in anticipation of a prescribed fire.

Weather: Above normal precipitation in March, April and May can dramatically increase total annual production of the plant community. These weather patterns can also increase viable seed production of desirable species to provide for recruitment. Likewise, below normal precipitation during these

spring months can significantly reduce total annual production and be detrimental to good seed production. Overall plant composition is normally not effected when perennials have good vigor.

Below normal temperatures in the spring can have an adverse impact on total production regardless of the precipitation. A hard, early freeze can kill some plants occasionally. Prolonged drought adversely affects this plant community in several ways. Vigor, recruitment, and production are usually reduced. Mortality can occur. Prolonged drought can lead to changes in fire frequency.

Insects and Disease: Outbreaks can affect health of vegetation, particularly bitterbrush with western tent caterpillars (Malacosoma fragilis). Two consecutive years of defoliation by the tent caterpillar can cause mortality in bitterbrush. An outbreak of a particular insect is usually influenced by weather but no specific data for this site is available.

Noxious and Invasive Weeds: Many of these species add to the fine-fuel component and lead to increased fire frequency. Many of the perennial weeds with deep root systems compete with desirable plants for moisture and nutrients. The result is reduced production and change in composition of the understory.

Wildlife: Big game use this site in the spring, summer and fall. Their numbers are seldom high enough to adversely effect the plant community. Big game numbers within this MLRA are usually limited by the winter range, not the summer range. Herbivory can be detrimental to bitterbrush when livestock grazing and browsing by big game occurs at the same time and season. This will occur when both kinds of animal are using the plant in the late summer or fall. The adverse impact is excessive use of the current years' leader growth. The deer mouse is beneficial to this site. It is the principal vector for planting bitterbrush seed.

Watershed: Decreased infiltration and increased runoff occur with the invasion of juniper (see Influence of Juniper below). Juniper invasion can be triggered by lack of fire, poor grazing management and prolonged drought. The increased runoff also causes sheet and rill erosion. Abnormally short fire frequency also gives the same results, but to a lesser degree. The long term effect is a transition to a different state.

Juniper invasion:In plant communities that are invaded by juniper, the species has a competitive advantage for the following reasons:

Juniper is very drought tolerant.
It has the ability to extract soil moisture from a wide range of soil depths.
Juniper has high evapo-transpiration rates.
The species intercepts rain and snow before it reaches the soil surface.
It has the ability to grow as long as there is soil moisture and the temperature is above freezing.
Juniper has a relatively rapid growth rate and is long-lived. It can readily over-top shade intolerant species
which leads to mortality.
Nutrient cycling is reduced.
As the canopy closes, juniper gains control of energy capture.

As juniper extracts water, other plants are unable to acquire sufficient water and nutrients to sustain growth and reproduction, thus reducing cover and biomass in the interspaces. After the canopy closes, there is sufficient soil moisture available for shallow-rooted, shade tolerant species to persist directly under the tree.

The following hydrological impacts occur on sites invaded by juniper:

Infiltration in the interspaces is reduced.
Run-off increases resulting in increased sheet and rill erosion with elevated sediment loads.

Soil temperatures increase in the interspaces which results in accelerated drying of the soil surface.
Increased bare ground in the interspaces.
Soil moisture storage is reduced.

As bare ground and interconnectiveness of bare ground increases, flow rates are accelerated (reduction of flow sinuosity) and run-off out of the area increases. Degradation of these systems can result in the formation of a feedback cycle in which greater juniper cover and density results in greater plant and soil disturbance between the canopies.

In summary, a closed juniper community takes control of the following ecological processes: hydrology, energy capture and nutrient cycling. The changes are primarily driven by the hydrological processes. The development of a closed juniper canopy always results in a transition across the threshold to a different state. Generally, when juniper canopy cover nears 20%, the plant community is approaching the threshold.

Plant Community and Sequence: See the full reference for description of vegetation states, phases, and transition pathways.

Historic Climax Plant Community Plant Species Composition:

Common/Group Name	Plant Symbol	% Comp	lbs./acre
Grasses and Grass-likes			
Bluebunch wheatgrass	PSSPS	20-30	200-350
Idaho fescue	FEID	20-30	200-350
Sandberg bluegrass	POSE	2-4	24-42
Bottlebrush squirreltail	ELEL5	1-3	16-28
Nevada bluegrass	POSE	0-4	0-28
Basin wildrye	LECI4	0-5	0-35
Thurber needlegrass	ACTH7	0-5	0-35
Sedge	CAREX	0-2	0-14
Thickspike wheatgrass	ELMA7	0-2	0-14
Prairie junegrass	KOMA	0-1	0-7
Forbs	**Plant Symbol**	**% Comp**	**lbs./acre**
Arrowleaf balsamroot	BASA2	4-8	48-84
Tapertip hawksbeard	CRAC2	1-3	16-28
Lupine	LUPIN	2-5	28-49
Longleaf phlox	PHLO2	0-1	0-7
Western yarrow	ACMI2	T-2	1-21
Buckwheat	ERIOG	0-3	0-21
Fleabane	ERIGE2	0-1	0-7
Penstemon	PENST	0-1	0-7
Larkspur	DELPH	0-1	0-7
Aster	ASTER	0-1	0-7
Onion	ALLIU	0-1	0-7
White stoneseed	LIRU4	0-2	0-14
Mountain agoseris	AGGL	0-1	0-7
Sticky geranium	GEVI2	0-1	0-7
Milkvetch	ASTRA	0-2	0-14
Hooker balsamroot	BAHO	0-1	0-7
Sagewort	ARLU	0-1	0-7
Indian paintbrush	CASTI2	0-1	0-7

Hoods phlox	PHHO	0-1	0-7
Shrubs	**Plant Symbol**	**% Comp**	**lbs./acre**
Mountain big sagebrush	ARTRV	10-20	120-210
Antelope bitterbrush	PUTR4	5-15	80-140
Yellow rabbitbrush	CHVIP4	0-1	0-7
Mountain snowberry	SYOR2	0-1	0-7
Tall green rabbitbrush	CHVI8	0-2	0-14
Woods rose	ROWO	0-1	0-7
Serviceberry	AMAL2	0-1	0-7
Buckwheat	ERIOG	0-1	0-7
Dwarf green rabbitbrush	CHVIV4	0-1	0-7
Pricklypear	OPPO	0-1	0-7

Annual Production lbs./Acre	Low	High
Grasses & Grass-Likes	480	840
Forbs	120	210
Shrubs	200	350
Total	800	1400

Ground Cover and Structure:

Vegetation cover averages 30-50 percent**.**

Soil Surface Cover:

Plant Basal Cover- no data
Microbiotic crusts- Low
Litter – 20
Surface fragments- 0-30
Bare Ground- 25-50

Ground Cover (Vertical view)-

Plant Canopy Cover (Species or groups) - 40-60

Ecological Site Interpretations:

Wildlife Interpretations

This plant community is important to a wide variety of wildlife. Big game species that use the site in the spring, summer and fall include Pronghorn antelope, Mule deer and Rocky Mountain elk. Due to snow accumulation and temperatures in the winter, this site is not extensively used by big game. This site is not highly preferred by Pronghorn antelope since the plant community is generally taller than optimum for the species. They prefer vegetation less than 18 inches high. Due to the cover, however, Pronghorn antelope will use it for kidding. Mule deer use the site in the spring, summer and fall. It is used as a foraging area and for fawning. The bitterbrush component is important for mule deer in the fall due to high protein content prior to moving to the winter range. Rocky Mountain elk use the site spring, summer, fall and early winter. The understory perennial grasses on the site are of primary importance for elk. Sage grouse use the site when annual and perennial forbs are succulent, during the spring and early summer. The site is also used as nesting habitat. Meadows are frequently found in the proximity to this site. When this occurs, this site and the adjacent meadows are important as calving areas for elk and foraging areas for sage grouse broods. This site is very ecologically diverse. For this reason it is important to a variety of small herbivores, birds and predators.

Grazing Interpretations

This site is best suited for late spring, summer and fall grazing. Estimated initial stocking rate will be determined with the landowner or decision-maker. They will be based on the inventory which includes species, composition, similarity index, production, past use history, season of use and seasonal preference. Calculations used to determine estimated initial stocking rate will be based on forage preference ratings

Hydrology Functions

The hydrology of this site is characterized by occasional high intensity thunderstorms during the summer months but primarily by low intensity frontal storms during the winter and spring. 60 to 70 percent of the precipitation falls during the period of October through May. Winter precipitation is in the form of snow. Snowmelt and run-off are critical events on this site. The site needs to be protected by vegetation when snowmelt and run-off occur. Ponding and flooding do not occur on this site. Run-on from adjacent sites normally does not occur. This site is in a snow-accumulation zone due to its high elevation and precipitation zone. In the HCPC, the flatter slopes on which this site occurs allow for the majority of the moisture to infiltrate into the soil profile.

Recreational Uses

Recreation use of this site includes hunting, hiking, horseback riding, plant and animal observation and motorized vehicle use. Due to the relative abundance of wildlife that use this site, hunting is one of the primary uses. ATV's use this site due the gentle topography and relatively non-stony surface horizon.

Wood Products

Mature juniper that has invaded and increased on the site can be cut for posts, poles, firewood and lumber.

Inventory Data References

Information presented here has been derived from NRCS clipping and other inventory data. Also, field knowledge of range-trained personnel was used. Those involved in developing this site description include

Dave Franzen, co-owner, Intermountain Rangeland Consultants, LLC

Jacy Gibbs, co-owner, Intermountain Rangeland Consultants, LLC

Jim Cornwell, State Rangeland Management Specialist, NRCS, Idaho

Type Locality

State: Idaho **County**: Owyhee, Twin Falls

Township:	**Range**:	**Section**:
3 S	3W	SE ¼, NE ¼, SEC. 36
4 S	3W	NE ¼, SW ¼, SEC. 10
13 S	18E	SW ¼, NE ¼, SEC. 34

Field Offices

Marsing, ID; Twin Falls, ID; Mountain Home, ID; Ontario, OR

USDA NRCS - Ecological Site Description

Site Name: Mahogany Savanna 16-22" CELE3- SYOR2/FEID-STIPA

Physiographic Features

This site occurs on slopes that are rolling to very steep ranging from 5-50 percent on all aspects. Elevations range from 5400-8300 feet (1646-2530 meters). This site is associated with mountains.

Landform: mountains

	Minimum	Maximum
Elevation (feet):	5400	8300
Slope (percent):	5	50
Flooding and Ponding:	None	None
Runoff Class:	Low	Very High

Aspect: No influence to this site.

Climatic Features

Annual precipitation of this site ranges from 16-22" (40-55 cm) with the majority falling as snow or rain in the winter, early spring and late fall. The plant growth period begins April 15 to May 15 with grasses and forbs maturing by August 15. The average frost-free period is 30-90 days. The optimum plant growth period is during June and July.

Representative Soil Features

The soils on this site vary from 10 to 60 inches in depth. The soils supporting this site are shallow to deep, well to somewhat excessively drained, with moderately slow to moderately rapid permeability above bedrock. Runoff is low to very high. The erosion hazard is slight to severe by water, and slight to moderate by wind. The available water capacity is very low to low. These soils are usually 20-40 inches deep to bedrock. The soils usually have a bouldery to very gravelly loam surface with a loamy or loamy-skeletal subsoil. The subsoil is usually moderately well to well developed with clay ranging from approximately 11 to 30 percent. Roots are not significantly restricted by the underlying parent material which is either fractured or soft. . The soils are modified by high volumes of rock fragments throughout the profile. These soils are characterized by limited AWC, a soil moisture regime of xeric, and cold temperatures. Soil temperature regime is either cryic or frigid.
Parent Material Kind: colluvium
Parent Material Origin: rhyolite, granite
Surface Texture: loam, coarse sandy loam
Surface Texture Modifier: Stony, bouldery, gravelly

Plant Communities

Ecological Dynamics of the Site:
The dominant visual aspect of this site is of curlleaf mountain mahogany. Mountain snowberry is the principal understory shrub. Idaho fescue, bulbous oniongrass, mountain brome, Columbia needlegrass and western needlegrass are the most prevalent understory grasses. Composition by weight is approximately 40 percent grass, 10 percent forbs and 50 percent shrubs and tree-like shrubs. These percentages are for current annual growth for all plants, irrespective of height.

In the last few thousand years, this site has evolved in an arid climate characterized by dry summers and cold, wet winters. Herbivory has historically occurred on this site at low levels of utilization. Herbivores include mule deer, Rocky Mountain elk, lagomorphs and small rodents. Fire has

historically occurred on the site at intervals of 250-500 years. Due to the variability of soil depth, from shallow to deep, curlleaf mountain mahogany has a patchy or clumpy appearance on the landscape. For this reason when the site burns, fire moves across the site leaving a mosaic of burned and unburned areas. The Historic Climax Plant Community (HCPC) of this site is dominated by curlleaf mountain mahogany in the overstory and Idaho fescue, purple oniongrass, mountain brome, Columbia and western needlegrass and mountain snowberry in the understory. Total annual production is 1800 pounds per acre (2000 kilograms per hectare) in a normal year.

Structurally, curlleaf mountain mahogany dominates the overstory. In the understory cool season deep rooted perennial bunchgrasses are dominant, followed by tall shrubs being more dominant than perennial forbs while shallow rooted bunchgrasses are subdominant. Western juniper sites frequently occur in association with this site. Juniper can invade this site when a seed source is present. Conifers such as juniper have greater growth rates, their shape is more tapered and they reach greater heights. Consequently, conifer species invading curlleaf mountain mahogany sites eventually over top them. Because mature curlleaf mountain mahogany is shade intolerant its competitive ability is lost, and it becomes senescent. Mortality usually follows.

Rangeland Health Indicators.

Rills: are rare on this site due to the coarse surface fragments. If they are present they are likely to occur on slopes greater than 20% or immediately following a wildfire.

Water flow patterns: are rare on this site due to short slope lengths. When they occur they are short and disrupted by cool season grasses, tall shrubs and surface stones. They are not extensive.

Pedestals: are rare on this site. In areas where slopes approach 20 percent and where flow patterns and/or rills are present, few pedestals may be expected. Terracettes are also rare.

Bare ground: ranges from 15-30% but more data is needed.

Wind scour: does not occur on this site.

Litter movement: Fine litter in the interspaces may move up to 3 feet following a significant run-off event. Coarse litter generally does not move.

Soil surface stability: Values should range from 4-6 but needs to be tested. The surface horizon is typically 3 to 12 inches thick. Structure typically includes weak thin and platy, and weak or moderate fine or moderate medium granular, and moderate fine to medium subangular blocky. Soil organic matter (SOM) ranges from 1 to 10 percent.

Effect of plant community on infiltration: The tree-like canopy of curlleaf mountain mahogany intercepts raindrops and therefore reduces that impact on the soil surface. Bunchgrasses, especially deep-rooted and surface stones slow run-off and increase infiltration. Tall shrubs accumulate snow in the interspaces.

Compaction layer: is not present.

Functional/structural groups: Tree-like shrubs >>>cool season deep- rooted bunchgrasses>>tall shrubs>perennial forbs >shallow rooted bunchgrasses.

Plant mortality/ decadence: Mortality of curlleaf mountain mahogany is usually the result of insect infestations or fire. Outbreaks of a curlleaf mountain mahogany defoliating moth Stamnodes

animata, occur at infrequent intervals. Two consecutive years of severe defoliation can cause curlleaf mountain mahogany mortality.

Litter cover: ranges from 10-20% but additional data is needed.

Expected annual production: is 1800 pounds per acre (2000kg/ha) in a year with normal precipitation and temperatures.

Invasive and/or noxious species: include shade intolerant species such as cheatgrass, bulbous bluegrass, rush skeletonweed, whitetop, musk and scotch thistle and diffuse and spotted knapweed when the canopy has been altered or removed. In addition, western juniper can invade the site.

Perennial plants: in all functional groups have the potential to reproduce most years.

Function.

This site is suited for livestock grazing in the summer and fall. Livestock use the site for feeding and loafing. Big game use the site in the spring, summer and fall. It is important for both hiding and thermal cover. Birds use the mahogany for nesting. This site is very important as summer habitat for mountain bluebirds. The site has high value for hunting, camping, photography and picnicking. The mountain mahogany provides visual diversity to the landscape.
The understory of this site is easily degraded by livestock and big game due to its attractiveness as shade and cover.

Impacts on the Plant Community.

Fire: Where there is a juniper seed source in the vicinity and in the absence of normal fire frequency, juniper increases to the point of severely reducing nearly all of the understory and overstory species. Juniper has a greater growth rate, its shape is more tapered and it reaches greater heights. Consequently, juniper invading curlleaf mountain mahogany sites eventually over tops them. Because mature curlleaf mountain mahogany is shade intolerant its competitive ability is lost, and it becomes senescent.

Because of its topographic position on the landscape, ridgetops and sideslopes, fires started by lightning strikes are fairly common. Because of the variability of soil depth, from shallow to deep, curlleaf mountain mahogany has a patchy or clumpy appearance on the landscape. For this reason when the site burns, fire moves across the site leaving a mosaic of burned and unburned areas. Fires of this nature rarely involve large acreages due to surrounding rimrocks and other features that limit the spread of fire. The site rarely, if ever burns in its entirety.

On the area that burns, shrubs such as young curlleaf mountain mahogany, mountain big sagebrush and antelope bitterbrush will be killed. Idaho fescue may also suffer mortality. Snowbrush ceanothus may become dominant after fire since it requires heat for seed germination. Recovery after fire is generally rapid due to the proximity of a desirable seed source and favorable moisture regime.

A frequent fire regime, one every 5-10 years, generally does not develop on this site. Soils are too shallow and fuels are not continuous enough for a frequent fire cycle to occur.

Grazing management: Improper grazing management can damage this site moderately. Due to the rough and rocky nature of the site, livestock do not generally prefer to use it. Livestock use the site primarily for loafing and bedding. Forage production is low. When this site is being impacted by improper grazing management, adjacent sites that are more productive and less rocky are usually being much more severely degraded. Season-long grazing and excessive utilization can be

detrimental to this site. This type of management leads to reduced vigor of the bunchgrasses and palatable shrubs. With reduced vigor, recruitment of these species declines. Generally juniper seedlings will replace the desirable grasses and shrubs if improper grazing management continues.

Weather influences: Above normal precipitation in the spring increases forage production slightly. Only in the areas with deeper soils do plants capitalize on extra spring-time moisture. Below normal precipitation in the spring can reduce production and ultimately cause plant mortality if drought continues.

Juniper is very resistant to drought influences. It has a root system that is capable of removing deep moisture in the fractures of the bedrock that is not available to other plants on the site. In addition, juniper is capable of photosynthesizing (growing) anytime the air temperatures are above freezing. It therefore is removing moisture from the soil for 10-11 months of the year. This gives juniper a competitive advantage for moisture over all of the other species on the site.

Insects and disease: Outbreaks can affect health of vegetation, particularly bitterbrush from western tent caterpillars (Malacosoma fragilis). Two consecutive years of defoliation by the tent caterpillar can cause mortality in bitterbrush. Outbreaks of a curlleaf mountain mahogany defoliating moth Stamnodes animata, occur at infrequent intervals. Two consecutive years of severe defoliation can also cause mortality.

Noxious and invasive weeds: Many of these species add to the fine-fuel component and lead to increased fire frequency. Many of the annual and perennial weeds with deep root systems compete with desirable plants for moisture and nutrients. The result is reduced production and change in composition of the understory.

Wildlife: Big game use this site in the spring, summer and fall. Their numbers are seldom high enough to adversely affect the plant community. Herbivory can be detrimental to young curlleaf mountain mahogany and bitterbrush when livestock grazing and browsing by big game occurs at the same time and season. This will occur when both kinds of animal are using the plant in the late summer or fall. The adverse impact is excessive use of the current years' leader growth.

Watershed: Decreased infiltration and increased runoff occur with the invasion of juniper. Juniper invasion can be triggered by lack of fire, improper grazing management and prolonged drought. The increased runoff also causes sheet and rill erosion. The long term effect is a transition to a different state.

Plant Community and Sequence: See the full reference for description of vegetation states, phases, and transition pathways.

Practice limitations:

There are few limitations for vegetation management practices on this site. This site is commonly a loafing area for livestock and they tend to overuse it. Moderate limitations exist for facilitating practices due to shallow, stony soils. Any brush control practices should be carefully evaluated because maintaining curlleaf mountain mahogany on the site has high value to the entire ecosystem.

Historic Climax Plant Community Plant Species Composition

	Symbol	% Comp.	Low Prod.	Hi Prod.
Grasses & Grass-like				
Idaho fescue	FEID	5-15	130	440
Bulbous oniongrass	MEBU	5-10	98	165
Mountain brome	BRCA5	5-10	98	165
Columbia needlegrass	ACNEN2	5-10	98	165
Western needlegrass	ACOC3	5-10	98	165
Slender wheatgrass	ELTR7	1-5	39	66
Prairie junegrass	KOMA	1-5	39	66
Bottlebrush squirreltail	ELEL5	1-5	39	66
Sedge	CAREX	1-5	39	66
Bluebunch wheatgrass	PSSPS	1-5	39	66
Sandberg bluegrass	POSE	1-5	39	66
Nevada bluegrass	POSE	1-3	26	44
Letterman needlegrass	ACLE9	T-3	1	44
Name	Symbol	% Comp.	Low Prod.	Hi Prod.
Forbs				
	BASA3	1-10	72	121
	CRAC2	2-5	46	77
	LUPIN	2-5	46	77
	ASTER	1-3	26	44
	PHLOX	1-3	26	44
	ACMI2	1-3	26	44
	LOMAT	1-3	26	44
	PENST	1-3	26	44
	CASTI2	T-2	1	33
Name	Symbol	% Comp.	Low Prod.	Hi Prod.
Shrubs				
	CELE3	30-40	455	770
	SYOR2	2-10	78	132
	ARTRV	2-5	46	77
	PUTR2	T-5	1	66
	AMELA	T-5	1	66
	PRVI	T-5	1	66
	PREM	T-5	1	66
	CEVE	T-5	1	66

Ground Cover and Structure:

Soil Surface Cover-

Plant Basal Cover: **20-35%**
Microbiotic crusts: no data
Litter: **5-10%**
Surface Fragments: **0-20%**
Bare Ground: 15-30%
Tree Canopy: 10-35%

Ground Cover (Vertical view)-

Plant Canopy Cover
(species or groups): 50-75%

Ecological Site Interpretations:

Wildlife Interpretations:
Mule deer and Rocky Mountain elk use this site for foraging, thermal and hiding cover. Birds use the site for nesting and feeding. This site is very important as summer habitat for mountain bluebirds.

Grazing Interpretations:
This site is suited for summer and fall grazing. Livestock use the site for shade as well as foraging. Estimated initial stocking rate will be determined with the landowner or decision-maker. They will be based on the inventory which includes species, composition, similarity index, production, past use history, season of use and seasonal preference. Calculations used to determine estimated initial stocking rate will be based on forage preference ratings.

Hydrology Functions.
The soils on this site are in hydrologic group C. They have moderately high runoff potential.

Recreational Uses.
This site has high value for hunting, camping, photography and picnicking. The mahogany shrubs provide visual diversity to the landscape.

Wood Products
This site provides a source of fuel wood for camping, picnics and barbecues. The wood is also used to make small specialty products.

Inventory Data References
Information presented here has been derived from NRCS clipping and other inventory data. Also, field knowledge of range-trained personnel was used. Those involved in developing this site description include

Dave Franzen, co-owner, Intermountain Rangeland Consultants, LLC

Jacy Gibbs, co-owner, Intermountain Rangeland Consultants, LLC

Jim Cornwell, State Rangeland Management Specialist, NRCS, Idaho

Type Locality

State:Idaho	**County**:Owyhee	
Township:	**Range**:	**Section**:
5S	3W	SW4, NW4 SEC. 15
5S	3W	SW4, NW4, SEC. 8

Field Offices
Marsing, ID; Twin Falls, ID; Mountain Home, ID; Ontario, OR

USDA NRCS - Ecological Site Description

Site Name: Shallow claypan 12-16" ARAR8/ FEID

Physiographic Features
This site occurs on summits, rolling foothills, side slopes and terraces. Slopes range from 2-30 percent, mostly less than 20 percent. It occurs on all aspects. Elevation ranges from 5000-7000 feet (1500-2050m).

Climatic Features
Average annual precipitation of this site ranges from 12-16 inches (30-40cm). Approximately 40 percent comes during the plant growth period (April- September). Summer rains often occur as high intensity storms of short duration. The average annual air temperature is 42-47 degrees F. Plant growth usually begins in April. Plants are mature by early July, with some fall green-up usually occurring in early September. The average frost-free season is 50-100 days.

Representative Soil Features
The soils on this site are loams, gravelly loams and clay loams. The surface may be stony in some places. There is a claypan, duripan or bedrock at 14-20 inches which restricts water and root penetration.

Plant Communities

Ecological Dynamics of the Site:
The dominant visual aspect of this site is low sagebrush, Idaho fescue and bluebunch wheatgrass. Composition by weight is approximately 40-60 percent grasses, 15-25 percent forbs and 25-35 percent shrubs.

In the last few thousand years, this site has evolved in an arid climate characterized by warm, dry summers and cold, wet winters. Herbivory has historically occurred on the site at low levels of utilization. Herbivores include pronghorn antelope, mule deer, sage grouse, lagomorphs and small rodents. Fire has historically occurred on this site every 80-100 years.

The Historic Climax Plant Community (HCPC) is dominated by low sagebrush, Idaho fescue and bluebunch wheatgrass. Subdominant species include Sandberg bluegrass, bottlebrush squirreltail, Nevada bluegrass, thickspike wheatgrass, Thurber needlegrass, arrowleaf balsamroot, Hooker balsamroot and longleaf phlox.

Total annual production is 650 pounds per acre (728 Kg/ha) in a normal year. Production in a favorable year is 950 pounds per acre (1064 Kg/ha). Production in an unfavorable year is 350 pounds per acre (392 Kg/ha). Structurally, cool season deep-rooted bunchgrasses are very dominant, followed by medium height shrubs with perennial forbs and shallow rooted bunchgrasses being sub-dominant.

Rangeland Health Indicators of the HCPC.

Rills: can occur on this site. If rills are present they are likely to occur on slopes greater than 10 percent and immediately following a wildfire or high intensity storm. Rills are most likely to occur on soils with silt loam or clay loam surface texture.

Water flow patterns: can occur on this site. They are not extensive except on slopes greater than 15 percent. When they do occur they are short and disrupted by cool season grasses, shrubs and surface stones.

Pedestals: are common on the site especially where flow patterns are present and the surface soils have a high clay content.

Bare ground: ranges from 40-50 percent but additional data is needed.

Number of gullies and erosion associated with gullies: None

Wind scour: blowouts and depositional areas are usually not present in the HCPC.

Litter movement. Fine litter in the interspaces may move up to 3 feet following a significant run-off event. Coarse litter generally does not move.

Soil surface stability: values should range from 3 to 5 but needs to be tested.

Soil surface structure and SOM content: The A or A1 horizon is typically _____ inches thick. Structure ranges from _____ to _____. Soil organic matte (SOM) needs to be determined.

Effect of plant community on infiltration: Bunchgrasses, especially deep rooted, slow runoff and increase infiltration. Medium height shrubs accumulate some snow in the interspaces.

Compaction layer: is not present. Do not mistake an increase in clay for a compaction layer. The site can develop a compaction layer due to the clay in the subsoil due to severe livestock use when the soils are wet.

Functional/ structural groups: Cool season deep-rooted perennial bunchgrasses>> medium shrubs>perennial forbs>shallow rooted bunchgrasses.

Plant mortality/ decadence: Very little mortality or decadence is expected on this site. Mortality of shallow rooted grasses may occur due to extended periods of drought.

Litter cover: Additional data is needed but is expected to be low and at a shallow depth.

Expected annual production: is 650 pounds per acre (728 Kg/ha) in a year with normal precipitation and temperatures. Perennial grasses produce 40-60 percent of the total production, forbs 15-25 percent and shrubs 25-35 percent.

Invasive or noxious species: include cheatgrass, medusahead, Vulpia species, bulbous bluegrass, annual mustards**,** and rush skeletonweed.

Perennial plants: in all functional groups have the potential to reproduce in most years.

Function.

This site is suited for grazing by livestock in spring, early summer, and fall. It also provides habitat for mule deer, pronghorn antelope, small game, sage grouse, small birds and rodents. The site provides colorful spring and early summer blooming forbs for photography and nature study. This site can be degraded easily by improper grazing management since slopes are moderate which allows easy access. Inherent low production on the site makes it susceptible to accelerated degradation.

Infiltration and production can be maintained with a mixed stand of deep-rooted bunchgrasses and shrubs. Runoff potential is high.

Impacts on the Plant Community.

Fire: This site historically had a very low fire frequency, approximately every 80-100 years. Most of the shrubs evolved in the absence of fire, therefore they can be severely damaged or killed when burned. Juniper can increase on the site if a seed source is in the proximity. Grasses and forbs decrease as shrubs increase. With the continued absence of fire, juniper can displace most of the shrubs and other understory species. See “Influence of juniper invasion” below.
Fine-leaved grasses such as Nevada bluegrass, Idaho fescue and Thurber needlegrass in the community can be lost or vigor significantly reduced with fire. Rabbitbrush species can increase with fire. Cheatgrass and medusahead can be a troublesome invader on this site after fire, preventing perennial grass and shrub re-establishment and increasing the fire frequency. Sandberg bluegrass is usually maintained in the community.

Grazing: Season-long grazing can be detrimental to this site. Excessive utilization is also detrimental. This type of management leads to reduced vigor of bluebunch wheatgrass and other deep- rooted perennial bunchgrasses. With reduced vigor, recruitment of these species declines. As these species decline, the plant community becomes susceptible to an increase in low sagebrush and invasive weeds. Continued improper grazing management influences fire frequency with an increase in cheatgrass and medusahead wildrye.

Weather: Above normal precipitation in March, April and May can dramatically increase total annual production. These weather patterns can also increase viable seed production of desirable species to provide for recruitment. Extended periods of drought significantly impact this site due to the low water holding capacity and shallow soil. Extended drought reduces vigor of the perennial grasses and shrubs. Extreme drought may cause plant mortality.

Insects and disease: Outbreaks can affect health of the vegetation. Outbreaks of Mormon crickets and grasshoppers can occur. Their long-term impact is usually minor since defoliation usually occurs once in a season. An outbreak of a particular insect is usually influenced by weather but no specific data is available for this site.

Noxious and invasive weeds: Annual and perennial weeds compete with desirable plants for moisture and nutrients. The result is reduced production and change in composition of the understory. Cheatgrass and medusahead can be a very invasive weed on this site, especially after fire. Once they become established the fire frequency increases. As a result, the shrub component can be lost.

Wildlife: Relatively low numbers of wildlife use this site and impact it little. Pronghorn antelope is the dominant large herbivore using the site. They use the site yearlong but prefer it in the spring, fall and early winter. Sage grouse use the site for strutting grounds. Sage grouse may use the site during the winter. Winter and spring use by mule deer occasionally occurs.

Watershed: Decreased infiltration and increased runoff on slopes greater than 10 percent occur when low sagebrush is removed with frequent fires, particularly following the fire event. The increased runoff also increases sheet and rill erosion. The long-term effect is a transition to a different state. When hydrologic condition of the vegetative cover is good, natural erosion hazard is slight.

Western juniper invasion: In plant communities that are invaded by juniper, the species has a competitive advantage for the following reasons:
Juniper is very drought tolerant.

It has the ability to extract soil moisture from a wide range of soil depths.
Juniper has high evapo-transpiration rates.
The species intercepts rain and snow before it reaches the soil surface.
It has the ability to grow as long as there is soil moisture and the temperature is above freezing.
Juniper has a relatively rapid growth rate and is long-lived. It can readily over-top shade intolerant species which leads to mortality.
Nutrient cycling is reduced.
As the canopy closes, juniper gains control of energy capture.

As juniper extracts water, other plants are unable to acquire sufficient water and nutrients to sustain growth and reproduction, thus reducing cover and biomass in the interspaces. After the canopy closes, there is sufficient soil moisture available for shallow-rooted, shade tolerant species to persist directly under the tree.

The following hydrological impacts occur on sites invaded by juniper:
Infiltration in the interspaces is reduced.
Run-off increases resulting in increased sheet and rill erosion with elevated sediment loads.
Soil temperatures increase in the interspaces which results in accelerated drying of the soil surface.
Increased bare ground in the interspaces.
Soil moisture storage is reduced.

As bare ground and interconnectiveness of bare ground increases, flow rates are accelerated (reduction of flow sinuosity) and run-off out of the area increases. Degradation of these systems can result in the formation of a feedback cycle in which greater juniper cover and density results in greater plant and soil disturbance between the canopies.

In summary, a closed juniper community takes control of the following ecological processes: hydrology, energy capture and nutrient cycling. The changes are primarily driven by the hydrological processes. The development of a closed juniper canopy always results in a transition across the threshold to a different state. Generally, when juniper canopy cover nears 20%, the plant community is approaching the threshold.

Plant Community and Sequence: See the full reference for description of vegetation states, phases, and transition pathways.

Practice Limitations.

Due to the shallow soils and low available water capacity of the soils, severe limitations exist for range seeding and brush control on this site. Low potential production and value to wildlife must be considered if planning brush management.

Historic Climax Plant Community Plant Species Composition:

Group	Common Name	Symbol	% Comp.	Low Prod.	Hi Prod.
1	Grasses & Grass-like				
		PSSPS	20-30	88	238
		FEID	20-30	88	238
	SANDBERG BLUEGRASS	POSE	2-5	12	33
		ELEL5	1-3	7	19
	NEVADA BLUEGRASS	POSE	2-5	12	33
		ELMA7	1-3	7	19
		ACTH7	1-3	7	19
		CAREX	T-1	1	10
		LECI4	0-2	0	10

Group	Common Name/ Group Name	Symbol	% Comp.	Low Prod.	Hi Prod.
2	Forbs				
		BASA3	1-3	7	19
		BAHO	1-3	7	19
		PHHO	T-2	1	14
		PHLO2	1-3	7	19
		ASTER	T-2	1	14
		LUPIN	T-2	1	14
		ERIOG	T-2	1	14
		HAPLO11	T-2	1	14
		ASTRA	T-2	1	14
		ANTEN	T-2	1	14
		CRAC2	1-3	7	19
		ERIGE2	T-2	1	14
		MERTE	T-2	1	14
		ANEMO	T-2	1	14
		LIRU4	T-1	1	10
		CALCO	T-1	1	10

Group	Common Name/ Group Name	Symbol	% Comp.	Low Prod.	Hi Prod.
3	Shrub/Vine				
		ARAR8	15-30	79	214
		ARARL	0-5	0	24
		PUTR2	T-1	1	10
		CHVIP2	1-3	7	19
		ERMI4	T-2	1	14
		CHVIP	0-1	0	5
		ERNA10	0-2	0	10
		CHVI8	0-1	0	5

Ground Cover and Structure:
Ground cover by litter, rock and vegetation is 30-60 percent.

Ecological Site Interpretations:

Wildlife Interpretations:
This site provides habitat for mule deer, pronghorn antelope, small game, sage grouse, small birds and rodents.

Grazing Interpretations:
This site is suited for grazing by livestock in spring, early summer, and fall. Estimated initial stocking rate will be determined with the landowner or decision-maker. They will be based on the inventory which includes species, composition, similarity index, production, past use history, season of use and seasonal preference. Calculations used to determine estimated initial stocking rate will be based on forage preference ratings.

Hydrology Functions.

Soils on this site are in hydrologic group D. Runoff potential is high.

Recreational Uses.

The site provides colorful spring and early summer blooming forbs for photography and nature study.

Wood Products

None

Inventory Data References

Information presented here has been derived from NRCS clipping and other inventory data. Also, field knowledge of range-trained personnel was used. Those involved in developing this site description include

Dave Franzen, co-owner, Intermountain Rangeland Consultants, LLC

Jacy Gibbs, co-owner, Intermountain Rangeland Consultants, LLC

Jim Cornwell, State Rangeland Management Specialist, NRCS, Idaho

Type Locality

State:Idaho	**County**:Twin Falls	
Township:15S	**Range**:16E	**Section**: NENW, SEC. 20
State:Idaho	**County**:Owyhee	
Township:10S	**Range**:2W	**Section**: NENE, SEC. 5
State:Idaho	**County**:Owyhee	
Township:6S	**Range**:5W	**Section**: SESE, SEC. 23
State:Nevada	**County**:Elko	
Township:39N	**Range**:53E	Taylor Canyon area

Field Offices

Marsing, ID
Twin Falls, ID
Mountain Home, ID
Ontario, OR

USDA NRCS - Ecological Site Description

Site Name: Very Shallow Stony Loam 10-14" ARAR8/POA-PSSPS

Physiographic Features

This site occurs on undulating to hilly slopes that range from 3 to 25 percent. Aspect is variable. The elevation ranges from 4500-6000 feet (1372-1829 meters). These sites are associated with basalt and rhyolite tablelands and benches.

Landform: Mountain slopes, plateaus, benches

Runoff Class: Low to Very High
Aspect: No influence to this site.

Climatic Features

Annual precipitation averages about 10-14" (25-35 cm). Most of the effective precipitation is in the form of rain during the growing season. Summer rainfall usually comes as high intensity thunderstorms, but has little effect on annual production of forage. Plant growth usually begins as soon as snow pack melts (about April 15 to May 15) with grasses and forbs maturing by mid-July. The average frost-free period is 60-115 days.

Representative Soil Features

The soils supporting this site are very shallow to shallow, well or somewhat excessively drained, with moderate to slow permeability above bedrock. Runoff is low to very high. The erosion hazard is slight to moderate by water, and slight to by wind. The available water capacity is very low. These soils are usually less than 20 inches deep to bedrock. The surface texture is generally loam or coarse sandy loam with significant surface stones. The subsoil is usually moderately well developed (Nipintuck has no subsoil) with clay ranging from approximately 15 to 48 percent. These soils are characterized by limited AWC, aridic bordering on xeric soil moisture regime, and shallow restrictive layers. Soil temperature regime is either mesic or frigid.

Parent Material Kind: Residuum
Parent Material Origin: Basalt, rhyolitic tuff
Surface Texture: Loam, coarse sandy loam
Surface Texture Modifier: Stony, very stony

Plant Communities

Ecological Dynamics of the Site:
The dominant visual aspect of this site is mixed grass and low sagebrush. Composition by weight is approximately 65-75% grasses, 10-15% forbs and 15-20% shrubs. In the last few thousand years, this site has evolved in an arid climate characterized by warm, dry summers and cold, wet winters. Herbivory has historically occurred on the site at low levels of utilization. Herbivores include pronghorn antelope, mule deer, sage grouse, lagomorphs and small rodents. Fire has historically occurred on this site every 100-125 years. Fire occurs only in years with above normal precipitation.

The Historic Climax Plant Community (HCPC) of this site is dominated by Sandberg bluegrass and low sagebrush. Subdominant species include bluebunch wheatgrass, Nevada bluegrass, bottlebrush squirreltail and Hooker balsamroot. Total annual production is 200 pounds per acre (224 Kg/ha) in a

normal year. Production in a favorable year is 300 pounds per acre (336 Kg/ha). Production in an unfavorable year is 125 pounds per acre (140 Kg/ha). Structurally, cool season shallow rooted bunchgrasses are very dominant, followed by medium height shrubs and perennial forbs and deep rooted bunchgrasses are co-dominant. Where bluebunch wheatgrass and Idaho fescue occur on this site, they are typically growing in an area with slightly deeper soils or in areas of more favorable moisture conditions.

Rangeland Health Indicators.

Rills: rarely occur on this site due to the gravelly and stony surface. If they do occur it will normally be on slopes greater than 10%.

Water flow patterns: are normally not present on this site. When they do occur they are short and disrupted by cool season grasses, shrubs and surface stones. They are not extensive.

Pedestals: can occur on the site. They are most likely to occur where water flow patterns are present and surface stones are absent.

Bare ground: ranges from 20-30 percent but more data is needed.

Wind scour: does not occur.

Litter movement: Fine litter moves by wind or water. Fine litter can move up to 2 feet after a strong summertime convection storm. Due to the flat slopes, large litter does not move.

Soil surface stability: Values should range from 4-6 but needs to be tested. The surface horizon is typically 2 to 4 inches thick. Structure typically includes moderate medium and thick platy, weak fine granular, and weak fine and medium subangular blocky. Soil organic matter (SOM) ranges from 1 to 2 percent.

Effect of plant community on infiltration: Bunchgrasses, especially deep rooted, slow runoff and increase infiltration. Shrubs accumulate some snow in the interspaces.

Compaction layer: is not present except under roads, livestock and ATV trails.

Functional/structural groups: Cool season shallow-rooted perennial bunchgrasses>> medium shrubs>perennial forbs=deep-rooted bunchgrasses.

Plant mortality/ decadence: Very little mortality or decadence is expected on this site. Mortality of shallow rooted grasses may occur due to extended periods of drought.

Litter cover: Additional data is needed but is expected to be low and at a shallow depth.

Expected annual production: is 200 pounds per acre (336 Kg/ha) in a year with normal precipitation and temperatures. Perennial grasses produce 65-75 percent of the total production, forbs 10-15 percent and shrubs 15-20 percent.

Invasive and/or noxious species: include cheatgrass, medusahead, Vulpia species, bulbous bluegrass and annual mustards**.**

Perennial plants: in all functional groups have the potential to reproduce in favorable years.

Function.

This site is best suited for livestock grazing in late spring and early fall. Natural water supplies are limited. This site provides fair to good habitat for various upland wildlife species. Mule deer, pronghorn, feral horses and sage grouse make use of the site throughout the year. This site can be degraded easily by improper grazing management since slopes are moderate, allowing easy access. Inherent low production on the site makes it susceptible to accelerated degradation. Early spring grazing by uncontrolled feral horses or cattle can cause severe damage to the understory if these animals are present when the soils are wet and trampling damage occurs. Infiltration and production can be maintained with a mixed stand of , bunchgrasses and shrubs. Runoff potential is rapid to very rapid and the erosion hazard is moderate to high.

Impacts on the Plant Community.

Fire: This site historically had a very low fire frequency, approximately every 100-125 years. Most of the shrubs evolved in the absence of fire, therefore they can be severely damaged when burned. The small amount of Idaho fescue in the community can be lost with a fire. Rabbitbrush species can increase with fire. Cheatgrass and medusahead can be a troublesome invader on this site after fire, preventing perennial grass and shrub re-establishment and increasing the fire frequency. Sandberg bluegrass is usually maintained in the community.

Grazing: Season-long grazing can be detrimental to this site. Excessive utilization is also detrimental. This type of management leads to reduced vigor of bluebunch wheatgrass and other deep- rooted perennial bunchgrasses. With reduced vigor, recruitment of these species declines. As these species decline, the plant community becomes susceptible to an increase in low sagebrush, Sandberg bluegrass and invasive weeds. Once Sandberg bluegrass becomes strongly dominant, reestablishment of more productive grasses such as bluebunch wheatgrass may take a long period of time and may even require thinning of low sagebrush. Continued improper grazing management influences fire frequency with an increase in cheatgrass and medusahead. Early spring grazing by uncontrolled feral horses or cattle can cause severe damage to the understory if these animals are present when the soils are wet and trampling damage occurs.

Weather: Above normal precipitation in March, April and May can dramatically increase total annual production. These weather patterns can also increase viable seed production of desirable species to provide for recruitment. Extended periods of drought significantly impact this site due to the low water holding capacity and shallow soil. Extended drought reduces vigor of the perennial grasses and shrubs. Extreme drought may cause plant mortality.

Insects and disease:Outbreaks can affect health of the vegetation. An outbreak of a particular insect is usually influenced by weather but no specific data is available for this site.

Noxious and invasive weeds: Annual and perennial weeds compete with desirable plants for moisture and nutrients. The result is reduced production and change in composition of the understory. Cheatgrass and medusahead can be a very invasive weed on this site, especially after fire. Once they become established the fire frequency increases. As a result, the shrub component can be lost.

Wildlife: Relatively low numbers of wildlife use this site and impact it little. Pronghorn antelope is the dominant large herbivore using the site. They use the site yearlong but prefer it in the spring, fall and early winter. Sage grouse use the site for strutting grounds. Sage grouse may also use the site during the winter. Winter and spring use by mule deer occasionally occurs.

Watershed: Decreased infiltration and increased runoff on slopes greater than 10 percent occur when low sagebrush is removed with frequent fires, particularly following the fire event. The increased runoff also increases sheet and rill erosion. The long-term effect is a transition to a different state.

Plant Community and Sequence: See the full reference for description of vegetation states, phases, and transition pathways.

Practice Limitations.

Moderate limitations exist for implementing vegetation management practices. Early spring grazing should be avoided due to prolonged wetness in the soil. The stones on the surface and any associated outcrops inhibit animal movement. Moderate to severe limitations exist for implementing facilitating practices on this site. Shallow and stony soils and slopes greater than 20% present severe limitations for range seeding by ground moving equipment and is not generally economically feasible due to low production potential.

HCPC Plant Species Composition:

Group	Common Name/ Group Name	Symbol	% Comp.	Low Prod.	Hi Prod.
1	Grasses & Grass-like				
		FEID	0-2	0	3
		PSSPS	5-8	8	20
	SANDBERG BLUEGRASS	POSE	30-40	44	105
		ELEL5	T-2	1	5
	NEVADA BLUEGRASS	POSE	5-10	9	23

Group	Common Name/ Group Name	Symbol	% Comp.	Low Prod.	Hi Prod.
2	Forbs				
		PHCH	T-1	1	3
		BAHO	3-5	5	12
		POLYG	1-3	3	6
		CASTI2	T-1	1	3
		PHLOX	1-3	3	6
	STEMLESS GOLDENWEED	STAC	1-5	4	9
		ASTRA	T-1	1	3
		ANTEN	1-3	3	6
		ERCA2	T-2	1	5
		AGOSE	T-2	1	5
		LOMAT2	1-3	3	6

Group	Common Name	Symbol	% Comp.	Low Prod.	Hi Prod.
3	Shrub/Vine				
		ARAR8	5-10	9	23
		CHVIV4	T-1	1	3
	OWYHEE SAGEBRUSH	ARPA16	2-7	6	14
		PUTR2	T-1	1	3

Ground Cover and Structure:
Ground cover by litter and vegetation is 20-35%.

Soil Surface Cover-
Surface Fragments: 30-50%

Ecological Site Interpretations:

Wildlife Interpretations:
This site provides fair to good habitat for various upland wildlife species. Mule deer, pronghorn, feral horses and sage grouse make use of the site yearlong. Pronghorn antelope is the dominant large herbivore that use the site. They use the site yearlong but prefer it in the spring, fall and early winter. Sage grouse use the site for strutting grounds. Winter and spring use by mule deer occasionally occurs.

Grazing Interpretations:
This site is most suitable for livestock grazing in late spring and early fall. Natural water supplies are limited. Estimated initial stocking rate will be determined with the landowner or decision-maker. They will be based on the inventory which includes species, composition, similarity index, production, past use history, season of use and seasonal preference. Calculations used to determine estimated initial stocking rate will be based on forage preference ratings.

Hydrology Functions.
The soils on this site are in hydrologic group D. They have high run-off potential.

Recreational Uses.
This site is used for hunting, horseback riding, and hiking. The site provides some diversity to the landscape. Colorful flowers blooming in the late spring and early summer provide excellent opportunities for photography and nature study.

Wood Products: None

Inventory Data References
Dave Franzen, Jacy Gibbs, Jim Cornwell

Type Locality

State:Idaho	**County**:Owyhee	
Township:	**Range**:	**Section**:
10S.	5W.	SE4, SEC. 6
10S.	6W.	NW4, SEC 24

Field Offices
Marsing, ID
Twin Falls, ID
Mountain Home, ID
Ontario, OR

Appendix J. Photo documentation of juniper expansion in the Juniper Mountain Area from 1963 to present. From: Furniss (1985).

Photo sequences are from three different locations.

Sequence 1 – Facing East along Bedstead Ridge Rd.

1981 (Furniss, M.)

2009 (BLM)

Sequence 2 – Facing Northeast along Bedstead Ridge Rd.

1981 (Furniss, M.)

2009 (BLM)

Sequence 3 – Facing East along Bedstead Ridge Rd.

1981 (Furniss, M.)

2009 (BLM)

Appendix K. Special Status Animal Species that occur or may occur in the Trout Springs Allotment and Hanley FFR.

Species	Status[1]/ Type[2]	Key Habitat Associations
Greater Sage-grouse *Centrocercus urophasianus*	ESA-C	Sagebrush steppe
Yellow-billed Cuckoo *Coccyzus americanus*	ESA-C	Riparian
Columbia Spotted Frog *Rana luteiventris*	ESA-C	Wetlands, rivers and streams
Bald Eagle *Haliaeetus leucocephalus*	BGEA	Riparian, wetlands
Golden Eagle *Aquila chrysaetos*	BGEA	Cliffs and canyon, shrubsteppe, grasslands
Pygmy Rabbit *Brachylagus idahoensis*	BLM/2	Sagebrush steppe
Redband Trout *Oncorhynchus mykiss gibbsi*	BLM/2	Rivers and streams
Brewer's Sparrow *Spizella breweri*	BLM/3	Sagebrush steppe
Calliope Hummingbird *Stellula calliope*	BLM/3	Riparian, mountain shrub
Lewis' Woodpecker *Melanerpes lewis*	BLM/3	Juniper woodland, forests, riparian
Loggerhead Shrike *Lanius ludovicianus*	BLM/3	Shrubsteppe, mountain shrub, juniper woodlands
Sage Sparrow *Amphispiza belli*	BLM/3	Sagebrush steppe
Willow Flycatcher *Empidonax trailii*	BLM/3	Riparian, mountain shrub, juniper woodland
Ferruginous Hawk *Buteo regalis*	BLM/3	Shrubsteppe, juniper woodlands
Northern Goshawk *Accipiter gentilis*	BLM/3	Forests, juniper woodlands
Prairie Falcon *Falco mexicanus*	BLM/3	Cliffs and canyon, shrubsteppe, grasslands
Flammulated Owl *Otus flammeolus*	BLM/3	Forests, juniper woodlands
California Bighorn Sheep *Ovis canadensis californiana*	BLM/3	Canyons, sagebrush steppe, grasslands
Fringed Myotis *Myotis thysanodes*	BLM/3	Roosting/hibernation: Cliffs, rock outcrops Foraging: Sagebrush, juniper, canyon
Spotted Bat *Euderma maculatum*	BLM/3	Roosting/hibernation: Cliffs, rock outcrops Foraging: Juniper, sagebrush
Townsend's Big-eared Bat *Corynorhinus townsendii*	BLM/3	Roosting/hibernation: Caves, trees Foraging: Juniper, sagebrush, canyon
Black Throated Sparrow *Amphispiza bilineata*	BLM/4	Shrubsteppe, canyons
White-faced Ibis *Plegadis chihi*	BLM/4	Wetlands
California Myotis *Myotis caligornicus*	BLM/4	Roosting/hibernation: Caves, buildings, bark Foraging: Sagebrush, riparian, juniper

Species	Status[1]/ Type[2]	Key Habitat Associations
Brewer's Blackbird *Euphagus cyanocephalus*	BLM/5	Sagebrush steppe, wetlands, riparian, grasslands
Cassin's Finch *Carpodacus cassinii*	BLM/5	Forests, juniper woodlands
Grasshopper Sparrow *Ammodramus savannarum*	BLM/5	Grasslands
Green-tailed Towhee *Pipilo chlorurus*	BLM/5	Mountain shrub
Long-billed Curlew *Numenius americanus*	BLM/5	Grasslands, shrubsteppe
Red-naped Sapsucker *Sphyrapicus nuchalis*	BLM/5	Aspen, riparian
Sage Thrasher *Oreoscoptes montanus*	BLM/5	Shrubsteppe
Wilson's Phalarope *Phalaropus tricolor*	BLM/5	Ponds, wetlands
Swainson's Hawk *Buteo swainsoni*	BLM/5	Grasslands, shrubsteppe, agriculture
Short-eared Owl *Asio flammeus*	BLM/5	Grassland, shrubsteppe, wetlands
Western Burrowing Owl *Athene cunicularia*	BLM/5	Grasslands, shrubsteppe
Long-eared Myotis *Myotis evotis*	BLM/5	Roosting/hibernation: Trees, caves Foraging: Wetland/riparian, juniper, sagebrush
Long-legged Myotis *Myotis volans*	BLM/5	Roosting/hibernation: Rock outcrops, trees Foraging: Juniper, wetland/ riparian
Western Pipistrelle *Pipistrellus Hesperus*	BLM/5	Roosting/hibernation: Caves, rock outcrops Foraging: Juniper, sagebrush, canyon
Western Small-footed Myotis *Myotis ciliolabrum*	BLM/5	Roosting/hibernation: Caves, rock crevices, trees Foraging: Cliffs, rocky slopes
Yuma Myotis *Myotis yumanensis*	BLM/5	Roosting/hibernation: Caves, rock outcrops Foraging: Wetland, riparian, sagebrush, juniper

[1]Special status categories include Endangered Species Act Candidate (ESA-C), Bald and Golden Eagle Protection Act species (BGEA), and BLM Sensitive Species (BLM).
[2]Status Type includes Rangewide/Globally Imperiled Species (2), Regional/State Imperiled Species (3), Peripheral Species (4), and Watch Species not currently considered sensitive but may warrant status change in future (5).

Appendix L. Migratory bird species identified by the USFWS as birds of conservation concern (BCC) and the Idaho Bird Conservation Plan as high priority breeding bird species (HPBBS) that have been documented or likely occur in the Trout Springs Allotment.

Species	USFWS BCC[1]	IPIF HPBBS[2]	Nest Habitat - Habitat Association – Season of Use - Number of Broods
Bald Eagle *Haliaeetus leucocephalus*	×		NA – various throughout Owyhee Uplands – winter and migratory – NA
Black-billed Magpie *Pica hudsonia*		×	Shrub – open country, savanna, brushy habitat, riparian, open woodland – yearlong – 1
Black-chinned Hummingbird *Archilochus alexandri*		×	Tree – open and riparian woodland, arid scrub – spring-summer – 2-3
Black Rosy-Finch *Leucosticte atrata*	×	×	NA – various throughout Owyhee Uplands – winter – NA
Black-throated Gray Warbler *Dendroica nigrescens*		×	Tree – open, dry coniferous forests, mtn. shrub – spring-summer – 1
Brewer's Sparrow *Spizella breweri*	×	×	Ground/shrub – sagebrush, shrubsteppe – spring-summer – 1-?
Calliope Hummingbird *Stellula calliope*	×	×	Tree/shrub – mountain meadow, willow alder thickets – spring-summer – 1
Ferruginous Hawk *Buteo regalis*	×	×	Ground/rock/tree – shrubsteppe, grasslands – spring-summer – 1
Flammulated Owl *Otus flammeolus*	×	×	Snag-cavity – forest, ponderosa pine – spring-summer – 1
Golden Eagle *Aquila chrysaetos*	×	×	Cliff – open habitats, especially in mountains and hills – yearlong and migratory – 1
Grasshopper Sparrow *Ammodramus savannarum*		×	Ground – grassland, prairie, open savanna – spring-summer – 2-3
Gray Flycatcher *Empidonax wrightii*		×	Tree – sagebrush, open woodland – spring-fall – 1-?
Greater Sage-grouse *Centrocercus urophasianus*	×	×	Ground – sagebrush, wet meadows – yearlong – 1
Green-tailed Towhee *Pipilo chlorurus*	×		Ground/shrub – thickets, riparian shrub, shrubsteppe – spring-summer – 2
Killdeer *Charadrius vociferus*		×	Ground nest – fields, meadows, pastures, fresh water margins – spring-fall – 1-2
Lark Sparrow *Chondestes grammacus*		×	Shrub/ground – grassland, savanna – spring-summer – 1
Lewis' Woodpecker *Melanerpes lewis*	×	×	Snag /cavity – riparian woodland, juniper – spring-summer – 1
Loggerhead Shrike *Lanius ludovicianus*	×	×	Shrub – fields, savanna, shrubsteppe – spring-summer – 2
Long-billed Curlew *Numenius americanus*	×	×	Ground – prairie, meadows, fresh water margins – spring-summer – 1
Northern Goshawk *Accipiter gentilis*		×	Tree – mixed, often coniferous forest, open woodland – spring-summer – 1
Plumbeus Vireo *Vireo plumbeus*		×	Tree/shrub – coniferous forest, juniper – spring-summer – 1
Prairie Falcon *Falco mexicanus*		×	Cliff – open habitat in mountainous region – yearlong and migratory – 1
Rock Wren *Salpinctes obsoletus*		×	Ground/crevice – semiarid canyons, valleys w/rock outcrops, cliffs – yearlong – 2

Species	USFWS BCC[1]	IPIF HPBBS[2]	Nest Habitat - Habitat Association – Season of Use - Number of Broods
Sage Sparrow *Amphispiza belli*	×	×	Ground/shrub – sagebrush, shrubsteppe – spring-summer – 2
Sage Thrasher *Oreoscoptes montanus*	×	×	Ground/shrub – sagebrush, shrubsteppe – spring-summer – 2
Sandhill Crane *Grus canadensis*		×	Ground – meadows, wetlands – spring-summer – 1?
Sharp-shinned Hawk *Accipiter striatus*		×	Tree – forest, juniper, aspen – spring-summer - 1
Short-eared Owl *Asio flammeus*		×	Ground – prairie, marsh, savanna – spring-summer – 1
Swainson's Hawk *Buteo swainsoni*		×	Deciduous tree/cliff – savanna, prairie, desert, agriculture – spring-summer – 1
Virginia's Warbler *Vermivora virginiae*	×	×	Tree/shrub – juniper, mtn. shrub – spring-summer – 1-?
White-faced Ibis *Plegadis chihi*		×	Tree/shrub/ground – marshes, shrubsteppe – spring-summer – 1-?
Willow Flycatcher *Empidonax trailii*	×	×	Tree – willow thickets – spring-fall - 1
Yellow-billed Cuckoo *Coccyzus americanus*	×		Shrub – riparian woodland and thickets, open woodland with dense thickets – Spring-summer – 1
Yellow Warbler *Dendroica petechia*		×	Tree – riparian thickets – spring-summer – 1-?

[1]U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern (BCC; DOI-USFWS 2008).
[2]Idaho Partners in Flight (IPIF) Idaho Bird Conservation Plan v. 1.0 High Priority Breeding Bird Species (HPBBS; IPIF 2000).

MINIMUM REQUIREMENTS DECISION GUIDE
WORKSHEETS

". . . except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act..."

– the Wilderness Act, 1964

Project Title: **100ft Gap Fence - North Fork Owyhee Wilderness**

Step 1: Determine if any administrative action is <u>necessary</u>.

Description: Briefly describe the situation that may prompt action.

A range improvement project has been identified in the Trout Springs Allotment grazing permit renewal Environmental Assessment (EA). The range improvement would occur within the North Fork Owyhee River Wilderness and would be critical in protecting Outstandingly Remarkable Values (ORVs) within the wild river corridor. The improvement would consist of approximately 100ft of new construction of gap fence that would be installed along the top of the southern rim of the North Fork Owyhee River, which is a designated Wild River. The fence would restrict domestic livestock access into the river corridor and prevent any degradation of resources associated with livestock use, which is a historic use within the wilderness area, thus improving naturalness and scenic quality throughout the area. The fence would be constructed using native materials (ie. buck and pole and/or rock wall) under the minimum tool policy.

A. Describe Options Outside of Wilderness

Can the proposed action be accommodated or resolved by authorizing the activity outside of wilderness?

Yes: ☐ **No:** ☒

Explain:
The proposed action is not an activity that could occur outside of the wilderness area. The proposed action is an existing access point to the wild river corridor along the canyon rim of the

North Fork Owyhee River that is located within the Trout Springs Allotment. The construction of the gap fencing would eliminate livestock access to the river corridor and thus would protect the overall wilderness character and the ORVs of the "wild" river corridor. Grazing within the Trout Spring Allotment is a permitted use that is allowed within the wilderness area. Grazing within the wilderness area predates the actual designation of the North Fork Owyhee River Wilderness, thus making it an allowable grandfathered use.

B1. Describe Valid Existing Rights

Does the proposed action constitute or involve a valid existing right that BLM must recognize or for which BLM must take necessary action? Cite law and section.

Yes: ☐ **No:** ☒ **Not Applicable:** ☐

Explain:

B2. Describe Special Provisions of Wilderness Legislation

Is there a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that allows consideration of actions involving prohibited uses, such as those described in Section 4(c) of the Wilderness Act? Cite law and section.

Yes: ☒ **No:** ☐ **Not Applicable:** ☐

Explain:
Uses that would otherwise be prohibited in wilderness may be allowed in certain circumstances if they meet specific requirements.

Section 4 (c) of the Wilderness Act states that: "…there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area."

Section 4 (d)(4) of the Wilderness Act states that: "…the grazing of livestock, where established prior to September 3, 1964, shall be permitted to continue subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture [read *Interior*]."

Section 1503(2)(b)(3)(A) of the Omnibus Public Land Management Act of 2009 states that: "…the grazing of livestock in areas in which grazing is established as of the date of enactment of this Act shall be allowed to continue, subject to such 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."

Paragraph 5 of House Report No. 101-405: "…wilderness designation should not prevent the maintenance of existing fences or other livestock management improvements, nor the construction and maintenance of new fences or improvements"

Sec. 4 of House Report No. 101-405 states that: "…The construction of 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."

C. Describe Requirements of Other Legislation

Do other laws exist that may affect the proposed action or require BLM to take some administrative action?

Yes: ☐ **No:** ☒ **Not Applicable:** ☐

Explain:

D. Describe Other Guidance

Would BLM's authorization of the proposed action conform to and implement BLM and DOI policy and direction, as well as unit and wilderness management plans, species recovery plans, tribal government agreements, state and local government and interagency agreements?

Yes: ☒ **No:** ☐ **Not Applicable:** ☐

Explain:
Under Objective WNES 2, the 1999 Owyhee Resource Management Plan contains the following Management Action related to wilderness management:

> "Manage designated wilderness in accordance with enabling legislation and other applicable federal legislation and policies."

A Wilderness Management Plan has not as yet been completed for the affected area; therefore, we must rely on BLM's existing wilderness management policies and guidelines.

RECT 7 of the 1999 Owyhee RMP 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."

Sec. .11of BLM Manual 8560 – Management of Designated Wilderness areas states that: "…BLM wilderness areas must be managed so as to be affected primarily by the forces of nature, with the imprint of human work substantially unnoticeable: so as to maintain the areas outstanding opportunities for solitude or primitive and unconfined recreation; and so as to protect any ecological, geological, or other features of scientific, educational, scenic, or historical value which the area may contain."

Sec. .13 of BLM Manual 8560 – Management of Designated Wilderness areas states that: "…Tools, equipment, or structures may be used for management when they are the minimum necessary for protection of the wilderness resource or when necessary in emergency situations for the health and safety of the visitor. Management must use the minimum tool, equipment, or structure necessary to successfully, safely, and economically accomplish the objective. The chosen tool, equipment, or structure should be the one that least degrades wilderness values temporarily or permanently."

Sec. .13 (a) of BLM Manual 8560 – Management of Designated Wilderness areas states that: "…Acceptable tools, equipment, and structures may include but are not limited to: fire towers, patrol cabins, pit toilets, temporary roads, spraying equipment, hand tools, fire fighting equipment caches, fencing, and controlled burning. In special or emergency cases involving the health and safety of wilderness visitors, or the protection of wilderness values, aircraft, motorboats, and motorized vehicles may be used."

Sec. .37(g)(3) of BLM Manual 8560 – Management of Designated Wilderness areas states that: "…new or existing improvements should be of materials which harmonize with the wilderness character…" and "Natural (native) materials must be used unless costs are unreasonable or they do not harmonize with the wilderness."

Section .51 (D) of BLM Manual 8351- Management of Wild and Scenic Rivers 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."

E. Wilderness Character

Does BLM need to address the proposed action to preserve one or more of the following described wilderness characters?

Untrammeled: **Yes:** ☐ **No:** ☐ **Not Applicable:** ☒

Explain:

The gap fence itself would have some impact to the untrammeled characteristic by creating a "modern human control" within the wilderness. However, the gap fence would also eliminate domestic livestock from a larger portion of the wilderness and wild river corridor protecting the components of its ecological system. The grazing of domestic livestock would be considered an action by humans that can manipulate ecological systems. In this case, allowing livestock continued access into the wild river corridor would cause far greater degradation to wilderness characteristics and outstandingly remarkable values than a 100ft structure used to restrict livestock access and protect natural resources.

Undeveloped: **Yes:** ☒ **No:** ☐ **Not Applicable:** ☐

Explain:

The impact of the structure itself would be negligible due to the excellent topographic and vegetative screening within the area. However, the fence construction would contribute to a more developed condition and a slight adverse effect on wilderness character.

Natural: **Yes:** ☒ **No:** ☐ **Not Applicable:** ☐

Explain:

The small section of gap fencing would have a slight impact on the immediate areas naturalness by leaving an imprint of human work within the wilderness area. However, without the structure domestic livestock would have access to the wild river corridor and create a much more substantial impact or impairment to the river banks, riparian vegetation, and water quality in a much larger area. The fencing would eliminate this access point. 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 on a large portion of the wilderness area and wild river corridor overall as the areas naturalness and overall conditions throughout the river corridor improve due to restricted livestock access. The impact of the structure itself would be negligible due to the excellent topographic and vegetative screening within the area.

The gap fencing would be very beneficial to wilderness character and wild and scenic values as the fencing would prohibit livestock from accessing the North Fork Owyhee River corridor. Naturalness and the scenic quality values 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.

Outstanding opportunities for solitude or a primitive and unconfined type of recreation:

Yes: ☐ **No:** ☐ **Not Applicable:** ☒

Explain:

A 100ft gap fence in wilderness likely would not significantly alter these opportunities.

Other unique components that reflect the character of this wilderness:

Yes: ☒ **No:** ☐ **Not Applicable:** ☐

Explain:

The gap fence would be critical in protecting the scenic quality of the wild river corridor.
The fencing would have a positive effect on a large portion of the wilderness area and wild river corridor as overall conditions and scenic quality throughout the river corridor improve due to restricted livestock access. The impact of the structure itself would be negligible due to the excellent topographic and vegetative screening within the area.

F. Describe Effects to the Public Purposes of Wilderness

Is the proposed action consistent with one or more of the public purposes for wilderness (as stated in Section 4(b) of the Wilderness Act) of recreation, scenic, scientific, education, conservation, and historical use?

Recreation: **Yes:** ☐ **No:** ☐ **Not Applicable:** ☒
Explain:
A 100ft gap fence in wilderness likely would not significantly impact recreation opportunities.

Scenic: **Yes:** ☒ **No:** ☐ **Not Applicable:** ☐
Explain:
The gap fence would be critical in protecting the scenic quality of the wild river corridor. The fencing would have a positive effect on a large portion of the wilderness area and wild river as overall conditions and scenic quality throughout the river corridor improve due to restricted livestock access. Riparian habitat, water quality, and river bank stabilization would greatly benefit from the fence construction. The impact of the structure itself would be negligible due to the excellent topographic and vegetative screening within the area.

Scientific: **Yes:** ☐ **No:** ☐ **Not Applicable:** ☒
Explain:

Education: **Yes:** ☐ **No:** ☐ **Not Applicable:** ☒
Explain:

Conservation: **Yes:** ☒ **No:** ☐ **Not Applicable:** ☐
Explain:
Gap fencing would be very beneficial to the conservation of natural resources within the wilderness area and wild river corridor. Without the structure domestic livestock would have access to the wild river corridor and create a much more substantial impact to the river banks, riparian vegetation, and water quality in a much larger area.

Historical use: **Yes:** ☐ **No:** ☐ **Not Applicable:** ☒
Explain:

Step 1 Decision: Does the proposed action require BLM to take any administrative action?

Yes: ☒ **No:** ☐ **More information needed:** ☐

Explain:
Administrative action is necessary, whether it is decided to construct the 100ft gap fence or to deny the proposed action. Mitigation measures are needed to protect wilderness character and ORVs throughout the area. The activity is identified as a prohibited use within the Wilderness Act. However, the proposed action is permissible through the Congressional Grazing Guidelines in House Report No. 101-405. These guidelines were identified in the 2009 Omnibus Public Land Management Act which designated this area as wilderness. The fence would also be in conformance with the Owyhee RMP RECT 7. Additionally the fence construction is permissible in BLM Manual 8560 – Management of Designated Wilderness Areas as well as Manual 8351 – Management of Wild and Scenic Rivers.

If administrative action is necessary, proceed to Step 2 to determine the minimum activity.

Step 2: Determine the minimum activity.

Description of Alternatives

For each alternative, describe what methods and techniques will be used, when the activity will take place, where the activity will take place, what mitigation measures are necessary, and the general effects to the wilderness resource and character.

Alternative # 1 - Proposed Action

Description:
Construct a 100ft gap fence within the wilderness using native materials to eliminate the access of domestic livestock into the wild river corridor.

Effects: Wilderness Character

> **Untrammeled - This quality is degraded by modern human activities or actions that control or manipulate the components or processes of ecological systems inside the wilderness.**

The gap fence itself would have some impact to the untrammeled character by creating a "modern human control" within the wilderness. However, the gap fence would also eliminate domestic livestock from a larger portion of the wilderness and wild river corridor, thereby protecting the components of its ecological system. The grazing of domestic livestock is considered an action by humans that can manipulate ecological systems. In this case, allowing continued livestock access into the wild river corridor would cause far greater degradation to wilderness character and outstandingly remarkable values than a 100ft structure used to restrict livestock access and protect natural resources.

> **Undeveloped - This quality is degraded by the presence of structures, installations, habitations, and by the use of motor vehicles, motorized equipment, or mechanical transport that increases people's ability to occupy or modify the environment.**

Fence construction would contribute to a more developed condition and a slight adverse effect on wilderness character. However, the impact of the structure itself would be negligible due to the excellent topographic and vegetative screening within the area.

> **Natural - This quality is degraded by intended or unintended effects of modern civilization on the ecological systems inside the wilderness since the area was designated.**

The proposed gap fence would have a negligible effect on the area's naturalness due to the excellent topographic and vegetative screening. Without the structure domestic livestock would have access to the wild river corridor and create a much more substantial impact or impairment to the river banks, riparian vegetation, and water quality in a much larger area. Gap fencing

would be constructed using native materials in order to make the fence as unobtrusive as possible. The fencing would have a positive effect on a large portion of the wilderness area and wild river corridor overall as the areas naturalness and overall conditions throughout the river corridor improve due to restricted livestock access.

The gap fencing would be very beneficial to wilderness character and wild and scenic values as the fencing would prohibit livestock from accessing the North Fork Owyhee River corridor. Naturalness and scenic quality would benefit most from this proposed project as riparian vegetation improves.

Outstanding opportunities for solitude or a primitive and unconfined type of recreation - This quality is degraded by settings that reduce these opportunities, such as visitor encounters, signs of modern civilization, recreation facilities, and management restrictions on visitor behavior.

The proposed fence would have no effect on outstanding opportunities for solitude or primitive and unconfined recreation.

Other unique components that reflect the character of this wilderness

The gap fence would be critical in the conservation of wilderness and natural resources and protecting the scenic quality of the wild river corridor. The fencing would have a positive effect on a large portion of the wilderness area and wild river as overall conditions and scenic quality throughout the river corridor improve due to restricted livestock access. Riparian habitat, water quality, and river bank stabilization would greatly benefit from the fence construction. The impact of the structure itself would be negligible due to the excellent topographic and vegetative screening within the area.

Heritage and Cultural Resources –

The proposed fence would have no effect on heritage and cultural resources.

Maintaining Contrast and Skills –

Fence construction using non-motorized and non-mechanized methods would help to maintain wilderness construction skills.

Special Provisions -

See provisions listed in Step 1.

Safety of Visitors, Personnel, and Contractors –

The use of hand tools could entail some negligible safety concerns for personnel involved in the fence construction.

Economic and Time Constraints –

Costs associated with implementing the proposed alternative would be minimal. Construction of the gap fence would take a maximum of two days time by BLM personnel. The equipment needed to accomplish the task would also be minimal, as construction would utilize only hand tools, and native materials from the surrounding area.

The time constraints for the proposed action would be associated with the renewal of the permittee's authorization for livestock grazing within the allotment. Fence construction would need to be accomplished prior to the date in which cattle are authorized to graze.

Additional Wilderness-specific Comparison Criteria –

None Identified

Alternative # 2 - Deny Proposed Action

Description:
The gap fence would not be constructed, and livestock would continue to access and degrade the wild river corridor.

Effects:

Wilderness Character

Untrammeled -

The grazing of domestic livestock is considered an action by humans that can manipulate ecological systems. In this case, livestock would be able to access the wild river corridor, which would adversely affect the functioning condition of the river, and thus degrade wilderness character and the wild river ORVs throughout the affected area.

Undeveloped -

There would be no impacted to the undeveloped character under this alternative.

Natural -

Livestock would have access to the wild river corridor and would substantially impact the natural character of the river corridor, affecting the river banks, riparian vegetation, and water quality throughout the corridor. Wilderness character and wild river ORVs would be degraded as livestock impact natural processes of the wild river corridor, affecting the functioning condition of the river itself.

Outstanding opportunities for solitude or a primitive and unconfined type of recreation -
This alternative would have no effect on outstanding opportunities for solitude or primitive and unconfined recreation.

Other unique components that reflect the character of this wilderness -

Conservation and scenic quality of the wilderness area and wild river corridor would be directly impacted as a result of this alternative, as water quality, river banks, and riparian vegetation continue to be degraded by livestock grazing throughout the corridor.

Heritage and Cultural Resources –

This alternative would have no effect on heritage and cultural resources.

Maintaining Contrast and Skills –

This alternative would have no effect on maintaining contrast and skills.

Special Provisions -

None identified.

Safety of Visitors, Personnel, and Contractors –

This alternative would have no impact on the safety of visitors, personnel, or contractors.

Economic and Time Constraints –

There would be no economic impacts or time constraints as a result of this alternative.

Additional Wilderness-specific Comparison Criteria –

None Identified.

Alternative # 3 - Eliminate Grazing from Wilderness

Description:
A four mile-long fence would be constructed along the wilderness boundary to eliminate grazing from approximately 1,170 acres of the North Fork Owyhee wilderness area, which equates to approximately 100 AUMs. Grazing would continue throughout the remainder of the Trout Springs Allotment.

Effects:

Wilderness Character

Untrammeled -

The untrammeled nature of the wilderness area would be enhanced by the elimination of livestock grazing.

Undeveloped -

There would be no impacts to the undeveloped character under this alternative as fence construction would occur outside of the wilderness area.

Natural -

Naturalness throughout the formerly grazed portion of the wilderness area would be enhanced as upland and riparian vegetation condition improved due to the elimination of grazing.

Outstanding opportunities for solitude or a primitive and unconfined type of recreation -

There would be no impact to opportunities for solitude or primitive and unconfined recreation under this alternative.

Other unique components that reflect the character of this wilderness -

Conservation and scenic quality throughout the formerly grazed portion of the wilderness area would be enhanced as upland and riparian vegetation condition improves due to the elimination of grazing in wilderness.

Heritage and Cultural Resources –

This alternative would have no effect on heritage and cultural resources.

Maintaining Contrast and Skills –

This alternative would have no effect on maintaining contrast and skills.

Special Provisions -

None known

Safety of Visitors, Personnel, and Contractors –

When compared to a 100 fioot long fence, the construction of four miles of fence would entail higher safety risks for those involved with the construction.

Economic and Time Constraints –

There would be substantial economic impact associated with this alternative. Cadastral surveys would need to take place to determine the exact boundary of the wilderness area, materials purchased for approximately four miles of fence, contract crews hired for construction, etc. An even greater economic impact would be suffered from the permittee that was once allowed to graze the wilderness area within the Trout Springs allotment as 1,170 acres of forage would be lost.
This would require the permittee to either purchase additional feed or rent additional private pasture, or both.

Time constraints would also be a factor as surveys and construction would need to take place before the permitted grazing use began.

Additional Wilderness-specific Comparison Criteria –

None Identified

Comparison of Alternatives

It may be useful to compare each alternative's benefits and adverse effects to each of the criteria in tabular form, keeping in mind the law's mandate to "preserve wilderness character."

	Alternative 1	Alternative 2	Alternative 3
Untrammeled	- +	-	+
Undeveloped	-	NE	NE
Natural	+	-	+
Solitude or Primitive Recreation	NE	NE	NE
Unique components	+	-	+
WILDERNESS CHARACTER	+1	-3	+3

	Alternative 1	Alternative 2	Alternative 3
Heritage & Cultural Resources	NE	NE	NE
Maintaining Traditional Skills	+	NE	NE
Special Provisions	NE	NE	NE
Economics & Timing	0	NE	- -
Additional Wilderness Criteria	NA	NA	NA
OTHER CRITERIA SUMMARY	+1	0	-2

	Alternative 1	Alternative 2	Alternative 3
SAFETY (PUBLIC AND WORKERS)	0	NE	-

Safety Criterion
Occasionally, safety concerns can legitimately dictate choosing one alternative which degrades wilderness character (or other criteria) more than an otherwise preferable alternative. In that case, describe the benefits and adverse effects in terms of risks to the public and workers for each alternative here but avoid pre-selecting an alternative based on the safety criteria in this section.

Documentation:
To support the evaluation of alternatives, provide an analysis, reference, or documentation and avoid assumptions about risks and the potential for accidents. This documentation can take the form of agency accident-rate data tracking occurrences and severity; a project-specific job hazard analysis; research literature; or other specific agency guidelines.

Step 2 Decision: What is the Minimum Activity?

Selected alternative:
The Field Manager initiated a minimum tool analysis 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. He determined that, according to the Congressional Grazing Guidelines 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.

While the effects of the various alternatives are not measured quantitatively, the analysis shows that qualitatively, the construction of the gap fence would be more beneficial to wilderness character and wild river ORVs than to allow livestock continued access into the wild river corridor. When the proposed action and two alternatives were evaluated against their impacts on wilderness character and values, the above Table shows the following:

	Overall Effects		Effects to Wilderness Character
Alternative 1:	positive effects	+ 4	+ 3
	negative effects	- 2	- 2
Alternative 2:	positive effects	+ 0	0
	negative effects	- 3	- 3
Alternative 3:	positive effects	+ 3	+ 3
	negative effects	- 3	0

The overall effects of each of the three alternatives include potential impacts to wilderness character, effects to wilderness public purposes, and public and worker safety. Potential impacts to wilderness character are, of course, weighted more heavily than other impacts because the Wilderness Act directs BLM to "preserve wilderness character." Thus, there has to be some overwhelming reason to select an alternative other than the one that best protects wilderness character.

Alternative 1 is selected as the preferrred alternative. The overall benefits to wilderness character and natural resources are the same or similar as those resulting from Alternative 3, but Alternative 1 does not include the substantial economic impacts and timeframes associated with Alternative 3. Impacts to the undeveloped character would be negligble due to the excellent topographic and vegetative screening of the area. The structure would only be noticable to a visitor in the immediate area of the fence.

While alternative 3 is purely beneficial and poses no impacts to wilderness character, this alternative is inconsistent with the Wilderness Act or the Omnibus Public Land Act since it would eliminate grazing from the North Fork Owyhee Wilerness, which is an allowable grandfathered use. This alternative would also have the most impact economically and would be the most time sensitive. Although the 100 ft gap fence would not be constructed in Alternative 2, wilderness character and wild river ORVs would be degraded from continued

livestock use of the river corridor. Stream banks, riparian habitat, and water quality within the wild river corridor would all be adversly affected under Alternative 2.

<u>Rationale</u> for selecting this alternative (including safety criterion, if appropriate):
The Owyhee Field office is seeking to protect wilderness character and ORVs from livestock impacts within the North Fork Owyhee Wild River corridor. The mitigation measures should be consistent with the Wilderness Act and Omnibus Public Land Act in that they protect wilderness character while at the same time allow for grazing, a grandfathered use, to continue within wilderness. The Congressional Grazing Guidelines provide land managers with a tool that accomplishes both. The guidelines provide for a possible exception that would allow for the small structure to be constructed within wilderness, so long as the structure is for the primary purpose of natural resource protection and the more effective management of those resources.

Although the fence construction would slightly impact the area's naturalness in the immediate area of the fence (100ft), this impact would be considered negligible due to the small stature of the structure and the excellent topographic and vegetative screening throughout the area. The structure would only be visible in the immediate area and would not impair wilderness character. In the long-term, the conservation and protection of the area's riparian habitat, stream banks, water quality, and other natural resources would be extremely beneficial to naturalness and scenic quality within the wilderness. Overall this small structure would enhance wilderness character and the outstandingly remarkable values throughout the wilderness and wild river corridor. The benefits to the wilderness area and wild river corridor far outweigh and the minimal impacts associated with the 100ft fence. The selected alternative would also be cost efficient and timely and would have no impacts to cultural resources, traditional skills, or safety to visitors of the area.

Monitoring and reporting requirements:

Check any Wilderness Act Section 4(c) uses approved in this alternative:

- ☐ mechanical transport
- ☐ motorized equipment
- ☐ motor vehicles
- ☐ motorboats
- ☐ landing of aircraft
- ☐ temporary road
- ☒ structure or installation

Record and report any authorizations of Wilderness Act Section 4(c) uses according to agency procedures.

Approvals	Signature	Name	Position	Date
Prepared by:	/s/ Ryan Homan	Ryan Homan	Outdoor Recreation Planner	7/9/2012
Recommended:				
Recommended:				
Approved:	/s/ Loretta V. Chandler	Buddy Green	Owyhee Field Office Manager	7/9/2012

Appendix N. Plant species names for common names used in the Trout Springs EA

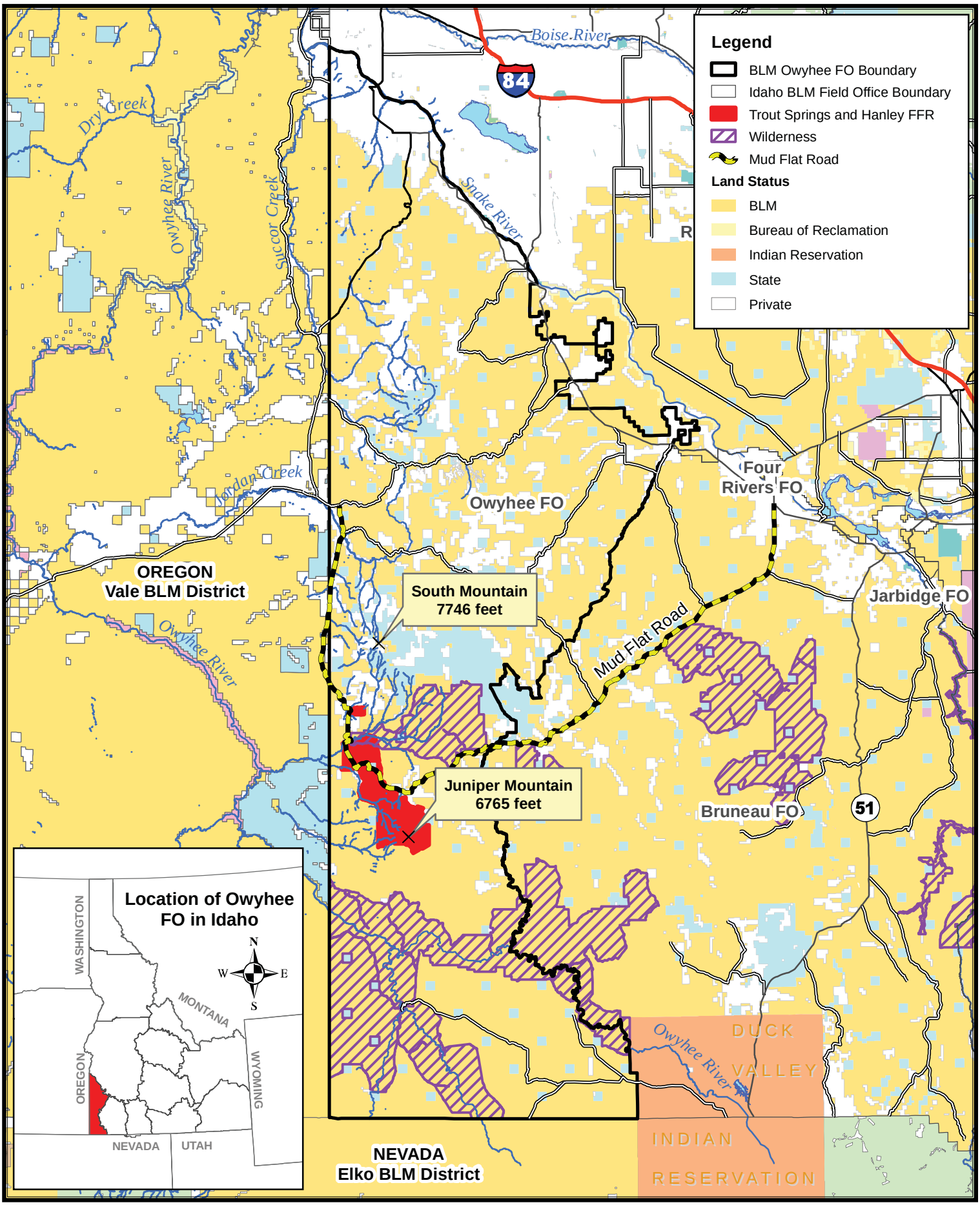
Common Name	**Scientific Name**
aspen	*Populus tremuloides*
Bacigalupi's downingia	*Downingia bacigalupii*
bitter cherry	*Prunus emarginata*
bitterbrush	*Purshia tridentata*
bluebunch wheatgrass	*Pseudoroegneria spicata*
bulbous bluegrass	*Poa bulbosa*
Canada thistle	*Cirsium arvense*
ceanothus	*Ceanothus velutinus*
cheatgrass	*Bromus tectorum*
chokecherry	*Prunus virginiana*
crested wheatgrass	*Agropyron cristatum*
curl-leaf mountain mahogany	*Cercocarpus ledifolius*
currant	*Ribes spp.*
dimeresia	*Dimeresia howellii*
diverse-leaved pondweed	*Potamogeton diversifolius*
Idaho fescue	*Festuca idahoensis*
intermediate wheatgrass	*Thinopyrum intermedium*
Japanese/field brome	*Bromus arvensis*
leafy spurge	*Euphorbia esula*
low sagebrush	*Artemisia arbuscula*
meadow foxtail	*Alopecurus pratensis*
medusahead	*Taeniatherum caput-medusae*
mountain big sagebrush	*Artemisia tridentata ssp. vaseyana*
Mud Flat milkvetch	*Astragalus yoder-williamsii*
needlegrass	*Achnatherum spp.*
Oregon grape	*Mahonia repens*
prickly lettuce	*Lactuca serriola*
rabbitbrush	*Chrysothamnus & Ericameria spp.*
rabbitbrush goldenweed	*Ericameria bloomeri*
Russian knapweed	*Acroptilon repens*
Sandberg bluegrass	*Poa secunda*
serviceberry	*Amelanchier alnifolia*
short-lobed penstemon	*Penstemon seorsus*
smooth brome	*Bromus inermis*
snowberry	*Symphoricarpos oreophilus*
squirreltail	*Elymus elymoides*
thinleaf goldenhead/one-flowered goldenweed	*Pyrrocoma linearis/Haplopappus uniflorus var. howellii*
western juniper	*Juniperus occidentalis*
whitetop	*Cardaria draba*
wild rose	*Rosa woodsii*
willow	*Salix spp.*
ventenata	*Ventenata dubia*

Nomenclature reference: USDA, NRCS PLANTS database as of July 2010

8.0 Maps

Map 1 – Locator Map
Map 2 – Trout Springs Allotment: Alternative A
Map 3 – Hanley FFR Allotment
Map 4 – Trout Springs Juniper Expansion Phases
Map 5 – Trout Springs Allotment: Alternatives B, D and E
Map 6 – Trout Springs Juniper Treatments
Map 7 – Trout Springs Ecological Sites
Map 8 – Trout Springs Sage-grouse Leks, Habitat and Assessment Sites
Map 9 – Trout Springs Streams and Springs
Map 10 – Trout Springs Redband Trout Distribution
Map 11 – Cumulative Effects Area for Watersheds, Riparian, Soils, and Water Quality
Map 12 – Trailing in Trout Springs Allotment
Map 13 - Owyhee Sage-grouse Subpopulation

Map 1 - Locator Map



0 8.5 17 Miles

The sources of the data are from Idaho-BLM Corporate Data, and the USGS.

Map Date: 6/27/2012

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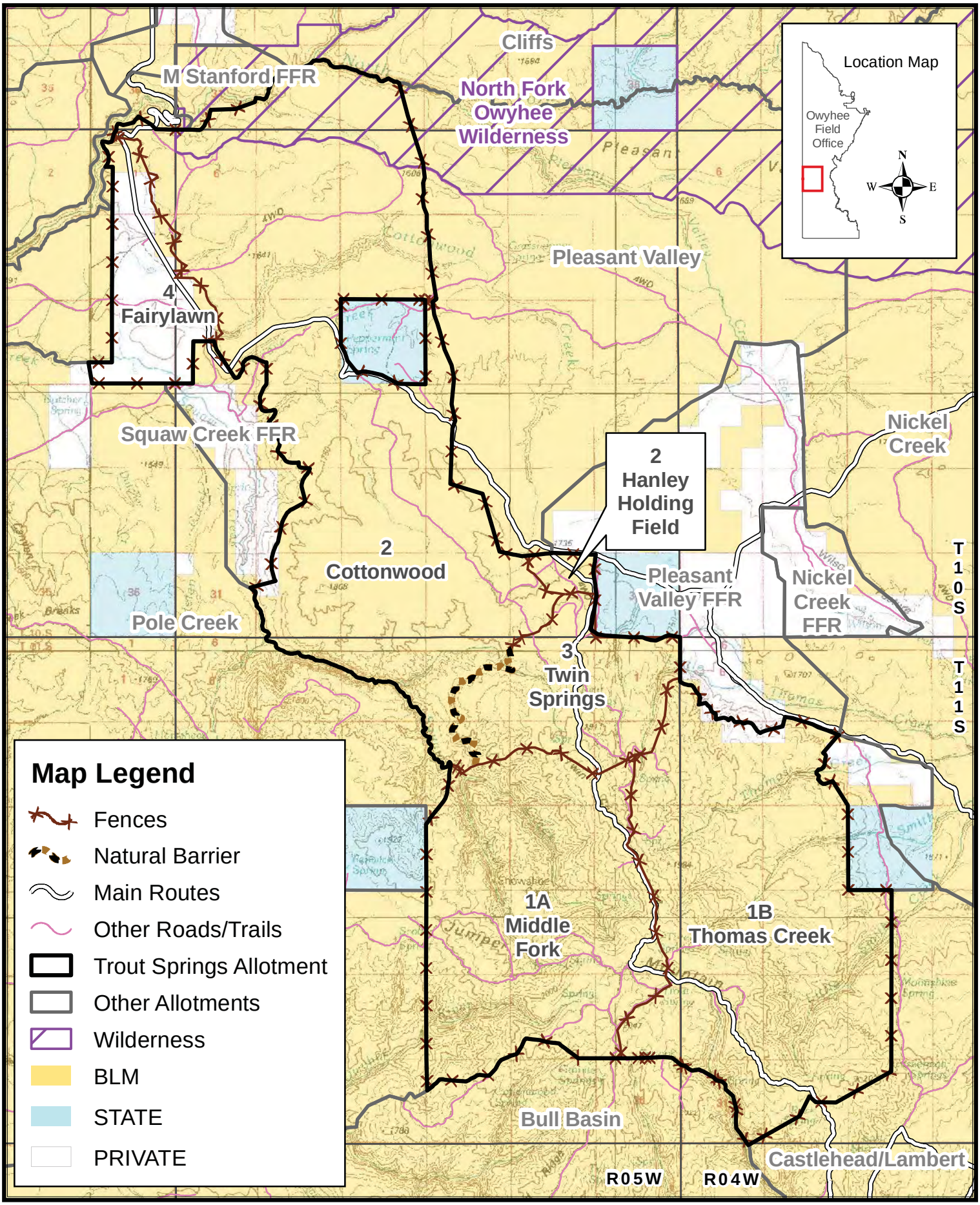
Map 2 - Trout Springs Allotment: Alternative A



0 1 2 Miles

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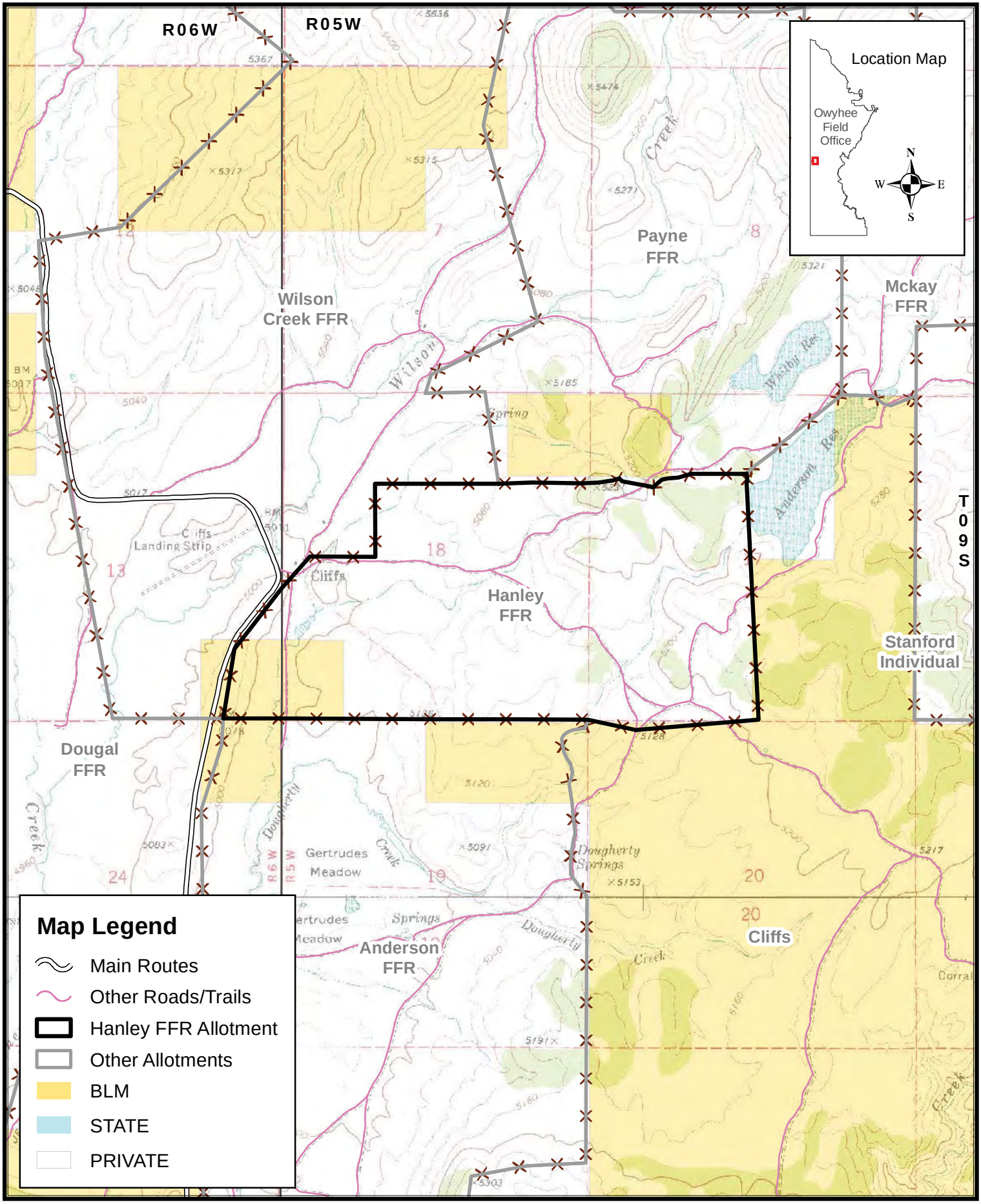
Map 3 - Hanley FFR Allotment



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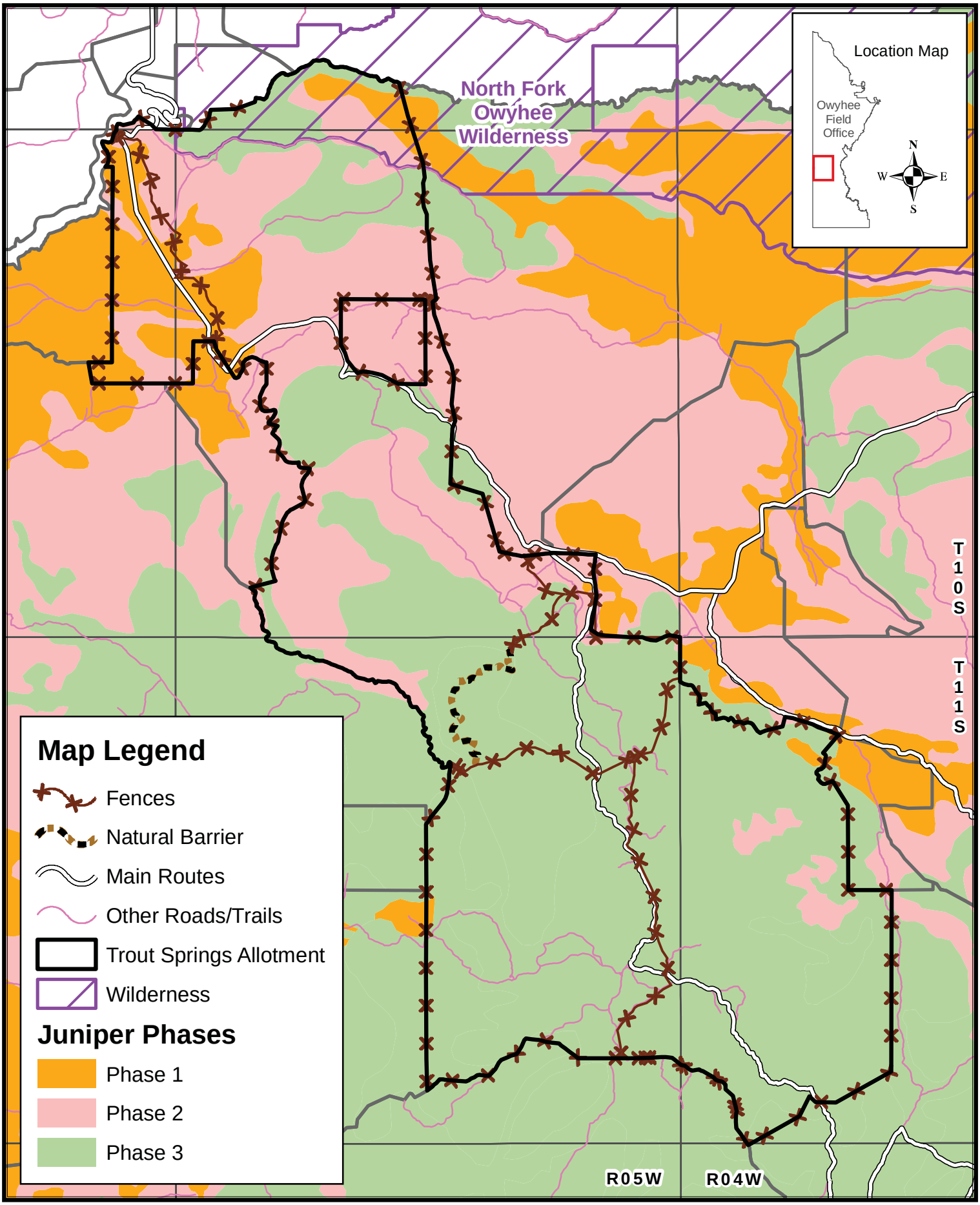
Map 4 - Trout Springs Juniper Expansion Phases



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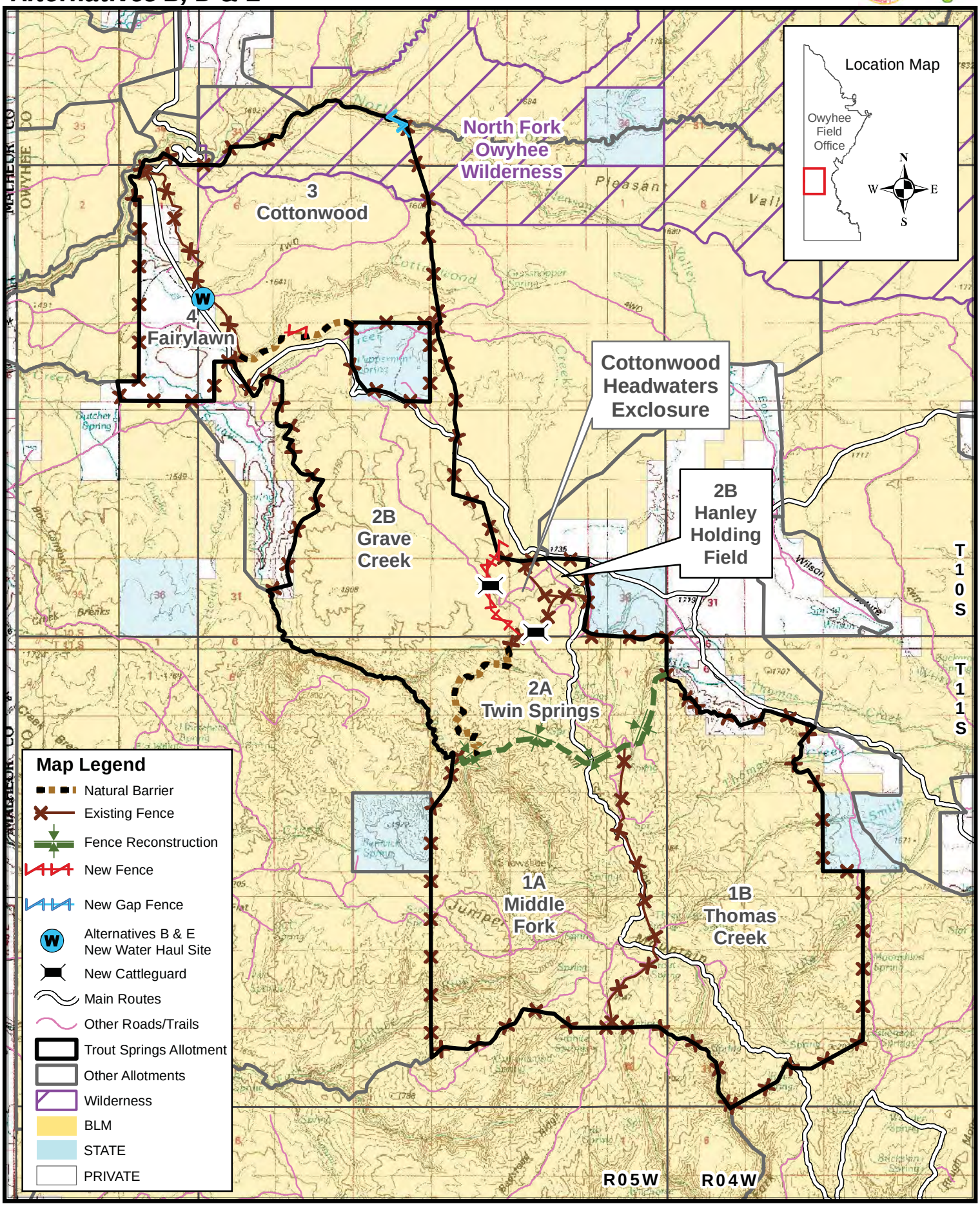
Map 5 - Trout Springs Allotment: Alternatives B, D & E



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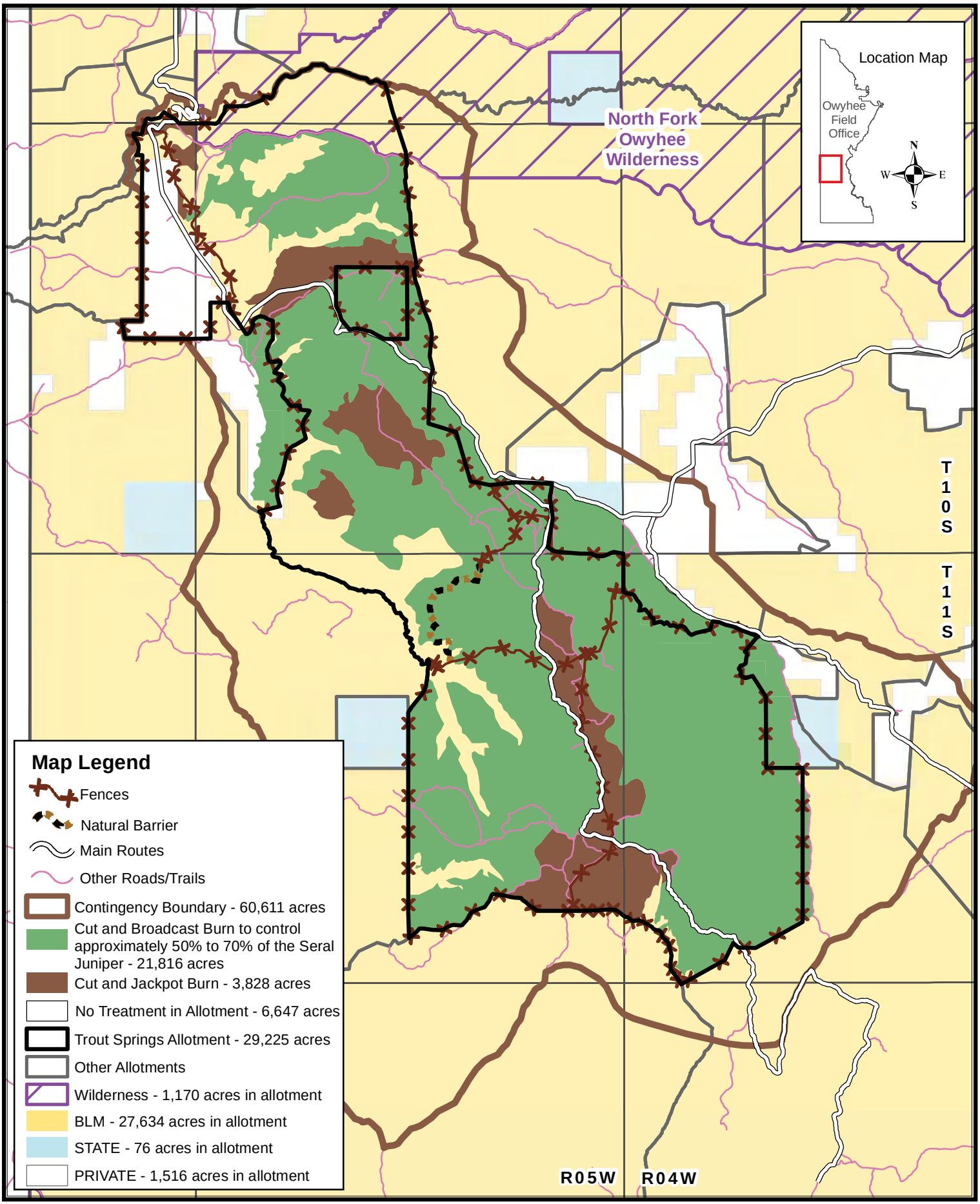
Map 6 - Trout Springs Juniper Treatments



0 1 2 Miles

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Map Date: 6/27/2012

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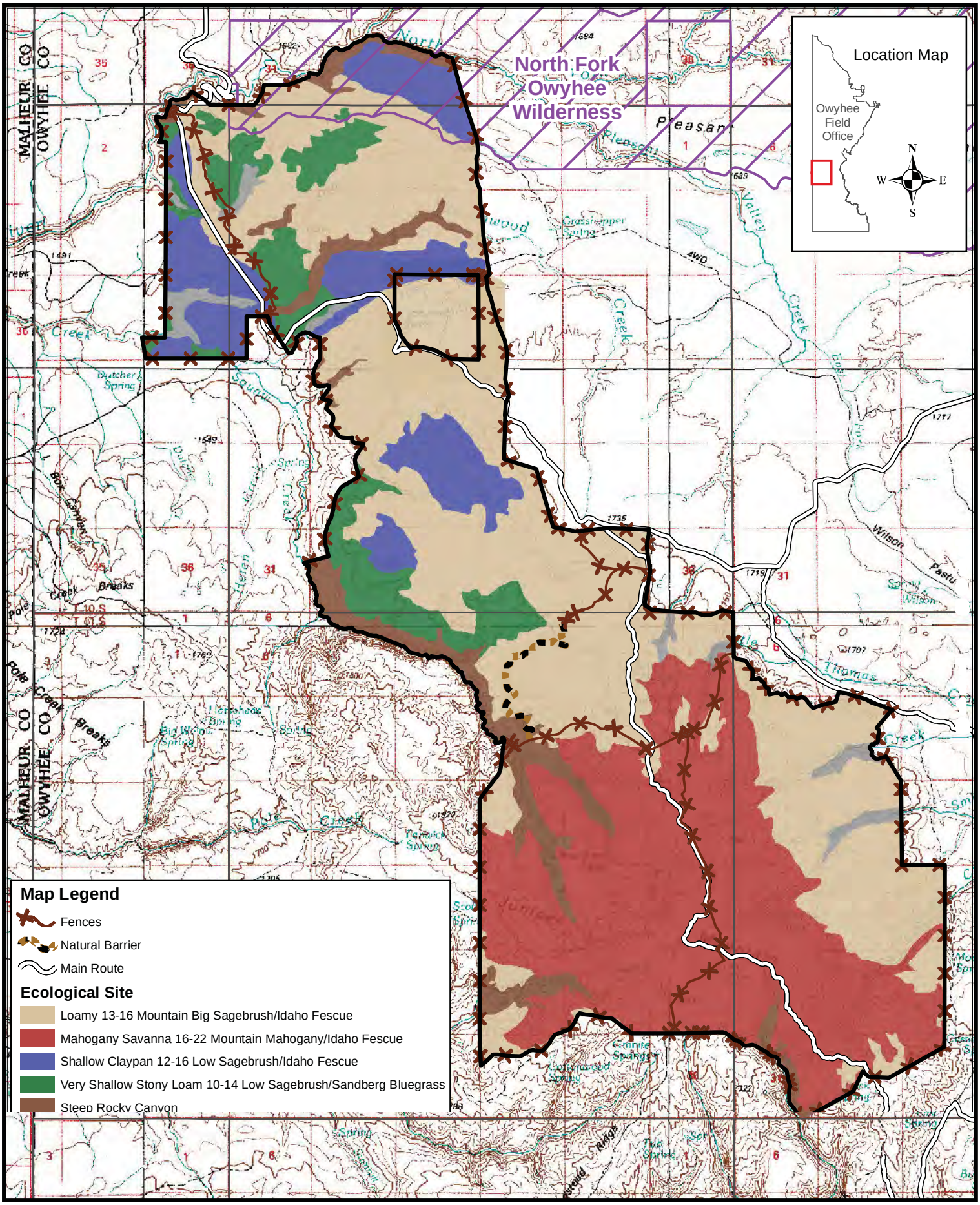
Map 7 - Trout Springs Ecological Sites



0 0.9 1.8 Miles

The sources of the data are from Idaho-BLM Corporate Data, and the USGS.

Map Date: 6/27/2012

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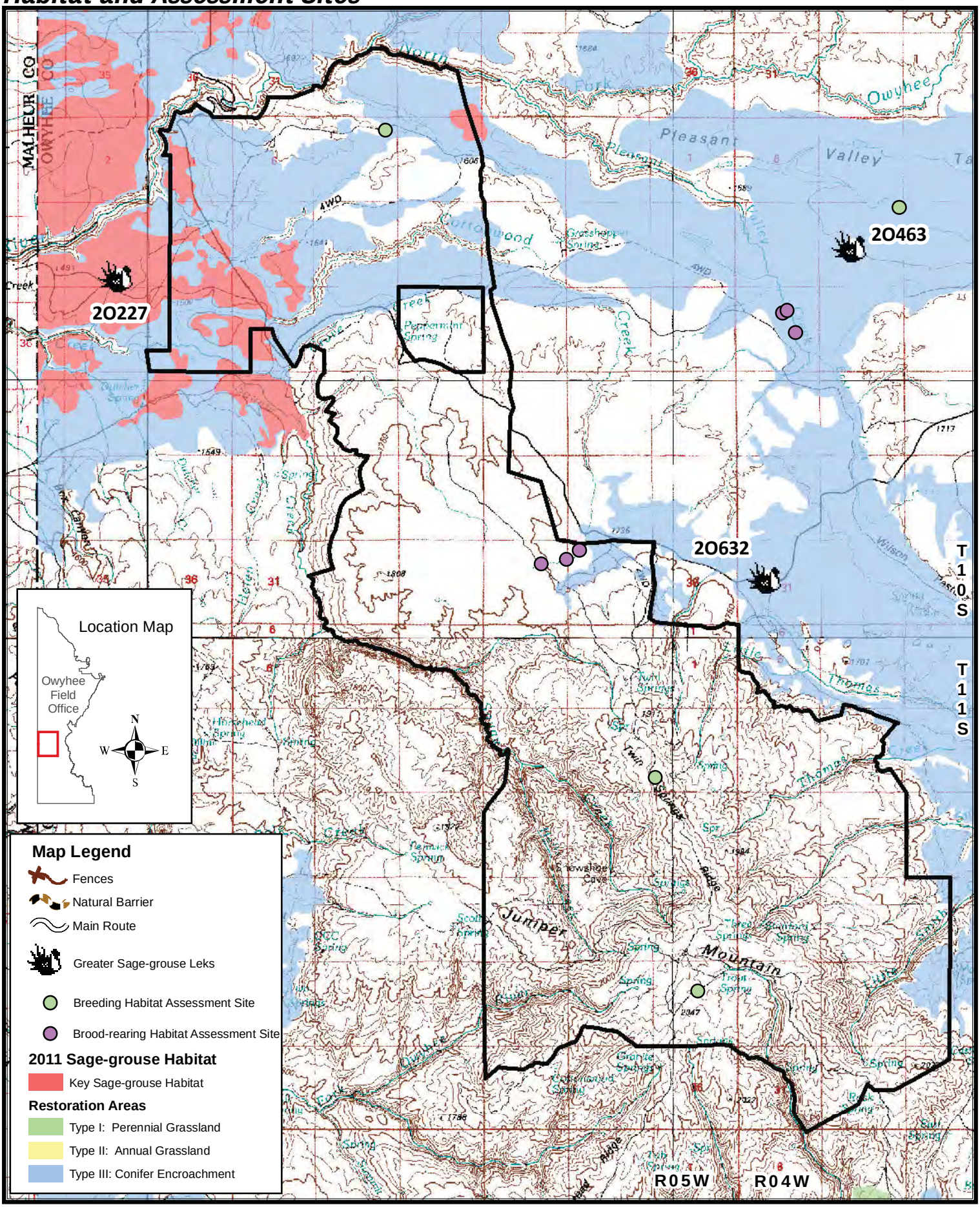
Map 8 - Trout Springs Greater Sage-grouse Leks, Habitat and Assessment Sites



0 0.85 1.7 Miles

The sources of the data are from Idaho-BLM Corporate Data, and the USGS.

Map Date: 6/27/2012

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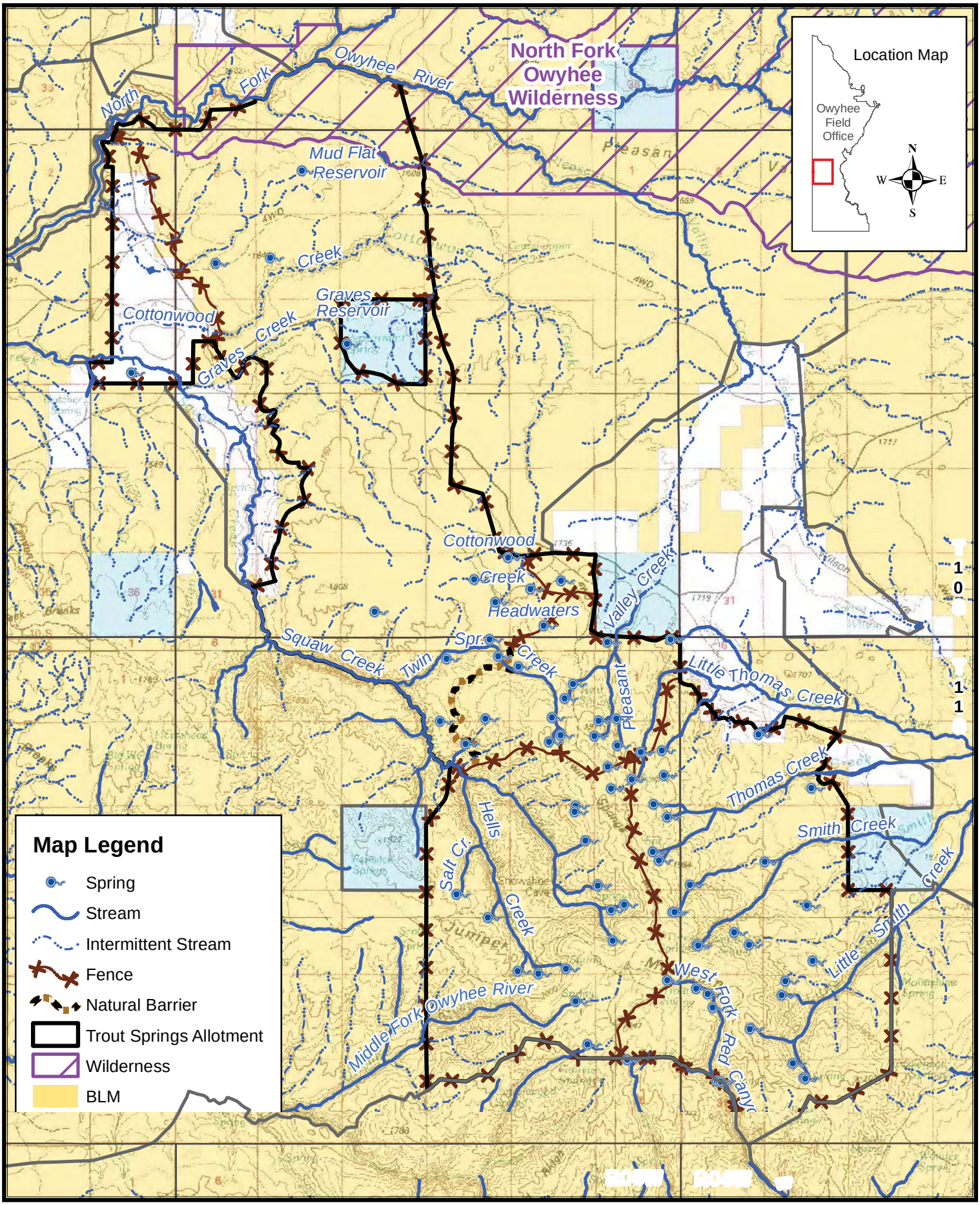
Map 9 - Trout Springs Streams and Springs



0 0.9 1.8 Miles

The sources of the data are from Idaho-BLM Corporate Data, and the USGS.

Map Date: 6/27/2012

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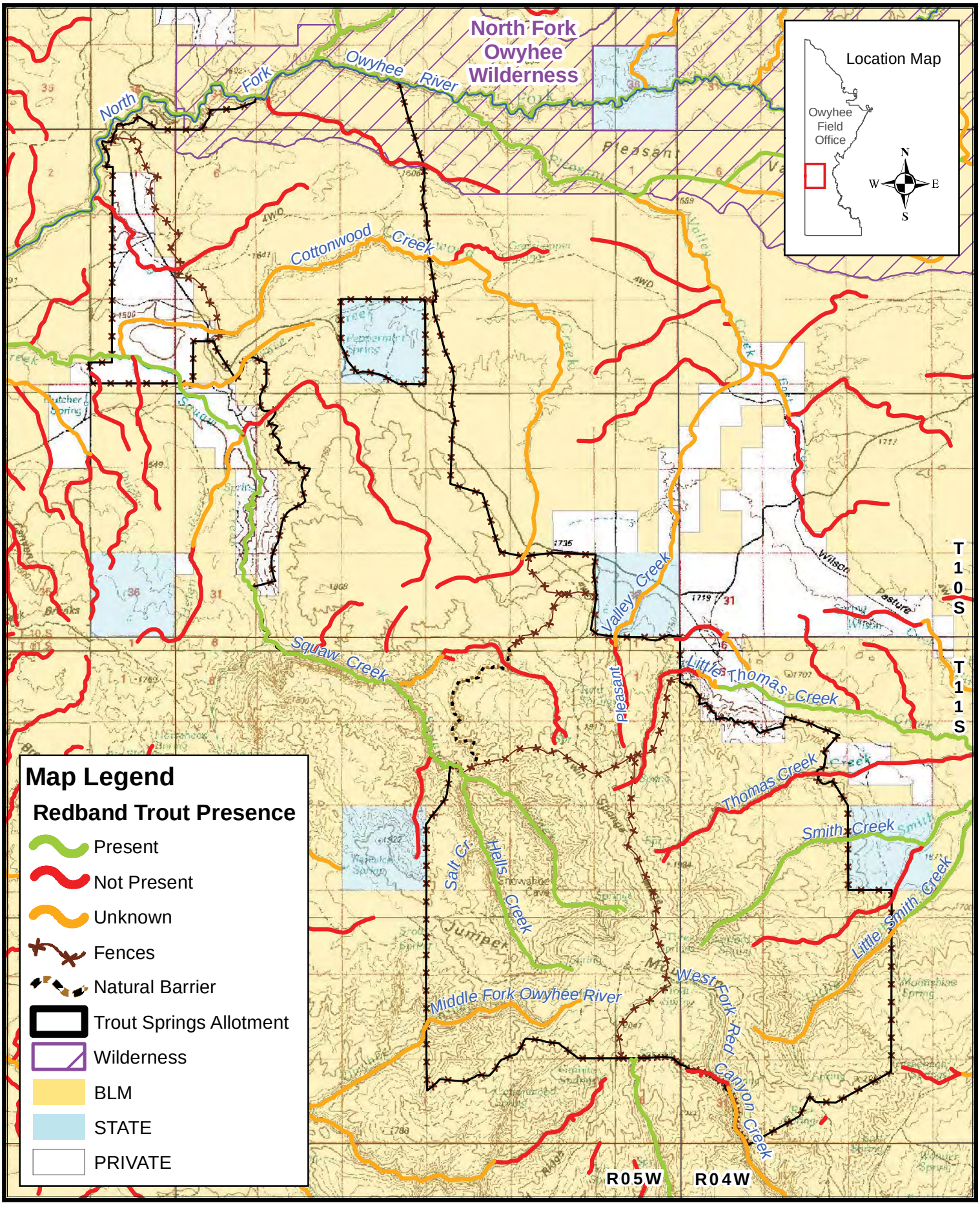
Map 10 - Trout Springs Redband Trout Distribution



0 0.85 1.7 Miles

The sources of the data are from Idaho-BLM Corporate Data, and the USGS.

Map Date: 6/27/2012

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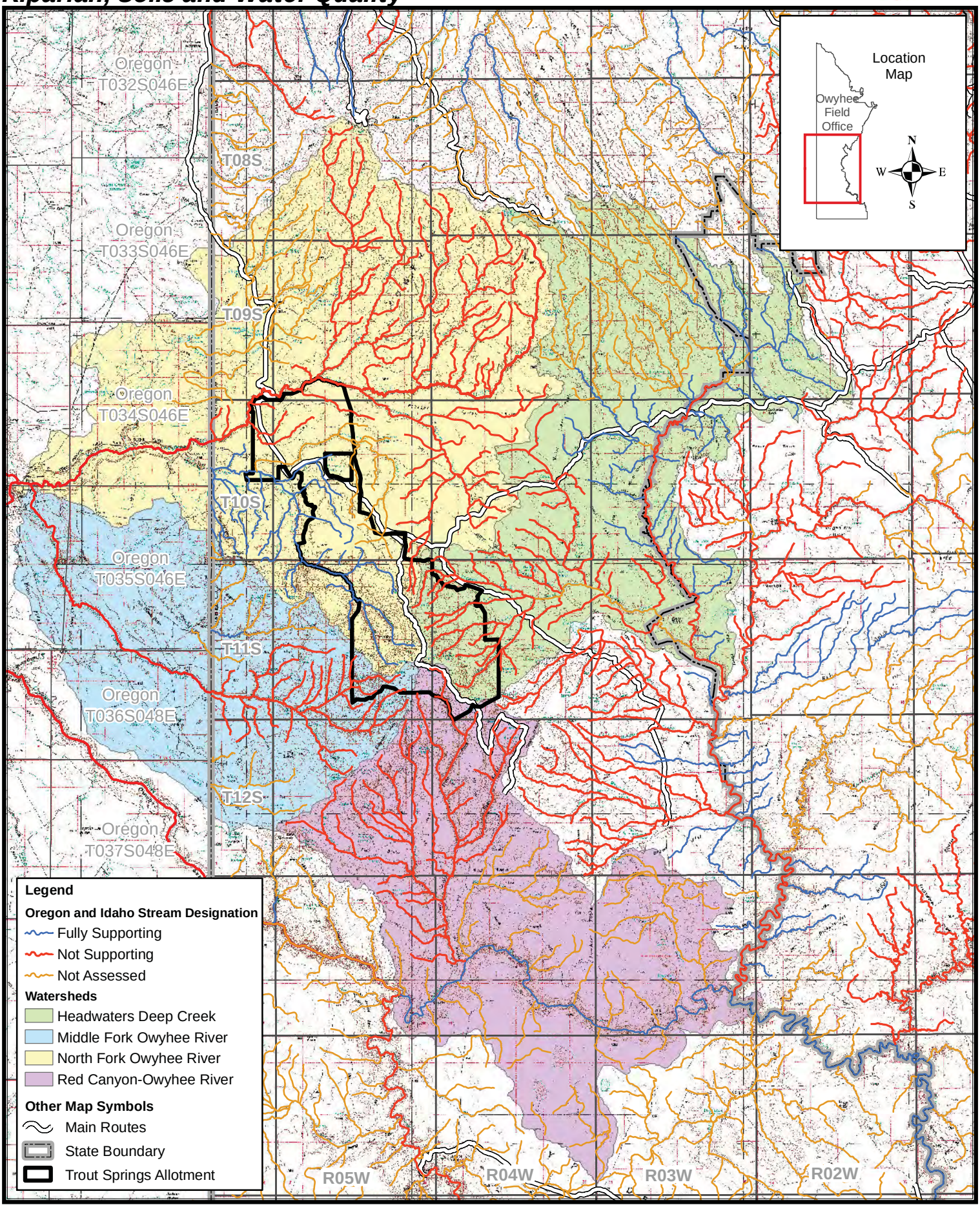
Map 11 - Cumulative Effects Area for Watersheds, Riparian, Soils and Water Quality



0 2.5 5 Miles

The sources of the data are from Idaho-BLM Corporate Data, and the USGS.

Map Date: 6/27/2012

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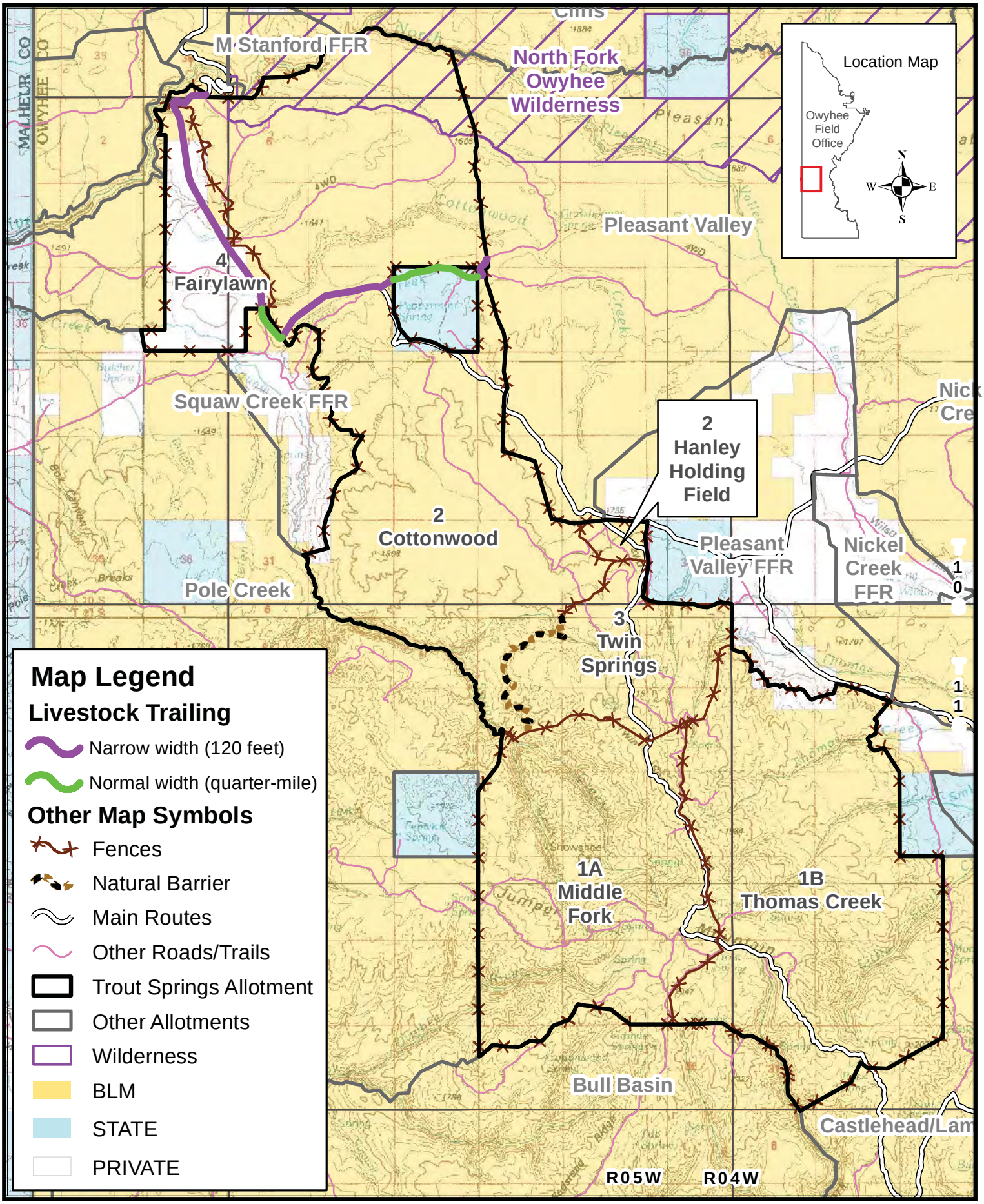
Map 12 - Trout Springs Allotment: Livestock Trailing



0 1 2 Miles

The sources of the data are from Idaho-BLM Corporate Data, and the USGS.

Map Date: 7/3/2012

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Map 13 - Owyhee Sage-grouse Subpopulation

0 10 20 Miles

The sources of the data are from Idaho-BLM Corporate Data, and the USGS.

Map Date: 6/27/2012

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