

PINE CREEK
ALLOTMENT
MANAGEMENT PLAN

Environmental Assessment
DOI-BLM-OR-B050-2006-0029-EA
OR-06-025-029

Bureau of Land Management
Burns District Office
28910 Hwy 20 West
Hines, OR 97738

April 24, 2013

CHAPTER I: INTRODUCTION: PURPOSE OF AND NEED FOR ACTION.....	1
A. Introduction.....	1
B. Purpose of and Need for Action.....	4
1. Goals and Objectives	4
2. Decision to Be Made.....	7
C. Conformance to Land Use Plans.....	7
D. Consistency with Land Use Plans, Laws, Regulations and Policy	7
E. Issues Considered but not Analyzed Further	8
CHAPTER II: ALTERNATIVES INCLUDING THE PROPOSED ACTION	8
A. Actions Common to All Alternatives	8
1. Adaptive Management and Flexibility.....	8
2. Monitoring	9
B. Alternative A: No Action.....	10
C. Alternative B: Proposed Action – Management Changes and Project Development.....	11
1. Livestock Grazing Management.....	11
2. Permit Renewal.....	13
3. Proposed Range Improvements	14
a. Spring Development	14
b. Biscuitroot Cultural ACEC Exclosure Fence	15
c. Greele Pasture Drift Fence.....	15
d. General Project Design Elements for Proposed Range Improvements	16
e. Herbicide Application	17
D. Alternative C: Proposed Action Excluding Drift Fence Project Development	18
1. Livestock Grazing Management.....	18
2. Permit Renewal.....	19
3. Proposed Range Improvements	19
E. Alternative D: Removal of Livestock Grazing from Pine Creek Pasture with Biscuitroot Cultural ACEC Exclosure Fence	19
1. Livestock Grazing Management.....	19
2. Permit Renewal.....	20
3. Proposed Range Improvements	20

F.	Alternative E: Complete Removal of Livestock Grazing	20
G.	Alternatives Considered but Eliminated from Detailed Analysis	20

CHAPTER III: DESCRIPTION OF AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES20

A.	Affected Elements.....	23
1.	American Indian Traditional Practices/Area of Critical Environmental Concern (ACEC)	23
2.	Cultural Resources	26
3.	Livestock Grazing Management	28
4.	Migratory Birds.....	32
5.	Noxious Weeds	39
6.	Social and Economic Values	48
7.	Soils/Biological Crusts.....	52
8.	Upland Vegetation	54
9.	Wetlands/Riparian Zones and Water Quality	57
10.	Wilderness Characteristics.....	63
11.	Wildlife	68
12.	Wildlife/BLM SSS and Habitat – Fauna (terrestrial)	75
B.	Discussion on Cumulative Effects	82

CHAPTER IV: PERSONS, GROUPS AND AGENCIES INVOLVED.....84

A.	Agencies and Individual Consulted	84
B.	Interdisciplinary Team	84
C.	Advisory.....	84
D.	References.....	84

Map A - Vicinity Map.....	86
Map B - Land Status Map.....	87
Map C - Grazing Schematics Map.....	88
Map D - Existing/Proposed Range Improvements Map.....	89
Map E - Weed Infestations proposed for herbicide application	90

Appendix A: Herbicide Application Standard Operating Procedures and Mitigation Measures	91
Appendix B: Grazing Treatment Descriptions	101

List of Tables

Table 1.	Grazing Management Prior to Pine Creek and Oard Flat Pasture Fence Construction.....	2
Table 2.	Grazing Management Following the Pine Creek and Oard Flat Pasture Fence Construction.....	2
Table 3.	2005 Allotment Evaluations for Rangeland Health Determinations	3
Table 4.	Key Species target Utilization Levels.....	10
Table 5.	Current Stocking Levels (AUM)	10
Table 6.	Alternative B: Proposed Action Grazing Management	12
Table 7.	Recommended Stocking Level (2004 Evaluation).....	13
Table 8.	Percent Federal Range	14
Table 9.	Alternative C: Grazing Management	18
Table 10.	Recommended Stocking Level (2004 Evaluation)	18
Table 11.	Recommended Stocking Level (AUMs) with Alternative D.....	19
Table 12.	Alternative D Grazing Management	19
Table 13.	Elements of the Human Environment.....	21
Table 14.	Impacts to Pre-Historic Archaeological Sites	26
Table 15.	Past and Reasonably Foreseeable Future Actions in CEAA	34
Table 16.	Noxious Weed Distribution	40

PINE CREEK ALLOTMENT MANAGEMENT PLAN
ENVIRONMENTAL ASSESSMENT
DOI-BLM-OR-B050-2006-0029-EA
(OR-06-025-029)

CHAPTER I. INTRODUCTION: PURPOSE OF AND NEED FOR ACTION

A. Introduction

The Pine Creek Allotment, #05503, is located 30 miles east of Burns, Oregon in northeastern Harney County, Oregon (Map A - Vicinity Map) and is administered by the Bureau of Land Management (BLM), Burns District, Three Rivers Resource Area. The allotment contains approximately 20,193 acres of BLM administered land; 322 acres of State of Oregon administered land; .5 acre of Forest Service administered land; and 11,646 acres of private land. The allotment is divided into the following six pastures: Pine Creek; Vanderveer; Greele; Oard Flat; Sagebrush; and Highway (Map B - Land Status). The BLM Selective Management Policy categorizes allotments according to characteristics of natural resources within the allotment to determine how management objectives should be established to improve current unsatisfactory condition, (H-1734-2, Rangeland Monitoring Handbook, page 26). Pine Creek Allotment is a category "I" allotment ("I": Improve –Identifies allotments with management and resource concerns which receive priority for implementation, effectiveness, and performance monitoring.).

One ten-year term livestock grazing permit is currently authorized for this allotment. The season of use for the allotment is from April 16 through October 15 with 2,410 Animal Unit Months (AUMs) of active use. Other forage allocations identified in the Three Rivers Resource Management Plan (RMP) September 1993, for the Pine Creek Allotment include: 84 AUMs for mule deer; 68 AUMs for Rocky Mountain Elk; and 7 AUMs for pronghorn antelope. The permittee owns approximately 8,500 acres of unfenced lands within the allotment, amounting to approximately 70 percent of the total private ownership; owners of the remaining private acres do not graze in the allotment.

The 1998 Pine Creek Allotment Management Plan (AMP) was designed to provide growing season rest from livestock grazing every other year in four of five pastures (see Table 1 below). Grazing management in Oard Flat Pasture was not described in the 1998 Pine Creek AMP as the fence constructed to divide Pine Creek Pasture into an upland pasture (Oard Flat Pasture) and a riparian pasture (Pine Creek Pasture) was not constructed until 2004; this fence was recommended in the 1994 Pine Creek allotment evaluation. Pine Creek Pasture (prior to the 2004 fence) was to be used at various times during the permitted season of use with a target utilization level of 30 percent. The 1998 Pine Creek AMP described an early grazing treatment in Vanderveer Pasture from April 16 to no later than May 8 each year. A graze and rest rotation was prescribed for Sagebrush and Highway Pastures. The graze treatment in this rotation occurred from May 9 to May 31. A graze and defer rotation was prescribed for Greele Pasture that included grazing from May 1 through June 5 and July 1 through August 31, in a two-year rotation (see Table 2 below). Actual grazing practices have been similar to those

described in the 1998 Pine Creek AMP with the exception of grazing management in Pine Creek Pasture. Utilization studies conducted in Pine Creek Pasture six of eleven years since 1998 indicated the prescribed 30 percent utilization level was exceeded three times.

Table 1: Grazing Management Prior to Pine Creek and Oard Flat Pasture Fence Construction

Even Year (e.g. 1998)		Odd Year (e.g. 1999)	
Pasture	Dates	Pasture	Dates
Vanderveer	04/16-05/08	Vanderveer	04/16-05/08
Sagebrush	05/09-05/31	Highway	05/09-05/31
Greele	05/01-06/05	Pine Creek	06/01-09/30
Pine Creek	06/01-09/30	Greele	07/11-08/31
Highway	Rest	Sagebrush	Rest

After the construction of the Pine Creek and Oard Flat Pasture fence in 2004, the 2005 allotment evaluation recommended grazing management as follows:

Table 2: Grazing Management Following the Pine Creek and Oard Flat Pasture Fence Construction

Even Year (e.g. 1998)		Odd Year (e.g. 1999)	
Pasture	Dates	Pasture	Dates
Vanderveer	04/16-05/08	Vanderveer	04/16-05/08
Sagebrush	05/09-06/15	Highway	05/09-05/31
Oard Flat	06/16-08/31	Oard Flat	06/01-08/31
Greele	05/01-06/05	Greele	07/01-09/15
Pine Creek	05/01-06/10	Pine Creek	05/01-06/10
Highway	Rest	Sagebrush	Rest

This recommended rotation was generally followed, in order to incorporate the new riparian pasture, from 2005 through 2012 with the exception of earlier than recommended use in the Greele Pasture in 2011 to use this pasture in rotation with the permittees Forest Service permit.

In 2005, Pine Creek Allotment resource management data from 1998 to 2004 was analyzed through a formal Interdisciplinary Team (IDT) evaluation. This evaluation identified resource objectives that were or were not being achieved. The evaluation included an analysis of grazing management in the allotment to determine if current management was in conformance with *Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands in Oregon/Washington (dated August 12, 1997)* (Standard and Guidelines). The Standards for Rangeland Health determinations from the 2005 evaluations are shown in Table 3 below. Guidelines for Livestock Grazing Management were not achieved due to continuous mid-late season livestock grazing along Pine Creek within Pine Creek Pasture.

**Table 3: 2005 Allotment Evaluations for
Rangeland Health Determinations**

Standard	Achieved	Not Achieved	Causal Factors	Comments
1. Watershed Function – Uplands	Yes in all pastures			
2. Watershed Function – Riparian/Wetland Areas	Achieved for Little Pine Creek – Vanderveer Pasture (Standard not present in the remaining pastures)	Not Achieved for Pine Creek and tributary – Pine Creek Pasture	Livestock (for Pine Creek – Pine Creek Pasture); Juniper for Pine Creek Tributary –Pine Creek Pasture*	<u>Pine Creek</u> : The lack of woody riparian vegetation coupled with over-utilized herbaceous vegetation is not adequate to dissipate stream energy, filter sediment, aid in groundwater recharge or maintain channel characteristics along the creek. <u>Tributary</u> : Encroaching juniper trees along this tributary are displacing black cottonwood stands. With this loss, a subsequent decline in watershed function and water quality would occur as black cottonwood stands are known to protect stream banks, reduce erosion, raise the water table, increase late season flows, reduce temperatures, and add large ¹ woody debris to the stream.
3. Ecological Processes	Yes in all pastures			
4. Water Quality	(Standard not present in the remaining pastures)	Little Pine Creek & Pine Creek-Vanderveer and Pine Creek	Livestock were a causal factor for Pine Creek –Pine Creek	The majority of Pine Creek (97%) in this allotment is privately owned limiting management options by the BLM. The high width to depth ratio, narrow

¹ Debris large enough to stay in place

		Pastures	Pasture. The road was determined to be a limiting factor for Little Pine Creek.	riparian zone, and lack of shade providing vegetation on portions of Pine Creek under BLM management imply Pine Creek does not meet the water quality standard. Little Pine Creek: Pine Creek Road is a limiting factor in riparian and water quality potential.
5. Native, T&E, and Locally Important Species	Achieved for sage-grouse, biscuitroot, ravens lomatium, goshawk	Not achieved for Redband trout, Pine Creek – Pine Creek Pasture	Livestock	The majority of Pine Creek (97%) in this allotment is privately owned limiting management options by the BLM.

*Juniper encroachment may be addressed following appropriate National Environmental Policy Act (NEPA) analysis, as the purpose of an AMP is to address grazing management.

B. Purpose of and Need for Action

1. Goals and Objectives

During the 2005 Pine Creek Allotment evaluation an IDT of Burns BLM staff determined Guidelines for Livestock Management were not achieved due to continuous mid-late season livestock grazing along Pine Creek, within Pine Creek Pasture. The data used to make this determination was collected prior to the 2004 fence construction which created the Pine Creek “riparian” pasture. At the time, three of the five Standards for Rangeland Health were not achieved with livestock grazing management being a causal factor influencing downward trend in riparian condition along Pine Creek. With the creation of the Pine Creek Pasture, livestock grazing management applied since 2005 has shown slow progress toward an upward trend in riparian condition along Pine Creek (Table 3).

The purpose of the Proposed Action is to 1) modify current livestock grazing management on Pine Creek Allotment by adjusting timing and distribution of livestock use to make significant² progress toward achieving the Watershed-Riparian, Water Quality, and Locally Important Species (Redband Trout)

² Significant Progress: Used in reference to achieving a standard as outlined in the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the BLM in the States of Oregon and Washington (1997). The use of the word “significant” in this document does not meet the Council on Environmental Quality’s definition of the word.

Standards that were not achieved within Pine Creek and Vanderveer Pastures; 2) to ensure grazing management continues to achieve those Standards currently being achieved; 3) to conform to all applicable grazing management guidelines; 4) to alleviate conflicts between livestock and root gathering, discussed later in this section; 5) to meet those Resource Objectives specific to Pine Creek Allotment listed in Part C below; and 6) to be proactive in treating noxious weeds, discussed later in this section; and 7) to consider an external request to renew a ten-year term livestock grazing permit.

Based on the 2005 rangeland health standard assessment, utilization records, riparian monitoring, and professional observation of BLM personnel, there exists a need to eliminate late season livestock grazing within riparian communities along Pine Creek to make significant¹ progress toward achieving Standards not achieved in 2005; to continue to meet those Standards currently being achieved; and, to continue to conform to grazing management guidelines. Since 2005 changes in livestock grazing management have occurred and upland/riparian monitoring indicates movement toward achieving those standards not achieved in 2005, further discussion is provided later in this section.

In addition, livestock grazing within Biscuitroot Cultural Area of Critical Environmental Concern (ACEC) affects the spiritual and sacred aspects of root gathering as part of Native American Traditional Practices. Early annual grazing in Vanderveer Pasture has been a source of contention with the Burns Paiute Tribe since before the Biscuitroot Cultural ACEC was nominated. The contention exists because most root gathering occurs in this area between April 15th and May 15th when livestock are present.

Also, Rangeland Health Standards are at risk due to the presence of noxious weeds in surrounding allotments and the increasing coverage of medusahead rye infestations. Chemicals available to BLM in the past for treatment of medusahead rye were ineffective.

Finally, the need for the Proposed Action is established by BLM's responsibilities to respond to a request to re-new, under specific terms and conditions, the ten-year term livestock grazing permit associated with Pine Creek Allotment which expires in 2015.

This AMP/EA analyzes the recommended management actions developed through the allotment evaluation process, subsequent IDT recommendations, public comments, and through coordination with the livestock permittee to aid in accomplishing allotment resource objectives and achieving all Standards and Guidelines.

Resource Objectives

The following management objectives are from the September 1992 Three Rivers RMP/ ROD/Rangeland Program Summary (Appendix 9, Appendices 70).

- Improve surface water quality on public lands to meet or exceed quality standards for all beneficial uses as established by the Department of Environmental Quality (DEQ), where BLM authorized actions are having a negative effect on water quality.
- Improve and maintain erosion condition in moderate or better erosion condition.
- Improve and maintain big game habitat in satisfactory habitat condition.
- Allocate forage to meet elk forage demands.
- Improve and maintain riparian or aquatic habitat in good or better habitat condition.
- Protect special status species or its habitat from impact by BLM-authorized actions.
- Adjust allotment management including levels and areas of authorized use, seasons of use and grazing system as required by Biscuitroot Cultural ACEC Management Plan.
- Maintain or improve rangeland condition and productivity through a change in management practices and/or reduction in active use.

The following AMP Goals/Objectives from the 2005 Pine Creek Evaluation were modified by the current IDT in this AMP to clarify and more accurately reflect current language used to determine changes in rangeland health and habitat conditions. Progress towards meeting these objectives will be measured using methods discussed in Chapter IIA3 Monitoring.

- Increase riparian stabilizer species, as outlined in the site potentials found within the Ecological Site Descriptions (ESD) at <http://esis.sc.egov.usda.gov>, producing an upward trend in riparian habitat condition on publicly administered portions of Pine Creek and its tributaries over the next five years.
- Maintain or increase hydric herbaceous and/or deciduous woody species in conjunction with a stable or upward trend in riparian habitat condition

on publicly administered portions of Little Pine Creek over the next five years.

- Maintain or increase native perennial forbs on all sagebrush ecological sites to maintain sage-grouse brood-rearing habitat over the next five years.
- Maintain or increase the relative frequency of occurrence and ground cover of key forage plant species at key areas of Pine Creek Allotment over the next five years. This is a grazing management objective, therefore determinations of success or failure in achieving the objectives should not be dependent on phenomena outside management's control (i.e. drought, fire juniper encroachment, etc.).
- Maintain the relative frequency of occurrence of biscuitroot (and other economically important root plants) in the Biscuitroot Cultural ACEC over the next five years. Progress toward meeting this objective would be measured by the change in relative frequency of occurrence of biscuitroot as compared with total ground cover. A trend site should be established using Pace 180° methodology within the ACEC. This is a grazing management objective, therefore determinations of success or failure in achieving the objective should not be dependent on phenomena outside management's control (i.e. drought, fire, root gathering, etc.).

2. Decision to be Made:

The BLM will decide whether or not to issue a ten-year term livestock grazing permit with modifications from the current ten-year term livestock grazing permit. As part of this decision, BLM will determine whether or not range improvements should be constructed.

C. Conformance to Land Use Plans

The proposed action and alternatives are in conformance with the Three Rivers RMP/ROD, dated 1992, even though they are not specifically provided for, because they are clearly consistent with decisions stated above under Resource Objectives.

D. Consistency with Land Use Plans, Laws, Regulations, and Policy

This AMP/EA has been designed to conform to the following documents, which direct and provide the framework for management of BLM lands within the Burns District:

- Taylor Grazing Act (43 U.S.C. 315, 1934).
- The National Environmental Policy Act (42 U.S.C. 4321-4347, 1970).
- Federal Land Policy and Management Act (43 U.S.C. 1701, 1976).
- Public Rangelands Improvement Act (43 U.S.C. 1901, 1978).

- August 12, 1997 Standards for Rangeland Health and Guidelines for Livestock Management for Public Lands Administered by the BLM in the States of Oregon and Washington.
- 2004, Local Integrated Noxious Weed Control Plan
- Biscuitroot ACEC Management Plan, September 1999.
- 2004, BLM National Greater sage-grouse Habitat Conservation Strategy.
- 2011, Greater Sage-grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat.
- State, local, and Tribal laws, regulations, and land use plans.

E. Issues Considered But Not Analyzed Further

Greenhouse Gas Emissions and Climate Change will not be analyzed in this Environmental Assessment (EA) assuming each AUM results in 0.168 metric tons of carbon dioxide equivalent, authorizing 1,628 active use AUMs would result in methane emissions of 274 metric tons of carbon dioxide equivalent per year.

The Burns District has considered greenhouse gas emissions and climate change in several AMPs (Capehart Lake AMP, page 6, 2012; Cluster AMP, page 6, 2011; Cottonwood Creek AMP, page 9, 2011; and Chalk Hills AMP, page 8, 2010) and all of the AMPs have concluded the emission does not merit reporting as they fall well below the threshold of 25,000 metric tons.

CHAPTER II. ALTERNATIVES INCLUDING THE PROPOSED ACTION

Alternatives A through E have been fully analyzed in Chapter III of this AMP/EA. Following the public review period for this document a proposed decision would be issued by the Field Manager that may choose to proceed with any one of the alternatives analyzed or combinations of portions of each alternative.

A. Actions Common to All Alternatives

1. Adaptive Management and Flexibility:

Adaptive management is a system of management practices based on clearly identified outcomes and monitoring to determine if management actions are meeting desired outcomes; and, if not, facilitating management changes that would best ensure outcomes are met. Adaptive management recognizes that knowledge about natural resource systems is sometimes uncertain and, in this context, adaptive management affords an opportunity for improved understanding. Knowing uncertainties exist in managing for sustainable

ecosystems, some changes in management may be authorized, which include, but are not limited to, adjusting the rotation, timing, season of use of grazing, and livestock numbers:

- Based on the previous year's monitoring and current year's climatic conditions.
- Due to drought causing a lack of available water in areas originally scheduled to be used.
- To balance utilization levels.
- To protect the riparian and water resources.

Flexibility in grazing management would be authorized, and changes in rotations would only be allowed as long as they continue to meet resource objectives. Flexibility is dependent upon the demonstrated stewardship and cooperation of the permittee. Rangeland monitoring is a key component of adaptive management. As monitoring indicates changes in grazing management are needed to meet resource objectives, changes are implemented annually working with the permittee. A two-week period of flexibility would be allowed, both prior to and following the permitted season of use, in order to adjust grazing using flexibility and adaptive management.

2. Monitoring:

Monitoring by BLM staff, in coordination with the permittee, of the success in meeting allotment-specific resource objectives and achieving Standards would take place following implementation. Pace 180° methodology 1984 Technical Reference 4400-4 and permanent photo points would be used to measure the relative frequency of occurrence of key forbs, shrubs, and perennial grass species to assess trend in rangeland condition would be conducted.

Soil Surface Factor methodology would be used to measure soil stability and Observed Apparent Trend would be assessed at each upland trend plot. Permanent photo points would be used to assess trend in riparian habitat condition along Pine Creek and Little Pine Creek. Upland trend and riparian data would be collected and analyzed on 5-year intervals.

Annual utilization studies for each pasture grazed by livestock, along with multiple-use supervision reports on the allotment, would be collected by BLM staff. The Key Forage Plant method would be used to measure utilization in each pasture. Target utilization levels for key forage species are shown in Table 4.

Table 4: Key Species Target Utilization Levels

Pasture	Acres	Key Species	Utilization Target
Vanderveer	5,817	Bluebunch wheatgrass Willow	50%-herbaceous 10%-deciduous woody species
Highway	2,763	Bluebunch wheatgrass/Idaho fescue	50%
Sagebrush	1,160	Idaho fescue	50%
Pine Creek	4,280	Bluebunch wheatgrass/Idaho fescue Willow/Alder	50%-herbaceous 10%-deciduous woody species
Greele	6,302	Bluebunch wheatgrass/Idaho fescue	50%
Oard Flat	7,634	Bluebunch wheatgrass/Idaho fescue	50%

During each allotment visit monitoring for noxious weed establishment would occur, as well as observations of overall rangeland condition. Any disturbed areas created by construction of proposed range improvement projects would be monitored closely, for at least 3 years after construction, for noxious weeds. All information would aid in determining if projects and implemented management is sufficient to achieve Standards and meet objectives.

B. Alternative A: No Action

The No Action Alternative would renew the existing ten-year term livestock grazing permit on Pine Creek Allotment. A ten-year term livestock grazing permit would be issued that would continue the current livestock grazing. The season of use is shown in Table 5 below. Total Permitted Use would remain at 3,158 AUMs on public land as shown in Table 5. Permitted Active Use would remain at 2,410 AUMs. The ten-year term livestock grazing permit would be issued with the same terms and conditions as the expiring ten-year term livestock grazing permit.

Table 5: Current Stocking Levels (AUM)

Season of Use	Permitted Active Use	Voluntary Nonuse	Suspended Use	Total Permitted Use	Exchange of Use	Total Use
4/15-10/15	2,410	0	748	3,158	0	3,158

Under the No Action alternative, no range improvement projects would be implemented. Vanderveer Pasture would receive an early season grazing treatment from April 16 to May 8 each year. Highway Pasture would be used in a graze and rest rotation with Sagebrush Pasture. A graze and defer rotation would be maintained in Greele Pasture and season-long grazing from June to September would continue in Pine Creek and Oard Flat Pastures (See Table 1).

C. Alternative B: Proposed Action – Management Changes and Project Development

The Proposed Action was designed by a BLM IDT with representatives from all affected resources. The Proposed Action was developed to address Standards determined as not achieved with livestock as a causal factor in the 2005 Pine Creek Evaluation. It was also designed to meet Pine Creek Allotment resource objectives brought forth and revised from the 2005 Pine Creek Evaluation.

To achieve Standards for Rangeland Health, meet resource objectives and conform to Guidelines for Livestock Grazing Management, the proposed management actions are described in detail as follows:

1. Livestock Grazing Management:

Livestock grazing management was designed and would be authorized to provide periodic growing season rest to upland forage plant species. Grazing management in riparian areas would be designed to limit grazing intensity and support adequate vegetation to maintain channel and bank stability through the capture and retention of sediments during run-off events. Use periods per pasture may vary annually with climate conditions in order to provide for the recommended rest periods.

Livestock numbers may vary annually as outlined under Adaptive Management (CH II, A. Actions Common to All Alternatives); however, total permitted AUMs will not exceed 1,628 (or not exceed 2,410 if voluntary non-use AUMs are reinstated after the five-year evaluation period).

Grazing management in Pine Creek Allotment would be early season riparian grazing in Vanderveer Pasture each year; a graze and rest rotation between Sagebrush and Highway Pastures; a graze and defer rotation in Greele Pasture; and an annual graze treatment in Oard Flat and Pine Creek Pastures. See Map C for grazing schematic. Grazing management would be on a 2-year cycle as shown in Table 6. The dates are flexible up to 14 days depending on the year, with the exception of Vanderveer Pasture because of biscuitroot gathering in this area, shown on Map D.

Table 6: Alternative B: Proposed Action Grazing Management

Even Years		Odd Years	
Pasture	Dates	Pasture	Dates
Vanderveer	04/16-05/08	Vanderveer	04/16-05/08
Sagebrush	05/09-06/15	Highway	05/09-05/31
Oard Flat	06/16-08/31	Oard Flat	06/01-08/31
Greele	05/01-06/15	Greele	07/01-08/31
Pine Creek	05/01-06/01	Pine Creek	05/01-06/01
Highway	Rest	Sagebrush	Rest

The Proposed Action includes early season grazing in Vanderveer Pasture each year, to afford riparian vegetation along Little Pine Creek the opportunity for regrowth and life cycle completion.

During even numbered years, cattle would be moved from Vanderveer Pasture to Sagebrush Pasture in early May. Cattle would graze in Sagebrush Pasture until June 15. The herd would then be split, with approximately 75 percent going to an adjacent Forest Service allotment while the balance (approximately 160 head) of the herd is moved into Oard Flat Pasture through August 31.

During odd numbered years, cattle would be moved from Vanderveer Pasture to Highway Pasture in early May. Cattle would graze in Highway Pasture until May 31. The herd would then be split with approximately 75 percent going to an adjacent Forest Service allotment while the balance (approximately 160 head) of the herd is moved into Oard Flat Pasture through August 31.

Cattle would graze the Greele Pasture from May 1 through June 15 on even years and July 1 through August 31 on odd years. The even year rotation within Greele Pasture could be changed to a deferred graze treatment (after July 1) depending on the rotation with the permittees' private land.

Pine Creek Pasture would be grazed from May 1 through June 1 each year. Cattle grazing the Greele and Pine Creek Pastures would be a separate group from those grazing the other pastures in the allotment, and would be coming from private land into the Pine Creek Pasture each year. The timing of these treatments is designed to remove livestock grazing early enough in the season to afford hydric herbaceous vegetation along Pine Creek opportunity for regrowth and life cycle completion. These treatments also occur at a time when forage palatability is higher in the upland vegetation communities.

The permittee would be authorized to actively drive³ (trail) livestock through the allotment each fall (typically in September), when coming off of their United States Forest Service (USFS) grazing allotments. The permittee would be

³ Actively drive: livestock would be allowed to water within the allotment, but no loafing or active grazing would be allowed during trailing.

authorized to trail through Oard Flat, Sagebrush, and Highway pasture. Livestock would be trailed through the pastures with the 85 percent or more of the animals being trailed in one day, with one or two additional days taken to trail any remaining animals. No over-nighting of livestock within the allotment would be allowed during trailing. The actual dates of trailing would vary annually depending on the dates the permittee would be authorized to graze on the forest; however, trailing would always occur after vegetation becomes dormant. The animals may be allowed to water along the way but would not be allowed to linger or actively graze during trailing. Since trailing would occur over such a short period and animals would not be allowed to actively graze, no AUMs would be taken. In the instance where the entire allotment is rested due to fire or other ecological circumstances, the permittee would also be allowed to trail through the allotment in the spring in order to access their USFS grazing allotments. That trailing would occur as described above, only with different timing.

Annual livestock use would be authorized at 1,628 AUMs for a five-year evaluation period. To make progress toward achieving Standards and continue to achieve those currently being achieved and to meet allotment specific resource objectives the permittee has agreed to take 782 voluntary non-use AUMs, resulting in 1,628 AUMs of livestock use each year. Voluntary non-use AUMs may be reinstated as utilization and trend monitoring indicate resource objectives are being achieved and Standards are being met, see Table 8 for recommended stocking levels. If, after the five-year evaluation period, utilization and trend monitoring do not show that resource objectives are being achieved and Standards are being met voluntary non-use will continue and be evaluated after a consecutive five-year evaluation period.

Table 7: Recommended Stocking Level (2004 Evaluation)

Active Permitted Use	Voluntary Nonuse	Suspended Use	Total Permitted Use	Exchange of Use	Total Use
1,628	782	748	3,158	0	3,158

2. Permit Renewal:

The Proposed Action also includes the renewal of the existing ten-year term livestock grazing permit (#3602302) in Pine Creek Allotment for the current permittee. A ten-year term livestock grazing permit would be issued to graze livestock on public land. The new ten-year term livestock grazing permit would be issued incorporating all changes within this AMP as analyzed in the Proposed Action.

The allotment is billed on a Percent Federal Range basis. Percent Federal Range is billed by using the following formula:

Number of days X number of cattle X Percent Public Land Forage
30.41666 (average number of days in a month)

The Percent Federal Range by pasture is shown in Table 8.

Table 8: Percent Federal Range

Pasture	Percentage Federal Range
Vanderveer	95%
Sagebrush	34%
Oard Flat	22%
Greele	91%
Pine Creek	53%
Highway	34%

3. Proposed Range Improvements:

Refer to Map D, Proposed Action Range Improvements Map.

a. Spring Development:

The Proposed Action includes one spring development, Deer Camp Spring, to improve livestock distribution. Deer Camp Spring is located at approximately T20S, R33.5E, Section 36, NW¹/₄ SW¹/₄. Spring development would consist of surrounding the spring with fencing (fence would be located 10-20 feet from the edge of the riparian vegetation in order to reduce grazing pressure on the fence from livestock). Fence would be built as described in Biscuitroot Cultural ACEC Exclosure Fence below and would follow any general project design elements that apply also below), installing a spring box to gather water, and short pipeline to a 4' x 12' metal trough. Spring boxes, consisting of a 1 ½-foot diameter galvanized steel culvert and drain rock, would be installed using a rubber-tired backhoe. Any part of the headbox that is visible would be painted to blend in with the surrounding environment; however the 90 percent or more of the spring box, would be buried. Pipe installation and trough placement would be as described above, with the trough located outside the fenced exclosure. Length of pipe would be determined by exclosure size and trough replacement. Depending on the water flow at the spring, more than one trough may be installed. All troughs would be constructed with a valve that would allow control of water flow into the trough(s). Trough(s) would be constructed with a float valve to prevent overflow; however, an overflow pipe would be installed to prevent damage in the event the float valve fails and water continues to flow in the trough, the overflow pipe would carry water back into the exclosure. Juniper trees within the exclosures may be cut (old growth junipers would remain standing) to further protect the spring source and promote the riparian area. Trees not used for the fence, may be left, or would be hand piled and

burned outside the enclosure and riparian area.

b. Biscuitroot Cultural ACEC Enclosure Fence:

The Proposed Action includes a fence excluding livestock access to approximately 700 acres of the Biscuitroot Cultural ACEC in Pine Creek Allotment. The fence would include portions of T22S R34E Sections 6 and 7 in the southwest corner of Vanderveer Pasture. There would be approximately 3.13 miles of fence that would begin at the existing Vanderveer Pasture fence, follow Biscuitroot Cultural ACEC boundary line to Pine Creek Road, follow Pine Creek Road south and join the south fence along Highway 20. The Burns Paiute Tribe would be responsible for fence maintenance on the enclosure, prior to livestock grazing each year. The permittee would not be subject to trespass resulting from insufficient fence maintenance and/or open gates into the enclosure. A Cooperative Agreement between the BLM, Burns Paiute Tribe, and allotment permittee would be created to specify each party's responsibility for this fence, prior to construction. Fence would be constructed to BLM specifications for a 4-strand, barbed-wire fence to meet cattle, elk, deer, and antelope requirements. Post spacing would be 22-feet and the fence height would be approximately 42". The bottom strand would be smooth wire and placed approximately 16" from the ground while the third and bottom wires would be placed approximately 6" apart, and the second and third wires would be placed approximately 8" apart, with the top and second wires placed approximately 12" apart. Two metal stays would be used in each section of fence. Posts would be standard metal posts, and solid green in color. Wood braces and rock cribs would be used where necessary for proper fence support. Where required, reflective markers would be placed on fences to reduce bird collision. Spot removal of rocks or vegetation would only (no blading of the ground during construction) occur, when necessary, during construction. Pickups (if accessible) and four-wheel All-Terrain Vehicles (ATVs) would generally be used in construction, travel would be done in a manner that reduces establishment of tracks. Fence construction would also follow any general project design elements listed below that apply.

c. Greele Pasture Drift Fence:

A drift fence (15pprox.. 1/8 mile long) would be constructed within Greele Pasture. Approximate location of this drift fence is T21S, R33E, Section 3, NE ¼ NE ¼. This fence would reduce livestock congregation in the lower portions of this pasture by holding them in the higher elevations on the west side of the pasture. Currently, utilization is heavier on the east side of the pasture as livestock congregate along the fence bordering the permittees' private meadows. Although utilization data shows even distribution in the pasture, professional observations indicate livestock

congregate on the east side of the pasture outside of the utilization transect. This drift fence would control use in the Greele Pasture to improve distribution of livestock and ensure utilization target levels are not exceeded. Fence construction would follow BLM specification, described above in Biscuitroot Cultural ACEC Enclosure Fence. A cattle guard would be installed, in place of a gate, where the fence crosses the road, due to heavy hunting traffic that coincides with the timing of use in this pasture.

d. General Project Design Elements for Proposed Range Improvements:

- i. Proposed range improvement sites would be inventoried for cultural resources prior to implementation. If cultural resources are found, historic property documentation would be completed. Archaeological sites would be avoided or mitigation plans would be developed in consultation with the State Historic Preservation Office, if necessary.
- ii. Proposed range improvement sites would be surveyed for Special Status Species (SSS) of flora prior to implementation. SSS flora populations would be avoided.
- iii. Special Status wildlife species (terrestrial, avian, and aquatic) habitat would be protected during proposed range improvement project implementation.
- iv. Proposed range improvement sites would be surveyed for noxious weeds prior to implementation. Weed populations identified in or adjacent to the proposed projects would be treated using the most appropriate methods in accordance with the Burns District Noxious Weed Management Program EA/ROD (EA/ROD) OR-020-98-05 or in conformance with any future weed treatment NEPA documents.
- v. The risk of noxious weed introduction would be minimized by ensuring all equipment (including all machinery, 4-wheelers, and pickup trucks) are cleaned prior to entry to the sites, minimizing disturbance activities, and completing follow-up monitoring, to ensure no new noxious weed establishment. Should noxious weeds be found, appropriate control treatments would be performed in conformance with the Burns District Noxious Weed Program Management EA/DR OR-020-98-05 or in conformance with any future weed treatment NEPA documents.
- vi. All proposed fences would be constructed using BLM approved standards for three or four-strand fence.
- vii. Proposed fences would not be constructed within 0.6 miles of a lek.
- viii. Proposed and existing fences within 1.25 miles of a lek would be evaluated for need for bird flight diverters (markers) to reduce occurrence of bird collisions.

- ix. No blading to clear a path for proposed fences would occur.
- x. All proposed fences constructed in sage-grouse habitat would include plastic safety clips on the wire to reduce sage-grouse mortality from hitting the fence.
- xi. The grazing permittee would be responsible for all fence maintenance, with the exception of the Biscuitroot Cultural ACEC Enclosure Fence.
- xii. Seeding with certified weed-free seed would take place in areas disturbed by implementation of range improvement projects. Soil displaced for pipeline installation would be pulled in and returned to original slope and grade then seeded with a broadcast seeder and drag. The seed mix used for these range improvement projects would be a mixture of native and non-native seeds including: crested wheatgrass, bluebunch wheatgrass, squirreltail, and native forbs.
- xiii. All water troughs installed would be equipped with escape ramps for birds and small mammals.
- xiv. Prior to construction, a cooperative agreement between the Pine Creek Allotment permittee and Burns District BLM would be completed to address each partner's responsibilities for construction, maintenance, and supplies. The projects would be funded under a cost share between Burns District BLM and the permittee as specified in a cooperative agreement.

e. Herbicide Application:

Where herbicide application is determined to be the most appropriate treatment for noxious weeds, use of herbicides would be in conformance with label instructions. All pertinent Standard Operating Procedures (SOPs) and Mitigating Measures from the Vegetation Treatments Using Herbicides on BLM Lands in Oregon Final Environmental Impact Statement (FEIS)/ROD (Oct 2010) (Appendix 2.P 457-467) would be incorporated. Herbicides, in addition to our currently authorized suite of products, to be used to treat noxious weeds include:

- i. Imazapic (Plateau) at 6 oz./acre (0.178 pounds/acre of active ingredient Imazapic) applied in the fall to treat medusahead rye and cheatgrass. Application method would be by either low boom or aerial spray. Aerial spray treatments for medusahead rye would be used on infestations 50 acres or greater and/or on smaller infestations where ground equipment cannot access. Application of Imazapic would occur from late summer/early fall to reduce potential impacts to the establishment and survival of desirable species.
- ii. Chlorsulfuron (Telar XP) at 1.3 oz./acre (0.061 pounds/acre of active ingredient Chlorsulfuron) applied during the growing season

to treat mustards and thistles. Application method would be treated using ground equipment with either low boom or spot sprayed.

- iii. Clopyralid (Transline) at 2/3 pt./acre (0.25 pounds/acre of active ingredient Clopyralid). Mixed with either:
 1. 2,4-D at 1 qt./acre (0.95 pounds/acre of active ingredient 2,4-D) to treat Canada thistle and knapweed during the bud to bloom stage, or
 2. Chlorsulfuron at 1.3 oz./acre applied during the growing season to treat Canada thistle and knapweeds.

Map E shows the known weed infestations proposed for herbicide application in the Pine Creek Allotment.

D. Alternative C: Proposed Action Excluding Drift Fence Project Development

1. Livestock Grazing Management:

Alternative C would include changes to livestock grazing management with a spring development and Biscuitroot Cultural ACEC Enclosure Fence. See Table 9 for Alternative C Livestock Grazing Management dates and Table 10 Alternative C Recommended Stocking Level.

Table 9: Alternative C Grazing Management

Even Years		Odd Years	
Pasture	Dates	Pasture	Dates
Vanderveer	04/16-05/08	Vanderveer	04/16-05/08
Sagebrush	05/09-06/15	Highway	05/09-05/31
Oard Flat	06/16-08/31	Oard Flat	06/01-08/31
Greele	05/01-06/15	Greele	07/01-08/31
Pine Creek	05/01-06/01	Pine Creek	05/01-06/01
Highway	Rest	Sagebrush	Rest

Table 10: Recommended Stocking Level (2004 Evaluation)

Active Permitted Use	Voluntary Nonuse	Suspended Use	Total Permitted Use	Exchange of Use	Total Use
1,628	782	748	3,158	0	3,158

Alternative C includes livestock grazing management described in the Proposed Action. In Alternative C there would be no drift fence constructed in the Greele Pasture. It would be necessary to add annual utilization study routes to the monitoring (in addition to that described in the monitoring section above) to ensure that target use would not be exceeded.

2. Permit Renewal:

Alternative C also includes the renewal of the existing ten-year term livestock grazing permit (#3602302) in Pine Creek Allotment for the current permittee. A ten-year term livestock grazing permit would be issued to graze livestock on public land. The new ten-year term livestock grazing permit would be to incorporating all changes within this AMP as analyzed in Alternative C.

3. Proposed Range Improvements:

The spring development and Biscuitroot Cultural ACEC Enclosure fence would be constructed as described above under the Proposed Action. No other range improvement projects are proposed under this alternative. General project design elements can be found above in the Proposed Action (excluding those that do not apply to projects in Alternative C).

E. Alternative D: Removal of Livestock Grazing from Pine Creek Pasture with Biscuitroot Cultural ACEC Enclosure Fence

1. Livestock Grazing Management:

Alternative D would include implementing changes to livestock grazing management by removing grazing from the Pine Creek Pasture. This alternative incorporates a decrease of 187 AUMs of permitted use.

Table 11: Recommended Stocking Level (AUMs) with Alternative D

Active Permitted Use	Voluntary Nonuse	Suspended Use	Total Permitted Use	Exchange of Use	Total Use
1,441	782	935	3,158	0	3,158

Table 12: Alternative D Grazing Management

Even Years		Odd Years	
Pasture	Dates	Pasture	Dates
Vanderveer	04/16-05/08	Vanderveer	04/16-05/08
Sagebrush	05/09-06/15	Highway	05/09-05/31
Oard Flat	06/16-08/31	Oard Flat	06/01-08/31
Greele	05/01-06/15	Greele	07/01-08/31
Highway	Rest	Sagebrush	Rest

This pasture is composed of 53 percent public land forage and 475 private land forage. Removing livestock from this pasture would remove approximately 99 AUMs of public land forage and 88 AUMs of private land forage (based on 50 percent target utilization levels). The permittee would have to fence his private land separate from BLM land in order to utilize private land forage under this alternative. According to the Code of Federal Regulations (CFR), published in

August 1995 Subchapter D –Range Management (4000) Subpart 4100 -4110.3-3, Implementing Reductions in Permitted Use, the BLM would implement changes in active use after consultation, cooperation, and coordination with the affected permittee and through a documented agreement or by decision of the authorized officer.

2. Permit Renewal:

Alternative D also includes the renewal of the existing ten-year term livestock grazing permit (#3602302) in Pine Creek Allotment for the current permittee. A ten-year term livestock grazing permit would be issued to graze livestock on public land. The new ten-year term livestock grazing permit would be issued with the same terms and conditions as the expiring ten-year term livestock grazing permit with the exception that the total AUMs would show a reduction of 187 from the currently authorized AUMs, the new ten-year term livestock grazing permit would also incorporate all other changes within this AMP as analyzed in Alternative D.

3. Proposed Range Improvements:

The Biscuitroot Cultural ACEC enclosure fence would be constructed as described above under the Proposed Action. No other range improvement projects are proposed under this alternative. The fence would be built according to the project design features.

F. Alternative E: Complete Removal of Livestock Grazing

This alternative would result in the 10-year term livestock grazing permit not being renewed; therefore, completely removing all permitted livestock grazing from the Pine Creek Allotment. Under this alternative, no new range improvements would be constructed unless needed for another resource and analyzed as appropriate. Existing range improvement would only be maintained as needed for other resources.

G. Alternatives Considered but Eliminated from Detailed Analysis:

There were no alternatives considered but eliminated from detailed analysis.

CHAPTER III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The IDT reviewed the elements of the human environment, as required by law, regulation, Executive Order, and policy, to determine if they would be affected by the Proposed Action or any of the Alternatives. The results are summarized in Table 13 below.

This environmental consequences section presents the potential changes to the environment resulting from implementation of the alternatives. This chapter describes all effects including, direct, indirect, and cumulative on resources from enacting the alternatives. Direct and indirect

effects plus past actions become part of the cumulative effects analysis. A distinction between direct and indirect effects is not made in many cases cumulative effects are only described as effects.

Reasonable foreseeable future activities: There are several reasonably foreseeable, ongoing, and proposed projects within the allotment and the geographic scope of affected resources which have the potential to contribute to cumulative effects of the Proposed Action and Alternatives. Activities expected to occur in addition to those analyzed in this AMP/EA over the 10-20 year life of this AMP include ongoing treatment of noxious weeds, the Pinecraft Hazardous Fuels

Reduction Project (EA OR-06-025-059) (from here on referred to as the hazardous fuels reduction project and/or habitat restoration project), and routine road and range improvement maintenance.

Table 13: Elements of the Human Environment

Elements of Human Environment		If Not Affected, why? If Affected, Reference Applicable EA Section
Air Quality (Clean Air Act)	Not Affected	There would only be temporary change in air quality as a result of spring development or building fences (fugitive dust). Effects would not be measurable.
American Indian Traditional Practices	Affected	See Section III
Areas of Critical Environmental Concern (ACECs)	Affected	See Section III
Cultural Resources	Affected	See Section III
Environmental Justice (Executive Order 12898)	Not Affected	Implementation is not expected to result in a disproportionately adverse effect on minority or economically disadvantaged populations as such populations do not exist within the project area
Flood Plains (Executive Order 13112)	Not Affected	No occupancy or modification of flood plains, no risk of flood loss.
Grazing Management	Affected	See Section III
Hazardous or Solid Waste	Not Affected	No concerns have been disclosed.
Migratory Birds (Executive Order 13186)	Affected	See Section III
Noxious Weeds (Executive Order 13112)	Affected	See Section III
Paleontological	Not	No alternative would have an effect

Elements of Human Environment		If Not Affected, why? If Affected, Reference Applicable EA Section
Resources	Present	beyond what has occurred in the past.
Prime or Unique Farmlands	Not Present	The allotment is not located in Prime or Unique Farmlands.
Recreation	Affected	See Section III
Social and Economic Values	Affected	See Section III
Soils/Biological Crusts	Affected	See Section III
Upland Vegetation	Affected	See Section III
Visual Resources	Affected	See Section III
Wetlands/Riparian Zones and Water Quality (Executive Order 11990)	Affected	See Section III
Wild and Scenic Rivers	Not Present	No Wild and Scenic Rivers are located within the scope of this analysis.
Wilderness Characteristics	Affected	See Section III
Designated Wilderness/Wilderness Study Areas	Not Present	No Wilderness or Wilderness Study Areas have been designated in the Pine Creek Allotment.
Wildlife	Affected	See Section III
Wildlife/B LM SSS and Habitat	Fish	Affected See Section III
	Wildlife	Affected See Section III
	Plants	Present, Not Affected There would be no measurable effect on the population of Raven's lomatium. This species blooms early in the spring and has a deep root system to help protect it from disturbance.
Wildlife/Threatened or Endangered (T/E) Species or Habitat	Fish	Not Affected Pine Creek Allotment is approximately 7.6 miles upstream of the confluence of Pine Creek and Malheur River, bull trout (<i>Salvelinus confluentus</i>) critical habitat. None of the alternatives are expected to affect bull trout of their critical habitat.
	Wildlife	Not Present No Threatened or Endangered wildlife species are known to occur in the allotment.
	Plants	Not No Threatened or Endangered plant

Elements of Human Environment		If Not Affected, why? If Affected, Reference Applicable EA Section
		Present species are known to occur in the allotment.

A. AFFECTED ELEMENTS

1. American Indian Traditional Practices/ACEC

Affected Environment

In addition to the prehistoric archaeological sites, the allotment is home to a number of historic and modern root gathering camps and the formally designated Biscuitroot Cultural ACEC. Approximately 2,400 acres of ACEC –designated land is contained within this allotment. Burns Paiute Tribal members use the ACEC for economic and sacred. Suspected reasons for such activities are the historical importance of the geographic location in the Paiute economic system and the view it provides of sacred places such the Strawberry Mountains and Castle Rock. Pine Creek Allotment is a traditional and sacred area currently used by Burns Paiute Tribe and other federally recognized tribes in the region.

Anecdotal field observations of livestock grazing impacts on root crops have been noted primarily with wild onions and bitterroot. Thirteen trend plots and two utilization cages have been established in the ACEC. Monitoring on edible root populations has been completed three times, May 2000, 2001, and 2002, at the trend plots however trend has not been analyzed at this time, due to turn-over in personnel and budget constraints.

Of the two root crops grazed by livestock, Bitterroot is the more important to American Indian Traditional Practices. Even though grazing impacts have been noted in the ACEC, utilization on target species such as a number of biscuitroot species (*Lomatiums*), Indian carrot (*Perideridia sp.*), and bitterroot (*Lewisia rediviva*) are less than 5 percent. The primary complaint of Burns Paiute Tribal users of the area is root depletion by other, nonlocal root diggers and presence of livestock in the root gathering area during root gathering time.

A management objective was established in the Three Rivers RMP/ROD for adjusting grazing management in Pine Creek Allotment, including levels, areas and seasons of use. An allotment specific objective for maintaining the portion of Biscuitroot Cultural ACEC within Pine Creek Allotment was included in the 1998 Pine Creek AMP. Subsequent to implementation of the Pine Creek AMP, Biscuitroot Cultural ACEC Management Plan was prepared and signed in 1999.

Effects Common to All Alternatives

For the purpose of this analysis, the cumulative effects analysis area (CEAA) for cultural resource is at the allotment scale. All Alternatives and other ongoing and reasonably foreseeable future projects would not lead to cumulative effects to the ACEC/American Indian Traditional Practices, because impacts of proposed projects would be localized or completely avoided. Direct and cumulative effects to ACEC/American Indian Traditional Practices would be mitigated through project specific cultural resource inventory, and consultation with the Burns Paiute.

Environmental Consequences

Alternative A: No Action

In root gathering areas within the allotment, livestock intrusions during root gather camping would continue. However, livestock have used this area for decades and further displacement of traditional uses is not expected. Effects to traditional practices within the allotment would be visual intrusion of livestock grazing. Additional affects would be livestock concentrating in the big sagebrush-juniper areas which also coincide with prehistoric, historic and modern root gather camping locations. Root gatherers have abandoned root gathering areas affected by outside intrusions. The root gathering area near an abandoned gravel pit near Little Pine Creek in Vanderveer Field was partially abandoned during gravel operations. It continues to be partially abandoned fourteen years after the gravel pit was closed.

Alternative B: Proposed Action

Under the Proposed Action, fencing a portion of Biscuitroot Cultural ACEC to exclude livestock would affect traditional root gathering and camping within this area. Visual intrusions in root fields and livestock congregation in camping areas would be eliminated and the root gathering and camping experience would be enhanced for Burns Paiute Tribal members and other tribes in the region who visit the root gathering area. The presence of a new fence would affect the visual quality of the ACEC. However, fences are relatively common and long standing in the ACEC area. In the Highway Pasture, and other non-ACEC root gathering areas within the allotment, livestock intrusions during root gathering and camping would continue, possibly diminishing the traditional practice. Outside the proposed exclosure, impacts to root gathering would be similar to those described in the No Action Alternative.

Any of the proposed herbicides could reduce the number of acres of medusahead rye and other weeds and maintain or increase the number of acres of desirable (including plant species important to Indian people) plants within the project area. This outcome is desirable in the long term because maintaining desirable plant species provides the opportunity for root and other plant gathering that otherwise may be lost. Even though these proposed herbicides have shown low risks to

people, it would be wise to alert tribal plant collectors of upcoming spray programs so that they could avoid collecting plants in treatment areas. Sacred places could be protected with the use of herbicides on invading undesirable plant species because the plant communities outside and within sacred places could return to the pre-burn character sooner than without herbicide use. Sacred places are not expected to be abandoned if the former plant community is preserved.

Imazapic: Low Risk. Table 3-17 pp. 101 in the Vegetation Treatments using Herbicides on BLM Lands in Oregon (FEIS; July 2010) presents BLM-evaluated risk categories for Native Americans and the general public. There are zero risks associated with Imazapic.

Chlorsulfuron: Low risk. This product would be applied primarily as spot treatments and opportunities for exposure would be very minimal. SOPs would minimize opportunities for contact from the public. Table 3-19 pp. 103 in the Vegetation Treatments using Herbicides on BLM Lands in Oregon (FEIS; July 2010) presents USFS-evaluated risk categories for the public. There are zero risks associated with chlorsulfuron.

Clopyralid: Low risk. This product would be applied primarily as spot treatments and opportunities for exposure would be very minimal. SOPs would minimize opportunities for contact from the public. Table 3-19 pp. 103 in the Vegetation Treatments using Herbicides on BLM Lands in Oregon (FEIS; July 2010) presents USFS-evaluated risk categories for the public. There are zero risks associated with clopyralid.

Alternative C: Proposed Action Excluding Drift Fence Project Development

The affects to the Biscuitroot ACEC/American Indian Cultural Practices would be the same as Alternative B.

Alternative D: Removal of Livestock Grazing in Pine Creek Pasture with Biscuitroot Cultural ACEC Exclosure Fence

Affects to the root gathering area would be the same as Alternative B: Proposed Action, within the proposed Biscuitroot ACEC fence. The ACEC is not within Pine Creek Pasture so removal of domestic livestock would have no effect on traditional root gathering and camping.

Alternative E: Complete Removal of Livestock Grazing

Under this alternative, American Indian Traditional Practices/ ACEC would not be affected by livestock grazing since no grazing would be allowed within the allotment.

2. Cultural Resources

Affected Environment

Approximately 2,246 acres of the 32,162-acre Pine Creek Allotment have been inventoried for cultural resources. Fourteen pre-historic archaeological sites have been found within the allotment. Site types range from large (greater than 0.5 acres), deeply buried camps to small (less than 0.5 acres) lithic scatters where stone tools were made or repaired. In addition, obsidian tool stone sources are close to the allotment and fine-grained basalt can be found within the allotment. See Table 14 below for types of impacts reported at the 14 sites.

Table 14: Impacts to pre-historic archaeological sites

Site Number	Impacts
0502050943si	Highway construction
0502052494si	Looting and livestock grazing
0502050606si	Unknown
0502050605si	Unknown
0502052693si	Livestock grazing
0502052692si	Livestock grazing
0502052557si	Natural weathering
0502052548si	Off-Highway Vehicle (OHV), livestock grazing
0502052549si	Logging, livestock grazing
0502052550si	Looting, OHV, dispersed recreation
0502052004si	Livestock grazing, erosion
0502052679si	Livestock grazing, erosion, rodent burrowing, OHV, fire fighting
0502050035si	Highway construction
0502050034si	Highway construction

Effects Common to All Action Alternatives:

For the purposes of this analysis, the CEAA for cultural resources is at the allotment scale. Reasonably foreseeable future projects in the vicinity include a hazardous fuels reductions project. All Action Alternatives and other ongoing and reasonably foreseeable future projects would not lead to cumulative effects to cultural resources because proposed projects would be localized or the sites would be completely avoided. Direct and cumulative effects to cultural resources such as vertical and horizontal displacement of surface artifacts, artifact breakage, subsurface disturbance of buried cultural material would be mitigated through project specific cultural resource inventory and mitigation measures (examples of which include, but are not limited to, surface collecting and mapping, subsurface testing, or partial excavation) prior to any project implementation. The extent that

sites have been affected by livestock trampling in the past has not been measured and quantified. Therefore, it is not possible at this time to determine if continued livestock grazing would further affect sites.

Environmental Consequences

Alternative A: No Action

The current assumption is that sites have been affected to a certain degree by livestock trampling, but grazing at current levels has not increased integrity loss because trampling has not been as intense as in the past. However, cultural resources personnel have not quantified the impacts and proposed methods to measure trend at these locations. Until that is accomplished, effects cannot be accurately assessed.

Alternative B: Proposed Action

Sites within the proposed Biscuitroot Cultural ACEC enclosure would no longer be subject to livestock grazing and trampling effects. Natural aggradations through increased vegetative cover and decreased water erosion would be expected to occur. Such cumulative effects would stabilize site conditions especially in former livestock congregation areas.

Physical effects to sites outside the proposed ACEC enclosure fence would be minimal, including less than 5 percent grazing on Native American target species, 6" hoof shear in wet areas during spring grazing in the Vanderveer Pasture (outside the ACEC fenced area) and subsurface trampling effects (soil disturbance to 6", horizontal displacement and breakage of artifacts) in historic and prehistoric camping areas in big sagebrush patches.

Cultural resource clearances would be conducted prior to any proposed improvements. Fencing of the Deer Camp Spring would exclude hoof shear within the saturated soils around the spring.

Control of medusahead rye using Imazapic would result in a more stable perennial ground cover which in turn would better protect artifacts from erosion, deposition, movement, or illegal collection. Control of medusahead rye also contributes to a longer fire return interval.

Alternative C: Proposed Action Excluding Drift Fence Project Development

Effects to cultural resources would be expected to be the same as for Alternative B.

Alternative D: Removal of Livestock Grazing in Pine Creek Pasture with Biscuitroot Cultural ACEC Enclosure Fence

Sites within the Pine Creek Pasture would no longer be subject to livestock grazing and trampling effects. Natural aggradations through increased vegetation cover and decreased water erosion would be expected to occur. Such effects would stabilize site conditions especially in former livestock congregation areas.

Alternative E: Complete Removal of Livestock Grazing

Under this alternative, Cultural Resources would not be affected by livestock grazing since no grazing would be allowed within the allotment. Hoof shearing by livestock would no longer occur in areas where it currently occurs, eliminating the risk of damage by livestock to cultural resources at those sites. No maintenance would occur on existing range improvements (for the benefit of livestock), eliminating the possibility of damaging cultural resources.

3. Livestock Grazing Management

Affected Environment

One ten-year term livestock grazing permit (#3602302) authorizes livestock grazing on Pine Creek Allotment. The ten-year term livestock grazing permit authorizes 2,410 permitted active use AUMs from April 15 through October 15. The 1998 AMP was designed to provide adequate growing season rest at least every other year in four of the five pastures. Vanderveer Pasture is used from April 16 to no later than May 8 each year. Sagebrush and Highway Pastures are used on a graze and rest treatment during May (May 9 to May 31). Greele Pasture is used under a graze and defer treatment (May 1 to June 5, July 1 to August 31) and Pine Creek Pasture is grazed at various times (June 1 to September 30) with light use, less than 30 percent target utilization. (Note: four out of seven years, utilization monitoring occurred in the Pine Creek Pasture, the 30 percent target utilization was exceeded by 6 percent up to 18 percent). The 30 percent target for utilization is used as a riparian area target. The target utilization for uplands that is generally used is 50 percent and the utilization monitoring route in this pasture stays completely in the uplands with no utilization being recorded in the riparian area; based on a 50 percent utilization target the utilization never exceeded the target. The 1998 AMP also addressed the need for a fence along the south rim of Pine Creek Pasture to help get Pine Creek into an early-use grazing system to improve riparian resources. This fence was constructed in 2004 dividing the Pine Creek Pasture into two pastures, the Oard Flat Pasture and the Pine Creek Pasture. Beginning in 2005, Oard Flat Pasture has been grazed from mid-June through the end of August each year and Pine Creek Pasture has been grazed at various times from May 1 through July 1.

Environmental Consequences

Effects Common to All Alternatives

For the purpose of this analysis, the CEAA for grazing management encompasses Pine Creek Allotment. Reasonably Foreseeable Future Actions (RFFAs) include a hazardous fuels treatment project and noxious weed control. All alternatives and other ongoing and reasonably foreseeable future projects would not lead to cumulative effects to grazing management, because impacts would be localized or speculative in nature.

Alternative A: No Action

Livestock grazing management would continue as outlined in the 1998 AMP for Pine Creek Allotment. Adequate growing season rest would occur in five out of six pastures, Oard Flat Pasture would continue to receive growing season use each year.

Since Rangeland Health Standard #2 (Watershed Function –Riparian/Wetland Areas), Rangeland Health Standard #4 (Water Quality), and Rangeland Health Standard #5 for Redband trout (Native, T&E, and Locally Important Species) were not being achieved, riparian protection measures would need to be proposed and implemented to make “significant¹ progress toward” properly functioning riparian areas.

Alternative B: Proposed Action

Livestock grazing management would be authorized to provide periodic growing season rest for upland plant species. This management would maintain forage plant communities. Grazing management in riparian areas would be designed to limit grazing intensity and encourage plant composition that maintains channel and bank stability. The proposed use periods per pasture were designed to provide the recommended rest periods (See Map C for Grazing Schematic).

The Proposed Action includes early season grazing in Vanderveer Pasture each year. Grazed vegetation along Little Pine Creek would completely regrow and complete their annual life cycle post grazing. During even numbered years, cattle would be moved from Vanderveer Pasture to Sagebrush Pasture in early May. Cattle would graze in Sagebrush Pasture until June 15. The herd would then be split, with approximately 7 percent going to an adjacent Forest Service allotment while the balance (approximately 160 head) of the herd is moved into Oard Flat Pasture through August 31. During odd numbered years, cattle would be moved from Vanderveer Pasture to Highway Pasture in early May. Cattle would graze in Highway Pasture until May 31. The herd would then be split with approximately 75 percent going to an adjacent Forest Service allotment while the balance (approximately 160 head) of the herd is moved into Oard Flat Pasture through

August 31. Cattle would graze Greele Pasture from May 1 through June 15 on even years and July 1 through August 31 on odd years. Pine Creek Pasture would be grazed from May 1 through June 1 each year. Cattle grazing Greele and Pine Creek Pastures would be a separate group from those grazing the other pastures in the allotment, and would be coming from private land into Pine Creek Pasture each year. The timing of this use is designed to remove livestock grazing early enough in the season to afford grazed vegetation along Pine Creek opportunity for regrowth and annual life cycle completion. These treatments also occur at a time when forage palatability is higher in the upland vegetation communities.

The proposed range improvements included in the proposed action would aid in livestock distribution and promote more even utilization patterns throughout the allotment. Greele Pasture Drift Fence would allow management to control the east-west distribution of livestock within the pasture. This would promote improved distribution and more even utilization patterns. The Biscuitroot Cultural ACEC Exclusion Fence would exclude livestock access to approximately 700 acres of the Biscuitroot Cultural ACEC but would not affect the overall AUMs so this will not be discussed further.

The permittee would be authorized to actively drive⁴ livestock through the allotment each fall (typically in September), when coming off of their USFS grazing allotments. The permittee would be authorized to trail through Oard Flat, Sagebrush, and Highway pasture. Livestock would be trailed through the pastures with the 85 percent or more of the animals being trailed in one day, with one or two additional days taken to trail any remaining animals. No over-nighting of livestock within the allotment would be allowed during trailing. The actual dates of trailing would vary annually depending on the dates the permittee would be authorized to graze on the forest; however, trailing would always occur after vegetation becomes dormant. The animals may be allowed to water along the way but would not be allowed to linger or actively graze during trailing. Since trailing would occur over such a short period and animals would not be allowed to actively graze, no AUMs would be taken. In the instance where the entire allotment is rested due to fire or other ecological circumstances, the permittee would also be allowed to trail through the allotment in the spring in order to access their USFS grazing allotments. That trailing would occur as described above, only with different timing.

Impacts from selected herbicides:

Imazapic: Would have No affect – No risk to livestock (National Veg. FEIS pp. 4-127, 4-129) and No affect – No risk to wild horses or burros (National Veg. FEIS pp. 4-140). The herbicide would primarily affect livestock and wild horses either positively or negatively through changes in the quality and abundance of forage.

⁴ Actively drive: livestock would be allowed to water within the allotment, but no loafing or active grazing would be allowed during trailing.

Chlorsulfuron: Would have No affect – No risk to livestock (National Veg. FEIS pp. 4-127, 4-128) and No affect – No risk to wild horses or burros (National Veg. FEIS pp. 4-139). The herbicide would primarily affect livestock and wild horses either positively or negatively through changes in the quality and abundance of forage.

Clopyralid: Not expected to pose a risk to terrestrial animals. For all modeled application rates, small mammals are at low chronic and acute risk from 100 percent absorption of direct spray and consumption of contaminated insects, and large mammals face low chronic and acute risks from consumption of contaminated vegetation at the typical and maximum application rates (National Veg. FEIS pp. 4-130, 4-141 and Table 4-26 in National Veg. FEIS pp. 4-131).

Alternative C: Proposed Action Excluding Drift Fence Project Development

Effects would be the same as Alternative B with the following exception. Distribution and use patterns within the Greele Pasture not be improved and concentration would continue to be on the east side of the pasture.

Alternative D: Removal of Livestock Grazing in Pine Creek Pasture with Biscuitroot Cultural ACEC Exclosure Fence

Pine Creek Pasture is approximately 47 percent private land; by removing livestock from Pine Creek Pasture, the affected permittee is expected to increase livestock numbers or increase the length of grazing season or both on surrounding private land. The permittee would have to fence his private land separate from BLM land in order to utilize private land forage under this alternative; topography and location of private land would make such an effort tenuous. This use would be more intense and a longer duration than under the other alternatives. Improvement to BLM riparian and upland areas would occur at rates related to existing conditions and site potential, as outlined in the site potentials found within the ESD at <http://esis.sc.egov.usda.gov>. The new management of the intermixed private lands would diminish and slow the improvement.

Biscuitroot Cultural ACEC exclosure fence would be constructed as described in the Proposed Action, no other range improvement projects would be constructed under this alternative. The Biscuitroot Cultural ACEC Exclosure Fence would exclude livestock access to approximately 700 acres of the Biscuitroot Cultural ACEC but would not affect the overall AUMs so this will not be discussed further. Existing range improvements (i.e., internal pasture fences) in place for livestock grazing management are expected to be maintained by the BLM riparian programs, adjacent livestock grazing permit holders, or adjacent private landowners.

Under this alternative there would be a reduction of 187 AUMs of current Permitted Active Use on the allotment. Grazing management within the

remaining pastures would be the same as grazing management outlined under the Proposed Action.

Alternative E: Complete Removal of Livestock Grazing

Under this alternative, no livestock grazing would be allowed to occur and therefore, no new livestock grazing permits would be renewed or issued. No new range improvements would be constructed, and those that currently exist would not be maintained unless found to benefit wildlife or other resources. Livestock would not over utilize BLM administered riparian areas; however Pine Creek Allotment is approximately 31 percent private land (Vanderveer Pasture- no private land; Oard Flat pasture-75 percent private land; Sagebrush Pasture-58 percent private land; Pine Creek Pasture 47 percent private land; and Greele Pasture-41 percent private land.) By removing livestock from the allotment the affected permittee is expected to increase livestock numbers or increase the length of grazing season or both on private land within the allotment. The permittee would have to fence his private land separate from BLM land in order to utilize private land forage under this alternative; topography and location of private land would make such an effort tenuous. This use would be more intense and a longer duration than under the other alternatives (except Alternative D). Improvement to BLM riparian and upland areas would occur at rates related to existing conditions and site potential, as outlined in the site potentials found within the ESD at <http://esis.sc.egov.usda.gov>. The new management of the intermixed private lands would diminish and slow the improvement.

4. Migratory Birds

Affected Environment

Migratory birds use all habitat types in Pine Creek Allotment for nesting, foraging, and resting as they pass through on their yearly migrations. There has been no formal monitoring of migratory birds on this allotment. American robin (*Turdin migratorius*), dark-eyed junco (*Junco hyemalis*), chipping sparrow (*Spizella passerine*), mourning dove (*Zenaida macroura*), Townsend's solitaire (*Myadestes townsendii*), gray flycatcher (*Empidonax wrightii*), and mountain bluebird (*Sialia currucoides*) are migratory bird species typical in this area, and may be found throughout the allotment. Birds of Conservation Concern for the Great Basin Region that may inhabit the allotment include Brewer's sparrow (*Spizella breweri*), sage sparrow (*Amphispiza belli*), and loggerhead shrike (*Lanius ludovicianus*) (USFWS 2008). These species may be found in the open sagebrush-grassland communities in the allotment, avoiding the forested areas and heavily stocked stands of juniper.

Vegetation in the allotment consists of diverse plant species and habitat structure. Mid to late-seral sagebrush steppe is the dominant plant community. Ponderosa pine forest covers just over thirteen hundred acres of the allotment, but scattered

trees can be found on up to an additional 3,800 acres of the allotment. Juniper encroachment now occurs at various densities across three-fourths of the allotment, and is reducing the quality of sagebrush and riparian communities for these birds. The uplands are in stable to downward trend due to juniper expansion, while the riparian areas are trending downward due to both juniper expansion and livestock grazing. Riparian areas provide important habitat to many migratory birds (Thomas et al. 1979), but the vegetation along Pine Creek and its tributaries is not meeting Standards and guidelines for riparian areas. The

existing lack of woody riparian vegetation in the allotment has limited the use of these areas by migratory birds. A more thorough account of the vegetation is described under the Vegetation section of this document.

Wildfires during the past twenty years burned approximately 1,163 acres in and adjacent to the allotment. Mortality of juniper due to the fires was low, but sagebrush was largely replaced with grass and forbs. Seven hundred and twenty acres in the northwest portions of the allotment were treated in the last decade to reduce fuels, improve rangeland health, and release aspen and mahogany stands from juniper encroachment. A prescribed burn was completed in 2007 on 266 acres of the treated area. The nearest restoration projects outside the allotment are located two miles to the west and six miles to the south. These restoration projects include juniper cutting and prescribed burning to improve understory grasses and shrubs in sagebrush, riparian areas, and other unique habitat. Treated areas, especially riparian, aspen, sagebrush, and mahogany communities, provide important food and cover for migratory birds.

A transmission line crosses 3.7 miles of Vanderveer and Highway Pastures just north of Highway 20. Some birds with large home ranges, such as red-tailed hawks and ravens, may gain advantage by using the transmission towers for elevated perching or nesting. The hunting advantage gained from the elevated structures diminishes as the distance from the line increases, and effects are probably undetectable at distances more than a mile. Electrocutation is generally not a concern for most migratory species on transmission lines due to the separation distance between energized contact points, however collisions are a potential source of mortality for larger species. The transmission line may be influencing distribution of migratory species near the lines and maintained right-of-way (ROW).

Environmental Consequences

Effects Common to All Alternatives

For the purposes of this analysis, the CEAA for migratory bird habitat extends up to ten miles beyond the allotment boundary to encompass regular movements of some wider ranging migratory birds that may be using the allotment when they are present in the area. Vegetation communities present in the allotment are fairly representative of those across the CEAA, although ponderosa pine forests

contribute a larger portion at this scale. Past and present actions and events, such as those described in *Affected Environment*, have influenced the existing environment within the CEAA. Reasonably foreseeable future actions in the CEAA that may contribute to cumulative effects to migratory birds and habitat include livestock grazing, hunting and other recreational pursuits, and cutting and prescribed burning to reduce hazardous fuels and restore wildlife habitat. Past and reasonably foreseeable future actions that have affected migratory birds or habitat in the CEAA are found in Table 15.

Table 15: Past and Reasonably Foreseeable Future Actions in CEAA

ACTION	PAST ACTIONS				FUTURE ACTIONS			
	ACRES	SQ. MILES	MILES	RATIO: Length to Area	ACRES	SQ. MILES	MILES	RATIO: Length to Area
Wildfires	28,399	44.4	NA	NA	Unknown	Unknown	NA	NA
Tree cutting	7,384	11.5	NA	NA	1,963	3.1	NA	NA
Rx Burns	2,829	4.4	NA	NA	6,121	9.6	NA	NA
Seedings	17,682	27.6	NA	NA	None	None	NA	NA
Roads	3,149	-	1,309	1.94:1	None	-	NA	NA
Fences	NA	NA	638.1	1.40:1	NA	NA	5.2 ⁵	1.41:1

This list does not include unplanned or speculative actions. Projects on adjacent private and public lands are not always known, and therefore cannot be included in the above calculations. Two hundred and fifty-two wildfire starts have occurred over the last twenty years and more are likely to occur in the future; however, predicting size and effects of future wildfires is not possible.

Hunting and other recreational activity in this area may flush or displace migratory birds in the area, but most effects would be temporary and not modify the habitat. Livestock grazing management on adjacent BLM allotments is designed to meet Rangeland Health Standards and Guidelines, and is expected to maintain adequate habitat to support populations of migratory birds. Installation of wind testing towers in the ROWs is still speculative at this point, and no towers are currently authorized. A thorough analysis of wind testing towers is not possible with the current lack of detail about the location or likelihood of installing the towers.

Alternative A: No Action

Vegetation in the allotment receives moderate livestock use overall, and would continue to provide adequate habitat to support migratory bird populations. However, the current grazing system provides inadequate growing season rest in Pine Creek Pasture, and would continue to contribute to water quality and riparian health issues resulting in poor habitat conditions for migratory birds along Pine Creek. Effects in this pasture include reducing the quality and quantity of vegetative cover available for nesting, hiding, and foraging habitat for migratory birds. The lack of woody, deciduous riparian plants limits structural diversity and reduces the suitability of these areas for migratory birds. Maintaining structurally diverse, native plant communities should support robust levels of insect biomass

⁵ This is the maximum fence length total for Alternative B. All other Alternatives would have less fence.

(Tallamy 2004), which provide critical forage for chicks (Gill 2006). Areas subject to concentrated livestock use in the east side of Greele Pasture may eventually lead to a decline in plant vigor, reduced live and residual plant cover, and increased risk of noxious weed establishment and spread. Reductions to structural diversity and noxious weed spread would be expected to affect insect abundance and quality of nesting and hiding cover for migratory birds, resulting in limited use of the area.

No new fences are proposed in the allotment, and “fence length to area” ration would remain relatively low (1.24 miles per square mile); therefore there would not be a change in the risk of collision for flying birds.

Disturbance from livestock and associated activities is expected to continue to occur in pastures where grazing in spring overlaps the nesting and brood rearing periods. This type of disturbance is expected to be temporary as livestock or permittees move through an area, but repeat disturbance may cause birds to avoid the area. Ground nesting species and species that nest low in shrubs such as sage sparrows would be most affected.

Scheduled grazing in Oard Flat, Pine Creek, and Greele Pastures overlaps the nesting season each year. The graze/rest rotation in Sagebrush and Highway Pastures would limit effects to alternating years, and few birds are expected to be disturbed in the Vanderveer Pasture because livestock are out of this pasture in early May. At the current stocking rate and scheduled rotation, research by Jensen et al. (1990) and Guthery et al. (1996) suggest trampling would not be a substantial concern.

The upland areas in the allotment are achieving Standards and Guides, and maintaining livestock utilization at fifty percent or less on key upland forage plants provides adequate live and residual vegetative cover for nesting and foraging habitat.

The reasonably foreseeable future hazardous fuels reduction and habitat restoration project may also cause birds to avoid the area, especially following prescribed fire treatments. However, impacts would be temporary (one to two growing seasons), affect a relatively small area (<2 percent of the CEAA), and are expected to provide quality habitat with reduced risk of a high-intensity wildfire after a couple of growing seasons. The 1.8 miles of fence planned in the CEAA outside of the allotment would still maintain a low “fence length to area” ratio (1.40:1 miles per square mile) across the CEAA and not increase the risk to flying birds. The No Action Alternative is currently not achieving Standards and Guides for Pine Creek Pasture with livestock being a contributing factor, and under this Alternative the habitat may degrade riparian habitat contributing to cumulative effects to migratory birds.

Alternative B: Proposed Action

The proposed Pine Creek Allotment grazing system would provide growing season rest for native perennial grasses, forbs, and shrubs used by migratory birds. More plants would achieve full height, reach seed maturity, and provide residual cover longer into the season. Healthy plant communities provide more structural diversity, forage, and suitable habitat for insects, which are critical food items during the brood rearing period. This grazing system is expected to result in an upward trend in rangeland health conditions throughout the allotment, but especially in Pine Creek Pasture. Reducing the timing and duration of grazing in Pine Creek Pasture is expected to allow regeneration of woody riparian vegetation along Pine Creek and its tributaries, increasing structural diversity. This alternative provides the most benefit for migratory birds, as the vigor and cover of plants in Pine Creek Pasture are expected to improve.

The proposed spring development in Greele Pasture also benefits migratory birds because these water sources and surrounding vegetation would be protected from livestock grazing by constructing them as described under design features. Construction of a drift fence in Greele Pasture also is expected to help prevent overutilization of eastern portions of this pasture, providing better distribution of residual cover. Approximately three miles of fencing would be constructed to exclude approximately seven hundred acres of the Biscuitroot ACEC. Livestock grazing and associated activities would be eliminated from this portion of the Vanderveer Pasture, limiting disturbance to migratory birds, especially ground nesters.

Construction activity associated with range improvements may cause migratory birds to temporarily avoid or alter use near the construction sites. Work associated with all range improvements would occur during the day and be completed in less than a month. Migratory bird species are highly mobile and would avoid the construction activity. The distance from the construction activity at which a bird flushes varies greatly, and is dependent on several factors such as the size of the bird, condition of the bird, the type of activity, frequency of the activity, available habitat in the area (Ruddock and Whitfield 2007, Ferdandez-Jurici et al. 2002). The disturbance effect decreases as the distance from the activity increases, and most birds in the allotment would not be measurably affected at distances beyond one-half mile.

Fencing provides additional resting and hunting perches for migratory birds, but may also increase collision risk for flying birds (Allen and Ramirez 1990). The “fence length to area” ratio in the allotment would remain relatively low (1.30 miles of fence per square mile). Design measures to minimize negative effects of the fence include 1) not blading the ground during construction to limit opportunities for noxious weed spread and alteration of habitat, and 2) marking wires to increase visibility to flying birds, and would not measurably increase the risk of collision.

Disturbance from livestock grazing and associated activities would be similar to the No Action Alternative, except grazing would overlap the nesting season for a shorter duration in Pine Creek Pasture. Disturbance is expected to occur during fence construction, but would be temporary (less than a few days) and not alter vegetation.

Herbicide treatments using Plateau in the fall at a rate of 6oz/acre would pose no risk to wildlife species (National Veg. FEIS pp. 4-103). "Risk quotients for terrestrial wildlife were all below the most conservative LOC of 0.1, indicating that direct spray of Imazapic is not expected to pose a risk to terrestrial animals" (National Veg. FEIS pp. 4-105). Imazapic poses no risk to sensitive wildlife under all exposure scenarios analyzed in ERAs (National Veg. FEIS pp. 4-122). The use of Plateau would help control medusahead and promote the establishment and growth of native and desirable nonnative plant species that provide habitat for migratory birds.

The reasonably foreseeable future hazardous fuels reduction and habitat restoration project may also cause birds to avoid the area, especially following prescribed fire treatments. However, impacts would be temporary (one to two growing seasons), affect a relatively small area (>2 percent of the CEAA), and are expected to provide quality habitat with reduced risk of a high-intensity wildfire after a couple of growing seasons. The additional 1.8 miles of fence planned in the CEAA outside of the allotment would nominally increase the existing low "fence length to area" ratio to 1.41:1 miles per square mile across the entire CEAA. This increase is not expected to increase the risk to flying birds in the CEAA. The effects of this alternative combined with past and reasonably foreseeable future actions are not expected to have measurable cumulative effects to migratory birds.

Alternative C: Proposed Action Excluding Drift Fence Project Development

Grazing and disturbance effects would be similar to the Proposed Action. However, livestock grazing would continue to concentrate more in the eastern side of Greele Pasture, and have similar effects as described in the No Action Alternative for this pasture.

The collision hazard to flying birds would be similar to the Proposed Action, as the "fence length to area" ratio would be nearly the same at 1.29 miles of fence per square mile.

The reasonably foreseeable future hazardous fuels reduction and habitat restoration project may also cause birds to avoid the area, especially following prescribed fire treatments. However, impacts would be temporary, affect a relatively small area (<2 percent of the CEAA), and provide quality habitat with reduced risk of a catastrophic wildfire after a couple of growing seasons. The 1.8 miles of fence planned in the CEAA outside of the allotment would result in a

“fence length to area” ratio slightly lower than Alternative B. This increase above the existing ratio is not expected to increase the risk to flying birds in the CEAA above the no action alternative. The effects of this alternative combined with past and reasonably foreseeable future actions are not expected to have measurable cumulative effects to migratory birds.

Alternative D: Removal of Livestock Grazing in Pine Creek Pasture with Biscuitroot Cultural ACEC Exclosure Fence

Effects for most pastures would be similar to Alternative A, with the exception of Pine Creek and Vanderveer Pastures. Fencing the ACEC in Vanderveer would increase the length of fence in the allotment (same as Alternative C), which also increases the collision hazard to flying birds. The fence would also remove livestock grazing from approximately 700 acres in the Vanderveer Pasture, limiting disturbances to migratory birds breeding and nesting in this pasture. The exclosure would also allow plants to complete their growth cycle uninterrupted, reaching seed maturity every year. Bare ground would decrease and residual cover increase, providing better nesting and foraging cover for birds.

Habitat conditions for migratory birds would improve within Pine Creek Pasture over time as upland and riparian vegetation would become denser across the area. There would be no disturbance from livestock and livestock management activities, especially for ground nesting birds. Herbaceous rangeland vegetation would have a better chance of establishment as their seeds are allowed to cure and fall to the ground versus being consumed by livestock. Woody vegetation along Pine Creek would grow and spread at a quicker pace, providing more structural diversity over a shorter period of time. However, private land within the pasture (approximately 47 percent of the pasture is private land) would be expected to be fenced out and grazed by livestock. Over 95 percent of Pine Creek (approximately six miles) is on private or state land, so the expected benefits from excluding livestock from this pasture would not be realized. Additionally, the “fence length to area” ratio in the allotment would increase to 1.60 miles of fence per square mile with the construction of the Biscuitroot Cultural ACEC Exclosure Fence.

The reasonably foreseeable future hazardous fuels reduction and habitat restoration project may cause birds to avoid the area, especially following prescribed fire treatments. However, impacts would be temporary, affects a relatively small area (<2 percent of the CEAA), and provide quality habitat with reduced risk of a catastrophic wildfire after a couple of growing seasons. The additional 1.8 miles of fence planned in the CEAA outside of the allotment would slightly increase the “fence length to area” ratio. This increase is not expected to increase the risk to flying birds in the CEAA, but if private land is fenced along Pine Creek the ratio may increase above all other alternatives. The effects of this alternative combined with past and reasonably foreseeable future actions are not expected to have measurable cumulative effects to migratory birds.

Alternative E: Complete Removal of Livestock Grazing

The effects on the Pine Creek Pasture would be the same as those found in Alternative D. Elimination of livestock would remove grazing pressure and disturbance from cattle and associated management activities, and allow for maximum potential growth of herbaceous vegetation (as outlined in the site potentials found within the ESD at <http://esis.sc.egov.usda.gov>) across the allotment. Herbaceous rangeland vegetation would have a better chance of establishment as their seeds are allowed to cure and fall to the ground versus being consumed by livestock. Bare ground around water developments and other livestock concentration areas would begin to recover as vegetation is allowed to grow without the pressure of livestock trampling and utilization. This alternative would provide the most vegetative screening and forage available for migratory birds across the allotment each year. No new fences would be constructed on federal lands making collision hazards to flying birds similar to what it is presently.

The reasonably foreseeable future fuels reduction and habitat restoration projects may cause birds to avoid the area, especially following prescribed fire treatments. However, impacts would be temporary, affects a relatively small area (<2 percent of the CEAA), and provide quality habitat with reduced risk of catastrophic wildfire after a couple of growing seasons. The additional 1.8 miles of fence planned in the CEAA outside of the allotment would slightly increase the “fence length to area” ratio. This increase is not expected to increase the risk to flying birds in the CEAA, but if private land is fenced along Pine Creek the ratio may increase above all other alternatives. The effects of this alternative combined with past and reasonably foreseeable future actions are not expected to have measurable cumulative effects to migratory birds.

5. Noxious Weeds

Affected Environment

The BLM database currently lists 128 known noxious weed sites totaling 28.5 acres in Pine Creek Allotment. There have been seven different noxious weed species documented in the allotment. The numbers and acreages associated with each are displayed in the following table.

Table 16: Noxious Weed Distribution

Noxious Weed Species	Number of Sites	Acres
Russian knapweed	1	0.017
Canada thistle	22	2.24
Bull thistle	89	18.8
Scotch thistle	7	3.2
Dyer's Woad	1	0.0018
Dalmatian toadflax	4	0.08
Medusahead rye	3	1.5
<i>Totals</i>	<i>128</i>	<i>25.8</i>

A systematic weed inventory has been started but has not been completed for the entire allotment. Comprehensive surveys and treatments have occurred in all the forest health management and hazardous fuels units in the allotment.

Most of the current weed sites occur in Oard Flat and Vanderveer Pastures, especially along the state highway right-of-way. Weeds occurring along the highway are spot treated annually. The Dyer's Woad site consisted of a single plant that was manually removed upon discovery. Weed treatments conducted include manual treatments of Scotch and bull thistle, and herbicide treatments for all weed species. The Russian knapweed site and one medusahead site occur at the mineral material site near the root washing spring adjacent to Pine Creek Road. The Russian knapweed has been successfully treated. Treatments on medusahead have occurred in the past using a glyphosate product which is detrimental to desirable forbs as well. Since the site is in a gravel pit, glyphosate use is not problematic. If the medusahead spreads into vegetated areas, then glyphosate would not be a useful option.

The Dalmatian toadflax sites occur in Pine Creek Pasture. They were discovered during weed surveys as part of the Front Range Survey/Treatment Project from 2001-2007. They were treated using picloram. Most sites were less than 0.01 acres and the treatments reduced the infestations. Since that time, effective biological control agents (*Mecinus janthinus*, a stem-boring weevil) have been introduced on nearby infestations of Dalmatian toadflax and any new toadflax infestations in this allotment have been found to have weevils working on them. Infestations of Dalmatian toadflax are now considered negligible.

Environmental Consequences

Effects Common to All Alternatives

Since the highway runs along the allotment boundary and approximately 6 miles of county road run through the allotment, new weed introductions are expected to occur on a regular basis. These areas are monitored annually and new infestations should be detected and eliminated before they spread to adjacent acreages.

The most contentious weed problem in the area is medusahead rye. We do not know if there are more sites within Pine Creek Allotment but it is increasing in the uplands in many neighboring areas. In areas with heavy clay soils, medusahead out-competes mid and late-seral species, as well as competitive introduced species such as crested wheatgrass. However, promoting vigor and productivity in those species through management actions that encourage mid to late-seral vegetation and good to excellent condition rangeland, would be helpful in occupying niches and slowing down potential movement of medusahead into those areas. The recommended treatment for medusahead is a fall applications of

Plateau (Imazapic) at 6 oz./ac. Glyphosate can be used after germination in the fall or early in the spring but would injure any associated, desirable vegetation that is actively growing.

Hunting pressure is high in this allotment because of its access and location within 40 miles of Burns and Crane. With the mobility of hunters and increased use of OHVs potential for new weed introductions as well as spread of existing infestations in this area is increasing.

For the purposes of this analysis, the CEAA for noxious weeds is at the allotment scale. Reasonably foreseeable future projects in this vicinity include a hazardous fuels reduction project.

Alternative A: No Action

Selection of the No Action Alternative would continue current trend in riparian conditions along Pine Creek in Pine Creek Pasture. Since there are no ground-disturbing activities under this alternative, there would be less risk of new introductions initially. However, grazing management which concentrates livestock grazing on this riparian area during the hot season does not allow for establishment of desirable riparian vegetation. Reduced competition with desired riparian species and heavy utilization would continue to provide ecological niches for noxious weed establishment. Under this alternative, the existing noxious weed populations are expected to increase along Pine Creek and spread to adjacent lands downstream from the allotment even with annual treatments.

The No Action Alternative would have a lower risk of introduction of new sites in the short-term but where vegetation is not as productive and vigorous as possible, could provide increased opportunity for weed spread from existing sites. The hazardous fuels reduction project would have some risk of new introduction from human activity but in the long-term, could help to decrease the opportunity for weed introduction and spread by encouraging the health of desirable species. Benefits from the hazardous fuels reduction project would be lessened by the continued opportunity for weed spread and decrease desirable vegetation from the No Action Alternative.

Alternative B: Proposed Action

Any soil-disturbing activity has potential to create an environment for establishment of noxious weeds. Following Project Design Elements such as equipment washing, periodic inspections, and prompt treatment would minimize new weed infestations and spread. Crested wheatgrass would be used in the seed mix because it is drought tolerant, competitive with invasive species, has a long seed viability period, and possesses aggressive germination characteristics, therefore reducing the chance of noxious weed establishment.

Grazing systems that provide periodic growing season rest, and early spring riparian grazing, designed to maintain or improve healthy plant communities would foster weed-resistance in those plant communities.

In the long-term, the Proposed Action would lead to healthier plant communities and therefore, increased weed resistance. The hazardous fuels reduction project is also expected to lead to increased weed resistance through healthier plant communities. The Proposed Action combined with the hazardous fuels reduction project would add to the weed resistance and health of the plant communities.

The Vegetation Treatments Using Herbicides on BLM Lands in Oregon ROD October 2010 (Oregon Veg. ROD), Vegetation Treatments on BLM Lands in 17 Western States ROD September 2007 (National Veg. ROD), and the March 1, 2011 Order Amending Injunction [Case No. 83-cv-6272-AA (US District Court)] provide new information that enable the BLM districts in Oregon to utilize 13 new active ingredients for the treatment of noxious weeds, in addition to the 4 active ingredients currently available (2,4-D, dicamba, glyphosate, and picloram) under the Burns District's Noxious Weed Management Program EA (OR-020-98-05).

Under the proposed action, herbicide treatments within the Pine Creek Allotment could include the currently available herbicides plus the following new products: Plateau (Imazapic), Telar XP (chlorsulfuron), and Transline (clopyralid). The product to be used on individual infestations would be determined based on weed species, phenology, type of location, status of desirable vegetation present and environmental conditions.

A discussion of the three new products follows:

Imazapic: Imazapic (specifically Plateau) is currently the best choice for the treatment of medusahead rye in Burns District. The Ecological Risk Assessments for Imazapic can be found in the Oregon Vegetation Treatments Using Herbicides FEIS Table 3-12 (Volume 1. pp. 94) and Table 3-14 (Volume 1 pp. 96-97). The Ecological Risk Assessments for Imazapic can also be found in the National Veg. FEIS, Appendix C (pp. C-26, 32, 49, 69, and 70). All applicable SOPs and

Mitigating Measures from the Oregon Veg. ROD (Attachment A pp. 33-45) would be incorporated (see Appendix A).

Plateau applied in the fall at 6 oz./acre (0.178125 pounds/acre of active ingredient Imazapic) just below the maximum rate of 0.1875 pounds/acre analyzed by the Oregon Veg. FEIS (CH 3, pp. 60) and National Veg. FEIS (Appendix C-9) was selected to treat medusahead rye, because it has effective short-term residual control on this noxious weed. Additionally there would be low risk to perennial non-target vegetation during fall treatments at a rate of 6oz/acre (Davies 2010).

Imazapic would have moderate risk to no risk to the health of upland vegetation (Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States FEIS June 2007 [National Veg. FEIS] pp. 4-49 & 53). Applications of 6oz/acre would be below the maximum rate authorized to treat infested sites (Vegetation Treatments Using Herbicides on BLM Lands in Oregon FEIS July 2010 [Oregon Veg. FEIS] C-9). Risk to the health of terrestrial and special status plants at this application rate from direct spray would have moderate risk, off-site drift low risk (special status spp.) and no risk (terrestrial), surface runoff no risk, and wind erosion no risk. However, it has been observed that fall applications with 6oz/acre Imazapic would further reduce the risk from moderate to low from direct spray on non-target plant species because these plants are dormant (Davies 2010; Davies and Sheley 2011). Imazapic would reduce medusahead rye and allow existing native and seeded native and non-natives the opportunity to compete for available resources such as water, nitrogen and other nutrients, and regrow or establish.

Chlorsulfuron: The Ecological Risk Assessments for Chlorsulfuron can be found in the Oregon Vegetation Treatments Using Herbicides FEIS Table 3-12 (Volume 1. pp. 94) and Table 3-14 (Volume 1 pp. 96-97). The Ecological Risk Assessments for Chlorsulfuron can also be found in the National Veg. FEIS, Appendix C (pp. C-23, 30, 39, 59, and 60). All applicable SOPs and Mitigating Measures from the Oregon Veg. ROD (Attachment A pp. 33-45) would be incorporated (see Appendix A).

Chlorsulfuron (specifically Telar XP) is one of the most effective herbicides available for treatment of white top and perennial pepperweed. It is also very effective on thistles. Effectiveness at more diverse phenologic windows can be enhanced when included as part of a tank-mix with either 2,4-D, picloram or clopyralid to treat thistles. Typical application rate for this product is 1.3 oz./acre (0.035# ai/ac). Risk to the health of terrestrial and special status plants at this application rate from direct spray would have high risk, off-site drift low risk (special status spp.), low risk to birds and mammals, slight risk to fish, and very low risk to terrestrial invertebrates, surface runoff, and wind erosion. Chlorsulfuron is used at very low pounds of active ingredient per acre. Efficacy on the mustards (white top and pepperweed) is vastly superior to 2,4-D/dicamba. When included in a tank mix with very low rates of either 2,4-D, picloram (one pt./acre), or clopyralid (.5 pint/acre) herbicide efficacy is enhanced over much

broader phenological stages of the target weeds using greatly reduced pounds of active ingredient per acre.

Clopyralid: The Ecological Risk Assessments for Clopyralid can be found in the Oregon Veg. FEIS, Table 3-13 (Volume 1 pp. 95) and Table 3-15 (Volume 1 pp. 98-99). All applicable SOPs and Mitigating Measures from the Oregon Veg. ROD (Attachment A pp. 33-45) would be incorporated (see Appendix A).

Clopyralid (specifically Transline) typically applied at 2/3 pint/acre (0.25# ai/acre) can be a very effective herbicide for treating knapweeds and thistles, especially Canada thistle, with much less non-target damage to desirable trees, shrubs, and forbs than picloram, particularly when applied in the fall. It can be added to tank mixes with Chlorsulfuron or 2,4-D and enhance efficacy over a broader array of phenological stages for treatment of target weeds. Risk to the health of susceptible terrestrial and special status plants at this application rate from direct spray would have high risk, off-site drift low risk (special status spp.) and no risk (terrestrial), and surface runoff no risk.

On the Burns District, as part of standard operating procedure treatment areas are monitored annually to document efficacy and determine additional treatment needs. Where herbicide treatments are necessary, using these new products, either alone or in combination with our currently available products, would provide us the best tools available to ensure effective, timely management of noxious weeds in this area. By controlling noxious weeds, we enhance the opportunity for meeting our regulatory requirements to manage noxious weeds and our allotment vegetation objectives.

Reasonably foreseeable future projects in this vicinity include a hazardous fuels reduction project. In the short-term (1-5 years), the hazardous fuels reduction project would have some risk of new introduction from human activity but in the long-term (5+ years), is expected to decrease the opportunity for weed introduction and spread by encouraging the health of desirable species. Benefits from the hazardous fuels reduction project are expected to be enhanced through the projects and grazing system in the proposed action.

Alternative C: Proposed Action Excluding Drift Fence Project Development

Effects would be essentially the same as those for the Proposed Action. Excluding the drift fence would initially reduce short-term (1-5 years) disturbance but in the long-term (5+ years), that benefit may be offset by less livestock management infrastructure for better management of vegetative resources.

Reasonably Foreseeable Future Actions: Same as the proposed action.

Alternative D: Removal of Livestock Grazing in Pine Creek Pasture with Biscuitroot Cultural ACEC Exclosure Fence

Removal of livestock grazing from Pine Creek Pasture of Pine Creek Allotment would reduce grazing pressure and help enhance desirable plant community diversity, productivity, and vigor. It would also reduce disturbance from livestock trailing, salting, and watering which should reduce opportunities for noxious weed introduction and spread.

However, with no livestock in Pine Creek Pasture, opportunities for trained staff and grazing permittees to discover new weed populations would be reduced since there would be no real need to monitor this pasture as closely. New weed introductions, if not discovered and treated in a timely manner, would spread rapidly and become difficult and expensive to treat. Eradication would be much less likely to occur. Effects to the remaining pastures would be similar to those in the Proposed Action.

Reasonably Foreseeable Future Actions: Same as the proposed action except with no livestock grazing, less monitoring would occur in the area, and new noxious weed introductions may not be detected.

Alternative E: Complete Removal of Livestock Grazing

Removal of livestock grazing from Pine Creek Allotment would eliminate grazing pressure on and BLM administered land within the allotment and help enhance desirable plant community diversity, productivity, and vigor. It would also reduce disturbance from livestock trailing, salting, and watering which should reduce opportunities for noxious weed introduction and spread.

However, with no livestock in Pine Creek Allotment, opportunities for trained staff and grazing permittees to discover new weed populations would be reduced since there would be no real need to monitor this allotment closely. New weed introductions, if not discovered and treated in a timely manner, would spread rapidly and become difficult and expensive to treat. Eradication would be much less likely to occur.

Recreation/Visual Resources

Affected Environment

Hunting for big game species such as deer, elk, and antelope is the most common form of recreation that occurs within the project area. Primitive camping, hiking, horseback riding, and wildlife viewing opportunities are also present in the allotment with more than 50 percent of it occurring during the hunting season (from August through December) and root gathering season (from mid-April through the end of May).

Portions of the project area are visible for 6 miles along county roads running through the allotment, and 2 miles along the state highway along the border of the allotment. The project area falls within Visual Resource Management (VRM) Class IV. The objective of VRM Class IV allows for modifications of the existing character of the landscape.

Environmental Consequences

Alternative A: No Action

There are no known impacts that would affect primitive camping activities or visual resources with the No Action Alternative currently or in the foreseeable future. No range improvement projects would be installed however, continuing not to meet rangeland health standards would gradually reduce habitat for wildlife and have a negative effect on hunting opportunities.

Reasonably foreseeable future actions such as hazardous fuels reduction in the area may temporarily disturb or displace animals during treatment activity which may take several weeks, but would enhance the ability of the habitat to support wildlife over the longer term (several years to decades following treatment) as vegetation responds to the treatment.

Alternative B: Proposed Action

There would be no known impacts to primitive camping activities under the Proposed Action Alternative however, under the proposed grazing management, riparian habitat is anticipated to improve, thus improving hunting opportunities. The Proposed Action meets the VRM class requirements. Visual resources would be affected short term, while construction occurs, but would improve once vegetation is reestablished. Management activities should improve the landscape bettering range condition, thus improving both recreation and visual resources. After construction of proposed range improvement projects, should any visitor encounters with developments occur they would be limited to minutes as visitors pass by on foot, horseback, or vehicle. Effects to recreation are expected to be undetectable for the allotment as a whole, given their short term and localized nature. Overall, recreational opportunities would be enhanced by improvements in rangeland conditions.

Treating noxious weeds with effective herbicides would maintain habitat which supports recreational opportunities such as hunting and wildlife/wild horse viewing. The application of specific herbicides within the project area would have no measureable direct impacts to recreational opportunities. The Vegetation Treatments using Herbicides on BLM Lands in Oregon incorporated risk assessments for the following three additional herbicides proposed in this project:

Imazapic: Low risk because treatments would be short term (1-year/treated site) (National Veg. FEIS pp. 4-155). Plateau would remove only invasive annual weeds leaving established perennial vegetation on the treated site further reducing any impacts to visual resources.

Chlorsulfuron: Low risk. This product would be applied primarily as spot treatments and opportunities for exposure would be very minimal. SOPs would minimize opportunities for contact from the public. Table 3-19 pp. 103 in the Vegetation Treatments using Herbicides on BLM Lands in Oregon (FEIS; July 2010) presents USFS-evaluated risk categories for the public. There are zero risks associated with Chlorsulfuron.

Clopyralid: Low risk. This product would be applied primarily as spot treatments and opportunities for exposure would be very minimal. SOPs would minimize opportunities for contact from the public. Table 3-19 pp. 103 in the Vegetation Treatments using Herbicides on BLM Lands in Oregon (FEIS; July 2010) presents USFS-evaluated risk categories for the public. There are zero risks associated with clopyralid.

Reasonably foreseeable future actions such as hazardous fuels reduction in the area may temporarily disturb or displace animals during treatment activity which may take several weeks, but would enhance the ability of the habitat to support wildlife over the longer term (several years to decades following treatment) as vegetation responds to the treatment.

Alternative C: Proposed Action Excluding Drift Fence Project Development

Effects would be the same as those for Alternative B except no drift fence.

Alternative D: Removal of Livestock Grazing in Pine Creek Pasture with Biscuitroot Cultural ACEC Exclosure Fence

The removal of livestock grazing from Pine Creek Pasture under this alternative would reduce forage competition between livestock and wildlife. Additional forage for wildlife may increase opportunities for hunting and wildlife viewing. For some visitors, absence of livestock would enhance their recreation experience. Visual resources would basically be unaffected by this alternative; maintenance and improvement of range improvements and water sources within these pastures would become the responsibility of the BLM and occur as needed only to achieve resource objectives, as funding is available. However, Pine Creek Pasture is approximately 47 percent private lands, the permittee is expected to fence, and continue to graze, this private land. The fencing of private land eliminates public access to this portion of Pine Creek.

Reasonably foreseeable future actions such as hazardous fuels reduction in the area may temporarily disturb or displace animals during treatment activity which may take several weeks, but would enhance the ability of the habitat to support wildlife over the longer term (several years to decades following treatment) as vegetation responds to the treatment.

Alternative E: Complete Removal of Livestock Grazing

Under this alternative, recreationists would no longer see livestock within the allotment. No changes to recreation opportunities or activities or to visual characteristics would occur. However, Pine Creek Pasture is approximately 31 percent private lands, the permittee is expected to fence, and continue to graze, this private land. The fencing of private land eliminates public access to this area.

6. Social and Economic Values

Affected Environment

Livestock raising and associated feed production industries contribute over 50 percent to the economy of Harney County. The highest individual agricultural sales revenue in the county is derived from cattle production of 65 percent, which is inextricably linked to the commodity value of public rangelands. The cattle industry provided \$54,553,000 in sales in Harney County in 2011 compared to \$44,161,000 in 2010 [Oregon State University (OSU), Extension Service, 2011].

"Quality of life" is very individual when determining what is valued in a lifestyle and what features make up that lifestyle. Lifestyle features can be determined by historical activities of the area, career opportunities and the general cultural features of the geographical area. Quality of life issues are subjective and can be modified over time with exposure to other ways of living. Recreation is a component of most lifestyles in the area and includes driving for pleasure, camping, backpacking, fishing, hunting, hiking, horseback riding, photography, wildlife viewing, and sightseeing. These activities contribute to the overall quality of life for residents. Primary recreation activities in the area are primitive camping, hiking, horseback riding, hunting, root gathering, and wildlife viewing opportunities. Fifty percent of the recreation activities occur during hunting season (from August through December) and root gathering season (from mid-April through the end of May).

In addition to local recreation use, the undeveloped, open spaces in the county are themselves a tourist attraction and contribute a "sense of place" for many. The attachment people feel to a setting, typically through a repeated experience, provides them with this sense of place. Attachments can be spiritual, cultural, aesthetic, economic, social, and/or recreational.

Tourism also contributes revenue to local businesses. The Steens Mountain area is central to Harney County tourism. A 2007 study found local economic effects associated with recreation visits to Malheur National Wildlife Refuge totaled approximately 4.4 million dollars during 2006 (Carver and Caudill 2007). Hunting and other types of dispersed outdoor recreational experiences contribute to the local economy on a seasonal basis. Fee hunting and recreation alone contributed \$110,000 to Harney County in 2009 (<http://oain.oregonstate.edu>, 2009).

Currently the allotment is licensed for 2,410 active use AUMs (this includes the adjustment for voluntary non-use) at \$1.35/AUM. Approximate revenue generated for the Federal government in one year for the 2,410 active use AUMs in this allotment is \$3,253.5.

Environmental Consequences

Affects Common to All:

The CEAA for this project is northeastern Harney County. Reasonably foreseeable future actions (RFFAs) such as grazing, recreational pursuits, noxious weed treatments and cutting and prescribed burning to reduce hazards fuels and restore habitat would continue under all alternatives. Implementation of any of the alternatives in combination with the above listed RFFAs is not expected to measurably contribute to cumulative effects.

Alternative A: No Action

Under this alternative, no contracts for construction of range improvement projects would be granted and no supplies would be purchased from local vendors for the purpose of range improvement project implementation.

The value of livestock in the allotment would remain at current levels or decrease under the No Action Alternative, as condition of riparian plant communities continue to trend downward with no changes in grazing management. If rangeland health standards continue to remain unachieved, closures of portions of the allotment may result. A visitor's experience could also be affected as riparian conditions decline with decreased wildlife and hunting opportunities.

In root gathering areas within the allotment, livestock intrusions during root gather camping would continue. Effects to traditional practices within the allotment would be visual intrusion of livestock grazing.

Renewing the current 10-year term livestock grazing permit under the No Action Alternative would result in Standards remaining unachieved. Revenue generated for the Federal government would remain at \$2,243.70 per year.

Alternative B: Proposed Action

The Proposed Action could utilize contracts to construct proposed range improvement projects within the allotment. Purchase of supplies and equipment necessary for implementation of the Proposed Action from merchants would constitute an additional economic effect to the communities of Hines and Burns. The cost of fencing is estimated at \$3,100 per mile for material and \$2,000 per mile for labor, totaling \$5,100 per mile (approximately \$16,000 worth of fencing). The proposed spring development is estimated at \$8,000 to \$10,000.

The proposed grazing management and range improvement projects are designed to improve conditions for uplands and riparian areas, maintaining or increasing forage production for livestock and wildlife. Providing for sustainable grazing management that improves habitat conditions for wildlife in turn increases

economic opportunities for the livestock operations and fosters more desirable social opportunities. However, some visitors may feel additional range improvements would detract from their recreational experience.

Fencing a portion of Biscuitroot Cultural ACEC to exclude livestock would affect traditional root gathering and camping within this area. Visual intrusions in root fields and livestock congregation in camping areas would be eliminated and the root gathering and camping experience would be enhanced for Burns Paiute Tribal members and other tribes in the region who visit the root gathering area.

Renewing the current 10-year term livestock grazing permit with the Proposed Action of this AMP as a term and condition of the permit would provide for continued viable ranching operation for the livestock operator contributing to the economy of Harney County through taxes and goods and services purchased from the ranch.

Revenue generated for the Federal government would be \$2,197.80 per year (1628 AUMs at \$1.350/AUM)

Alternative C: Proposed Action Excluding Drift Fence Project Development

Effects would be similar to Alternative B except the effects of better utilization in the uplands would not be realized and no materials would be procured for the drift fence.

Alternative D: Removal of Livestock Grazing in Pine Creek Pasture with Biscuitroot Cultural ACEC Exclosure Fence

Under Alternative D, the only materials purchased from local vendors would be those for the proposed Biscuitroot ACEC fences (approximately \$16,000) as no other new range improvements would be constructed. Range improvement maintenance would continue to be the responsibility of the permittee as grazing

would only be removed in the Pine Creek Pasture. Pine Creek Pasture is approximately 47 percent private land and the permittee is expected to continue grazing on this private land.

The collection of grazing fees would be reduced by approximately \$252.45 annually (based on the legal minimum cost per AUM with the reduction of 187 AUMs

The permittee would be required to find alternative forage for approximately 187 AUMs. Replacement forage for 187 AUMs [Fair Market Value for AUMs is between \$17 and \$25⁶ (compared to BLM AUMs at \$1.35/AUM)] which would cost approximately \$3,179 using the lower AUM rate to replace the existing AUMs on an annual basis. Hay to replace the 187 AUMs would require approximately 46.75 tons (1 ton of hay per cow per 4 months). Current cost of hay is averaging \$150 to \$200/ton. The cost to feed hay to replace the AUMs would be approximately \$7,012.50 to \$9,350 plus labor on an annual basis.

In order to continue the use of private land within the allotment, the permittee would be required to fence around the private land. The cost of fencing is estimated at \$5,100 per mile (\$3,100 per mile for material and \$2,000 per mile for labor); with approximately 13 miles of fence the cost of this fence would total \$66,300.

Alternative E: Complete Removal of Livestock Grazing

Under this alternative, the Federal Government would not collect annual grazing fees and no revenue would be generated from the purchase of supplies or contracts since no livestock grazing or range improvements would occur within the allotment. Quality of life for the permittee would be affected by the need to decrease herd size or find new rangelands for livestock. The actual extents of the effects to the permittee are unknown. Other social affects would be the same as the No Action Alternative.

The permittee would be required to find alternative forage for approximately 1,628 AUMs. Replacement forage for 1,628 AUMs [Fair Market Value for AUMs is between \$17 and \$25⁷ (compared to BLM AUMs at \$1.35/AUM)] which would cost approximately \$27,676 using the lower AUM rate to replace the existing AUMs on an annual basis. Hay to replace the 1,628 AUMs would require approximately 407 tons (1 ton of hay per cow per 4 months). Current cost of hay is averaging \$150 to \$200/ton. The cost to feed hay to replace the AUMs

⁶ Fair Market Value for private AUMs includes full care of livestock while on private lands v. the permittee must provide complete care of livestock while grazing on BLM-administered lands including fence maintenance and salting.

⁷ Fair Market Value for private AUMs includes full care of livestock while on private lands v. the permittee must provide complete care of livestock while grazing on BLM-administered lands including fence maintenance and salting.

would be approximately \$61,050 to \$81,400 plus labor on an annual basis.

In order to continue the use of private land within the allotment, the permittee would be required to fence around the private land. The cost of fencing is estimated at \$5,100 per mile (\$3,100 per mile for material and \$2,000 per mile for labor). With approximately 60 miles of fence to fence the permittees' private land the cost of this fence would total \$306,000.

7. Soils/Biological Crusts

Affected Environment

Soils in Pine Creek Allotment are mostly shallow to moderately deep, well-drained, cobbly to gravelly loams. Soils in this allotment have a low rating for wind and water erosion, but a few of the steeper areas in Oard Flat Pasture have a high potential for water erosion.

Biological soil crusts (BSCs) in Pine Creek Allotment are primarily comprised of the following genera; Bryum, Cladonia, Collema, Lecanora, Peltigera, Psora, and Tortula. In forested systems, areas with greater precipitations that support vascular plants such as ponderosa pine also allow for occurrence of more moisture dependent species of BSCs. Conversely, the aforementioned areas would also experience greater forest duff buildup which can reduce biological crust cover.

Environmental Consequences

For the purposes of this analysis, the CEAA for soils and BSCs is within the boundaries of the allotment. While soils may move in and out of the allotment through wind and/or water erosion, impacts to soils and BSCs are associated with grazing and projects within the allotment. Past and present actions and events, such as those described in *Affected Environment*, have influenced the existing environment within the CEAA. Reasonably foreseeable future actions in the CEAA that may contribute to cumulative effects to soils and BSCs include livestock grazing, hunting and other recreational pursuits, and cutting and prescribed burning to reduce hazardous fuels and restore wildlife habitat. Past and reasonably foreseeable future actions that have affected soils and BSCs in the CEAA are found in Table 15.

Hazardous fuels projects are expected to improve soil stability and re-establish and/or improve BSCs by reducing heavy accumulations of litter, reducing excessive understory growth, controlling juniper expansion in sagebrush dominated areas, and reducing the potential for severe wildfires. Hazardous fuels and restoration projects in the area may temporarily disturb (1-5 years depending on the action) or cause the loss of soils and BSCs during treatment activity, but would enhance the ability of the habitat to increase soil stability and improve BSCs as vegetation responds over the next several growing seasons following treatment.

Hunting and other common recreational activities in this area may disturb soils and BSCs in the area, but most effects would be visible only until vegetation regrows (1 -2 growing seasons depending on the disturbance activity).

Alternative A: No Action

The season-long grazing system in Pine Creek Pasture would continue to create areas of compaction or erosion where livestock tend to concentrate such as watering areas, salting grounds, and fence corners. The continued season-long grazing could expand these compaction and erosion effects further which may increase loss of biological soil crust cover in site specific areas. However, soil

chemistry gradients are the determining factor in presence or absence of given biological soil crust species. The effect of this alternative on soils and BSCs in other pastures is not expected to change.

Alternative B: Proposed Action

Soils and BSCs in localized area, such as watering areas, salting grounds and fence corners have the highest potential for being affected by livestock compacting soils and removing BSCs. Soils and BSCs in the remaining part of the allotment would be unaffected by the Proposed Action. Range improvements, including the Greele Drift Fence and Deer Camp Spring, may induce concentrated use with localized impacts to soils and BSCs. The Greele Drift Fence would allow vegetation in the eastern part of the pasture, along the fence line to the private, to re-grow resulting in more stable soils and for BSCs to re-establish. There would be soil compaction and loss of BSCs along the new routes to Deer Camp Spring and in the area immediately adjacent to the trough where livestock and wildlife tend to congregate. This loss would be off-set by improvements in other parts of the pasture. Range improvements that increase dispersal of herbivores would have an inverse effect and are expected to benefit soils and BSCs allotment wide; although soil chemistry would still be the determining factor in presence or absence of BSCs.

Very little is known at this time with regards to the effect of herbicides on BSCs. One study, using glyphosate, showed no impact to mosses after one application, however, effects after multiple applications are not known (BLM TR 1730-2, pg. 47), nor are the effects on all biological crust species. Regarding invasive annual grasses, studies have shown that the "invasion of exotic annual plants into perennial plant communities can pose a long-term threat to BSCs, as the crust dominated interspace between perennial plants is often heavily invaded" (BLM TR 1730-2, pg. 47). While there could be an initial decrease or loss to BSCs as a result of applying Plateau, reestablishment in the future due to the suppression and/or eradication of medusahead rye is possible. There is a greater threat for a complete loss of BSCs from not treating and allowing it to colonize the interspace habitat of BSCs.

Overall, while there might be impacts to soils and BSCs, the long-term benefits of eradicating cheatgrass, medusahead rye, and other noxious weeds far outweigh those impacts. Without these invasive annual grasses, soils and BSCs have an opportunity to stabilize, regrow and reestablish, providing valuable nutrient cycling and water capture functions.

Alternative C: Proposed Action Excluding Drift Fence Project Development

Impacts to soils and BSCs would be similar to Alternative B with the following exception. Lacking construction of the drift fence, livestock distribution would not improve and areas receiving use would continue to see the same level of herbivory and impacts from livestock hooves to soils and BSCs.

Alternative D: Removal of Livestock Grazing in Pine Creek Pasture with Biscuitroot Cultural ACEC Enclosure Fence

Removing livestock from the Pine Creek Pasture of Pine Creek Allotment would lessen compaction and tramping of soils and BSCs near known watering sources or other features that concentrate herbivores within that pasture. The possibility of erosion would decline as overall vegetation is left in place to aid in stabilization. Site specifically some populations of BSCs would likely experience increases in cover, however, soil chemistry gradients are the determining factor in presence or absence of given biological soil crust species. Pine Creek Pasture is approximately 47 percent private lands, the permittee is expected to fence, and continue to graze, this private land.

Alternative E: Complete Removal of Livestock Grazing

Under this alternative, effects to soils and biological crusts would be similar to the No Action Alternative, only less due to the complete removal of livestock from the allotment.

8. Upland Vegetation

Affected Environment

Vegetation types in Pine Creek Allotment are primarily mountain big sagebrush/bluebunch wheatgrass/Idaho fescue, and stiff sagebrush/Sandberg's bluegrass. Juniper is predominant on over 75 percent of the allotment. Mahogany and ponderosa pine are found in the upper elevations of the allotment. Diverse edible root bulbs utilized by different tribes but primarily by Burns Paiute Tribe, are also found in the allotment.

The 2005 Pine Creek Allotment Evaluation analyzed trend in rangeland condition (1994 -2004) on three upland trend sites within Vanderveer, Greele and Highway Pastures. No upland monitoring sites were established within the Sagebrush,

Oard Flat and Pine Creek Pastures at the time of the 2005 evaluation. Photo monitoring indicated a stable trend in rangeland condition within the Vanderveer, Highway and Greele Pastures, and a downward trend in Sagebrush Pasture. Trend data indicated a stable trend in rangeland condition within Highway Pasture

and a downward trend in rangeland condition within Vanderveer and Greele Pastures. No comparative data was available to assess trend in the Sagebrush Pasture as only photo monitoring occurred at this site prior to 2004.

Downward trend in rangeland condition was the result of increased bare ground and reduced vegetation cover within Vanderveer Pasture. The 2005 evaluation identified prolonged drought and juniper encroachment as the causal factors for downward trend at this site. Composition of key forage plant species has remained relatively stable across all monitoring sites since 1994.

Western juniper has increased on most of the community types within the allotment, specifically Greele and Sagebrush Pastures, to the point where it is often the dominant plant species in a community. Encroachment of juniper has reduced the cover and density of sagebrush and the associated herbaceous plants while increasing the percent of the soil surface exposed. This has increased forage competition between livestock and wildlife, as well as reducing habitat for wildlife dependent upon shrub and forb species. Important wildlife habitats such as mountain mahogany and bitterbrush sites have also been encroached by juniper which is outcompeting recruitment of these species.

Environmental Consequences

Effects Common to All Alternatives

For the purpose of this analysis, the CEAA for upland vegetation encompasses Pine Creek Allotment and areas directly adjacent to the allotment boundary. Reasonably foreseeable future projects include a hazardous fuels reduction project and noxious weed control. Grazing management which maintains healthy rangelands, along with ongoing noxious weed treatments is beneficial to upland vegetation.

Alternative A: No Action

Healthy native plant communities would be maintained in areas that received adequate growing season rest. Downward trend in riparian condition would be maintained under current management. Areas receiving repeated defoliation during critical growth periods would decline in range condition under the No Action Alternative. There would continue to be uneven livestock distribution within the Greeley Pasture.

Alternative B: Proposed Action

Native plant communities would benefit from the Proposed Action. Adequate growing season rest would allow for improved vigor and diversity of native plant species. The Proposed Action would also improve community composition, age class distribution, and productivity of plant communities within the allotment.

The proposed grazing system, along with range improvements would improve distribution, therefore, improving rangeland condition throughout the allotment in the foreseeable future. The proposed spring development would improve livestock and wildlife distribution and use patterns throughout the allotment and the proposed drift fence would promote more even utilization patterns within the Greele Pasture and would reduce heavy use in lower portions of the pasture.

The proposed herbicides and their impacts to vegetative communities are described below:

Imazapic: Treating with Plateau would have moderate risk to no risk to the health of upland vegetation (National Veg. FEIS pp. 4-49 and 53). Applications of 6oz/acre (0.178125 pounds/acre of active ingredient Imazapic) would be below the maximum rate of 0.1875 pounds/acre analyzed by the Oregon Veg. FEIS (CH 3, pp. 60) and National Veg. FEIS (Appendix C-9) authorized to treat infested sites (Oregon Veg. FEIS C-9). Risk to the health of terrestrial and Special Status plants at this application rate from direct spray would have moderate risk, offsite drift low risk (Special Status spp.) and no risk (terrestrial), surface runoff no risk, and wind erosion no risk. It has been observed that fall applications with 6oz/acre Plateau would further reduce the risk from moderate to low from direct spray on non-target plant species because these plants are dormant (Davies 2010; Davies and Sheley 2011). Plateau would reduce medusahead rye and allow existing native, desirable nonnative plants or seeded areas the opportunity to compete for available resources such as water, nitrogen and other nutrients, and reestablish the site once occupied by this invasive noxious weed.

Chlorsulfuron: A selective herbicide used on perennial broadleaf weeds. Accidental direct spray or spill poses a moderate to high risk to terrestrial plants and aquatic plants in streams (National Veg. FEIS 4-51). Drift of this herbicide presents low to moderate risk to typical non-target terrestrial plant species such as grasses and higher risk to sensitive terrestrial plant species such as legumes. Surface runoff of this herbicide poses no risk to terrestrial plants. This herbicide may be best used at low rates and spot applications on highly aggressive species and in areas where target plants are the dominant species (National Veg. FEIS 4-51).

Clopyralid: A selective herbicide most effectively used post-emergence for the control of broadleaf weeds. This product can affect susceptible broadleaf plants directly through foliage and indirectly by root uptake from treated soil. Direct

spray poses a high risk to sensitive plant species such as legumes; direct spray also poses a low risk to tolerant species such as grasses for applications at the maximum application (Table 4-13 in the National Veg. FEIS pp. 4-57). Offsite drift from low-boom ground application may cause damage to sensitive plant species (National Veg. FEIS pp. 4-56).

Treating noxious weeds with these additional herbicides would benefit upland vegetation within the CEAA by promoting and maintaining the abundance of native and desired introduced vegetation.

Alternative C: Proposed Action Excluding Drift Fence Project Development

Effects would be the same as Alternative B with the following exception. Distribution and use patterns within the Greele Pasture would remain unchanged and heavy use would continue on lower portions of the pasture.

Alternative D: Removal of Livestock Grazing in Pine Creek Pasture with Biscuitroot Cultural ACEC Exclosure Fence

Under this alternative lower utilization levels would be seen on forage species and less forage competition between livestock and wildlife would exist as livestock are removed. Although grazing rest is typically not detrimental to upland plant communities in the short-term (1 – 2 years) exclusion of livestock grazing may pose impacts to native plant community response to fire. In their research, Davies et al. (2009) found that sagebrush plant communities that had been excluded from livestock grazing transitioned to cheatgrass (*Bromus tectorum*) dominance following wildfire, whereas adjacent rangelands that had been moderately grazed responded with desired perennial vegetation following fire.

Alternative E: Complete Removal of Livestock Grazing

Under this alternative, no livestock grazing would occur within the allotment, areas near reliable water sources would maintain or improve in condition due to the decreased congregation levels.

9. Wetlands/Riparian Zones and Water Quality and Wildlife/BLM SSS and Habitat - Fish

Affected Environment

Two water ways, Pine Creek and Little Pine Creek, flow through Pine Creek Allotment. A 0.25 mile segment of Pine Creek perennially flows through BLM administered portions of Pine Creek Pasture, while the remaining 6.5 miles of Pine Creek within the allotment occur either on unfenced private or state lands. A

five-mile section of Little Pine Creek occurs on BLM-administered land within Vanderveer and Pine Creek Pastures. The lower 1.6 miles flow perennially, whereas the remainder exhibits intermittent flow.

Pine Creek:

Expected vegetation types along Pine Creek would include black cottonwood, alder and various willow species. These communities are all present in tributaries to Pine Creek where topography has limited livestock grazing.

Water quality standards for Pine Creek Allotment are based upon sensitive uses, in this case Redband trout (*Oncorhynchus mykiss*) –a Bureau Tracking Species in Oregon. The only known habitat for Redband trout in this allotment is in Pine Creek. Pine Creek is listed on the Oregon Department of Environmental Quality's (ODEQ) 303(D) list of water quality impaired streams due to high water temperatures. Data, collected in 1993 and 1994, were submitted by the United States Forest Service and collected on Forest Service Land. The 303(D) listing was then applied to Pine Creek from its mouth to River Mile 24.7. This includes the portion of Pine Creek that flows through this allotment. In 2010 and 2011, BLM staff collected water temperature data along Pine Creek in Pine Creek Pasture. Data from 2010 and 2011 show a warming trend as water flowed through the pasture, with temperatures rising to 80°F in 2010 and 75° in 2011.

Historically, Pine Creek had received season long grazing with heavy grazing pressure annually. The 2005 Pine Creek Allotment evaluation stated the Standard for Native, T&E, and Locally Important Species (Redband Trout) was not achieved along Pine Creek, and livestock were a causal factor. Permanent riparian photo monitoring sites were established in 2004 and 2005 that indicate the reasons for not achieving Standards. These reasons included inadequate vegetation in riparian zones needed to dissipate stream energy, filter sediment, aid in groundwater recharge or maintain channel characteristics. This has led to high temperatures, high width to depth ratios and low shade coverage.

Following the completion of the fence that created the Pine Creek “riparian” pasture, riparian photo monitoring took place in 2008 and 2010. Notes from each site visit indicate livestock are staying in the pasture past the June 10 gather date (Table 2), well into July. Even with this later season use, there is slight indication of improved riparian conditions with improved vigor of woody species and a more vigorous hydric herbaceous community. If the June 10 gather date is followed, more rapid recovery of riparian, water quality and fish habitat conditions would be expected.

Little Pine Creek:

Excluding the period of high spring flows, Little Pine Creek is an intermittent stream consisting of dry reaches alternating with pools. Except for tow slope

wetlands supported by springs, riparian vegetation is confined to a relatively narrow zone along the stream's edge. Pine Creek Road, a paved county road, closely parallels Little Pine Creek. This road increases sediment input into the stream, has channelized the creek in places and interfaces with natural surface and subsurface flows on the floodplain. Juniper has also encroached into the riparian zone. Over the last several evaluation periods this creek has been in an upward trend. Willow species richness is high with five different species present. Riparian vegetation vigor is also high. This creek was rated as PFC (Proper Functioning Condition) during the 1998 PFC Assessment. The 2005 Pine Creek Allotment Evaluation stated the Riparian/Wetland Standard was achieved along Little Pine Creek in this allotment. However, temperature data were collected in 2003 and 2004 by the BLM in Little Pine Creek which contributes flow to Pine Creek. Data were collected using recording thermographs following ODEQ protocol. The temperatures did exceed the 68°F standard, by 5° in 2003 and 2° in 2004, for salmonid bearing streams. While Little Pine Creek is not salmonid bearing, it does contribute flow to Pine Creek (a salmonid bearing stream). Therefore, Little Pine Creek is held to the 68°F standard.

Environmental Consequences

Effects Common to All Alternatives

For the purposes of this analysis, the CEAA for riparian/wetlands, water quality and SSS fish encompasses the Malheur Slough and Pine Creek Watersheds (5th field HUCs). Reasonably foreseeable future actions in this area include hazardous fuels reduction project, livestock grazing and weed treatments.

A hazardous fuels project is expected to improve riparian and fisheries habitat by controlling juniper and other conifer expansion in riparian zones, and reducing the potential for severe wildfires. The hazardous fuels project in the area is expected to disturb riparian zones, but overall, would improve understory communities and improve watershed stability and function by reducing bare soil and sediment inputs and increasing infiltration. No cumulative effects are expected from this project.

BMP's for weed treatments near or in riparian areas on public land would be followed. This would eliminate cumulative effects from weed treatments.

Cumulative effects from livestock grazing on adjacent land vary. The BLM does not know current riparian conditions on private lands and cannot speculate what those grazing effects are to the overall watershed health. On public land, livestock grazing along riparian and wetlands zones are managed to achieve Rangeland Health Standards. This would minimize cumulative effects from public land grazing.

Alternative A: No Action

Under the No Action Alternative there would be no change to the current grazing schedule, current management would continue on Little Pine Creek. This management has allowed for an upward trend in riparian vegetation. There are currently dense stands of willow and other shrubs that are shading portions of the creek and reducing solar input helping to improve water quality. If the upward trend continues, desired conditions could eventually be reached. However, Pine Creek Road, which parallels Little Pine Creek, would still limit the capability of the stream to move across its former floodplain.

Under this alternative the BLM Standard for Watershed Function in Riparian/Wetland Areas would not be achieved along Pine Creek. Pine Creek would continue to be grazed season long under the No Action Alternative and downward or stable trend in riparian condition would continue. Season-long grazing is known to be detrimental to riparian areas. Current conditions would be maintained and vegetative characteristics would remain unable to dissipate stream energy filter sediment, aid in ground water recharge and floodplain development or maintain/improve channel characteristics. Active erosion would increase, affecting aquatic habitat and water quality downstream and eventually Malheur River. Continued degradation along this portion of the stream would move the stream farther from desired conditions.

Fish habitat conditions would not improve, due to late season grazing in Pine Creek Pasture, and are expected to result in further degradation of fisheries habitat in Pine Creek. Under this alternative, vegetative characteristics would not improve, shade providing woody species would not recover and temperatures would remain above the ODEQ temperature standard, 68° for salmonid bearing streams.

Continued degradation along this portion of the stream would move the stream farther from desired fish habitat conditions. Eventually, effects of continued stream habitat conditions along Pine Creek may cause a downward trend in Redband trout populations.

Alternative B: Proposed Action

The greatest effect to water quality from the Proposed Action is expected to be related to changes in the vegetation communities following adjustments to the grazing system along Pine Creek. The proposed grazing system within Pine Creek Pasture, created in 2004, would facilitate the recovery of deep-rooted riparian species. With improvement of these communities, greater bank stability, increased shading and greater water storage/retention are expected. These changes typically improve fish habitat by reducing stream sedimentation, reducing turbidity and water temperature and improving fish cover and foraging and spawning habitat. If the upward trend continues, fish habitat is also expected

to continue to improve and fish populations may increase. Although approximately 97 percent of Pine Creek occurs on unfenced private or state lands, the effects of the Proposed Action would include both private and BLM administered portions of the stream, as private land would not be fenced separately from the public lands.

The proposed grazing system would either maintain or continue to improve conditions on Little Pine Creek. The Proposed Action continues the early season of use on this creek. This season of use has allowed for improvement on the creek during the last evaluation period and should continue to do so. Continuation of correct management would be expected to produce site potential conditions (as outlined in the site potentials found within the ESD at <http://esis.sc.egov.usda.gov>) by the next evaluation. However, Pine Creek Road, which parallels Little Pine Creek, would continue to prevent access to the entire floodplain.

The proposed development, specifically the protective fence, of Deer Camp Spring is expected to shield the riparian community from livestock trampling and use. Less trampling of the spring area would also improve water quality for livestock and wildlife that may use it.

The herbicide application design features would minimize impacts to riparian vegetation and water quality. Impacts would be minimized in perennial and intermittent streams because they are protected by 10-foot (ground-hand), 25-foot (ground-vehicle), and 100-foot (aerial) buffers (1991 Vegetation Treatment on BLM Lands FEIS, p. 3-43). Impacts may occur, however, in ephemeral streams, which often do not have buffers. Herbicides applied directly to them usually are picked up in stream flow by the first storm to create flow in the channels. The 2007 National Vegetation FEIS pp. 4-28, Table 4-9 quantifies the off-site movement potential of the chemicals incorporated in the Proposed Action. Groundwater leaching potential of the four chemicals ranges from low to high while surface water runoff is low for all four chemicals. Even if an herbicide has runoff or leaching potential, the likelihood of it reaching a water body also depends on site characteristics. For example, if a persistent herbicide with a high potential for leaching to groundwater was used at a site with low annual precipitation, and the depth to groundwater was over 100 feet, the overall potential for that herbicide to reach groundwater before degrading would be quite low (2001 National Veg. FEIS, pp. 4-26). General site characteristics of the proposed project area coupled with current buffer protections help to minimize accidental direct application or drift at concentrations high enough to impair water quality.

Risk to non-target riparian vegetation associated with herbicide use would be minimized by the current stream buffering standards. Treatment accuracy increases as application methods change from aerial to boom (vehicle) to spot (hand), thus decreasing the risk for accidental direct spray or drift onto non-target

species. As long as SOPs for stream buffering and chemical application are followed there is no measurable risk to water resources and wetlands/riparian areas.

Alternative C: Proposed Action Excluding Drift Fence Project Development

Effects would be the same as in Alternative B.

Alternative D: Removal of Livestock Grazing in Pine Creek Pasture with Biscuitroot Cultural ACEC Exclosure Fence

Removal of livestock from Pine Creek Pasture would result in late seral, deep-rooted riparian vegetation with greater recruitment of deciduous woody species throughout the riparian zones on BLM administered lands. Deep-rooted vegetation types would improve the stream's capacity to dissipate stream energy at peak flows, filter sediment, aid in groundwater recharge and maintain channel characteristics. This would help reduce erosion and water temperature, and improve the lateral and vertical stability of the stream channel. Pine Creek would make progress towards meeting the Water Quality, Riparian, and SSS Fish Standards. As a result, approximately 0.25 mile of riparian habitat (on BLM land) would see improvement under this alternative. However, 83 percent of Pine Creek in this allotment flows through private land. It is expected that the private portions of Pine Creek would be used more heavily and for longer periods of time under this alternative. Although the BLM section of Pine Creek would improve in function and condition, the heavier use on the private reaches would diminish the overall benefits.

Alternative E: No Livestock Grazing

Under the No Livestock Grazing Alternative, Pine Creek and Little Pine Creek would move toward and achieve their potential riparian conditions (as outlined in the site potentials found within the ESD at <http://esis.sc.egov.usda.gov>). Without the annual pressure of livestock utilization of riparian vegetation, stream banks would continue to stabilize, the stream channel would narrow and deepen as the riparian area widens, and plant composition would diversify with a variety of age classes distributed throughout the system. While these features developed, fish habitat would improve as overhanging banks and higher densities of woody riparian vegetation provided more shade and decreased water temperatures. Pine Creek would make progress towards meeting the Water Quality, Riparian, and SSS Fish Standards. As a result, approximately 0.25 mile of riparian habitat (on BLM land) would see improvement under this alternative. However, 83 percent of Pine Creek in this allotment flows through private land. It is expected that the private portions of Pine Creek would be used more heavily and for longer periods of time under this alternative. Although the BLM section of Pine Creek would improve in function and condition, the heavier use on the private reaches would diminish the overall benefits. These stream channel characteristics would

improve under Alternatives B and C as well, but would likely occur more rapidly under Alternative E.

10. Wilderness Characteristics

Wilderness Characteristics

Section 2(c) of the Wilderness Act of 1964 requires that in order to be considered to have wilderness characteristics, an area must meet the following criteria:

“(1) generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable;” This is commonly referred to as naturalness.

“(2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation;”

“(3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition;”

The Act states areas with wilderness characteristics “may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.” These are commonly referred to as supplemental values and are not required to be present.

The BLM reviewed all information submitted by the public as part of updating its original wilderness characteristics inventory. The BLM also used staff and field knowledge along with onsite verification (where necessary) to update its wilderness characteristics inventory for the project area. The BLM-administered lands in the project area determined not to have wilderness characteristics present are not analyzed further. The unit found to have wilderness characteristics present is described and analyzed below.

Affected Environment

The BLM's 1980 wilderness inventory found wilderness character was not present on BLM-administered lands within the Pine Creek Allotment. In September 2007 BLM received a citizens' Proposed Wilderness Study Area (PWSA) called the Cottonwood PWSA, which included much of the Project Area.

The BLM IDT used current field data along with the citizens' PWSA data and determined the Project Area included two BLM inventory units possessing wilderness character.

Little Muddy Creek (3,248 Acres) - The BLM portion of the unit by itself does not meet the size criterion. However, the BLM portion of the unit borders an adjacent Forest Service RARE II area. The Forest Service RARE II area consists

of 5,092 acres and when combined with the 3,248 BLM acres the total area is 8,340 acres.

Naturalness: The primary human uses in the unit and surrounding lands are livestock grazing-related as well as big game hunting for elk, deer and antelope along with rock hounding. There are fences along all unit boundaries except for the southern one. There is about 1.5 miles of cross-fence dividing the Little Muddy Allotment into the creek and upland pastures and about 2.5 miles of allotment fencing within the remaining area of the unit. Two juniper cutting units have been completed in the south part of the unit's western section. These juniper cuts are currently noticeable as unnatural features.

A road has been maintained to provide truck hauling access to decorative stone claims and a community decorative stone pit.

Allotment fences are located on the northern, central (private lands), and western boundaries of the unit. Four livestock reservoirs are in the unit, but their impacts on the natural environment are minimal. The unit, as a whole, is natural.

The following is a summary of developments and vegetative treatments:

Fences: 11 miles

Reservoirs: 4

Juniper cutting units: 2 (232 acres)

Interior non-boundary routes: 6.8 miles

Decorative stone-community pit: 56 acres

Malheur Flatstone Claim #4: 67 acres

Malheur Flatstone Claim #5: 1 acre

Outstanding Opportunities for Solitude: No changes to the past condition of the unit were identified by the IDT relative to solitude. For the most part this unit is in the shape of a rectangle with approximately half of the unit extending into private land. A fork of Little Muddy Creek flows northward through the private parcel in a steep-walled canyon to the main drainage. Another fork of Little Muddy Creek flows eastward to the main drainage for approximately one mile across the upper end of the unit's west section and provides an area of solitude. The narrow, higher elevation BLM lands surrounding the long, private parcel do not provide outstanding solitude. The alfalfa fields on private lands along the main Little Muddy Creek drainage with the sights and sounds of haying and feeding cattle can be seen from many vantage points. In addition, the main, paved Pine Creek Road can also be seen from several locations in this area.

The wilderness features and characteristics that are within the Pine Creek RARE II Area do not extend eastward in the Little Muddy Creek Unit.

Outstanding Opportunities for Primitive and Unconfined Recreation: The opportunities noted in the 1979 analysis are still present. Deer and elk hunting

continue to be the main unconfined recreation activities during the fall season in this unit; rock collection is also occurs. Some limited fishing may take place by local people in the aforementioned fork of Little Muddy Creek which flows across the upper end of the unit's west section. It is surrounded by private lands on three sides; hiking access is only possible from BLM lands to the south unless private landowners grant permission to cross their lands. BLM determined that these recreational opportunities do not, either individually or collectively, possess attributes which would make them outstanding.

Supplemental Values: A mule deer seasonal migration route is located in this unit as the animals move between the forest and the Stinkingwater Mountains in late spring and throughout the fall seasons. One sage-grouse lek has been identified at present.

Greenley Gulch Unit (5,257 acres) – This unit meets the size criterion and is adjacent to a Forest Service RARE II area which is designated for further planning. The following is a discussion of the wilderness characteristics for Greenley Gulch:

Naturalness: The topography of the subunits is rocky, convoluted foothill country between the higher ponderosa forest on the north and west to the lower agricultural valleys to the east and northeast. Three buttes, including Elephant Butte, are located in the western portion of the unit with Pine Creek flowing eastward along the unit's southern boundary. Greenley Gulch cuts through the center of the unit and there are many smaller side-canyons and intermittent tributaries. Stringers of Ponderosa pine extend from the upper forest across the western boundary into the unit. There are many open, rocky, grass and sagebrush-covered flats (big and low sage) with scattered junipers and thicker juniper forest fingering down the draws, canyons and foothills.

The primary human uses in the Greenley Gulch Unit and surrounding lands are livestock grazing related as well as recreation use, mainly big game hunting for elk, deer and antelope. A road has been maintained to provide truck hauling access to decorative stone claims and a community decorative stone pit.

Allotment fences are located on the eastern and western boundaries and an east/west pasture division fence goes across the southern portion of the unit. Livestock reservoirs have been built along the northern boundary (Greenley Gulch/Little Muddy Roads), but their impacts on the natural environment are not noticed in the unit as a whole; the unit is natural.

Below is a summary of developments:

Fences: 10 miles

Reservoirs: 3

Decorative stone community pit: 58 acres

Malheur Flatstone Claim #4: 78 acres

Malheur Flatstone Claim #5: 6 acres

Outstanding Opportunities for Solitude

No changes to the past condition of the unit were identified by the ID-team relative to solitude. Greenley Gulch, located in the center of the unit in a northwest to southeast direction, provides opportunities for solitude, but is too small to be outstanding. There is limited vegetative and topographic screening in the many open, grass and sagebrush-covered flats.

There are areas of vegetative screening of Ponderosa pine and denser juniper on the small buttes and in the shallow drainages of the western portion of the subunit, but they do not create outstanding solitude. The eastern slopes of Elephant Butte along the west boundary of the unit are also open, grass and sagebrush-covered with scattered juniper, which offer no outstanding solitude.

Pine Creek Canyon with its steep, tree-covered upper slopes, is not within this unit but goes through the rugged, adjoining Forest Service roadless area to the west and then south of the unit boundary onto private land. The wilderness features and characteristics that are within the Pine Creek RARE II Area do not extend into the BLM Greenley Gulch Unit in which the outstanding opportunities for solitude are not present in this unit.

Outstanding Opportunities for Primitive and Unconfined Recreation

The opportunities noted in the 1980 analysis are still present. Deer and elk hunting continue to be the main unconfined recreation activities during the fall season in this unit.

Trout fishing opportunities exist in the upper reaches of Pine Creek on Forest Service lands, but are not available in this BLM unit. Recreational opportunities are present, but do not, either individually or collectively, possess attributes which would make them outstanding.

Supplemental Values: Sage-grouse can be found on the large, open flats in this unit. One sage-grouse lek has been identified at the present time. A Mule deer seasonal migration route is located in this unit as the animals move between the forest and the Stinkingwater Mountains in late spring and throughout the fall seasons.

Environmental Consequences

Effects Common to All Alternatives

The reasonably foreseeable future actions for lands with wilderness characteristics in this area include a hazardous fuels reduction project, livestock grazing and weed treatments.

The hazardous fuels project is expected to improve riparian and fisheries habitat and upland habitat by controlling juniper and other conifer expansion and reducing high-intensity wildfires. The hazardous fuels project in the area may temporarily disturb the wilderness characteristics, but overall, would improve understory communities and improve watershed stability and function by reducing bare soil and sediment inputs and increasing infiltration, which are functions of naturalness. Outstanding opportunities for solitude and primitive and unconfined recreation would be impacted as the project is being implemented.

Outstanding opportunities for solitude would be impacted as the weed treatments are being conducted. There would be no impact to outstanding opportunities for primitive and unconfined recreation because visitors would not be expected to recreate in the weed area.

On public land, livestock grazing along riparian and wetlands zones and uplands are managed to achieve Rangeland Health Standards. This would minimize potential cumulative effects from public land grazing.

Alternative A: No Action

Under the No Action Alternative there are no proposed projects and there are no proposed changes to the current livestock grazing. Therefore there would no effects to wilderness characteristics.

Alternative B: Proposed Action

Little Muddy Creek Unit and Greenley Gulch Unit: The proposed drift fence is approximately 1/8 mile long and crosses both units. The proposed fence and grazing would not affect naturalness characteristic because the development is not noticeable to visitors in the area.

Outstanding Opportunities for Solitude would be affected as the drift fence is being constructed. There would be no effect to the outstanding opportunities for primitive and unconfined recreation because primitive recreationists would not be expected to recreate near a fence.

Alternative C: Proposed Action Excluding Drift Fence Project Development

Little Muddy Creek Unit and Greenley Gulch Unit: The affects would be the same as Alternative A.

Alternative D: Removal of Livestock Grazing in Pine Creek Pasture with Biscuitroot Cultural ACEC Exclosure Fence

Little Muddy Creek Unit and Greenley Gulch Unit: The affects would be the same as Alternative A.

Alternative E: Complete Removal of Livestock Grazing

Under this alternative if livestock are removed completely from the unit the naturalness characteristic would benefit by the removal of existing range improvement projects. However, there would be no benefit to the vegetation from the proposed grazing system (See Grazing and Vegetation Sections); Outstanding Opportunities for Solitude would not be affected; Outstanding Opportunities for Primitive and Unconfined Recreation would not be affected; and see Cultural and Wildlife Sections for Supplemental Values.

11. Wildlife

Affected Environment

There has been no formal wildlife habitat monitoring in the allotment with the exception of riparian monitoring and trend monitoring. Approximately one-third of the allotment is considered deer winter range. This encompasses portions of all pastures except for Greele Pasture. Although Greele Pasture is not considered critical deer winter range, the pasture still provides quality habitat for deer wintering on this allotment. Approximately two-thirds of the allotment is suitable elk winter range. This encompasses portions of all pastures as well, but primary elk winter range pastures include Greele, Pine Creek, and Sagebrush Pastures. This allotment is within ODFW's Malheur wildlife management unit. Deer numbers are at approximately 60 percent of the current management objective for the entire Malheur Unit. Currently, 84 AUMs are allotted for deer in the allotment. With the deer population well below management objectives, the current allocation of AUMs for livestock is not expected to result in much competition with deer. However, if deer numbers approach management objectives there may be the need to allocate more AUMs to deer. Elk numbers are at current management objectives for the Malheur Unit. Elk may be found in the allotment year-round, especially in the late fall and winter months. Currently 68 AUMs are allocated for elk within the allotment, which may not be sufficient

given the amount of use by elk this allotment receives. Allocations for elk may need to be re-evaluated within the next Three Rivers RMP. Antelope can also be found regularly within the allotment, and currently seven AUMs are allocated to antelope in this allotment.

In July of 2002 and June of 2003, inventories of northern goshawks nesting sites were conducted for a timber sale project that occurred in Pine Creek Allotment. Two active goshawk nests were discovered within Pine Creek and Sagebrush Pastures. Both nest sites were successful with at least two young maturing to the fledgling stage.

Juniper has expanded across approximately three-fourths of the allotment, and is reducing the quality of sagebrush stands and riparian areas. Upland areas are in stable to downward trend due to juniper expansion, while the riparian areas along Pine Creek are trending downward due to both juniper expansion and livestock grazing. Riparian areas provide critical wildlife cover, water and forage but vegetation along Pine Creek and its tributaries is in poor condition and not meeting Standards and Guidelines.

Wildfires during the past twenty years burned across 1,163 acres in and adjacent to the allotment. Few juniper trees were killed by the fires, but sagebrush was largely replaced with grasses and forbs. Seven hundred and twenty acres in the northwest portions of the allotment were treated in the last decade to reduce fuels, improve rangeland health, and release aspen and mahogany stands from juniper encroachment. A prescribed burn was completed in 2007 on two hundred and sixty-six acres of the treated areas. The closest habitat restoration projects outside the allotment are located two miles to the west and six miles to the south. These restoration projects include juniper cutting and prescribed burning to improve understory grasses and shrubs in sagebrush, riparian, and other unique habitat. Treated areas, especially aspen, ponderosa pine, and sagebrush communities, provide important food and cover for wildlife.

Environmental Consequences

Effects Common to All Alternatives:

For the purposes of this analysis, the CEAA for wildlife extends up to ten miles beyond the allotment boundary to encompass regular movements of some wider ranging species that may be using the allotment. Vegetation communities present in the allotment are fairly representative of those across the CEAA, although ponderosa pine forests contribute a larger portion at this scale. Past and present actions and events, such as those described in *Affected Environment*, have influenced the existing environment within the CEAA. Reasonably foreseeable future actions in the CEAA that may contribute to cumulative effects to wildlife and habitat include livestock grazing, hunting and other recreational pursuits, and cutting and prescribed burning to reduce hazardous fuels and restore wildlife

habitat. Past and reasonably foreseeable future actions that have affected wildlife or habitat in the CEEA are found in Table 15.

The hazardous fuels project is expected to improve habitat for most wildlife species by reducing heavy accumulations of litter, reducing excessive understory growth, controlling juniper expansion in sagebrush dominated areas, and reducing the potential for severe wildfires and catastrophic loss of extensive habitat. The hazardous fuels and habitat restoration project in the area may temporarily disturb or displace animals during treatment activity which may take several weeks, but would enhance the ability of the habitat to support wildlife over the longer term (several years to decades following treatment) as vegetation responds to the treatment. These restored areas may provide refuge to animals displaced from marginal habitat along Pine Creek.

Hunting and other recreational activity in this area may flush or displace some wildlife in the area, but most affects would be temporary (few days) and not modify the habitat. Livestock grazing management on adjacent BLM allotments is designed to meet Rangeland Health Standards and Guidelines, and is expected to maintain adequate habitat to support populations of wildlife.

Alternative A: No Action

Pastures currently deferred or annually rested would provide adequate cover and forage for wildlife, including smaller prey species like chipmunks, rabbits, and mice. However, the current grazing strategy does not allow for adequate growing season rest and would continue to contribute to the downward trend in watershed and riparian conditions in Pine Creek Pasture. The vigor of the herbaceous and shrub plant communities would continue to trend downward, decreasing the quality and quantity of forage and cover. Habitat for mule deer (*Odocoileus hemionus*) and Rocky Mountain elk (*Cervus canadensis*) would decline because little growing season rest for vegetation would be provided in important winter range in Pine Creek Pasture.

Woody vegetation in riparian areas would not be allowed to regenerate, and the herbaceous understory would gradually be replaced with shallow rooted annuals and noxious weeds. Scheduled grazing would limit structural diversity in riparian areas, providing insufficient cover and lowering the abundance of smaller prey animals, such as chipmunks, mice, and frogs. Fewer prey animals would lead to reduced hunting opportunities for predators, including northern goshawks (*Accipiter gentilis*), resulting in overall lower wildlife abundance and possibly lower diversity in Pine Creek Pasture.

Eastern portions of Greele Pasture would continue to be utilized more heavily than the rest of the allotment, leaving less live and residual plant cover and forage for wildlife in the uplands and potentially leading to a decrease in key forage plants such as bluebunch wheatgrass.

No new fences are proposed, and “fence length to area” ratio would remain relatively low (1.24 miles per square mile); therefore there would not be a change in the risk of entanglement for wildlife.

Disturbance from livestock and associated activities is expected to continue to occur in pastures where grazing in spring overlaps the breeding season for some animals. This type of disturbance is expected to be brief (few hours to a few days) as livestock or permittees move through an area, but repeat disturbance may displace some animals from the immediate area. Livestock grazing may result in temporary displacement of deer and elk from pastures during the spring or summer (Stewart et al. 2002), but displaced animals would move to other pastures not being used by livestock. Deer and elk winter use would not be affected.

Reasonably foreseeable future hazardous fuels reduction and habitat restoration project may cause wildlife to avoid the area, especially following prescribed fire treatments. However, impacts to habitat would be temporary (one to two growing seasons), affect a relatively small area (<2 percent of the CEAA), and are expected to provide quality habitat with reduced risk of high-intensity wildfire after a couple of growing seasons. The 1.8 miles of fence planned in the CEAA outside of the allotment would increase the “fence length to area” ratio (1.40:1 miles per square mile) across the CEAA, but is not expected to measurably increase the risk of injury to mule deer and elk traveling through the area. New fence on public lands would be built to standards that reduce likelihood of injury to wildlife. The No Action Alternative is currently not meeting Standards and Guides for Pine Creek Pasture with livestock being a contributing factor, and under this Alternative the habitat would degrade riparian habitat to a point that it would contribute to cumulative effects to migratory birds.

Alternative B: Proposed Action

The proposed grazing system is expected to improve rangeland health. The pastures currently receiving adequate growing season rest would continue to provide suitable forage and cover for wildlife. In addition to providing adequate growing season rest in the allotment, early season of use in Pine Creek and Vanderveer Pastures would help manage the use of woody riparian vegetation and allow herbaceous plants time to complete their growth cycle. Healthy riparian areas are important for many wildlife species and typically support more productive and diverse wildlife populations. Removing livestock from the allotment by September would maintain deer winter range by reducing utilization on bitterbrush and other preferred browse in the uplands. Maintaining target use levels on key forage plants would provide adequate residual vegetation to address wildlife forage demand and hiding cover. Decreasing livestock use in riparian areas is expected to improve the quality of elk winter range by maintaining

additional herbaceous forage into the winter months. Potential disturbance would be similar to the No Action Alternative, except grazing would occur over a shorter (refer to current and proposed grazing schedule Tables 2 and 6) duration in Pine Creek Pasture.

The proposed spring development in Greele Pasture should benefit wildlife species by protecting the water source and wet meadow habitat surrounding the spring. The spring would be developed as described under design features to allow wildlife access. Construction of a drift fence in the northwest corner of Greele Pasture would also help manage the tendency of livestock to congregate and over utilize the eastern portions of the pasture. Excluding approximately seven hundred acres in the Vanderveer Pasture would eliminate competition for forage and disturbance between livestock and wildlife in this area.

The proposed range improvements would increase the “fence length to area” ratio in the allotment, but it would still remain relatively low (1.30 miles of fence per square mile). Fences may impede travel or cause injury or death to wildlife, especially large mobile species such as deer, elk, or antelope. Design measures to minimize effects of the fence include 1) not blading the ground during construction to limit opportunities for noxious weed spread and alteration of habitat, and 2) marking wires to increase visibility to animals. Disturbance occurring during fence construction would be temporary in nature and not alter vegetation conditions.

Herbicide treatments using Plateau in the fall at a rate of 6oz/acre would pose no risk to wildlife species (National Veg. FEIS pp. 4103). Risk quotients for terrestrial wildlife were all below the most conservative Level of Concern (LOC) of 0.1, indicating that direct spray of Imazapic is not likely to pose a risk to terrestrial animals' (National Veg. FEIS pp. 4-105). The use of Plateau would help control medusahead and promote the establishment and growth of native and desirable nonnative plant species that provide more suitable wildlife habitat and forage.

The reasonably foreseeable future hazardous fuels reduction and habitat restoration projects may cause some animals to avoid the area, especially following prescribed fire treatments. However, impacts would be temporary, affect a relatively small area (<2 percent of the CEAA), and are expected to create quality habitat with reduced risk of a high-intensity wildfire after a couple of growing seasons. The additional 1.8 miles of fence planned in the CEAA outside of the allotment would nominally increase the existing low “fence length to area” ratio to 1.41:1 miles per square mile across the entire CEAA. This increase is not expected to increase the risk of injury to mule deer and elk. New fence on public lands would be built to standards that reduce likelihood of injury to wildlife. The effects of this alternative combined with past and reasonably foreseeable future actions are not expected to have measured cumulative effects to wildlife.

Alternative C: Proposed Action Excluding Drift Fence Project Development

Grazing and disturbance effects would be similar to the Proposed Action. However, without the drift fence, livestock would continue to concentrate more in the eastern side of Greele Pasture, and have similar effects as described in the No Action Alternative for this pasture.

The risk of injury or death from collisions or entanglement with fences would be fairly similar to the Proposed Action, as the “fence length to area” ratio would be nearly the same at 1.29 miles of fence per square mile.

The reasonably foreseeable future hazardous fuels reduction and habitat restoration project may cause wildlife to avoid the area, especially following prescribed fire treatments. However, impacts would be temporary, affect a relatively small area (<2 percent of the CEAA), and are expected to provide quality habitat with reduced risk of a high-intensity wildfire after a couple of growing seasons. The 1.8 miles of fence planned in the CEAA outside of the allotment would result in a “fence length to area” ratio slightly lower than Alternative B. This increase above the existing ratio is not expected to measurably increase the risk of injury to mule deer and elk travelling through the CEAA above the no action alternative. The effects of this alternative combined with past and reasonably foreseeable future actions are not expected to have measurable cumulative effects to wildlife.

Alternative D: Removal of Livestock Grazing in Pine Creek Pasture with Biscuitroot Cultural ACEC Exclosure Fence

Effects to wildlife in most pastures would be similar to Alternative A, with the exception of Pine Creek and Vanderveer Pastures. Fencing the ACEC in Vanderveer would eliminate livestock grazing on approximately seven hundred acres. The exclosure would eliminate livestock use of forbs and grasses and allow plants to complete their growth cycle annually. Bare ground would decrease and residual cover would increase, providing quality hiding and foraging cover for wildlife, especially smaller prey species such as rabbits, chipmunks, and ground squirrels. A diverse prey base with high populations can often support a greater diversity of wildlife if the adjacent habitat provides adequate nesting and hiding cover.

Habitat conditions for wildlife would improve faster than under Alternative B within Pine Creek Pasture as upland and riparian vegetation recovers and provides additional structure and cover with no livestock grazing pressure. There would be no disturbance from livestock or livestock management activities, especially to ground nesting birds and burrowing mammals. Rangeland vegetation would have a better chance of establishment as their seeds are allowed to cure and fall to the ground versus being consumed by livestock. Woody vegetation along Pine Creek would recover and grow at a quicker pace, providing more structural diversity

over a shorter period of time. Diverse habitat structure provides quality habitat for nesting, foraging, and hiding for wildlife. Greater structural diversity and biomass typically supports a more diverse assemblage of species.

However, private land within the pasture (approximately 47 percent of the pasture is private land) would be expected to be fenced out and grazed by livestock. The majority of Pine Creek (approximately six miles) is on private land, so the benefits from excluding livestock from this pasture would not be realized. In this case, depending on the grazing strategy on private land, effects would be similar to Alternative A for Pine Creek Pasture. Additionally, with the completion of the Biscuitroot Cultural ACEC Enclosure Fence the “fence length to area” ratio would increase to 1.60 miles of fence per square mile, increasing the risk of collision or entanglement for wildlife species above the other alternatives.

The reasonably foreseeable future hazardous fuels reduction and habitat restoration projects may cause wildlife to avoid the area, especially following prescribed fire treatments. However, impacts would be temporary, affect a relatively small area (<2 percent of the CEAA), and provide quality habitat with reduced risk of a catastrophic wildfire after a couple of growing seasons. The additional 1.8 miles of fence planned in the CEAA outside of the allotment would increase the “fence length to area” ratio. This increase is not expected to increase the risk of injury to mule deer and elk in the CEAA, but if private land is fenced along Pine Creek the ratio may substantially increase above all other alternatives. The effects of this alternative combined with past and reasonably foreseeable future actions are not expected to have measurable cumulative effects to wildlife.

Alternative E: Complete Removal of Livestock Grazing

Under this alternative, livestock would no longer be authorized and effects on the allotment would be similar to those areas excluded from livestock in Alternative D.

This alternative would eliminate all livestock use of forbs and grasses and shrubs in the allotment, allowing plants to complete their growth cycle annually. There would be no disturbance from livestock or livestock management activities, especially to ground nesting birds and burrowing mammals. Rangeland vegetation would have a better chance of establishment as their seeds are allowed to cure and fall to the ground versus being consumed by livestock. Bare ground would decrease and residual cover would increase, providing quality hiding and foraging opportunities for wildlife, especially smaller prey species such as rabbits, chipmunks, and ground squirrels. Habitat conditions for wildlife across the allotment would improve as upland and riparian vegetation recovers and provides additional structure and cover with no livestock grazing pressure.

The reasonably foreseeable future hazardous fuels reduction and habitat restoration project may cause wildlife to avoid the area, especially following

prescribed fire treatments. However, impacts would be temporary, affect a relatively small area (<2 percent of the CEAA), and provide quality habitat with reduced risk of a catastrophic wildfire after a couple of growing seasons. The additional 1.8 miles of fence planned in the CEAA outside of the allotment would increase the “fence length to area” ratio. This increase is not expected to increase the risk of injury to mule deer and elk in the CEAA, but if private land within the allotment is fenced the ratio may substantially increase above all other alternatives. The effects of this alternative combined with past and reasonably foreseeable future actions are not expected to have measurable cumulative effects to wildlife.

12. Wildlife/BLM SSS and Habitat –Fauna (terrestrial)

Affected Environment

No federally listed T&E plant or wildlife species are known to occur within Pine Creek Allotment, and no critical habitat has been designated near the allotment. The allotment does provide habitat for greater sage-grouse (*Centrocercus urophasianus*), which the U.S. Fish and Wildlife Service found to be warranted for federal listing, but precluded by other higher priority actions. Greater sage-grouse is a BLM designated SSS and Bird of Conservation Concern for the Great Basin Region. There are two known lek sites within the allotment. The Greenley Gulch Lek was discovered near the southern boundary of Greele Pasture during a lek reconnaissance flight conducted by Oregon Department of Fish and Wildlife in 2004. Gravel Ridge Lek was discovered in 1986 near the north-central boundary of the Highway Pasture. Three other leks occur in adjacent allotments. Indian Grade Lek is located approximately 0.3 mile south of the allotment across Highway 20, and the Pine Creek and Gould Leks are north of the allotment 1.6 and 3.0 miles, respectively. All leks are considered active.

Other Special Status Species potentially using the allotment include white-headed woodpeckers (*Picoides albolarvatus*) and Lewis’ woodpecker (*Melanerpes lewis*). The allotment may also provide limited habitat, especially foraging areas along riparian corridors, for Townsend’s big-eared bat (*Corynorhinus townsendii*), fringed myotis (*Myotis thysanodes*), and other special status bat species.

Approximately eighty-five percent of the allotment is considered sage-grouse core, low density, or currently occupied habitat. Core habitat provides some of the most important habitat for sage-grouse, and covers over sixty percent of the allotment primarily in Greele, Pine Creek, Vanderveer, and Sagebrush pastures. Low Density habitat comprises seventeen percent of the allotment and occurs in Highway, Sagebrush, and Oard Flat pastures. The rest of the sage-grouse habitat in the allotment is almost entirely located in the Oard Flat pasture. Juniper has expanded across approximately three-fourths of the allotment, and is reducing the quality of sagebrush stands and riparian areas. In some areas, this habitat is no longer suitable for grouse. Upland areas are in stable to downward trend due to

juniper expansion, while the riparian areas along Pine Creek are trending downward due to both juniper expansion and livestock grazing. Riparian areas are important to greater sage-grouse, especially during the brood rearing period, but the vegetation along Pine Creek and its tributaries is in poor condition and not meeting Standards. Riparian areas also provide important foraging areas for Special Status Bat species. Lewis' woodpecker may utilize large cottonwoods along the riparian areas for nesting and foraging, while white headed woodpeckers are expected to be found only in the larger pines in the northwest portions of the allotment.

Wildfires during the past twenty years burned across 1,163 acres in and adjacent to the allotment. Mortality of juniper due to the fires was low, but sagebrush was largely replaced with grasses and forbs. Seven hundred and twenty acres in the northwest portions of the allotment were treated in the last decade to reduce fuels, improve rangeland health, and release aspen and mahogany stands from juniper encroachment. A prescribed burn was completed in 2007 on 266 acres of the treated areas. The closest habitat restoration projects outside the allotment are located two miles to the west and six miles to the south. These restoration projects include juniper cutting and prescribed burning to improve understory grasses and shrubs in sagebrush, riparian, and other unique habitat. Treated areas, especially aspen, ponderosa pine, and sagebrush communities, provide important food and cover for these special status species.

Environmental Consequences

Effects Common to All Alternatives

For the purposes of this analysis, the CEAA for SSS extends up to ten miles beyond the allotment boundary to encompass regular movements of some SSS bats and birds that may be using the allotment. Vegetation communities present in the allotment are fairly representative of those across the CEAA, although ponderosa pine forests contribute a larger portion at this scale. Past and present actions and events, such as those described in *Affected Environment*, have influenced the existing environment within the CEAA. Reasonably foreseeable future actions in the CEAA that may contribute to cumulative effects to SSS and their habitat include livestock grazing, hunting and other recreational pursuits, and cutting and prescribed burning to reduce hazardous fuels and restore wildlife habitat. Past and reasonably foreseeable future actions that have affected SSS or their habitat in the CEAA are found in Table 15.

The hazardous fuels project is expected to improve habitat for all SSS by reducing heavy accumulations of litter, reducing excessive understory growth, controlling juniper expansion in sagebrush dominated areas, and reducing the potential for severe wildfires. The hazardous fuels and restoration project in the area is expected to temporarily disturb or displace individuals during treatment activity, but would enhance the ability of the habitat to support these species as vegetation responds over the next several growing seasons following treatment. Restored

areas are expected to provide refuge to some individuals displaced from currently degraded habitat along Pine Creek.

Hunting and other common recreational activity in this area may disturb SSS in the area, but most effects would be temporary (lasting less than a couple of days) and not modify habitat. Livestock grazing management on adjacent BLM allotments is designed to meet Rangeland Health Standards and Guidelines, and is expected to maintain adequate habitat to support populations of migratory birds.

Alternative A: No Action

There would be no known effects to T&E or Proposed wildlife species under this alternative, because none are known to be present on the allotment. Sage-grouse habitat would not improve in Pine Creek Pasture, as little or no rest for plants during their growing season would occur in this pasture. Rangeland Health Standards in relation to sage-grouse would continue to be achieved in all other pasture in the allotment. Scheduled grazing in Oard Flat, Pine Creek, and Greele Pastures overlaps portions of the nesting season each year. The graze/rest rotation in Sagebrush and Highway Pastures would limit affects to alternating years. Livestock are moved out of Vanderveer Pasture in early April each year, and effects would be limited to the early part of the nesting season. At the current stocking rate and scheduled rotation, research by (Jensen et al. 1990) and (Guthery et al. 1996) suggest trampling would not be a substantial concern. Additionally, sage-grouse tend to place nests under sagebrush which may further limit direct trampling of nests.

Riparian areas would continue to trend downward, providing less structural diversity, inadequate understory vegetation, and supporting fewer insect populations. Lewis' woodpecker and special status species of bats dependent on insects may avoid these areas due to diminishing food supplies. White-headed woodpeckers are found primarily in habitat with ponderosa pines, and would be unaffected by this alternative.

Range improvements that facilitate a more even distribution of utilizations by cattle would not be implemented under this alternative. Livestock would continue to concentrate in the eastern half of the Greele Pasture, including riparian habitat at Deer Camp Spring. Herbaceous vegetation would be utilized heavier in the east side, limiting the live and residual nesting cover available for sage-grouse in this part of the pasture. Heavier grazing may also reduce available forbs, an important food source for sage-grouse (Drut et al. 1994). Juniper encroachment would continue to degrade sage-grouse and other Special Status Species' habitat, unless these areas are treated.

No new fences are proposed, and "fence length to area" ratio would remain relatively low (1.65 miles per square mile); therefore there would not be a change in the risk of collision for flying birds.

The reasonably foreseeable future hazardous fuels reduction and habitat restoration project may also cause sage-grouse and other SSS fauna to avoid the area, especially following prescribed fire treatments. However, impacts would be temporary (one to two growing seasons), affect a relatively small area (<2 percent of the CEAA), and are expected to create quality habitat with a reduced risk of a catastrophic wildfire. The 1.8 miles of fence planned in the CEAA outside of the allotment would slightly increase the low “fence length to area” ratio (1.40:1 miles per square mile), but the increase would not increase the risk to flying birds and bats across the CEAA. The No Action Alternative is currently not meeting Standards for Pine Creek Pasture with livestock being a contributing factor, and under this Alternative riparian habitat is expected to degrade contributing to cumulative effects to migratory birds.

Alternative B: Proposed Action

The proposed grazing system benefits sage-grouse because it would continue to provide growing season rest for vegetation on the allotment. Changing the timing and reducing the season of use in Pine Creek Pasture allows riparian vegetation to recover and provide increased plant and structural diversity. A healthy riparian area with good forb cover and insect biomass would benefit sage-grouse during the brood rearing period. Other species dependent on riparian areas, such as Lewis’ woodpecker and special status bat species, would also benefit as healthier, structurally diverse riparian habitat typically supports more insect biomass. White-headed woodpeckers are found primarily in habitats with ponderosa pines, and would be unaffected by this alternative.

Grazing in this allotment would continue to occur during the sage-grouse nesting and brood rearing season, causing some disturbances to sage-grouse that use pastures during this time period. However, use would be limited in important riparian habitat in Pine Creek Pasture from May to June rather than the existing schedule of June through September. Portions of the allotment would have livestock present only every other year during the breeding, nesting and early brood rearing seasons for sage-grouse, and would cause fewer disturbances to them during those critical periods.

The proposed spring development in Greele Pasture would benefit SSS because this water source and adjacent riparian vegetation would be protected by developing it as described under design features. Sage-grouse habitat within Greele Pasture also is also expected to benefit with the construction of a drift fence to prevent livestock from concentrating in the eastern half of the allotment and reducing live and residual herbaceous cover. A fence enclosure around the Biscuitroot ACEC in Vanderveer Pasture would provide complete rest on approximately 700 acres, and eliminate grazing disturbance in this area. Proposed fence construction would increase the collision hazard to flying birds and bats, but the “fence length to area” ratio would remain relatively low at 1.30 miles per

square mile for the allotment. All proposed fences would be over 1.4 miles from active leks, limiting the collision risk to flying birds (Hagen 2011).

This alternative would allow for the use of more selective herbicides that are effective at controlling noxious weeds and invasive annual grasses, while limiting collateral damage to native and desirable non-native plants that provide forage and cover for sage-grouse. Some non-target plants may be harmed, but the risk would generally be limited to vulnerable (depending on selected herbicide) plants in the immediate treatment area, and have no effect on overall abundance or diversity of sage-grouse habitat. Application of the proposed herbicides using SOPs (Appendix A) would not only improve the success of the seeding effort, it would help protect native plants that survived the fire. These native plants, especially sagebrush, provide a valuable seed source adapted to the local environment, which further reduces the time needed for the native plant community to recover (Leger 2008). Implementation of this alternative would result in maintenance or improvement of more acres of sage-grouse habitat compared to the No Action Alternative.

Sage-grouse may be impacted through direct or indirect contact or ingestion of chemicals or exposed plant, water, or animals, including insects. However, the proposed herbicides have a wider treatment window, which allows more flexibility in timing of treatments to avoid vulnerable periods for sage-grouse, such as during the nesting and early brood rearing period. Based on the findings of the Ecological Risk Assessments and following SOPs (Appendix A), the risk to birds from ingestion or direct contact would be immeasurable especially at the population level. Discussion and links to Ecological Risk Assessments for the proposed herbicides are available in the Vegetation Treatments Using Herbicides on BLM Lands in Oregon FEIS

(Oregon Veg EIS, Appendix 8, pp. 605-608, Appendix 9, pp. 632, 633, 642) and the Vegetation Treatments Using Herbicides Programmatic FEIS (chlorsulfuron and imazapic only, National Veg EIS, Appendix C). Imazapic and Chlorsulfuron had risk levels below the LOC for all evaluated wildlife under all scenarios (Oregon Veg. FEIS pp. 4-247-250). The risk assessment for clopyralid indicates there is little to no risk to terrestrial animals (SERA 2005, National Veg. EIS p 4-106).

Imazapic: herbicide treatments using Plateau in the fall at a rate of 6oz/acre would pose no risk to SSS (National Veg. FEIS pp. 4-121). Imazapic poses no risk to sensitive wildlife under all exposure scenarios analyzed in ERAs (National Veg. FEIS pp. 4-122).

Chlorsulfuron: The Vegetation Treatments using Herbicides on BLM Lands in Oregon (FEIS; July 2010) presents information on risks associated with special status wildlife species in Table 3-14 (Volume 1, pp. 96-97. This Table shows the results of BLM-evaluated herbicide risk categories for SS wildlife species including small mammals, pollinating insects, fish (pond and stream), aquatic

invertebrates (pond and stream), large and small mammalian and avian herbivores, insectivores, and carnivores. The table shows zero risk to any of those categories from chlorsulfuron.

Clopyralid: The Vegetation Treatments using Herbicides on BLM Lands in Oregon (FEIS; July 2010) presents information on risks associated with wildlife species in Table 3-15 (Volume 1, pp. 98-99). The table does not distinguish between general and special status species. It is assumed that SS Species are included in the general categories. This Table shows the results of USFS-evaluated herbicide risk categories for wildlife species including small mammals, pollinating insects, fish (pond and stream), aquatic invertebrates (pond and stream), large and small mammalian and avian herbivores, insectivores, and carnivores. The table shows zero risk from clopyralid to most categories except for small animals directly sprayed, consumption of contaminated insects by small mammals, and susceptible fish species from a direct spill where the risk was low.

The reasonably foreseeable future hazardous fuels reduction and habitat restoration projects may also cause sage-grouse and other SSS to avoid the area, especially following prescribed fire treatments. However, impacts would be temporary (one to two growing seasons), affect a relatively small area (<2 percent of the CEAA), and are expected to create quality habitat with a reduced risk of a high-intensity wildfire after a couple of growing seasons. The additional 1.8 miles of fence planned in the CEAA outside of the allotment would increase the existing low “fence length to area” ratio to 1.41:1 miles per square mile across the entire CEAA. This increase is not expected to increase the risk to flying birds and bats across the CEAA. The effects of this alternative combined with past and reasonably foreseeable future actions are not expected to have measurable cumulative effects to SSS.

Alternative C: Proposed Action Excluding Drift Fence Project Development

Grazing and disturbance effects would be similar to the Proposed Action. However, livestock grazing would continue to concentrate more in the eastern side of Greele Pasture, and have similar effects as described in the No Action Alternative for this pasture.

The collision hazard to flying sage-grouse and bats would be similar to the Proposed Action, as the “fence length to area” ratio would be nearly the same at 1.29 miles of fence per square mile.

The reasonably foreseeable future hazardous fuels reduction and habitat restoration project may also cause SSS to avoid the area, especially following prescribed fire treatments. However, impacts would be temporary (one to two growing seasons), affect a relatively small area (<2 percent of the CEAA), and are expected to provide quality habitat with reduced risk of a high-intensity wildfire after a couple of growing seasons. The 1.8 miles of fence planned in the CEAA

outside of the allotment would result in a “fence length to area” ratio lower than Alternative B. This increase above the existing ratio is not expected to increase the risk to flying birds and bats in the CEAA above the no action alternative. The effects of this alternative combined with past and reasonably foreseeable future actions are not expected to have measurable cumulative effects to SSS.

Alternative D: Removal of Livestock Grazing in Pine Creek Pasture with Biscuitroot Cultural ACEC Exclosure Fence

Effects for most pastures would be similar to Alternative A, with the exception of Pine Creek and Vanderveer Pastures. Fencing the ACEC in Vanderveer would eliminate grazing disturbances to approximately 700 acres, but would also increase the length of fence in the allotment. Fences are collision hazards for flying grouse, however, the closest point of a proposed fence to a lek is 1.4 miles which is well beyond the distance (0.6 m) recommended in the Greater Sage-Grouse Conservation Assessment and Strategy (Hagen 2011) and the BLM Greater Sage-Grouse Interim Management Policies and Procedures (WO-IM-2012-043). The exclosure would eliminate livestock use of forbs and allow plants to complete their growth cycle uninterrupted every year. Bare ground would decrease and residual cover would increase, providing better nesting and foraging cover for birds.

Foraging and nesting habitat conditions for sage-grouse and other SSS would improve at a faster rate (compared to Alternative B) within Pine Creek Pasture as upland and riparian vegetation becomes denser. There would be no disturbance from livestock and livestock management activities, especially for ground nesting birds. Herbaceous rangeland vegetation would have a better chance of establishment as their seeds are allowed to cure and fall to the ground versus being consumed by livestock. Woody vegetation along Pine Creek would grow and spread at a faster rate, providing more species and structural diversity over a shorter period of time.

However, private land within the pasture (approximately 47 percent of the pasture is private land) may be fenced out by the permittee and grazed by livestock. The majority of Pine Creek (approximately six miles) is on private land, so the benefits from excluding livestock from this pasture would not be realized. In this case, depending on the grazing strategy on private land, effects are expected to be similar to Alternative A for Pine Creek Pasture. Additionally, the “fence length to area” ratio would increase to 1.60 miles of fence per square mile with the construction of the Biscuitroot Cultural ACEC Exclosure Fence, increasing the collision risk for flying birds and bats above the other alternatives.

The reasonably foreseeable future hazardous fuels reduction and habitat restoration project may cause sage-grouse and other SSS to avoid the area, especially following prescribed fire treatments. However, impacts would be temporary (one to two growing seasons), affect a relatively small area (<2 percent

of the CEAA), and are expected to provide quality habitat with a reduced risk of a catastrophic wildfire after a couple of growing seasons. The additional 1.8 miles of fence planned in the CEAA outside of the allotment would increase the existing “fence length to area” ratio. This increase is not expected to increase the risk to flying birds and bats in the CEAA; however, if private land is fenced along Pine Creek the ratio may increase above all other alternatives. The effects of this alternative combined with past and reasonably foreseeable future actions are not expected to have measurable cumulative effects to SSS.

Alternative E: Complete Removal of Livestock Grazing

Under this alternative, livestock would no longer be authorized and effects on the allotment would be similar to those excluded from livestock in Alternative D. Elimination of livestock would remove grazing pressure and disturbance from cattle and associated management activities, and allow for maximum potential (as outlined in the site potentials found within the ESD at <http://esis.sc.egov.usda.gov>) growth of herbaceous vegetation across the allotment. Bare ground around water developments and other livestock concentration areas would begin to recover as vegetation is allowed to grow without the pressure of livestock trampling and utilization. This alternative would provide the most vegetative screening and forage available for sage-grouse and other special status species across the allotment each year. The expected increase in forbs and ground cover would lead to higher nesting success rates for sage-grouse in the allotment.

The reasonable foreseeable future hazardous fuels reduction and habitat restoration project may cause sage-grouse and other SSS to avoid the area, especially following prescribed fire treatments. However, impacts would be temporary (one to two growing seasons), affect a relatively small area (<2 percent of the CEAA0, and are expected to provide quality habitat with a reduced risk of a catastrophic wildfire after a couple of growing seasons. The additional 1.8 miles of fence planned in the CEAA outside of the allotment would increase the existing “fence length to area” ratio. This increase is not expected to increase the risk to flying birds and bats in the CEAA; however, if private land within the allotment is fenced the ratio may increase above all other alternatives. The effects of this alternative combined with past and reasonably foreseeable future actions are not expected to have measurable cumulative effects to SSS.

B. Discussion on Cumulative Effects

As the Council on Environmental Quality (CEQ), in guidance issued on June 24, 2005, points out, the “environmental analysis required under NEPA is forward-looking,” and review of past actions is required only “to the extent that this review informs agency decision-making regarding the Proposed Action.” Use of information on the effects on past action may be useful in two ways according to the CEQ guidance. One is for consideration of the Proposed Action’s cumulative effects, and secondly as a basis for

identifying the Proposed Action's direct and indirect effects.

The CEQ stated in this guidance that “[g]enerally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.” This is because a description of the current state of the environment inherently includes the effects of past actions. The CEQ guidance specifies that the “CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions.” Our information on the current environmental condition is more comprehensive and more accurate for establishing a useful starting point for a cumulative effects analysis, than attempting to establish such a starting point by adding up the described effects of individual past actions to some environmental baseline condition in the past that, unlike current conditions, can no longer be verified by direct examination. The second area in which the CEQ guidance states that information on past actions may be useful is in "illuminating or predicting the direct and indirect effects of a Proposed Action." The usefulness of such information is limited by the fact that it is anecdotal only, and extrapolation of data from such singular experiences is not generally accepted as a reliable predictor of effects.

However, "experience with and information about past direct and indirect effects of individual past actions" have been found useful in "illuminating or predicting the direct and indirect effects" of the Proposed Action in the following instances: the basis for predicting the direct and indirect effects of the Proposed Action and its alternatives is based on the general accumulated experience of the resource professionals in the agency with similar actions.

The environmental consequences discussion described all expected effects including direct, indirect and cumulative on resources from enacting the proposed alternatives. A distinction between direct and indirect effects is not made and in many cases cumulative effects are only described as effects. All effects are considered direct and cumulative; therefore, use of these words may not appear. In addition, the Introduction Section of this EA, specifically the Purpose of and Need for Action, identifies past actions creating the current situation.

Reasonably foreseeable future actions include those federal and non-federal activities not yet undertaken, but sufficiently likely to occur, that a Responsible Official of ordinary prudence would take such activities into account in reaching a decision. These federal and non-federal activities that must be taken into account in the analysis of cumulative impact include, but are not limited to, activities for which there are existing decisions, funding, or proposals identified by the bureau. Reasonably foreseeable future actions do not include those actions that are highly speculative or indefinite. The beginning of Chapter III lists all reasonably foreseeable future actions associated with this analysis. Cumulative effects were thoroughly addressed throughout Chapter III by resource if applicable.

CHAPTER IV: PERSONS, GROUPS, AND GOVERNMENT AGENCIES CONSULTED

A. Agencies and Individuals Consulted

Burns Paiute Tribe
Oregon Department of Fish and Wildlife, Hines, Oregon
Pine Creek Ranch, Permittee

B. Interdisciplinary Team

Rachel Beaubien, Rangeland Management Specialist –Lead Preparer (Livestock Grazing Management, Vegetation)
John Bethea, Natural Resource Specialist –Recreation, Visual Resources

Jason Brewer, (former) Wildlife Biologist –Migratory Birds, Wildlife, SSS-Fauna: Terrestrial

Lindsay Davies, Fisheries Biologist –Fisheries, Water Quality, Wetlands/Riparian Zones, SSS –Fauna: Aquatic

Eric Haakenson, ?

Tomas Kamienski, Wildlife Biologist – Migratory Birds, Wildlife, SSS-Fauna: Terrestrial
Caryn Meinicke, Natural Resource Specialist-Botany –SSS –Flora, Soils/Biological Crusts

Lesley Richman, District Week Coordinator –Noxious Weeds

Scott Thomas, District Archaeologist –American Indian Traditional Practices, Cultural Resources

C. Advisory

Stacy Fenton, GIS Specialist
Rhonda Karges, Andrews Resource Area Field Manager
Holly Orr, District Planning and Environmental Coordinator
Jon Reponen, Forestry
Richard Roy, Three Rivers Resource Area Field Manager

D. References

Allen, G.T. and P. Ramirez. 1990. *A Review of bird deaths on barbed-wire fences.*

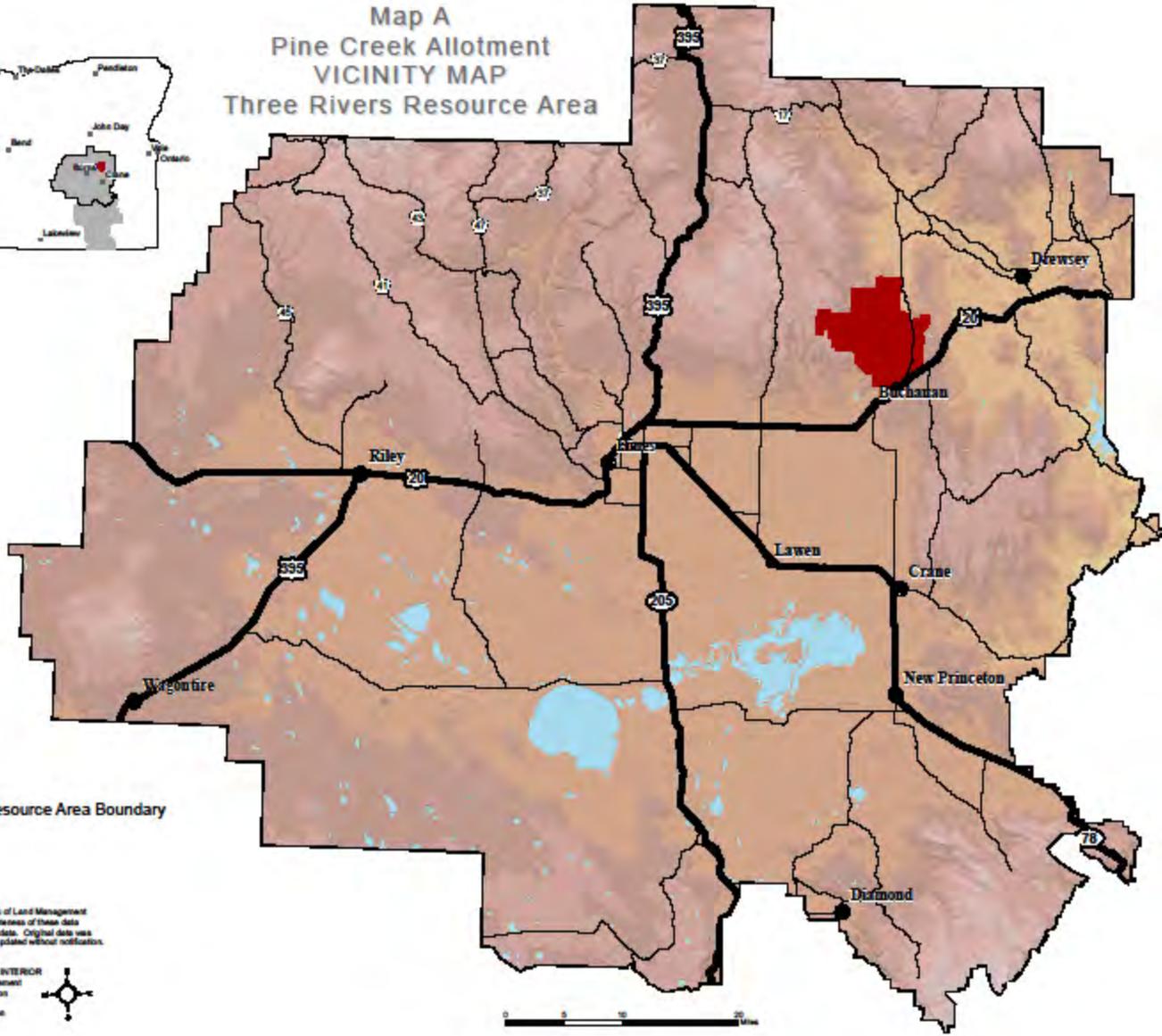
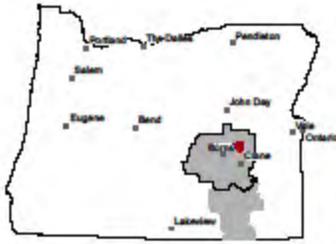
Wilson Bulletin. 102:553-558.

Davies, K. et al. 2009, 'Interaction of historical and nonhistorical disturbances maintains native plant communities'.

Davies, K.W. 2010. *Revegetation of Medusahead-Invaded Sagebrush Steppe.* Rangeland Ecology Management. 63:564-571

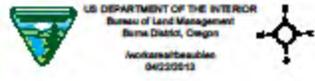
- Davies, K.W., R.L. Sheley. 2011. *Promoting Native Vegetation and Diversity in Exotic Annual Grass Infestations*. Restoration Ecology Vol. 19, No. 2, pp. 159-165.
- Fernandez-Juricic, E., M.D. Jimenez, and E. Lucas. 2002. *Factors affecting intra- and inter-specific variations in the difference between alert distances and flight distances for birds in forested habitats*. Canadian Journal of Zoology. 80:1212-1220.
- Hagen, C.A. 2011. Greater sage-grouse conservation strategy assessment and strategy for Oregon: A plan to maintain and enhance populations and habitat. Oregon Department of Fish and Wildlife, Salem, USA.
1934. Taylor Grazing Act 43 U.S.C. 315.
1976. Federal Land Policy and Management Act (43 U.S.C. 1701).
1978. Public Rangelands Improvement Act (43 U.S.C. 1902).
1984. BLM. TR-4400-4 –*Rangeland Monitoring: Trend Studies*. USDI, BLM Technical Reference.
1991. BLM. *Three Rivers Proposed Resource Management Plan and Final Environmental Impact Statement*. Burns District BLM.
1992. BLM. *Three Rivers Resource Management Plan, Record of Decision, and Rangeland Program Summary*. Burns District Bureau of Land Management.
1995. Code of Federal Regulations, Subchapter D –Range Management (4000) Subpart 4100.
1997. BLM. *Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands in Oregon and Washington*.
1998. BLM. *Noxious Weed Management Program EA OR-020-98-05*. Burns District Office.
2008. USFWS. *Birds of Conservation Concern for the Great Basin Region*.
2009. <http://oain.oregonstate.edu>. Oregon Agricultural Information Network.
2011. <http://www.extension.oregonstate.edu>. Oregon State Extension Service.
2011. <http://esis.sc.egov.usda.gov>. Natural Resources Conservation Service.

Map A
Pine Creek Allotment
VICINITY MAP
Three Rivers Resource Area



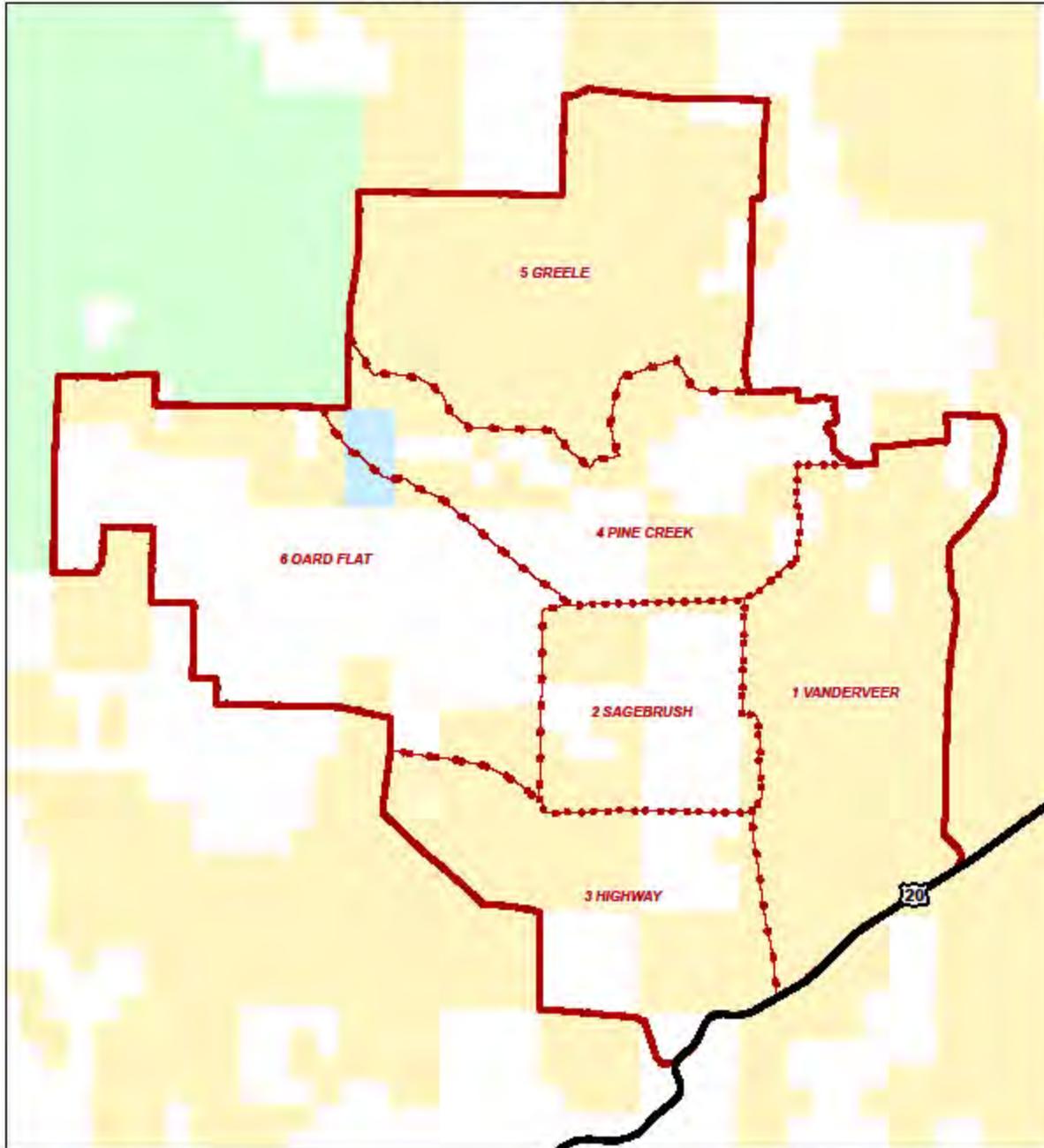
- Legend**
- Allotment
 - Three Rivers Resource Area Boundary

Note: No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources and may be updated without notification.



Pine Creek Allotment LAND STATUS

Map B



Legend

- Allotments
- Pastures
- Bureau of Land Management
- U.S. Forest Service
- State
- Private/Unknown

1 Miles



Note: No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources and may be updated without notification.

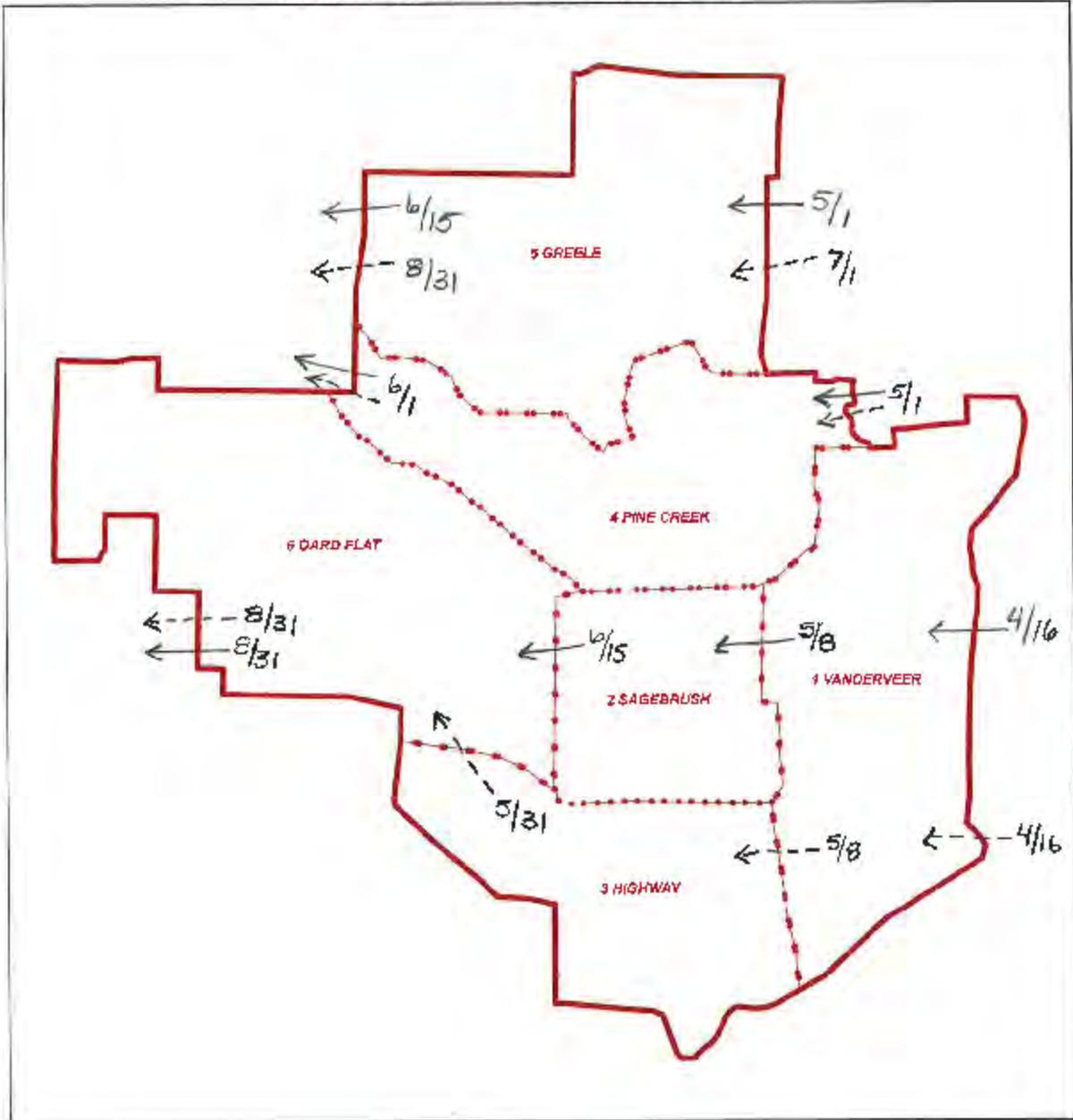


US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Burns District, Oregon



#222013 (revised)
W:\PineCreek\PineCreekLandStatus.mxd

Map C Pine Creek Allotment GRAZING SCHEMATIC



Pastures
 Allotments

Even Years
 Odd Years

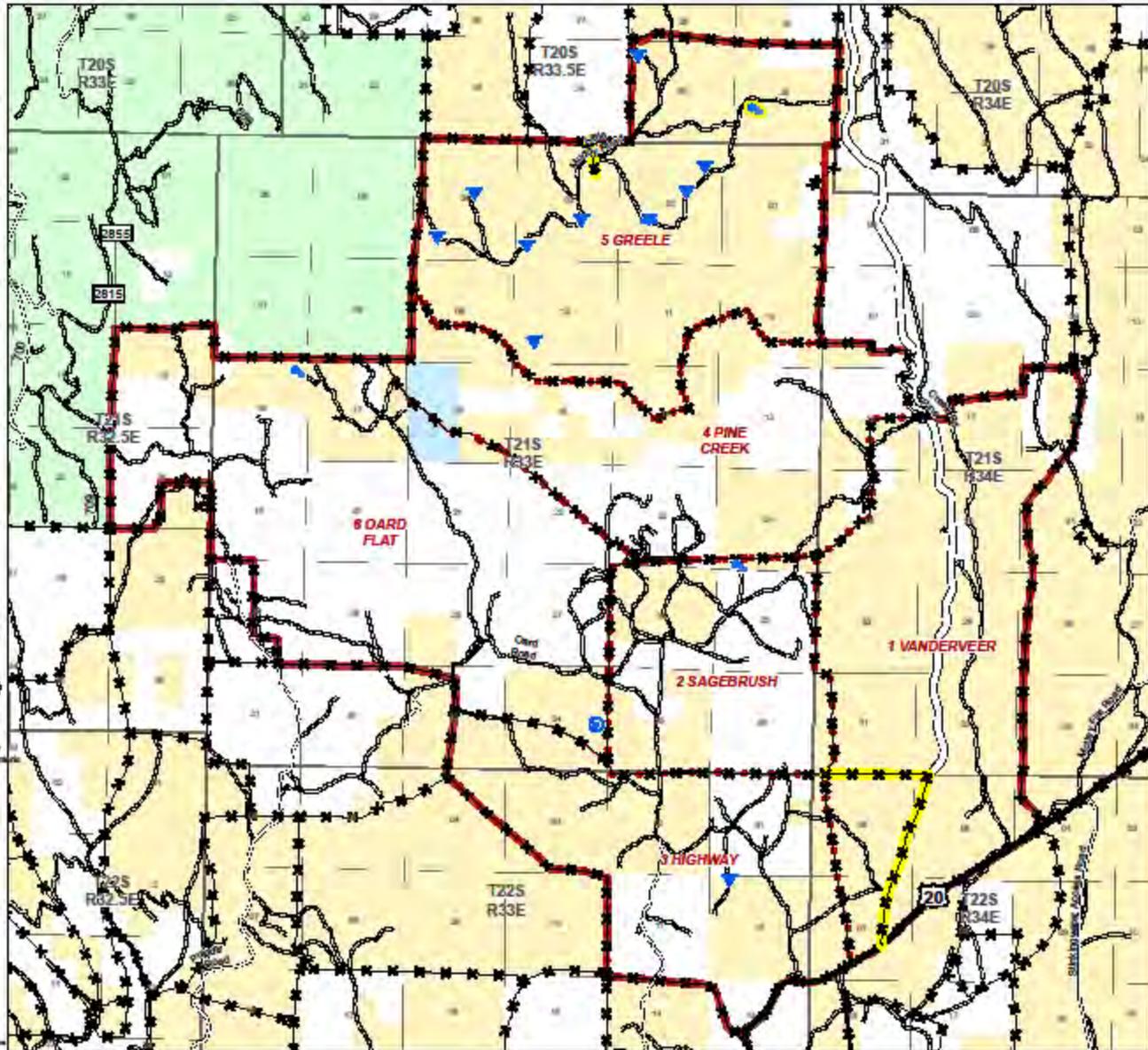
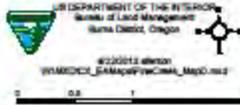
**Map D
Pine Creek
Allotment
RANGE
IMPROVEMENTS**

Proposed Projects
Highlighted in Yellow

-  Proposed Spring Development
-  Proposed Fence
-  Reservoir
-  Waterhole
-  Spring Development
-  Dam
-  Fence
-  Pastures
-  Allotments
-  Bureau of Land Management
-  U.S. Forest Service
-  State
-  Private/Unknown
-  Highways
-  Paved Road
-  Non-Paved Improved Road
-  Natural/Unknown Road Surface

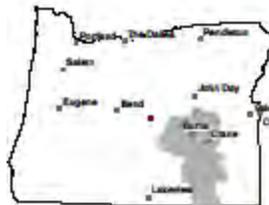


NOTE: No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.



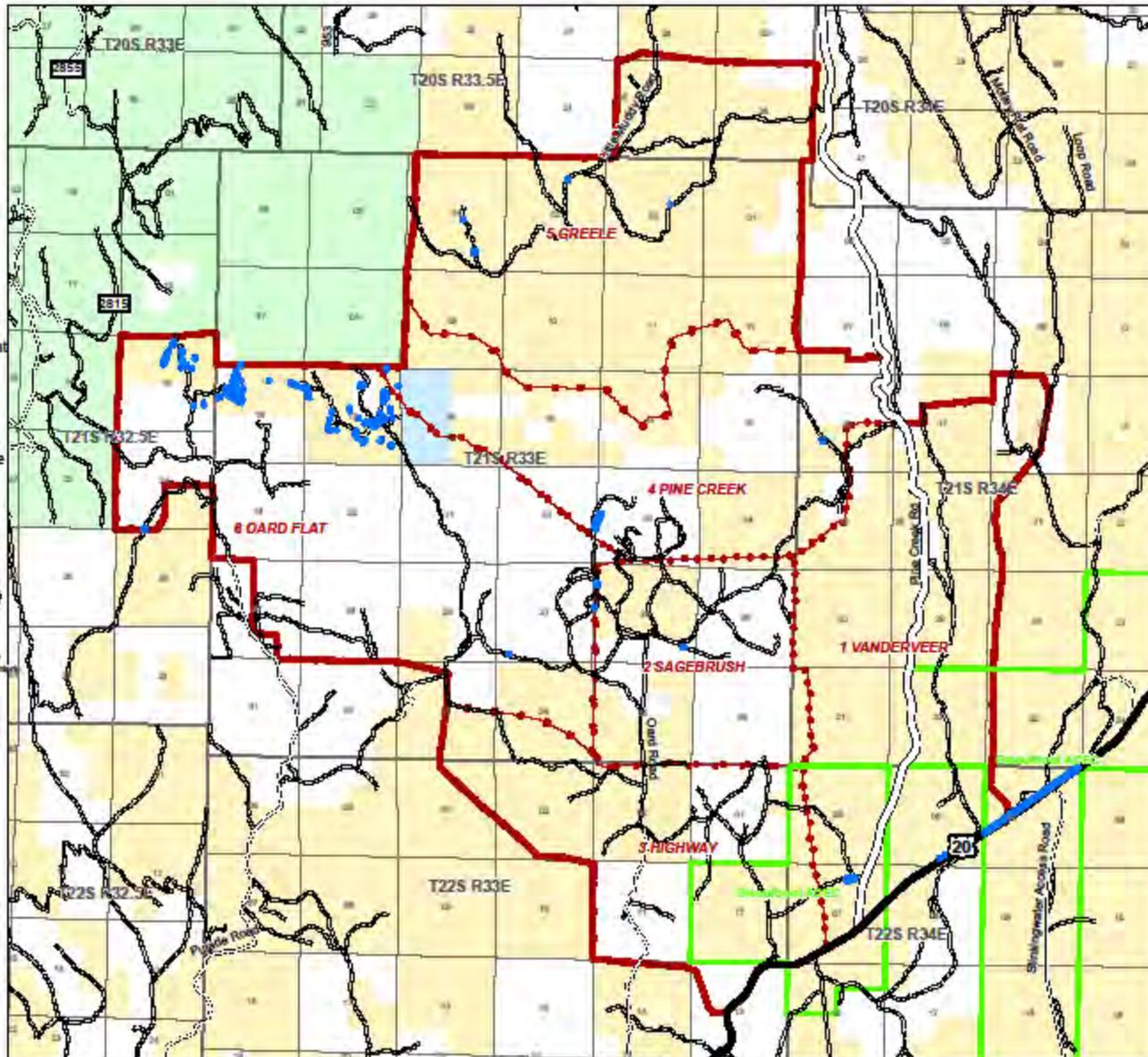
Map E
Pine Creek
Allotment
Proposed
Herbicide
Application

- Proposed Projects
Highlighted in Yellow**
-  Allotments
 -  Pastures
 -  Bureau of Land Management
 -  U.S. Forest Service
 -  State
 -  Private/Unknown
 -  Weeds - Proposed Herbicide Application Areas



Note: No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources and may be updated without notification.

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Bureau District, Oregon
4/22/13 10:46:01
W:\PineCreek\MapDocs\MapE\pncreekblm.mxd



Appendix A
Standard Operating Procedures and Mitigation Measures
Excerpted from the Vegetation Treatments Using Herbicides on BLM Lands in Oregon
FEIS/ROD (2010) (pp. 457-467)

Introduction

The following Standard Operating Procedures and Mitigation Measures have been adopted from the Record of Decision (ROD) for the Preliminary Environmental Impact Statement (PEIS). Minor edits have been made to some Standard Operating Procedures and Mitigation Measures to clarify intent.

Standard Operating Procedures (identified below with SOPs) have been identified to reduce adverse effects to environmental and human resources from vegetation treatment activities based on guidance in BLM manuals and handbooks, regulations, and standard BLM and industry practices.

1. The list is not all encompassing, but is designed to give an overview of practices that would be considered when designing and implementing a vegetation treatment project on public lands (PER:2-29)

2. Effects described in the EIS are predicated on application of the Standard Operating Procedures, that a site-specific determination is made that their application is unnecessary to achieve their intended purpose or protection, or that if the parent handbook or policy direction evolves, the new direction would continue to provide the appropriate environmental protections. For example, the SOP to “complete vegetation treatments seasonally before pollinator foraging plants bloom” would not be applied to treatments not likely to have a significant effect on pollinators.

PEIS Mitigation Measures (MM) were identified for all potential adverse effects identified in the PEIS. They are included in, and adopted by, the ROD for the PEIS. Like the SOPs, application of the MM is assumed in this EIS. However, for PEIS MMs, site-specific analysis and/or the use of Individual Risk Assessments Tools (see Chapter 3), or evolution of the PEIS MMs into handbook direction at the national level, would be permitted to identify alternative ways to achieve the expected protections (PEIS:4-4).

Although not displayed here, SOPs for non-herbicide treatments (from regulation, BLM policy, and BLM Handbook direction) also apply (PER:2-31 to 44).

Standard Operating Procedures and Mitigation Measures for Applying Herbicides

Guidance Documents

BLM Handbook H-9011-1 (*Chemical Pest Control*); and manuals 1112 (*Safety*), 9011 (*Chemical Pest Control*), 9012 (*Expenditure of Rangeland Insect Pest Control Funds*), 9015 (*Integrated Weed Management*), and 9220 (*Integrated Pest Management*).

- 1 Manual-directed standard operating procedures and other standing direction may be referred to as best management practices in resource management and other plans, particularly when they apply to water.
- 2 The PER includes Standard Operating Procedures for the full range of vegetation treatment methods. Only those applicable to herbicide application are included in this appendix.

General

- Prepare an operational and spill contingency plan in advance of treatment. (SOP)
- Conduct a pretreatment survey before applying herbicides. (SOP)
- Select the herbicide that is least damaging to the environment while providing the desired results. (SOP)
- Select herbicide products carefully to minimize additional impacts from degradates, adjuvants, other ingredients, and tank mixtures. (SOP)
- Apply the least amount of herbicide needed to achieve the desired result. (SOP)
- Follow herbicide product label for use and storage. (SOP)
- Have licensed or certified applicators or State-licensed “trainees” apply herbicides, or they can be applied by BLM employees under the direct supervision of a BLM-certified applicator. (SOP)
- Use only USEPA-approved herbicides and follow product label directions and “advisory” statements. (SOP)
- Review, understand, and conform to the “Environmental Hazards” section on the herbicide product label. This section warns of known herbicide risks to the environment and provides practical ways to avoid harm to organisms or to the environment. (SOP)
- Consider surrounding land use before assigning aerial spraying as a treatment method and avoid aerial spraying near agricultural or densely populated areas. (SOP)
- Minimize the size of application area, when feasible. (SOP)
- Comply with herbicide-free buffer zones to ensure that drift will not affect crops or nearby residents/landowners. (SOP)
- Post treated areas and specify reentry or rest times, if appropriate. (SOP)
- Notify adjacent landowners prior to treatment, if appropriate. (SOP)
- Keep a copy of Material Safety Data Sheets (MSDSs) at work sites. MSDSs are available for review at [http:// www.cdms.net/](http://www.cdms.net/). (SOP)
- Keep records of each application, including the active ingredient, formulation, application rate, date, time, and location. (SOP)
- Avoid accidental direct spray and spill conditions to minimize risks to resources. (SOP)
- Avoid aerial spraying during periods of adverse weather conditions (snow or rain imminent, fog, or air turbulence). (SOP)
- Make helicopter applications at a target airspeed of 40 to 50 miles per hour (mph), and at about 30 to 45 feet above ground. (SOP)
- Take precautions to minimize drift by not applying herbicides when winds exceed >10 mph (>6 mph for aerial applications), or a serious rainfall event is imminent. (SOP)
- Use drift control agents and low volatile formulations. (SOP)
- Conduct pre-treatment surveys for sensitive habitat and Special Status species within or adjacent to proposed treatment areas. (SOP)
- Consider site characteristics, environmental conditions, and application equipment in order to minimize damage to non-target vegetation. (SOP)
- Use drift reduction agents, as appropriate, to reduce the drift hazard to non-target species. (SOP)
- Turn off application equipment at the completion of spray runs and during turns to start another spray run. (SOP)
- Refer to the herbicide product label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide. (SOP)
- Clean OHVs to remove plant material. (SOP)

The BLM has suspended the use of the adjuvant R-11.

Air Quality

See Manual 7000 (*Soil, Water, and Air Management*)

- Consider the effects of wind, humidity, temperature inversions, and heavy rainfall on herbicide effectiveness and risks. (*SOP*)
- Apply herbicides in favorable weather conditions to minimize drift. For example, do not treat when winds exceed 10 mph (>6 mph for aerial applications) or rainfall is imminent. (*SOP*)
- Use drift reduction agents, as appropriate, to reduce the drift hazard. (*SOP*)
- Select proper application equipment (e.g., spray equipment that produces 200- to 800-micron diameter droplets [spray droplets of 100 microns and less are most prone to drift]). (*SOP*)
- Select proper application methods (e.g., set maximum spray heights, use appropriate buffer distances between spray sites and non-target resources). (*SOP*)

Soil

See Manual 7000 (*Soil, Water, and Air Management*)

- Minimize treatments in areas where herbicide runoff is likely, such as steep slopes when heavy rainfall is expected. (*SOP*)
- Minimize use of herbicides that have high soil mobility, particularly in areas where soil properties increase the potential for mobility. (*SOP*)
- Do not apply granular herbicides on slopes of more than 15 percent where there is the possibility of runoff carrying the granules into non-target areas. (*SOP*)

Water Resources

See Manual 7000 (*Soil, Water, and Air Management*)

- Consider climate, soil type, slope, and vegetation type when developing herbicide treatment programs. (*SOP*)
- Select herbicide products to minimize impacts to water. This is especially important for application scenarios that involve risk from active ingredients in a particular herbicide, as predicted by risk assessments. (*SOP*)
- Use local historical weather data to choose the month of treatment. (*SOP*)
- Considering the phenology of target aquatic species, schedule treatments based on the condition of the water body and existing water quality conditions. (*SOP*)
- Plan to treat between weather fronts (calms) and at appropriate time of day to avoid high winds that increase water movements, and to avoid potential stormwater runoff and water turbidity. (*SOP*)
- Review hydrogeologic maps of proposed treatment areas. Note depths to groundwater and areas of shallow groundwater and areas of surface water and groundwater interaction. Minimize treating areas with high risk for groundwater contamination. (*SOP*)
- Conduct mixing and loading operations in an area where an accidental spill would not contaminate an aquatic body. (*SOP*)
- Do not rinse spray tanks in or near water bodies. (*SOP*)
- Do not broadcast pellets where there is danger of contaminating water supplies. (*SOP*)
- Minimize the potential effects to surface water quality and quantity by stabilizing terrestrial areas as quickly as possible following treatment. (*SOP*)
- Establish appropriate (herbicide-specific) buffer zones for species/populations (Tables A2-1 and A2-2). (*MM*)
- Areas with potential for groundwater for domestic or municipal use shall be evaluated through the appropriate, validated model(s) to estimate vulnerability to potential groundwater contamination, and appropriate mitigation measures shall be developed if such an area requires the application of herbicides and cannot otherwise be treated with non-herbicide methods. (*MM*)
- Use appropriate herbicide-free buffer zones for herbicides not labeled for aquatic use based on risk assessment guidance, with minimum widths from water of 100 feet for aerial, 25 feet for vehicle, and 10 feet for hand spray applications. (*SOP*)

- Maintain buffers between treatment areas and water bodies. Buffer widths should be developed based on herbicide and site-specific conditions to minimize impacts to water bodies. *(SOP)*

Wetlands and Riparian Areas

- Use a selective herbicide and a wick or backpack sprayer. *(SOP)*
- Use appropriate herbicide-free buffer zones for herbicides not labeled for aquatic use based on risk assessment guidance, with minimum widths from water of 100 feet for aerial, 25 feet for vehicle, and 10 feet for hand spray applications. *(SOP)*
- See mitigation for Water Resources and Vegetation. *(MM)*

Vegetation

See Handbook H-4410-1 (*National Range Handbook*), and manuals 5000 (*Forest Management*) and 9015 (*Integrated Weed Management*)

- Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide. *(SOP)*
- Use native or sterile plants for revegetation and restoration projects to compete with invasive plants until desired vegetation establishes. *(SOP)*
- Use weed-free feed for horses and pack animals. Use weed-free straw and mulch for revegetation and other activities. *(SOP)*
- Identify and implement any temporary domestic livestock grazing and/or supplemental feeding restrictions needed to enhance desirable vegetation recovery following treatment. Consider adjustments in the existing grazing permit, to maintain desirable vegetation on the treatment site. *(SOP)*
- Minimize the use of terrestrial herbicides (especially bromacil, diuron, and sulfometuron methyl) in watersheds with downgradient ponds and streams if potential impacts to aquatic plants are identified. *(MM)*
- Establish appropriate (herbicide-specific) buffer zones (Tables A2-1 and 2) around downstream water bodies, habitats, and species/populations of interest. Consult the ecological risk assessments (ERAs) prepared for the PEIS for more specific information on appropriate buffer distances under different soil, moisture, vegetation, and application scenarios. *(MM)*
- Limit the aerial application of chlorsulfuron and metsulfuron methyl to areas with difficult land access, where no other means of application are possible. *(MM)*
- Do not apply sulfometuron methyl aerially. *(MM)*
- When necessary to protect Special Status plant species, implement all conservation measures for plants presented in the *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Biological Assessment* (see Appendix 5). *(MM)*

Pollinators

- Complete vegetation treatments seasonally before pollinator foraging plants bloom. *(SOP)*
- Time vegetation treatments to take place when foraging pollinators are least active both seasonally and daily. *(SOP)*
- Design vegetation treatment projects so that nectar and pollen sources for important pollinators and resources are treated in patches rather than in one single treatment. *(SOP)*
- Minimize herbicide application rates. Use typical rather than maximum rates where there are important pollinator resources. *(SOP)*
- Maintain herbicide free buffer zones around patches of important pollinator nectar and pollen sources. *(SOP)*
- Maintain herbicide free buffer zones around patches of important pollinator nesting habitat and hibernacula. *(SOP)*
- Make special note of pollinators that have single host plant species, and minimize herbicide spraying on those plants and in their habitats. *(SOP)*

Fish and Other Aquatic Organisms

See manuals 6500 (*Wildlife and Fisheries Management*) and 6780 (*Habitat Management Plans*)

- ❑ Use appropriate buffer zones based on label and risk assessment guidance. (SOP)
- ❑ Minimize treatments near fish-bearing water bodies during periods when fish are in life stages most sensitive to the herbicide(s) used, and use spot rather than broadcast or aerial treatments. (SOP)
- ❑ Use appropriate application equipment/method near water bodies if the potential for off-site drift exists. (SOP)
- ❑ For treatment of aquatic vegetation, 1) treat only that portion of the aquatic system necessary to meet vegetation management objectives, 2) use the appropriate application method to minimize the potential for injury to desirable vegetation and aquatic organisms, and 3) follow water use restrictions presented on the herbicide label. (SOP)
- ❑ Limit the use of diquat in water bodies that have native fish and aquatic resources. (MM)
- ❑ Limit the use of terrestrial herbicides (especially diuron) in watersheds with characteristics suitable for potential surface runoff that have fish-bearing streams during periods when fish are in life stages most sensitive to the herbicide(s) used. (MM)

- ❑ To protect Special Status fish and other aquatic organisms, implement all conservation measures for aquatic animals presented in the *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Biological Assessment* (see Appendix 5). (MM)
- ❑ Establish appropriate herbicide-specific buffer zones for water bodies, habitats, or fish or other aquatic species of interest (Tables A2-3 and A2-4, and recommendations in individual ERAs). (MM)
- ❑ Consider the proximity of application areas to salmonid habitat and the possible effects of herbicides on riparian and aquatic vegetation. Maintain appropriate buffer zones around salmonid-bearing streams. (MM)
- ❑ At the local level, consider effects to Special Status fish and other aquatic organisms when designing treatment programs. (MM)

Wildlife

See manuals 6500 (*Wildlife and Fisheries Management*) and 6780 (*Habitat Management Plans*)

- ❑ Use herbicides of low toxicity to wildlife, where feasible. (SOP)
- ❑ Use spot applications or low-boom broadcast operations where possible to limit the probability of contaminating non-target food and water sources, especially non-target vegetation over areas larger than the treatment area. (SOP)
- ❑ Use timing restrictions (e.g., do not treat during critical wildlife breeding or staging periods) to minimize impacts to wildlife. (SOP)
- ❑ To minimize risks to terrestrial wildlife, do not exceed the typical application rate for applications of dicamba, diuron, glyphosate, hexazinone, tebuthiuron, or triclopyr, where feasible. (MM)
- ❑ Minimize the size of application areas, where practical, when applying 2,4-D, bromacil, diuron, and Overdrive® to limit impacts to wildlife, particularly through contamination of food items. (MM)
- ❑ Where practical, limit glyphosate and hexazinone to spot applications in grazing land and wildlife habitat areas to avoid contamination of wildlife food items. (MM)
- ❑ Do not use the adjuvant R-11 (MM)
- ❑ Either avoid using glyphosate formulations containing POEA, or seek to use formulations with the least amount of POEA, to reduce risks to amphibians. (MM)
- ❑ Do not apply bromacil or diuron in rangelands, and use appropriate buffer zones (Tables A2-1 and 2) to limit contamination of off-site vegetation, which may serve as forage for wildlife. (MM)
- ❑ Do not aerially apply diquat directly to wetlands or riparian areas. (MM)
- ❑ To protect Special Status wildlife species, implement conservation measures for terrestrial animals presented in the *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Biological Assessment* (See Appendix 5) (MM)

Threatened, Endangered, and Sensitive Species

See Manual 6840 (*Special Status Species*)

- Provide clearances for Special Status species before treating an area as required by Special Status Species Program policy. Consider effects to Special Status species when designing herbicide treatment programs. (*SOP*)
- Use a selective herbicide and a wick or backpack sprayer to minimize risks to Special Status plants. (*SOP*)
- Avoid treating vegetation during time-sensitive periods (e.g., nesting and migration, sensitive life stages) for Special Status species in area to be treated. (*SOP*)

Livestock

See Handbook H-4120-1 (*Grazing Management*)

- Whenever possible and whenever needed, schedule treatments when livestock are not present in the treatment area. Design treatments to take advantage of normal livestock grazing rest periods, when possible. (*SOP*)
- As directed by the herbicide product label, remove livestock from treatment sites prior to herbicide application, where applicable. (*SOP*)
- Use herbicides of low toxicity to livestock, where feasible. (*SOP*)
- Take into account the different types of application equipment and methods, where possible, to reduce the probability of contamination of non-target food and water sources. (*SOP*)
- Avoid use of diquat in riparian pasture while pasture is being used by livestock. (*SOP*)
- Notify permittees of the herbicide treatment project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. (*SOP*)
- Notify permittees of livestock grazing, feeding, or slaughter restrictions, if necessary. (*SOP*)
- Provide alternative forage sites for livestock, if possible. (*SOP*)
- Minimize potential risks to livestock by applying diuron, glyphosate, hexazinone, tebuthiuron, or triclopyr at the typical application rate where feasible. (*MM*)
- Do not apply 2,4-D, bromacil, dicamba, diuron, Overdrive®, picloram, or triclopyr across large application areas, where feasible, to limit impacts to livestock, particularly through contamination of food items. (*MM*)
- Where feasible, limit glyphosate and hexazinone to spot applications in rangeland. (*MM*)
- Do not apply bromacil or diuron in rangelands, and use appropriate buffer zones (Tables A2-1 and 2) to limit contamination of off-site vegetation, which may serve as forage for wildlife. (*MM*)

Wild Horses and Burros

- Minimize using herbicides in areas grazed by wild horses and burros. (*SOP*)
- Use herbicides of low toxicity to wild horses and burros, where feasible. (*SOP*)
- Remove wild horses and burros from identified treatment areas prior to herbicide application, in accordance with herbicide product label directions for livestock. (*SOP*)
- Take into account the different types of application equipment and methods, where possible, to reduce the probability of contaminating non-target food and water sources. (*SOP*)
- Minimize potential risks to wild horses and burros by applying diuron, glyphosate, hexazinone, tebuthiuron, and triclopyr at the typical application rate, where feasible, in areas associated with wild horse and burro use. (*MM*)
- Consider the size of the application area when making applications of 2,4-D, bromacil, dicamba, diuron, Overdrive®, picloram, and triclopyr in order to reduce potential impacts to wild horses and burros. (*MM*)
- Apply herbicide label grazing restrictions for livestock to herbicide treatment areas that support populations of wild horses and burros. (*MM*)
- Where practical, limit glyphosate and hexazinone to spot applications in rangeland. (*MM*)

- Do not apply bromacil or diuron in grazing lands within herd management areas (HMAs), and use appropriate buffer zones identified in Tables A2-1 and 2 to limit contamination of vegetation in off-site foraging areas. (MM)
- Do not apply 2,4-D, bromacil, or diuron in HMAs during the peak foaling season (March through June, and especially in May and June), and do not exceed the typical application rate of Overdrive® or hexazinone in HMAs during the peak foaling season in areas where foaling is known to take place. (MM)

Cultural Resources and Paleontological Resources

See handbooks H-8120-1 (*Guidelines for Conducting Tribal Consultation*) and H- 8270-1 (*General Procedural Guidance for Paleontological Resource Management*), and manuals 8100 (*The Foundations for Managing Cultural Resources*), 8120 (*Tribal Consultation Under Cultural Resource Authorities*), and 8270 (*Paleontological Resource Management*). See also: *Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which BLM Will Meet Its Responsibilities Under the National Historic Preservation Act*.

- Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the *Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which BLM Will Meet Its Responsibilities Under the National Historic Preservation Act* and State protocols or 36 Code of Federal Regulations Part 800, including necessary consultations with State Historic Preservation Officers and interested tribes. (SOP)
- Follow BLM Handbook H-8270-1 (*General Procedural Guidance for Paleontological Resource Management*) to determine known Condition I and Condition 2 paleontological areas, or collect information through inventory to establish Condition 1 and Condition 2 areas, determine resource types at risk from the proposed treatment, and develop appropriate measures to minimize or mitigate adverse impacts. (SOP)
- Consult with tribes to locate any areas of vegetation that are of significance to the tribe and that might be affected by herbicide treatments; work with tribes to minimize impacts to these resources. (SOP)
- Follow guidance under Human Health and Safety in the PEIS in areas that may be visited by Native peoples after treatments. (SOP)
- Do not exceed the typical application rate when applying 2,4-D, bromacil, diquat, diuron, fluridone, hexazinone, tebuthiuron, and triclopyr in known traditional use areas. (MM)
- Avoid applying bromacil or tebuthiuron aerially in known traditional use areas. (MM)
- Limit diquat applications to areas away from high residential and traditional use areas to reduce risks to Native Americans. (MM)

Visual Resources

See handbooks H-8410-1 (*Visual Resource Inventory*) and H-8431-1 (*Visual Resource Contrast Rating*), and manual 8400 (*Visual Resource Management*)

- Minimize the use of broadcast foliar applications in sensitive watersheds to avoid creating large areas of browned vegetation. (SOP)
- Consider the surrounding land use before assigning aerial spraying as an application method. (SOP)
- Minimize off-site drift and mobility of herbicides (e.g., do not treat when winds exceed 10 mph; minimize treatment in areas where herbicide runoff is likely; establish appropriate buffer widths between treatment areas and residences) to contain visual changes to the intended treatment area. (SOP)

- If the area is a Class I or II visual resource, ensure that the change to the characteristic landscape is low and does not attract attention (Class I), or if seen, does not attract the attention of the casual viewer (Class II). *(SOP)*
- Lessen visual impacts by: 1) designing projects to blend in with topographic forms; 2) leaving some low-growing trees or planting some low-growing tree seedlings adjacent to the treatment area to screen short-term effects; and 3) revegetating the site following treatment. *(SOP)*
- When restoring treated areas, design activities to repeat the form, line, color, and texture of the natural landscape character conditions to meet established Visual Resource Management (VRM) objectives. *(SOP)*

Wilderness and Other Special Areas

See handbooks H-8550-1 (*Management of Wilderness Study Areas (WSAs)*), and H-8560-1 (*Management of Designated Wilderness Study Areas*), and Manual 8351 (*Wild and Scenic Rivers*)

- Encourage backcountry pack and saddle stock users to feed their livestock only weed-free feed for several days before entering a wilderness area, and to bring only weed-free hay and straw onto BLM lands. *(SOP)*
- Encourage stock users to tie and/or hold stock in such a way as to minimize soil disturbance and loss of native vegetation. *(SOP)*
- Revegetate disturbed sites with native species if there is no reasonable expectation of natural regeneration. *(SOP)*
- Provide educational materials at trailheads and other wilderness entry points to educate the public on the need to prevent the spread of weeds. *(SOP)*
- Use the “minimum tool” to treat noxious weeds and other invasive plants, relying primarily on the use of ground-based tools, including backpack pumps, hand sprayers, and pumps mounted on pack and saddle stock. *(SOP)*
- Use herbicides only when they are the minimum treatment method necessary to control weeds that are spreading within the wilderness or threaten lands outside the wilderness. *(SOP)*
- Give preference to herbicides that have the least impact on non-target species and the wilderness environment. *(SOP)*
- Implement herbicide treatments during periods of low human use, where feasible. *(SOP)*
- Address wilderness and special areas in management plans. *(SOP)*
- Control of weed infestations shall be carried out in a manner compatible with the intent of Wild and Scenic River management objectives. *(SOP)*
- Mitigation measures that may apply to wilderness and other special area resources are associated with human and ecological health and recreation (see mitigation measures for Vegetation, Fish and Other Aquatic Resources, Wildlife Resources, Recreation, and Human Health and Safety). *(MM)*

Recreation

See Handbook H-1601-1 (*Land Use Planning Handbook, Appendix C*)

- Schedule treatments to avoid peak recreational use times, while taking into account the optimum management period for the targeted species. *(SOP)*
- Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas. *(SOP)*
- Adhere to entry restrictions identified on the herbicide product label for public and worker access. *(SOP)*
- Post signs noting exclusion areas and the duration of exclusion, if necessary. *(SOP)*
- Mitigation measures that may apply to recreational resources are associated with human and ecological health (see mitigation measures for Vegetation, Fish and Other Aquatic Resources, Wildlife Resources, and Human Health and Safety). *(MM)*

Social and Economic Values

- Consider surrounding land use before selecting aerial spraying as a treatment method, and avoid aerial spraying near agricultural or densely-populated areas. *(SOP)*
- Post treated areas and specify reentry or rest times, if appropriate. *(SOP)*

- Notify grazing permittees of livestock feeding restrictions in treated areas, if necessary, as per herbicide product label instructions. *(SOP)*
- Notify the public of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. *(SOP)*
- Control public access until potential treatment hazards no longer exist, per herbicide product label instructions. *(SOP)*
- Observe restricted entry intervals specified by the herbicide product label. *(SOP)*
- Notify local emergency personnel of proposed treatments. *(SOP)*
- Use spot applications or low-boom broadcast applications where possible to limit the probability of contaminating non-target food and water sources. *(SOP)*
- Consult with Native American tribes to locate any areas of vegetation that are of significance to the tribes and Native groups and that might be affected by herbicide treatments. *(SOP)*
- To the degree possible within the law, hire local contractors and workers to assist with herbicide application projects and purchase materials and supplies for herbicide treatment projects (including the herbicides) through local suppliers. *(SOP)*
- To minimize fears based on lack of information, provide public educational information on the need for vegetation treatments and the use of herbicides in an integrated vegetation management program for projects proposing local use of herbicides. *(SOP)*

Rights-of-way

- Coordinate vegetation treatment activities where joint or multiple use of a ROW exists. *(SOP)*
- Notify other public land users within or adjacent to the ROW proposed for treatment. *(SOP)*
- Use only herbicides that are approved for use in ROW areas. *(SOP)*

Human Health and Safety

- Establish a buffer between treatment areas and human residences based on guidance given in the HHRA, with a minimum buffer of ¼ mile for aerial applications and 100 feet for ground applications, unless a written waiver is granted. *(SOP)*
- Use protective equipment as directed by the herbicide product label. *(SOP)*
- Post treated areas with appropriate signs at common public access areas. *(SOP)*
- Observe restricted entry intervals specified by the herbicide product label. *(SOP)*
- Provide public notification in newspapers or other media where the potential exists for public exposure. *(SOP)*
- Store herbicides in secure, herbicide-approved storage. *(SOP)*
- Have a copy of MSDSs at work site. *(SOP)*
- Notify local emergency personnel of proposed treatments. *(SOP)*
- Contain and clean up spills and request help as needed. *(SOP)*
- Secure containers during transport. *(SOP)*
- Follow label directions for use and storage. *(SOP)*
- Dispose of unwanted herbicides promptly and correctly. *(SOP)*
- Use the typical application rate, where feasible, when applying 2,4-D, bromacil, diquat, diuron, fluridone, hexazinone, tebuthiuron, and triclopyr to reduce risk to workers and the public. *(MM)*
- Avoid applying bromacil and diuron aerially. Do not apply sulfometuron methyl aerially. *(MM)*
- Limit application of chlorsulfuron via ground broadcast applications at the maximum application rate. *(MM)*
- Limit diquat application to ATV, truck spraying, and boat applications to reduce risks to workers; limit diquat applications to areas away from high residential and subsistence use to reduce risks to the public. *(MM)*

- Evaluate diuron applications on a site-by-site basis to avoid risks to humans. There appear to be few scenarios where diuron can be applied without risk to workers. *(MM)*
- Do not apply hexazinone with an over-the-shoulder broadcast applicator (backpack sprayer). *(MM)*

Appendix B

Grazing Treatment Descriptions

Early – (Approximately March 1 to April 30) – This treatment provides the plants an opportunity to recover after utilization of early plant growth. By removing livestock before all spring and summer precipitation occurs, the plants would be able to store carbohydrates, set seed, and maintain their vigor. This "early" treatment can be used every year with little effect on the plant.

The dates of April 1 to April 30 are a guideline for the "early" treatment. Early use must take place before grass plants are in the boot stage. There must also be enough soil moisture in the ground to provide for regrowth after grazing. Therefore, flexibility in the early treatment would allow for use prior to April 1 but generally not after April 30, and will depend on climate.

Graze – (Approximately May 1 to July 1 to 15) – This treatment allows for grazing during the critical growth period of most plants. Carbohydrate reserves are continually being utilized because the green parts of the plant are continuously being removed by livestock. Pastures that are under the "graze" treatment will generally experience some other treatment the following year so as not to repeat graze treatments.

Defer – (Approximately July 1 to 15 to October 31) – Grazing during this treatment will not begin until after most plants have reached seed ripe and have stored adequate carbohydrate reserves. This treatment will assist in meeting the objectives by providing all plants an opportunity to complete their life cycles and produce the maximum amount of cover and forage.

Winter – Grazing during this treatment will occur when most plant species are dormant. Most plants will have completed their life cycles and stored maximum carbohydrates for the next growing season.

Rest – This treatment provides the plants a full year of growth in the absence of grazing. They are allowed to store maximum carbohydrate reserves, set seed, and provide carryover herbage for the following year's turnout.

These dates are approximations based on general plant phenology. Year-to-year variation in phenology will occur based on climatological phenomena.