Flat Creek and Summit Prairie Allotments 10 Year Grazing Authorization Renewal Environmental Assessment

DOI-BLM-OR-M050-2009-0033-EA

BLM

Medford District Office

August 2009

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US Department of the Interior
Bureau of Land Management
Medford District
Butte Falls Resource Area

Flat Creek and Summit Prairie Allotments 10-Year Grazing Authorization Renewal Environmental Assessment

EA Number: DOI-BLM-OR-M050-2009-0033-EA

Project Location: **Flat Creek Allotment**

Township 32 South, Range 1 East, Sections 3-5, 7-11, 13, 15, 17, 19, 21, 27, 29, 31, and 33;
Township 33 South, Range 1 East, Sections 5-8 and 17;
Township 32 South, Range 1 West, Sections 1, 11-14, 22-27, and 35; and
Township 33 South, Range 1 West, Section 1,
Willamette Meridian, Jackson County, Oregon.

Summit Prairie Allotment

Township 33 South, Range 1 East, Section 35;
Township 33 South, Range 2 East, Sections 11, 12, 13, 15, 21, 23-27, 29, 31, 33, and 35;
Township 33 South, Range 3 East, Sections 7, 18, 19, and 29-33;
Township 34 South, Range 1 East, Sections 2, 11, 13, 14, 23, 25, and 27;
Township 34 South, Range 2 East, Sections 1-3, 5, 7-24, 26-29, 31, and 33-35;
Township 34 South, Range 3 East, Sections 2, 3, 5-15, 19, 21, 23, 24, 25, 27, 29, 31, and 33;
Township 35 South, Range 2 East, Sections 1, 3, 7, 9, 13, 15, 21, 23, 25, and 27;
Township 35 South, Range 3 East, Sections 5, 7, 17, and 19,
Willamette Meridian, Jackson County, Oregon

Summary:

The Butte Falls Resource Area is proposing to reissue 10-year grazing authorizations in the Flat Creek and Summit Prairie Allotments and construct an exclosure fence around 4.6 acres of wet meadow habitat near Beaver Dam Creek. In addition, the season-of-use in five spring pastures (Elk, McNeil Creek, Perry School, Rocky Flat, and Poverty Flat) would be changed from an April 16 turn-out date to a May 1 turn-out date.

8/4/09

Jon K. Raby — Date
Butte Falls Field Manager

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1.0 What Action is Proposed and Why?

Chapter 1 of the Environmental Assessment (EA) for the proposed Flat Creek and Summit Prairie Allotments 10-Year Grazing Authorization Renewal project provides a context for this assessment. It describes the kinds of action under consideration, defines the Project Area, describes what the proposed action needs to accomplish, and identifies the criteria the BLM will use for choosing the alternative that will best meet the purpose of and need for this project.

1.1 Definitions

Allotment: An area of land designated and managed for livestock grazing. Allotments are composed of pastures delineated by a combination of fences and ridgelines or other natural features.

Guideline: A practice, method, or technique determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting the standard. Guidelines are tools such as grazing systems, vegetative treatments, or improvement projects that help managers and permittees achieve standards. Guidelines may be adapted or modified when monitoring or other information indicates that the guideline is not effective, or a better means of achieving the applicable standard becomes appropriate.

Interdisciplinary (ID) Team: A group of individuals with different training, representing the physical sciences, social sciences, and environmental design arts, assembled to solve a problem or perform a task.

Project Area: The entire area contained in the Flat Creek and Summit Prairie Allotments, including all land ownerships.

Properly Functioning Condition:

Riparian-Wetland – adequate vegetation, landform, or large (coarse) woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid in flood plain development; improve flood-water retention and ground water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse channel and ponding characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The result of interaction among geology, soil, water, and vegetation.

Uplands – soil and plant conditions support the physical processes of infiltration and moisture storage and promote soil stability (as appropriate to site potential); includes the production of plant cover and the accumulation of plant residue that protect the soil surface from raindrop impact, moderate soil temperature in minimizing frozen soil conditions (frequency, depth, and duration), and the loss of soil moisture to evaporation; root growth and development in the support of permeability and soil aeration. The result of interaction among geology, climate, landform, soil, and organisms.

Rangeland Health: The degree to which the integrity of the soil and ecological processes of rangeland ecosystems are sustained. Rangeland health exists when ecological processes are functioning properly to maintain the structure, organization, and activity of the system over time.

Standard: Standards of land health are expressions of levels of physical and biological condition or degrees of function required for healthy lands and sustainable uses, and define minimum resource conditions that must be achieved and maintained (BLM Manual 4180-1).

Terms and Conditions: Requirements that are a part of a grazing permit or lease determined by the authorized officer to be appropriate to achieve management and resource condition objectives for the public lands and to ensure conformance with the Oregon and Washington Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management (43 CFR 4130.3). Terms and conditions include mandatory terms and conditions (e.g., kind and number of livestock, allotments to be used, period of use, and amount of use) and may specify other terms and conditions such as authorizing to use supplement use, requiring an actual use report, and specifying kind of livestock (43 CFR 4130.3-1 and 4130.3-2).

1.2 Introduction

The original 10-year authorizations for grazing in the Flat Creek and Summit Prairie Allotments expired in 2004. In order to avoid disruption to livestock grazing operations dependent on public land permits, Congress legislated a provision in fiscal year 1999 to continue authorizing livestock grazing while the BLM analyzes environmental effects and completes appropriate consultation under Section 7 of the Endangered Species Act. Grazing leases that expire, are transferred, or are waived during fiscal years 2004 to 2008 will be temporarily renewed under existing law (Public Law 108-108, Section 325) with the same terms and conditions as the expired, transferred, or waived lease until the lease can be processed in compliance with applicable laws and regulations.

The Butte Falls Resource Area began the environmental analysis for the reauthorizations of these allotments in 2004 and issued the *10-year Grazing Authorization Renewal Environmental Assessment* (EA# OR-115-05-01) in January 2005 for public review. Litigation and changes in management policies and priorities caused the BLM to postpone issuing a decision on the grazing allotments. The BLM decided to reanalyze the grazing authorizations in this EA for the following reasons: windstorm and fire damage in the Summit Prairie Allotment, changes to grazing regulations, updated list of water quality limited streams, and changes in Survey and Manage guidelines, among others.

This EA will analyze the impacts on the human environment of the proposed 10-year reauthorizations of the Flat Creek and Summit Prairie Allotments. The EA will provide the Butte Falls Field Manager with current information to aid in the decision-making process. It will also assist the Field Manager in determining whether there are significant impacts beyond those already analyzed in the *Medford District Proposed Resource Management Plan/Environmental Impact Statement* (1994 EIS) and whether a supplement to that Environmental Impact Statement is needed, or if a Finding of No Additional Significant Impact is appropriate.

1.2.1 What Action is the BLM Proposing?

The Butte Falls Resource Area, Medford District Bureau of Land Management (BLM) proposes the following activities on BLM-administered lands:

- Renew the Flat Creek Allotment grazing authorization.

- Renew the Summit Prairie Allotment grazing authorizations with changes to the seasons-of-use and number of livestock in five spring pastures.
- Extend an existing fence exclosure to include 4.6 acres of wet meadow habitat near Beaver Dam Creek in the NE¼ of section 9 in Township 34 South, Range 3 East.

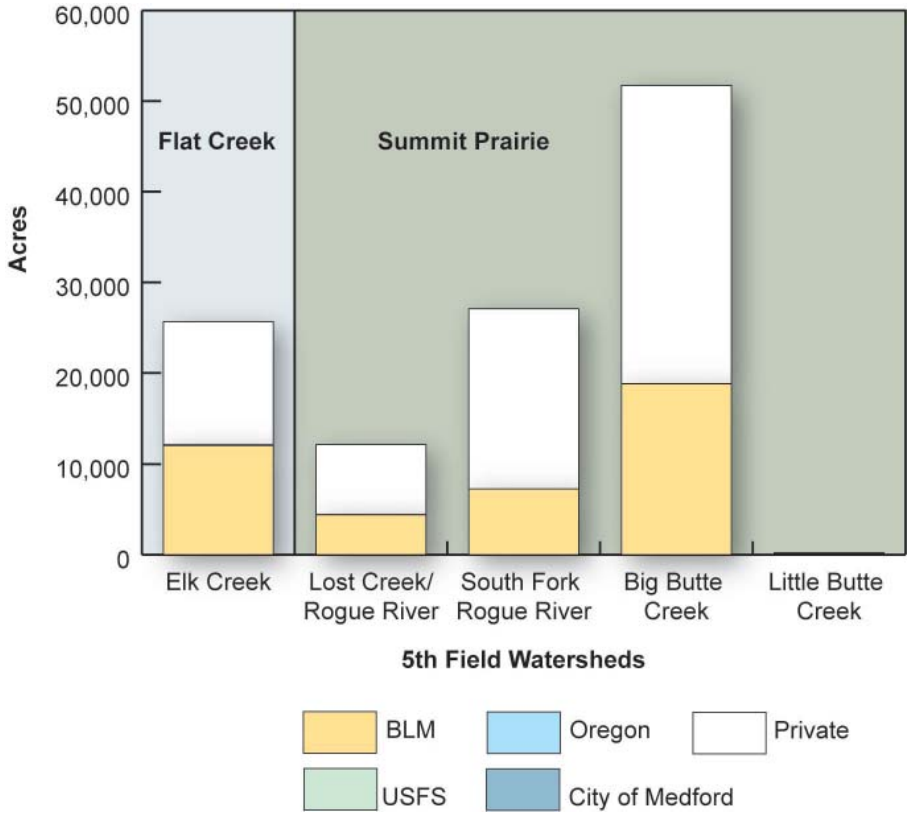
1.2.2 Where is the Action Proposed to Occur?

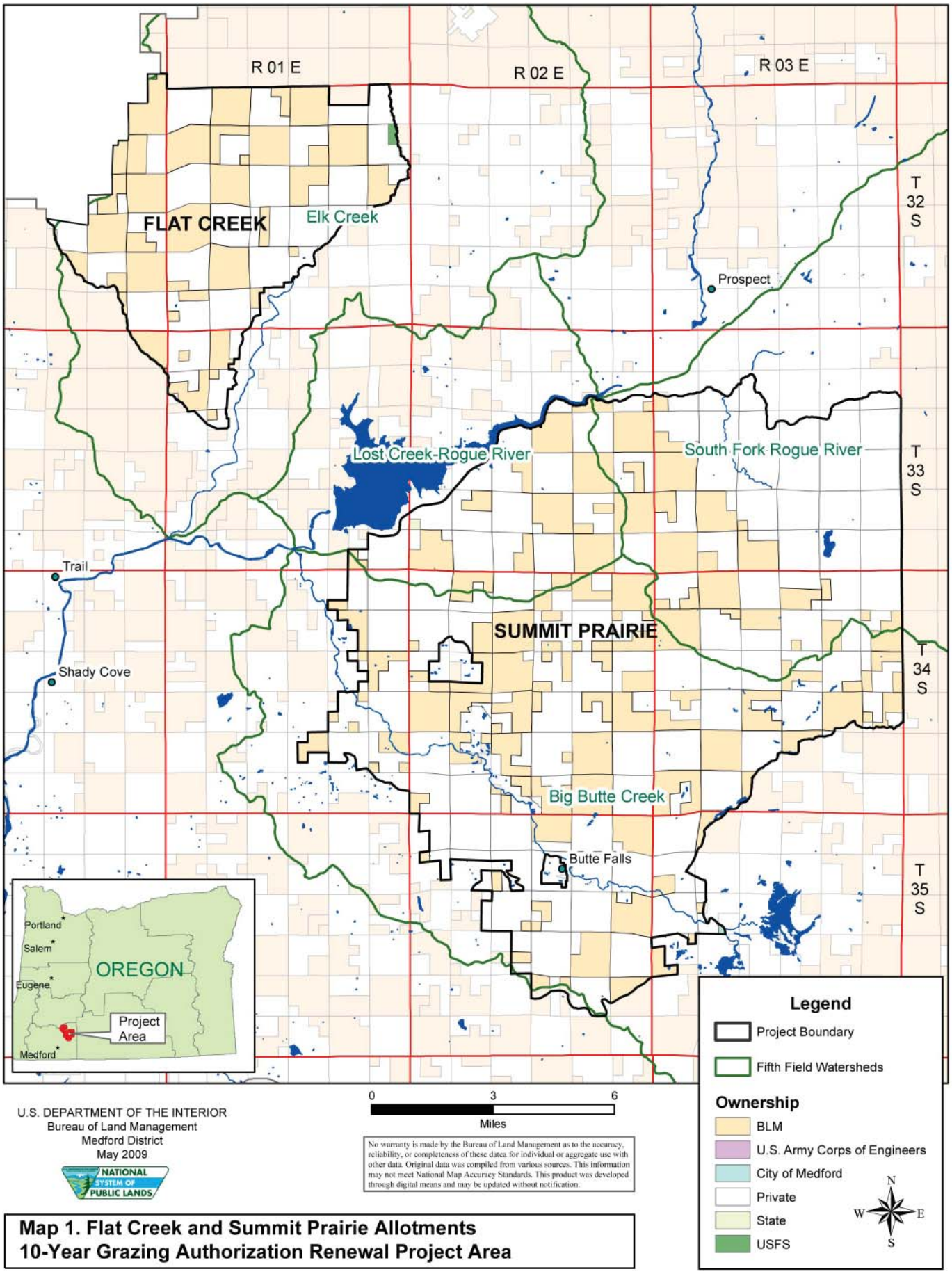
The Project Area is located in the northeast portion of Jackson County, Oregon and contains intermingled BLM-administered and private lands (see Map 1, Project Area). The BLM administers 42,645 acres (36 percent) of land in the 116,888-acre Project Area. The grazing authorizations are for BLM-administered land only.

The Flat Creek Allotment encompasses an area that lies northwest of Elk Creek, west of Bitter Lick Creek, east of West Branch Elk Creek, and south of the BLM boundary with the US Forest Service. The BLM manages 47 percent of the land in the Flat Creek Allotment. The remaining 53 percent is private/other ownership. This allotment is located in the Elk Creek fifth field watershed (Figure 1-1).

The Summit Prairie Allotment encompasses an area beginning about 3 miles south of the community of Butte Falls and extending north to the Rogue River and Lost Creek Reservoir. The BLM manages 34 percent of the Summit Prairie Allotment. The remaining 66 percent is under private/other ownership. This allotment is located in the Big Butte Creek, Little Butte Creek, Lost Creek/Rogue River, and South Fork Rogue River fifth field watersheds (Figure 1-1).

Figure 1-1. Land ownership acres for the Flat Creek and Summit Prairie Allotments by fifth field watershed.





U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Medford District
May 2009

NATIONAL SYSTEM OF PUBLIC LANDS

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Map 1. Flat Creek and Summit Prairie Allotments 10-Year Grazing Authorization Renewal Project Area

1.3 Why is the BLM proposing this Project?

1.3.1 Need for the Project

The BLM generally issues leases for a term not to exceed 10 years. The previous authorizations and leases for the Flat Creek and Summit Prairie Allotments expired in 2004. Under Public Law 108-108, "A grazing permit or lease issued by the Secretary of the Interior . . . that expires, is transferred or waived during fiscal years 2004-2008 shall be renewed under section 402 of the Federal Land Policy and Management Act of 1976 . . . . The terms and conditions contained in the expired, transferred, or waived permit or lease shall continue in effect under the renewed permit or lease until such time as the Secretary of the Interior . . . completes processing of such permit or lease in compliance with all applicable laws and regulations . . . ." As a result, the leases for the Flat Creek and Summit Prairie Allotments were temporarily reauthorized for a 10-year period using the Terms and Conditions of the previous leases. In order to reauthorize the leases for the Flat Creek and Summit Prairie Allotments, the BLM needs to comply with Public Law 108-108 and complete an environmental analysis of grazing in these allotments.

A wet meadow near Beaver Dam Creek in the NE¼ of section 9 in Township 34 South, Range 3 East is being impacted by livestock and wildlife use. Grazing has degraded streambanks, compacted soil, and placed pressure on native plants in the meadow. The BLM needs to protect the meadow from livestock and wildlife impacts and maintain or restore riparian ecosystems.

1.3.2 Purpose (Objectives) of the Project

The 1995 ROD/RMP (p. 131) identifies the Flat Creek and Summit Prairie Allotments as available for livestock grazing. It is BLM policy to authorize livestock grazing to qualified operators, where consistent with the goals and objectives of the 1995 ROD/RMP and the *Standards for Rangeland Health and Guidelines for Grazing Management for Public Lands in Oregon and Washington* (1997). The purpose of the proposed action is to authorize livestock grazing consistent with BLM policy and in a manner that maintains or improves Project Area resource conditions and achieves the objectives described in the 1995 ROD/RMP.

In order to be considered a reasonable alternative, any action alternative must meet the objectives provided in the 1995 ROD/RMP for projects to be implemented in the Project Area. The 1995 ROD/RMP specifies the following objectives to be accomplished in managing the lands in the Project Area:

"Provide for livestock grazing in an environmentally sensitive manner, consistent with management objectives and land use allocations" (1995 ROD/RMP, p. 91).

"Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species" (1995 ROD/RMP, p. 22).

1.4 What Factors will the BLM use to Make a Decision?

In choosing the alternative that best meets the purpose and need, we will consider the extent to which each alternative would

1. meet the standards and conform to the guidelines of the Standards for Rangeland Health and Guidelines for Grazing Management for Public Lands in Oregon and Washington;
2. protect, maintain, or improve water quality, riparian-wetland areas, and upland plant communities; and
3. achieve properly functioning riparian ecosystems.

1.5 Does the Proposed Project Conform with Land Use Plans and Other Documents?

The actions proposed and analyzed in this EA were developed to be consistent with the management objectives for public lands identified in the following documents.

1.5.1 Medford District Record of Decision and Resource Management Plan (1995 ROD/RMP), June 1995

The 1995 *Medford District Record of Decision and Resource Management Plan* responds to the need for a healthy forest and rangeland ecosystem with habitat that will contribute toward and support populations of native species, particularly those associated with late-successional and old growth forests. The 1995 ROD/RMP responds to the need for a sustainable supply of timber and other forest products that will help maintain the stability of local and regional economies, and contribute valuable resources to the national economy on a predictable and long-term basis.

1.5.2 Northwest Forest Plan (NWFP), April 1994

The *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (also known as the Northwest Forest Plan) provides extensive standards and guidelines, including land use allocations, that comprise a comprehensive ecosystem management strategy. The Medford District ROD/RMP incorporated the standards and guidelines of the NWFP and superseded the NWFP. Since the NWFP is commonly referenced as a shorthand description of this coordinated set of standards and guidelines common to the various Federal management units throughout the range of the northern spotted owl, we may make reference to the NWFP, even though it was replaced by the later adopted ROD/RMP. Wherever we refer to the NWFP, we are actually referring to the 1995 ROD/RMP, which incorporated the conservation strategy of the 1994 decision.

1.5.3 Medford District Integrated Weed Management Plan (IWP), June 1998

Medford District Integrated Weed Management Plan provides a proactive ecosystem-based approach to reduce populations of alien plant species to a level which will allow for the restoration of native plant

species, and provide for overall ecosystem health. Control measures may include cultural or preventative (seed testing or vehicle washing), physical (handpulling, competitive planting, or burning), biological (insects), and chemical (herbicide).

1.5.4 Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic EIS and ROD, September 2007

The Programmatic ROD provides national guidance for using herbicides and other vegetation treatments on BLM-administered public lands in 17 western states. It guides the use of herbicides for field-level planning and on-the-ground projects designed to restore and sustain important riparian, range, and wildlife habitat on public lands under BLM management. The EIS replaces analyses contained in four existing Environmental Impact Statements completed between 1986 and 1992 for 14 Western states, and adds analysis of vegetation treatments in two other Western states and Alaska.

1.5.5 Medford District Rangeland Program Summary (RPS) and Record of Decision, September 1984

The Rangeland Program Summary implements grazing management on nonforested land to improve or maintain vegetation conditions to benefit livestock, wildlife, and wild horses. On forested lands, livestock grazing is coordinated with timber management objectives so forage would not impair land productivity, while economic uses are balanced with natural and cultural values.

1.5.6 Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in Oregon and Washington (Standards and Guidelines), August 1997

The Standards and Guidelines were developed in consultation with Resource Advisory Councils and Provincial Advisory Committees, tribes, and others. They provide agency policy and direction for livestock grazing on public land in Oregon and Washington.

1.5.7 Relevant Statutes

The following list contains some of the laws and regulations pertinent to the proposed action.

- **Oregon and California Act (O&C) 1937** – Requires the BLM to manage O&C lands for permanent forest production, in accord with sustained-yield principles. Management of O&C lands must also protect watersheds, regulate streamflow, provide for recreational facilities, and contribute to the economic stability of local communities and industries.
- **National Environmental Policy Act (NEPA) 1969** – Requires the preparation of environmental impact statements for Federal projects which may have a significant effect on the human environment.
- **Endangered Species Act (ESA) 1973** – Directs Federal agencies to ensure their actions do not jeopardize threatened and endangered species.

- **Federal Land Policy and Management Act (FLPMA) 1976** – Defines BLM's organization and provides the basic policy guidance for BLM's management of public lands.
- **Archaeological Resources Protection Act (ARPA) 1979** – Protects archaeological resources and sites on federally-administered lands. Imposes criminal and civil penalties for removing archaeological items from Federal lands without a permit.
- **Clean Water Act (CWA) 1987** – Establishes objectives to restore and maintain the chemical, physical, and biological integrity of the nation's water.
- **Clean Air Act (CAA) 1990** – Provides the principal framework for national, state, and local efforts to protect air quality.
- **Taylor Grazing Act (TGA) 1934** – Provides for the regulation of grazing on public lands (excluding Alaska) to improve rangeland conditions and stabilize the western livestock industry.
- **Public Rangelands Improvement Act (PRIA) 1978** – Establishes national policy to improve conditions on public rangelands, requires a national inventory and consistent Federal management policies, and provides funds for range improvement projects.

1.6 What are the Relevant Issues and How were the Issues Identified?

1.6.1 Scoping

Scoping marks the beginning of the environmental analysis process. Scoping is a method for identifying the range of issues, management concerns, preliminary alternatives, and other components of a NEPA document. It involves internal and public viewpoints. The BLM initiated public scoping in Spring 2004.

1.6.2 Relevant Issues

Issues provide a basis for comparing the environmental effects of the alternatives and aid in the decision-making process. The major issues brought forward were used to formulate alternatives, identify appropriate design features, or analyze environmental effects. The following major issues were identified based on input from the public and the project's ID Team:

1.6.2.1 Aquatic Ecosystems

Livestock prefer riparian areas for shade, water, and forage. Livestock grazing, particularly improper grazing in riparian areas, may degrade riparian vegetation, destabilize stream banks, widen stream channels, and cause detrimental changes in water quality. Possible grazing impacts to water quality are of particular concern on water quality limited streams and streams containing coho salmon critical habitat.

1.6.2.2 Native Plant Communities

Poor grazing techniques may change the composition and function of native plant communities, especially wetland, meadow, and riparian communities. Overgrazing removes native vegetation and leaves bare ground that nonnative plants and noxious weeds can occupy. Livestock and other animals

transporting weed seed in their fur, in dried mud on their feet, and in their digestive tracts provide a vector for the introduction and spread of nonnative plant species and noxious weeds that compete with native plants.

1.6.3 Other Issues

1.6.3.1 Cumulative Impacts

An additional issue, cumulative impacts, was brought forward by the public. Section 3.0, Affected Environment/Environmental Consequences addresses cumulative effects ender each resource. The EA includes the impacts of past, present, and future actions on BLM and private lands in the Project Area.

1.7 Decisions to be Made

The following decisions will be made as a result of this Environmental Assessment:

- To determine if a Finding of No Additional Significant Impacts is appropriate, or should a Supplemental Environmental Impact Statement (SEIS) be prepared. If the proposed action results in a finding of significant impacts to the human environment beyond those analyzed in the EIS for the Medford District RMP decision, we will determine if the project proposal could be modified to mitigate the impacts so an SEIS would not be necessary.
- Whether or not to reauthorize grazing leases on BLM-administered lands for Flat Creek and Summit Prairie Allotments with modifications from the current leases.
- Whether or not to fence an additional 4.6 acres of wet meadow habitat near Beaver Dam Creek.

2.0 Alternatives

Chapter 2 provides a description of the proposed project. The alternative ways for meeting the need for this project and the objectives identified in Chapter 1 are presented. Project Design Features that serve as the basis for resource protection during project implementation are included.

2.1 Definitions

Animal Unit Month (AUM): The amount of forage necessary to sustain the growth of one cow, either carrying a calf or with one at her side, or its equivalent for a period of one month.

Range Readiness: Stage of plant development at which grazing may begin in an area, pasture, or allotment without damage to vegetation or soil.

Total AUMs: The number of cow and calf pairs multiplied by the number of months included in the season of use. For example, an authorization that allows one cow for 5 months would have a total of 5 AUMs.

2.2 Introduction

The Flat Creek and Summit Prairie Allotments are composed of a mix of land ownerships. BLM lands are intermingled with commercial timberlands and individual ranches and farms. The BLM offers grazing leases to authorize grazing use of lands under the jurisdiction of the BLM only.

The ID Team developed one action alternative to achieve the objectives identified in the Purpose and Need and respond to the issues identified in Chapter 1. A No Action Alternative is included to describe the baseline against which the effects of the proposed action will be evaluated, the existing conditions in the Project Area, and the continuing trends.

2.3 Description of the Alternatives

2.3.1 Alternative 1 – No Action

Under the No Action Alternative, the BLM would reauthorize the Flat Creek and Summit Prairie Allotments with the same livestock numbers, seasons-of-use, and animal unit months (AUMs) currently in effect (Table 2-1 and Table 2-2). The AUMs in the tables reflect only the forage that would be used on Federal lands.

Pump chances are located throughout both allotments. These pump chances were developed primarily to provide sources of water for fire suppression. They also provide incidental sources of drinking water for livestock and wildlife but are not identified as range improvements subject to maintenance by a lessee. The Flat Creek Allotment contains 3 pump chances and the Summit Prairie Allotment contains 12 pump chances.

2.3.1.1 Flat Creek Allotment (see Map 2)

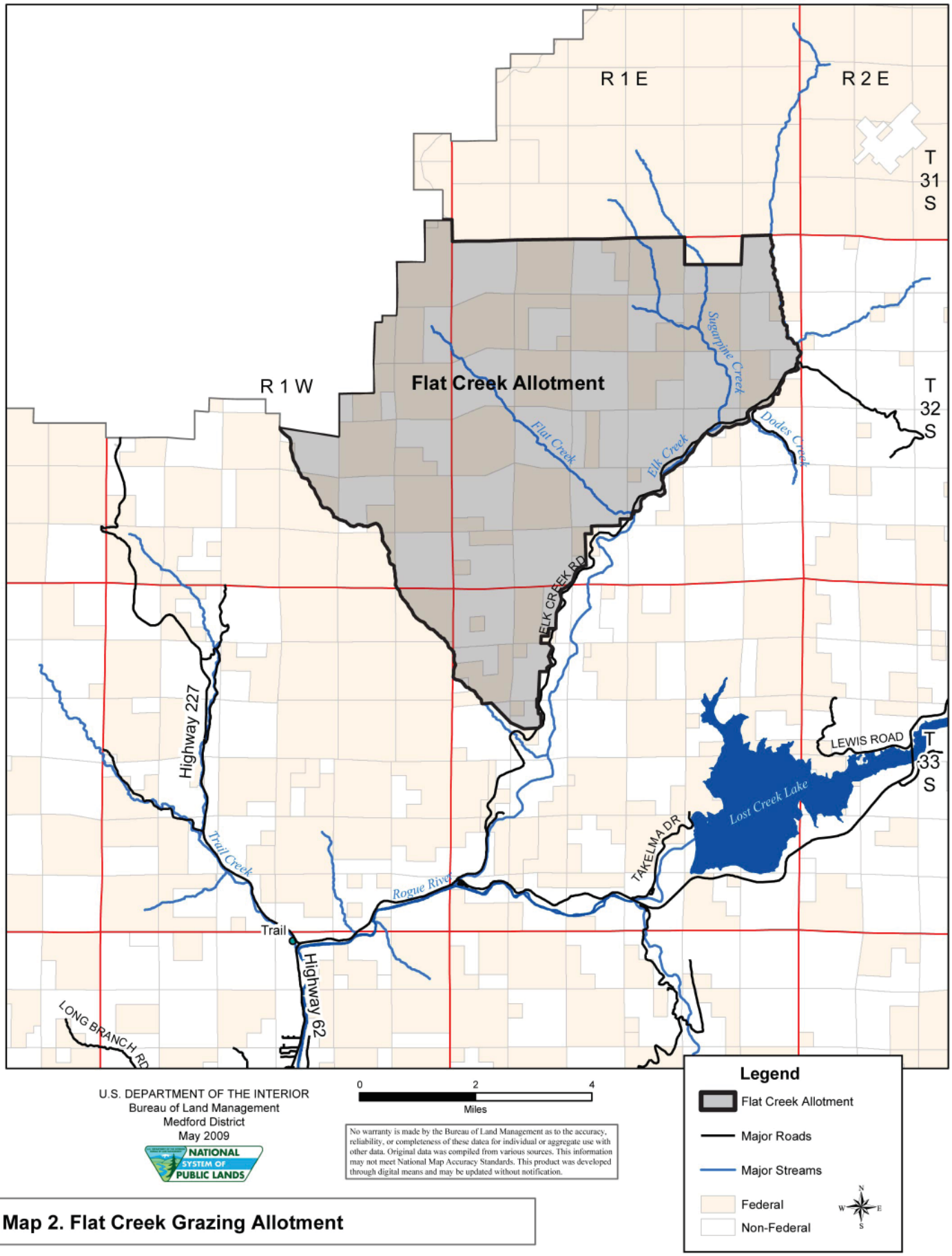
Grazing Management: Under the No Action Alternative, the BLM would renew the existing livestock grazing lease on BLM-administered lands in the Flat Creek Allotment. The lease would continue livestock grazing during the permitted season at the following levels: 124 cattle from May 1 to June 15 and 62 cattle from June 16 to October 18 for 328 total AUMs (Table 2-1). The Flat Creek Allotment contains a total of 25,668 acres; 12,066 acres are managed by the BLM.

Range Improvements: The Flat Creek Allotment contains one range improvement project. Under the No Action Alternative, the lessee would maintain the one spring development project.

Table 2-1. Flat Creek Allotment Authorized Use under Alternative 1

Season of Use	Acres		Number of Livestock	AUMS
	BLM	Private		
May 1 to June 15	12,066	13,510	124	180
June 16 to October 18			62	148
Totals	**12,066**	**13,510**	**186**	**328**

NOTE: The Flat Creek Allotment contains 92 acres managed by the USFS.



Map 2. Flat Creek Grazing Allotment

2.3.1.2 Summit Prairie Allotment (see Map 3)

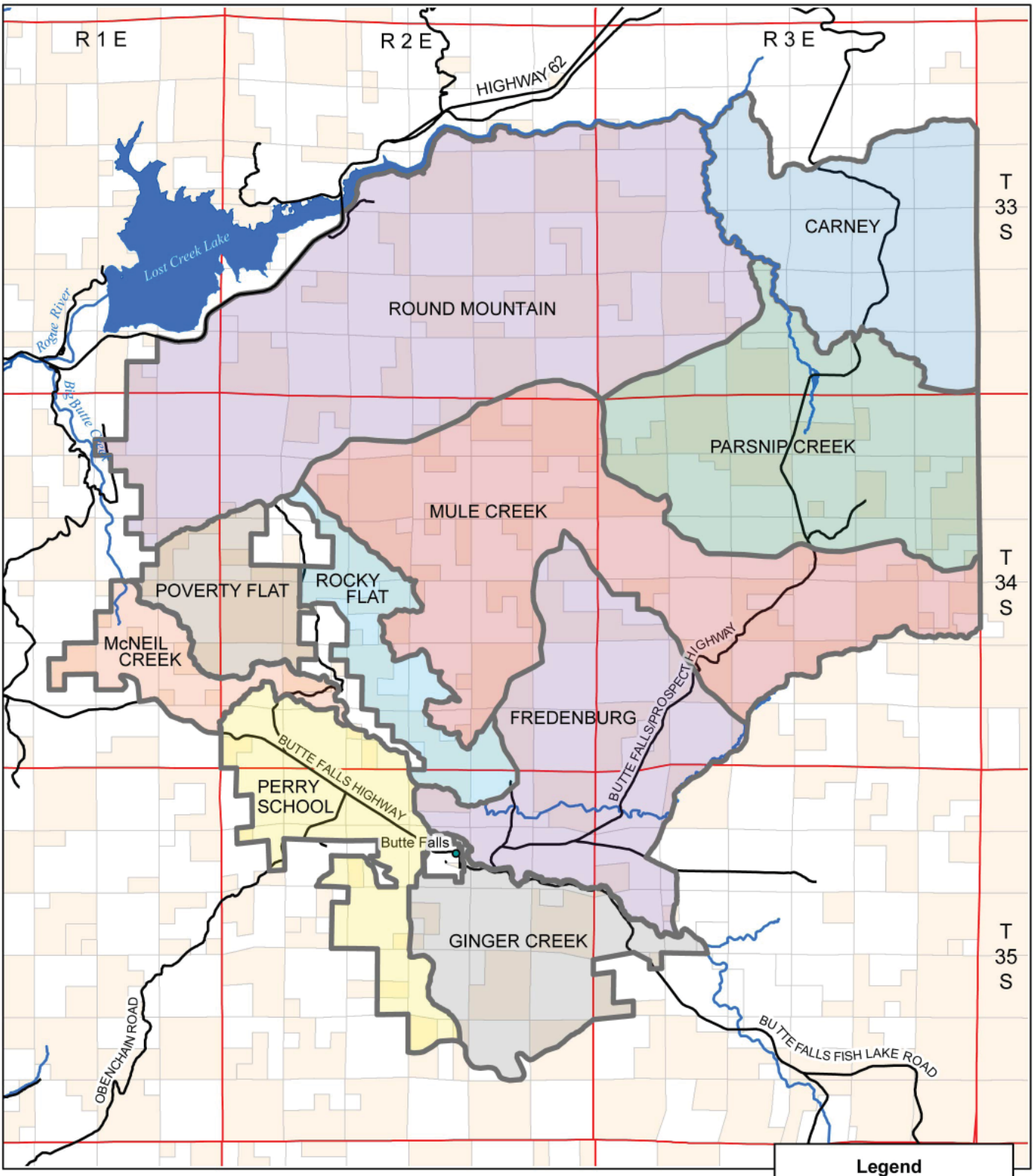
Grazing Management: Under the No Action Alternative, the BLM would renew all 8 existing grazing leases on 11 pastures in the Summit Prairie Allotment. The leases would continue livestock grazing on BLM-administered lands during the current permitted grazing seasons (Table 2-2). The current leases authorize 396 cattle (1,142 AUM) to graze BLM lands from April 16 to September 30. The Summit Prairie Allotment contains a total of 91,214 acres; 30,579 acres (34 percent) are managed by the BLM. The 11 pastures within the allotment would continue to be managed under the Summit Prairie Coordinated Resource Management Plan (CRMP).

Range Improvements: The Summit Prairie Allotment contains 48 range improvement projects the BLM has project files on or are known projects. Under the No Action Alternative, the BLM would continue to maintain 3 exclosures and the lessees would maintain 33 range improvement projects such as cattle guards, corrals, exclosures, fences, spring developments, and ponds.

Table 2-2. Summit Prairie Allotment Authorized Use under Alternative 1

Pasture	Grazing Season	Number of Lessees	Acres			Number of Livestock	AUMS
			BLM	Private	Total		
McNeil Creek*	April 16 to May 31 (even years)	5	6,521	1,931	2,583	96	145
Perry School*	April 16 to May 31 (odd years)	5	683	5,254	5,937	96	145
Poverty Flat**	April 16 to May 31 (even years)	2	1,517	1,527	3,044	57	85
Rocky Flat**	April 16 to May 31 (odd years)	2	2,402	1,031	3,433	57	85
Elk	April 16 to May 31	1	7	0	7	8	8
Ginger Creek	June 1 to July 31	1	1,891	3,904	5,795	20	40
Fredenburg	June 1 to September 30	1	3,454	6,415	9,869	13	52
Round Mountain	June 1 to September 30	1	8,999	14,910	23,909	73	293
Mule Creek	June 1 to September 30	2	7,307	9,240	16,547	52	206
Parsnip Creek	June 1 to September 30	2	3,667	8,127	11,794	73	293
Carney	June 1 to September 30	1	0	8,296	8,296	4	20
	Totals	**8*** **	**30,579**	**60,569**	**91,214**	**396**	**1,142**

*McNeil Creek and Perry School pastures are used on alternate years.
**Rocky Flat and Poverty Flat pastures are used on alternate years.
***Some lessees have authorizations in more than one pasture.



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Medford District
May 2009

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Map 3. Summit Prairie Grazing Allotment

2.3.2 Alternative 2 – Proposed Action

2.3.2.1 Flat Creek Allotment

Grazing Management: Under Alternative 2, the existing livestock grazing lease would continue livestock grazing during the permitted season at the following levels: 124 cattle from May 1 to June 15 and 62 cattle from June 16 to October 18 for 328 total AUMs (Table 2-3).

Range Improvements: The Flat Creek Allotment contains one range improvement project. Under Alternative 2, the lessee would maintain the one spring development project.

Table 2-3. Flat Creek Allotment Authorized Use under Alternative 2

Season of Use	Acres		Number of Livestock	AUMS
	BLM	Private		
May 1 to June 15	12,066	13,510	124	180
June 16 to October 18			62	148
Totals	**12,066**	**13,510**	**186**	**328**

NOTE: The Flat Creek Allotment contains 92 acres managed by the USFS.

2.3.2.2 Summit Prairie Allotment

Grazing Management: Under Alternative 2, 5 of the 11 existing grazing leases would be modified to change the seasons-of-use and number of cattle in the Summit Prairie Allotment. The turn-out date for the seasons-of-use in the McNeil Creek/Perry School, Rocky Flat/Poverty Flat, and Elk pastures in the Summit Prairie Allotment would be May 1. The number of cattle would increase to 468 although the AUMs would remain the same as current authorizations (Table 2-4).

Table 2-4. Summit Prairie Allotment Authorized Use under Alternative 2

Pasture	Grazing Season	Number of Lessees	Acres			Number of Livestock	AUMS
			BLM	Private	Total		
McNeil Creek*	May 1 to May 31 (even years)	5	652	1,931	2,583	142	145
Perry School*	May 1 to May 31 (odd years)	5	683	5,254	5,937	142	145
Poverty Flat**	May 1 to May 31 (even years)	2	1,517	1,527	3,044	83	85
Rocky Flat**	May 1 to May 31 (odd years)	2	2,402	1,031	3,433	83	85
Elk	May 1 to May 31	1	7	0	7	8	8
Ginger Creek	June 1 to July 31	1	1,891	3,904	5,795	20	40
Fredenburg	June 1 to September 30	1	3,454	6,415	9,869	13	52
Round Mountain	June 1 to September 30	1	8,999	14,910	23,909	73	293
Mule Creek	June 1 to September 30	2	7,307	9,240	16,547	52	206

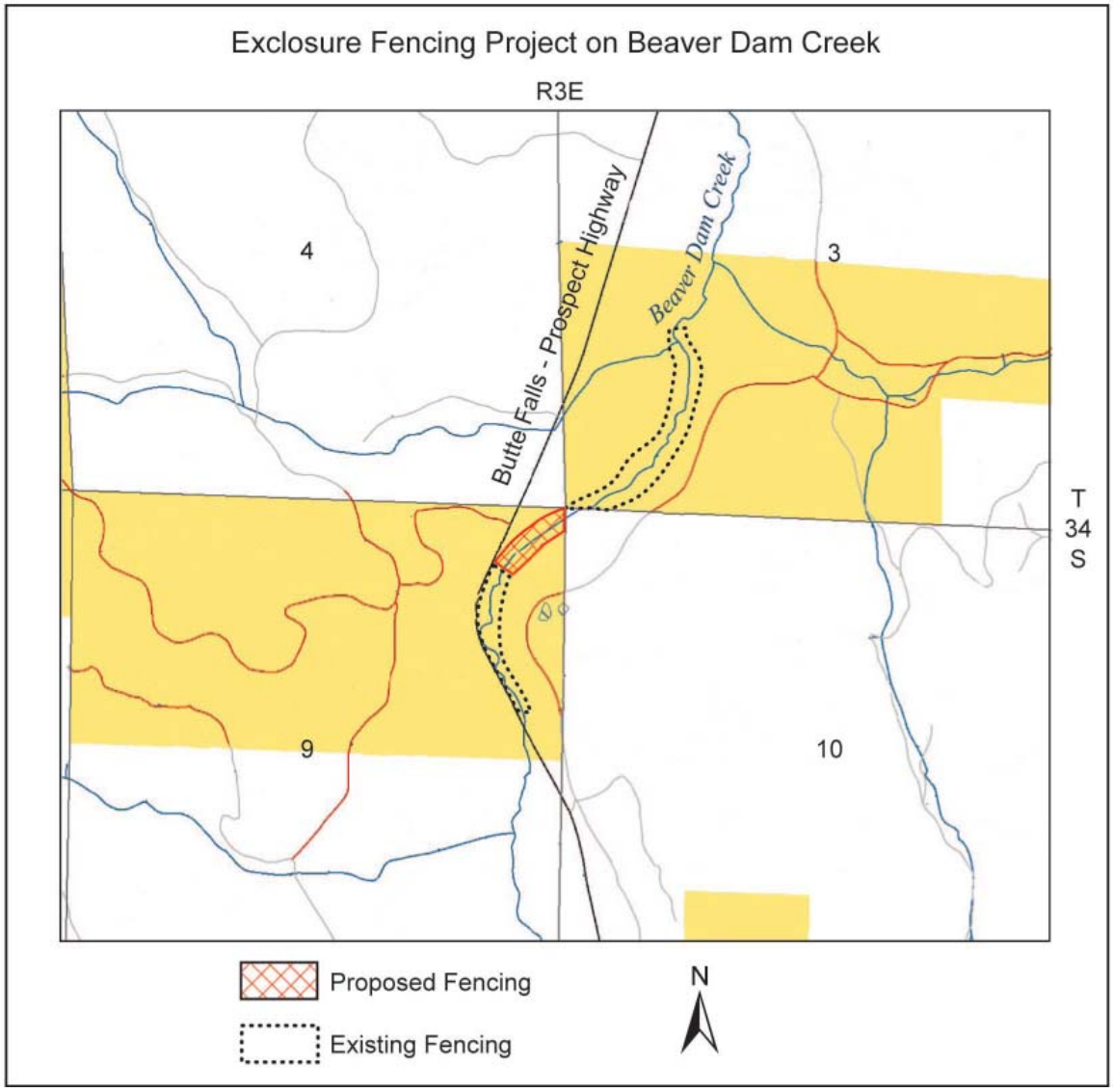
Table 2-4. Summit Prairie Allotment Authorized Use under Alternative 2

Pasture	Grazing Season	Number of Lessees	Acres			Number of Livestock	AUMS
			BLM	Private	Total		
Parsnip Creek	June 1 to September 30	2	3,667	8,127	11,794	73	293
Carney	June 1 to September 30	1	0	8,296	8,296	4	20
	Totals	**8*** **	**30,579**	**60,569**	**91,214**	**468**	**1,142**

*McNeil Creek and Perry School pastures are used on alternate years.
**Rocky Flat and Poverty Flat pastures are used on alternate years.
***Some lessees have authorizations in more than one pasture.

Range Improvements: Under Alternative 2, the BLM proposes to extend two existing fence exclosures to include the remaining unfenced portion of a meadow located on BLM land near Beaver Dam Creek in the Parsnip Creek Pasture (Figure 2-1). Constructing about 2,215 feet of fencing would enclose an additional 4.6 acres in the existing exclosure. Maintenance of the two existing riparian exclosures and the proposed exclosure in the Parsnip Creek Pasture would be transferred to the lessee.

Figure 2-1. Location of proposed fencing project on Beaver Dam Creek.



The fence would consist of steel posts placed approximately 16.5 feet apart and 4 strands of barbed wire. Wooden posts and braces would be installed for added stability. Hanging crossings would be constructed across the stream to prevent livestock from entering the exclosures from the channel while allowing for instream wood to move downstream. Hanging crossings consist of steel pipe strung on wire cable with PVC pipe hanging as a barrier. Wooden posts or trees would anchor the cables. Brush, limbs, and small trees less than 4 inches in diameter would be cleared where necessary to facilitate fence installation. Wherever possible, fence wire would be attached to existing trees, instead of fence posts, by nailing protective two by fours to the tree trunk and attaching the wire to the scabs.

2.3.3 Actions Common to All Alternatives

2.3.3.1 Maintenance of Range Improvements

Maintenance consists of timely repair of an improvement to keep it in usable condition for the purpose intended over its normal expected life span. Lessees are responsible for the maintenance of all range improvements assigned to them in their grazing permit. Routine maintenance of assigned range improvements is completed annually. Annual maintenance is required even if partial use or nonuse is approved in any year.

Fence maintenance includes periodic inspection, keeping wire attached to posts and stays, repairing gates, repairing drainage crossings, replacing worn or broken structures, and other minor work necessary to keep the fence usable according to BLM standards with materials that meet design specifications.

Spring, pipeline, and trough maintenance includes periodic inspection, repairing or replacing worn or damaged parts, repairing leaks, removing trash or silt, winterizing the facility, and maintaining wildlife escape ramps.

Any new range improvements proposed on BLM-administered land are subject to project-specific NEPA analysis.

2.3.3.2 Monitoring

As funding and priorities allow, periodic monitoring is conducted to ensure management objectives are met or moving toward meeting the grazing Standards and Guidelines.

2.3.4 Alternatives Considered but Eliminated from Detailed Analysis

2.3.4.1 No Grazing

A No Grazing Alternative was considered but not analyzed in this EA. A No Grazing Alternative may be appropriate where current livestock grazing has been found to be the limiting factor in not achieving multiple use objectives or rangeland health. Since the rangeland health standards in the Flat Creek and Summit Prairie Allotments were either being met or, if not met, livestock were not significant factors, a generic No Grazing Alternative was considered but eliminated from detailed analysis.

2.3.5 Project Design Features

1. Turn-out will be based on “range readiness.”
2. Annual maintenance of assigned range improvements is a requirement of the lease.
3. Salt supplement areas are prohibited within 0.25 miles of water and BLM reforestation areas.
4. Supplemental feeding is not allowed on leased lands without prior approval.
5. Installing or constructing short-term gathering or holding facilities on Federal land requires prior approval by the authorized officer.
6. Fences will be designed to prevent the passage of livestock without stopping the movement of wildlife.
7. Wire spacing specifications found in Illustration 2, BLM Wire Spacing Standards in BLM Manual Handbook H-1741-1, Fencing (see Appendix A) will be followed.
8. Steel “t-posts” will be spaced 16 to 24 feet apart.
9. Brace posts, tree scabs, or rock jacks (rock cribs) will be constructed to enhance fence integrity with one at least every 0.25 miles.
10. Woven wire “sheep” fences will not be constructed on public lands.
11. Brushing and tree limb removal will be limited to only that necessary for surveying, placing, and constructing a fence.
12. Brush or trees that have fallen across the fence line will be manually cleared only to the extent needed to complete the fencing project.
13. Hand tools only will be used during fence construction to minimize ground disturbance and damage to adjacent trees.
14. Mechanized vehicles will only be allowed in designated areas as determined by the Authorized Officer.
15. All fence construction activities will occur between May 15 and October 15, or when soil moisture content is less than 35 percent by weight in the upper 6 inches of the soil to prevent soil compaction and erosion.
16. Fences will be constructed so livestock are not forced onto roads or highways or placed in hazardous situations.
17. Stop work and notify the BLM within 12 hours if an archaeological site is discovered during the project.
18. Apply mitigating measures to areas containing known archaeological sites. Buffers will be determined based on the proposed activity, site-specific environmental conditions, and protection recommendations.
19. All fire precautions will be observed as specified in the contract; ensure proper fire prevention equipment is on-site.
20. Activities that cause disturbance (including people working) will be seasonally restricted from January 1 to August 31 within 0.25 miles of any eagle nest, or until the young have fledged and are no longer at the nest site.

21. Noxious weeds on BLM-administered land will be treated using control techniques including chemical, mechanical, manual, and biological methods, as funding is available.
22. Areas disturbed during range improvement projects will be seeded with native plants after project completion.
23. If future monitoring discovers heavily grazed areas that may be at risk of invasion by noxious weed populations, mitigation measures will be implemented to reduce those risks. Mitigation measures may include, but are not limited to fence construction, changing season-of-use, modifying livestock numbers, modifying turn-out locations, or moving livestock to distribute them throughout the allotment and prevent overuse of specific areas.

2.3.6 Effects of the Proposed Action on Critical Elements of the Human Environment

2.3.6.1 Air Quality

The Clean Air Act Air establishes national air quality standards and authorizes the Environmental Protection Agency to implement them. The Oregon Department of Environmental Quality (ODEQ) is the lead agency for enforcing the Clean Air Act in Oregon. Federal and State air quality standards have been established for six common pollutants, including particulate matter. Fugitive dust (particulate matter suspended in the air by the wind and human activities) is the primary contributor to elevated levels of particulate matter in the Project Area.

Fugitive dust can result from human actions such as vehicle activity on dry, unpaved road surfaces, construction and mining activity, and grazing operations. The amount of fugitive dust created by livestock is affected by the amount of vegetation protecting the soil. The vegetative cover may be influenced by many factors including drought, fire, grazing by livestock and wildlife, disease, and insects. Where soil is exposed, the possibility for cattle to produce fugitive dust exists. However, the impacts would be negligible, localized, and limited to the duration of cattle movement. The Proposed Action would not affect air quality because it would neither aggravate nor improve current fugitive dust emissions.

2.3.6.2 Area of Critical Environmental Concern

The Poverty Flat ACEC, in T34S, R2E, section 31, is located in the Perry School Pasture, a spring pasture in the Summit Prairie Allotment. The Proposed Action would not affect this ACEC because fencing prevents livestock from entering the vernal pools, damaging plants, and importing nonnative, invasive plants.

2.3.6.3 Cultural Resources

The BLM will complete the necessary cultural surveys following Oregon BLM/State Historic Preservation Office protocol. The surveys will be completed prior to fence exclosure construction. Renewing the grazing authorizations will not affect cultural resources because the following PDFs will prevent project impacts: 1) Stop work and notify the BLM within 12 hours if an archaeological site is discovered during the project and 2) Apply mitigating measures to areas containing known archaeological sites. Buffers will be determined based on the proposed activity, site-specific environmental conditions, and protection recommendations.

2.3.6.4 Environmental Justice

Renewing the Flat Creek and Summit Prairie Allotments reauthorizations is not expected to have substantial effects on minority or low income populations. Impacts are not expected to fall disproportionately on minority or low income populations. Interested and affected public will continue to have access through the public involvement and decision-making processes for this project.

2.3.6.5 Farm Lands (prime or unique)

Grazing reauthorizations will not affect prime or unique farm lands because none are located within the Project Area.

2.3.6.6 Floodplains

The Proposed Action does not involve occupancy and modification of floodplains and would not increase the risk of flood loss. Potential impacts to riparian ecosystems are disclosed in section 3.7, Water Resources, and section 3.8, Fisheries.

2.3.6.7 Invasive, Nonnative Species

The BLM has documented 10 species of invasive plants in the Project Area. Each of these species has a unique characteristic and method for spreading. Invasive, nonnative plants are spread by a variety of vectors: humans, vehicles, wind, water, insects, and animals. As a result, it is difficult to attribute the spread to any one vector. The rate of spread depends on many factors, including the presence of source seed or plant parts, as well as random acts that may introduce invasive, nonnative plant species into noninfested areas.

The BLM has an active noxious weed prevention and control program. The BLM national strategy to prevent and control weeds on BLM lands includes seven goals: prevention and detection; education and awareness; inventory; planning; integrated weed management; coordination; and monitoring, evaluation, research, and technology transfer. The BLM has four treatment methods available for weed control – physical, biological, chemical, and cultural. Targeted noxious weed species will be treated as they are discovered. Early detection, rapid assessment, and rapid response to invasive, nonnative plants will limit the potential spread of these plants from grazing and other activities. Regardless of the Proposed Action, invasive, nonnative species would continue to spread and establish across the Project Area. The BLM will continue to treat noxious weeds across the landscape as time, budget, and personnel constraints allow.

2.3.6.8 Native American Religious Concerns

The Project Area contains no known sites that are sacred to Native Americans.

2.3.6.9 Threatened or Endangered Species

T&E Plant Species

> **Flat Creek Allotment:** Reissuing the 10-year lease will be “No Affect” to T&E plants because the allotment is outside the range of T&E plants and no sites have been documented there.

Summit Prairie Allotment: Reissuing the 10-year lease will be "No Affect" to Federal Endangered species *Limnanthes floccosa* ssp. *grandiflora* and *Lomatium cookii* because the allotment is outside the ranges of these species and no sites have been documented there.

Reissuing the 10-year lease for the McNeil Creek, Perry School, Ginger Creek, Parsnip Creek, Elk, Fredenburg, Round Mountain, and Carney pastures would be "No Affect" to Federal Endangered species *Fritillaria gentneri* because they are outside the range or no sites have been documented there.

Reissuing the 10-year leases for the Rocky Flat, Poverty Flat, and Mule Creek Pastures will be "May Affect, Not Likely to Adversely Affect" Federal Endangered species *Fritillaria gentneri* because sites are monitored yearly and no impacts from livestock have been observed. If impacts are observed, mitigation measures will be implemented to protect plants and habitat.

T&E Fish Species

Reissuing the 10-year leases will be "May Affect, Not Likely to Adversely Affect" SO/NC coho salmon, CCH, and EFH because impacts from livestock would be insignificant or discountable. The turn-out date on the spring pastures in the Proposed Action will be adjusted so livestock would be turned-out after coho salmon fry emerge from redds.

T&E Wildlife Species

Reissuing the 10-year leases will be "No Affect" to northern spotted owl, a Federal Threatened species, because grazing will not remove nesting or foraging habitat and will not impact the persistence of the species. The short duration of grazing will not impact the owl's ability to forage and will not remove mature trees required for nesting.

2.3.6.10 Wastes, Hazardous or Solid

Actions proposed in this project will not generate any hazardous or solid wastes. In addition, the Project Area contains no known historical sites with the potential to contain hazardous materials. BLM employees conducting field work in the Project Area have not encountered any illegal dumping of hazardous materials. If hazardous materials are discovered during the project implementation, applicable State and Federal laws will be followed to protect human health and the environment.

2.3.6.11 Water Quality

The Oregon DEQ included portions of 12 streams on the 303(d) list as water quality limited in the Project Area: 4 in the Elk Creek fifth field watershed containing the Flat Creek Allotment and 8 in the Big Butte Creek fifth field watershed containing the Summit Prairie Allotment. These streams are on the list for exceeding one or more of the following water quality criteria: dissolved oxygen, bacteria, and *E. coli*. Livestock and wildlife have the potential to affect water quality by increasing stream temperature, sedimentation, and bacterial contamination when they trample streambanks and riparian vegetation and congregate in riparian areas for long periods of time.

In the Flat Creek Allotment, most riparian areas have dense vegetation or lie at the bottom of steep terrain, which limits livestock use of the riparian areas and access to streams and, therefore, their impacts on water quality. The small number of cows spread across the large area in the allotment makes

it difficult to distinguish water quality effects from grazing and other sources at a watershed scale. Impacts to water quality from cattle would be localized over small areas because of the dense vegetation in most of the riparian areas.

In the Summit Prairie Allotment, livestock use the upland areas in the spring and early summer, and then graze riparian areas in late summer and fall. Dense vegetation in the riparian areas keeps water quality effects localized in small areas. Water quality would improve locally in Beaver Dam Creek with the fencing of the 4.6 acres of wet meadow and the resulting improvement in the riparian area.

The Ginger Springs Municipal Watershed, a water source for the community of Butte Falls, is located in the Ginger Creek Pasture in the Summit Prairie Allotment. The Springs are protected from cattle by a 2-acre fence that surrounds the springs and 2 spring boxes. Water testing by the city of Butte Falls for coliform bacteria occurs monthly and has produced negative results. The quality of the Ginger Springs water has remained consistently high with the current levels of grazing.

The Rangeland Health Assessments conducted for the two allotments in the Project Area found both allotments were meeting the water quality standard (Standard 4). While streams in the allotments are on the 303(d) list, grazing was not contributing substantially to the listings. The BLM will continue to direct grazing management toward meeting or making progress toward meeting the Standards for Rangeland Health, which includes Standard 4: Water Quality.

2.3.6.12 Wetlands/Riparian Zones

Steep terrain and dense riparian vegetation in most of the allotments limits livestock access to riparian areas. Riparian impacts that occur are generally localized in small areas. Active management by the BLM and grazing lessees such as moving cattle that have been lingering in riparian areas, implementing best management practices such as moving salting areas, and making rangeland improvements such as installing water developments and constructing exclosure fences will ensure riparian areas are not overgrazed.

Rangeland Health Assessments were conducted for the two allotments in the Project Area. The Flat Creek Allotment was meeting Standard 2: Watershed Function-Riparian/Wetland Areas. The Summit Prairie Allotment was not meeting Standard 2 but the assessment established livestock were not significant contributors. The main reason identified for failure to meet the standard was timber harvest on private lands in the early 1990s. The BLM will continue to direct grazing management toward meeting or making progress toward meeting the Standards for Rangeland Health, which includes Standard 2: Watershed Function-Riparian/Wetland Areas.

2.3.6.13 Wild and Scenic Rivers

The proposed project will not affect wild and scenic rivers because the Project Area does not contain any segment of a wild and scenic river.

2.3.6.14 Wilderness

The proposed project will not affect because no wilderness areas are located in the Project Area.

2.3.7 Summary of the Effects of the Alternatives

The content of Table 2-5 was derived from the Environmental Consequences discussions under each resource in section 3.0.

Table 2-5. Summary of the Effects of the Alternatives

Issue	Alternative 1 No Action	Alternative 2 Proposed Action
Aquatic Ecosystems	Cattle would continue to congregate in riparian areas in late summer and fall for water, shade, and forage. Grazing would cause short-term, localized impacts spread across the allotments. Active management by the BLM and lessees would implement mitigation measures to keep cattle and cattle impacts distributed across the landscape. The BLM will continue to manage grazing to meet rangeland health Standards and Guidelines, including Standard 2: Watershed Function-Riparian/Wetland Areas and Standard 4: Water Quality. Likely to Adversely Affect (LAA) coho salmon due to early release date of cattle in spring pastures and cattle trampling redds. Jackass Creek, 303(d) listed for temperature, would begin to have streambank vegetation recover which would improve streambank stability and water quality. The wet meadow on Beaver Dam Creek will continue to be grazed heavily and would not have the opportunity for an improvement in riparian habitat.	Cattle would continue to congregate in riparian areas in late summer and fall for water, shade, and forage. Grazing would cause short-term, localized impacts spread across the allotments. Active management by the BLM and lessees would implement mitigation measures to keep cattle and cattle impacts distributed across the landscape. The BLM will continue to manage grazing to meet rangeland health Standards and Guidelines, including Standard 2: Watershed Function-Riparian/Wetland Areas and Standard 4: Water Quality. Not Likely to Adversely Affect (NLAA) coho salmon due to later release date of cattle in spring pastures preventing cattle from trampling redds. Jackass Creek, 303(d) listed for temperature, would begin to have streambank vegetation recover which would improve streambank stability and water quality. Fencing the wet meadow on Beaver Dam Creek would begin upward trend: increased bank stability and cutthroat habitat, and regrowth of riparian vegetation and improved aquatic habitat.

Table 2-5. Summary of the Effects of the Alternatives		
Issue	Alternative 1 No Action	Alternative 2 Proposed Action
Native Plant Communities	Cattle would continue to use meadows, oak woodlands, and riparian areas. Short-term impacts would occur in localized areas. Active management by the BLM and lessees would implement mitigation measures to reduce impacts to native plant communities. The BLM will continue to manage grazing to meet rangeland health Standards and Guidelines, including Standard 5: Native, T&E, and Locally Important Species. Livestock impacts would continue to occur in the wet meadow on Beaver Dam Creek. Continued grazing would reduce species diversity and increase nonnative species.	Cattle would continue to use meadows, oak woodlands, and riparian areas. Short-term impacts would occur in localized areas. Active management by the BLM and lessees would implement mitigation measures to reduce impacts to native plant communities. The BLM will continue to manage grazing to meet rangeland health Standards and Guidelines, including Standard 5: Native, T&E, and Locally Important Species. Fencing the 4.6-acre wet meadow on Beaver Dam Creek would exclude cattle and wildlife from this area and allow native vegetation to recover.

3.0 Affected Environment/ Environmental Consequences

Chapter 3 describes the current condition of the environment within the Flat Creek and Summit Prairie Allotments. The information in this chapter forms the baseline for determining the effects of the proposed action. Past activities have contributed to the conditions currently existing in the Project Area and are reflected in the description of the current conditions. This chapter is organized by the resources most relevant to the issues identified in Chapter 1. After each resource's affected environment description, the impact of each alternative is analyzed under the same resource heading.

3.1 Definitions

Analysis Area: The area used to assess the effects to a resource from the proposed project. The analysis area may differ from the Project Area and may vary by resource.

3.2 Introduction

3.2.1 BLM Grazing Management

3.2.1.1 Active Management

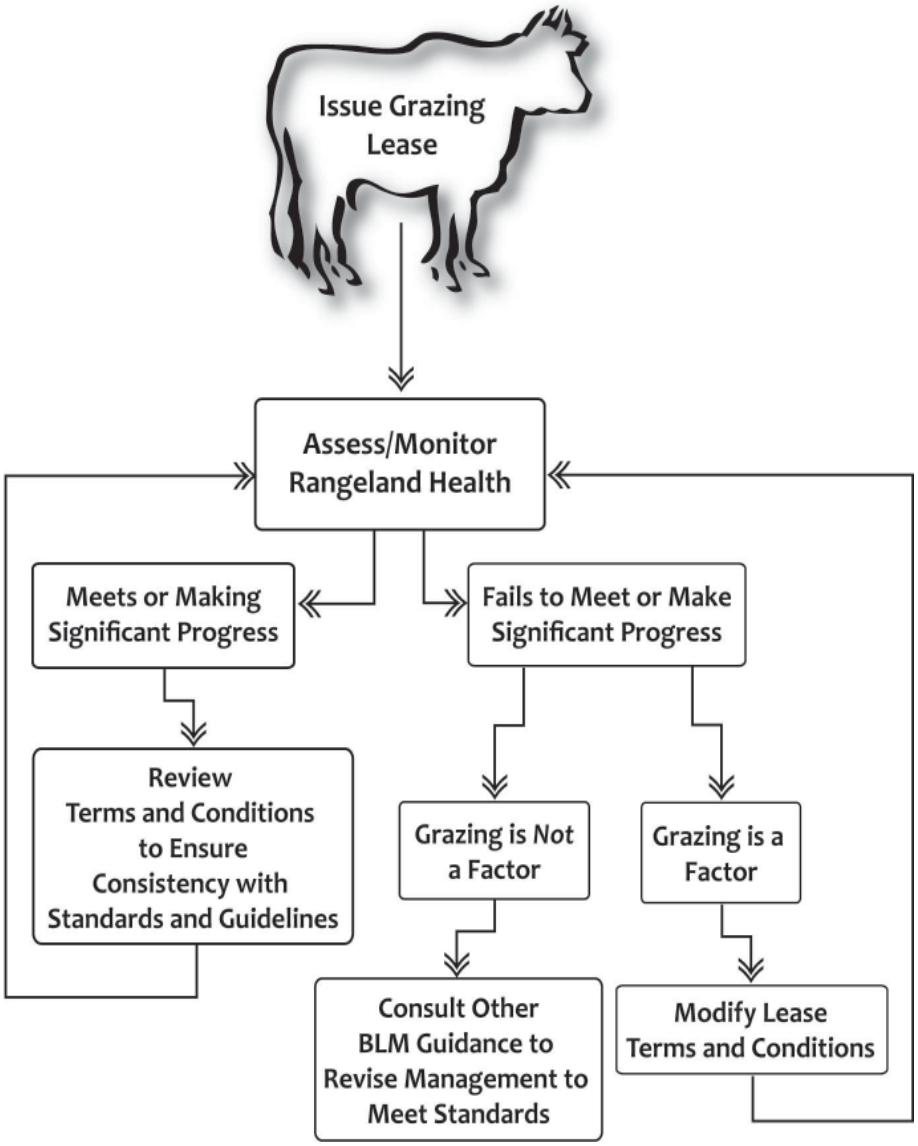
Active management means the BLM issues grazing permits, collects information on the permitted allotments, and works with the lessee to take immediate actions or make modifications to the permit if conditions warrant. The BLM issues grazing permits that authorize grazing on BLM lands for a term not to exceed 10 years. Through active management, the BLM can modify these authorizations at any time during the 10-year term if information shows the allotments are not meeting or making significant progress toward meeting the rangeland health Standards and Guidelines.

Grazing information may be obtained in several ways.

- Information is collected on the allotments by an interdisciplinary team of resource specialists during Rangeland Health Assessments. Rangeland Health Assessments were completed for the allotments in 2000.
- The BLM may collect information by implementing formal monitoring projects. Since the BLM cannot monitor all the rangelands it administers, monitoring priorities are assigned based on criteria such as land use plan objectives, Selective Management Policy categories, resource conflicts, or known or anticipated changes in grazing management.
- BLM range management staff gathers information when inspecting rangeland improvements, investigating unauthorized use, and conducting allotment reviews to ensure terms and conditions of grazing permits are being met.
- Grazing information is also collected incidentally from the public and from BLM staff as they complete other tasks within the grazing allotments such as aquatic habitat inventories, stream surveys, and field surveys for special status plants and animals.

Information is evaluated to determine if the allotments are meeting or making significant progress toward Rangeland Health Standards and, if not, is grazing a factor. If the BLM determines grazing is a factor in not meeting rangeland health standards, modifications may be made to the terms and conditions of the lease before its expiration (Figure 3-1). Modifications to the lease may include a change in the season-of-use or number of livestock. Range improvements, such as developing water sources or installing fencing, may also be implemented. Project-specific NEPA would be completed before new range improvement projects occur. Often, minor problems, such as an open gate or cattle lingering too long in a riparian area, can be immediately resolved with notification from the BLM to the lessee. Lessees work cooperatively with the BLM to address problems as they arise.

Figure 3-1. Active management allows the BLM to adjust grazing to meet Rangeland Health Standards.



Current grazing regulations (43 CFR 4180) direct the BLM to manage livestock grazing in accordance with the Rangeland Health Standards and Guidelines (see Appendix A). The BLM considers five Oregon/Washington BLM Standards when determining Rangeland Health status:

- Standard 1: Watershed Function – Uplands
- Standard 2: Watershed Function – Riparian/Wetland Areas
- Standard 3: Ecological Processes
- Standard 4: Water Quality
- Standard 5: Native, T&E, and Locally Important Species

These standards provide the basis for assessing and monitoring rangeland conditions and trends. If livestock is a significant causal factor in the failure to meet a standard, the BLM implements

management to ensure progress is being made toward attainment of the standard. The Rangeland Health Assessments for the Summit Prairie and Flat Creek Allotments were completed in 2000 and are summarized below:

- **Flat Creek Allotment:** Standard 1 (Watershed Function-Uplands), Standard 2 (Watershed Function-Riparian/Wetland Areas), Standard 3 (Ecological Processes), and Standard 4 (Water Quality) are being met. Standard 5 (Native, T&E, and Locally Important Species) is not being met; however, current livestock grazing management was not a significant contributor to the standard not being met.
- **Summit Prairie:** Standard 1 (Watershed Function-Uplands), Standard 4 (Water Quality), and Standard 5 (Native, T&E, and Locally Important Species) are being met. Standard 2 (Watershed Function-Riparian/Wetland Areas) and Standard 3 (Ecological Processes) are not being met; however, current livestock grazing management was not a significant contributor to the standard not being met.

3.2.1.2 Current Allotments

The Flat Creek and Summit Prairie Allotments are composed of a mix of land ownerships. BLM lands are intermingled with commercial timberlands and individual ranches and farms. The BLM manages about half the land in the Flat Creek Allotment and roughly one-third of the land in the Summit Prairie Allotment.

The BLM authorizes grazing on BLM-administered lands under 43 CFR Part 4100. Agreements for grazing under the jurisdiction of the BLM include terms and conditions that specify the kind and number of livestock, the period of use, the allotment or pasture to be used, and the amount of use (in AUMs) that may occur on BLM lands.

Private lands in Oregon are designated under Oregon law (Oregon Revised Statute [ORS] Chapter 607) as either open range or livestock district (also known as closed range). There are no livestock districts in the Project Area. The private lands in the two allotments are “open range,” which Oregon law defines as “an area wherein livestock may lawfully be permitted to run at large” (ORS 607.005). Livestock may lawfully enter private land unless the land is adequately fenced or natural barriers exist that would limit access to the private land. However, privately owned livestock *may not* enter BLM-administered lands without a permit or lease, and an annual grazing authorization.

Flat Creek Allotment

The 25,668-acre Flat Creek grazing allotment is used by one livestock operator. In a normal grazing year, 124 cattle are turned out on or around May 1. On June 15, 62 cattle are moved north to USFS lands and 62 cattle remain on the BLM allotment until October 18 (Table 2-1).

Summit Prairie Allotment

The 91,214-acre Summit Prairie Allotment contains 11 pastures used by 8 livestock operators. Four pastures are used in the spring (April 16 to May 31) on an alternating basis; McNeil Creek and Poverty Flat pastures are used in even-numbered years and Perry School and Rocky Flat pastures are used in odd-numbered years. Following spring use, the cattle are moved to pastures at higher elevations and remain there until September 30. The higher elevation pastures are Ginger Creek, Fredenburg, Round Mountain, Mule Creek, Parsnip Creek, and Carney. Note that the Ginger Creek pasture is used until July 31 (Table 2-2). Elk Pasture is used from April 16 to May 31 only.

3.2.2 Land Use Allocations and Restrictions

The 1995 Medford District ROD/RMP designates land use allocations that relate to the major land use allocation categories derived from the Northwest Forest Plan (NWFP): Designated Areas and Matrix. Designated areas are riparian reserves, late-successional reserves (including known northern spotted owl activity centers), adaptive management areas, managed late-successional areas, congressionally reserved areas, and administratively withdrawn areas. Forest areas outside designated reserves and not set aside for other resource values are designated as matrix lands and are primarily managed to produce a sustainable supply of timber (USDI 1995a, p. 38). See Map 4 for land use allocations in the Project Area.

3.2.2.1 Matrix

Matrix objectives identified in the 1995 Medford District ROD/RMP are to "produce a sustainable supply of timber and other forest commodities to provide jobs and contribute to community stability; provide connectivity (along with other allocations such as Riparian Reserves) between late-successional reserves; provide habitat for a variety of organisms associated with both late-successional and younger forests; provide for important ecological functions such as maintenance of ecologically valuable structural components such as down logs, snags, and large trees; and provide early-successional habitat" (USDI 1995a, 39). The matrix lands have been divided into northern and southern General Forest Management Area (GFMA) and Connectivity/Diversity blocks.

Connectivity/Diversity Blocks are spaced throughout the matrix lands in the northern GFMA allocation. The 1995 ROD/RMP directs each block must maintain at least 25 to 30 percent of each block in late-successional forest condition. Riparian reserves and other allocations with late-successional forest count toward this percentage. The Project Area contains six connectivity/diversity blocks located only within the Summit Prairie grazing allotment.

In the Project Area, 24,362 acres (57 percent) of BLM-administered lands are designated as matrix.

3.2.2.2 Late-Successional Reserves

Late-successional reserves (LSR) were designated in the 1995 Medford District ROD/RMP and the NWFP as areas set aside "to protect and enhance conditions of late-successional and old-growth forest ecosystems, which serve as habitat for late-successional and old-growth related species including the northern spotted owl" (USDA and USDI 1994a, p. C-9). The Project Area contains two of the five components of the late-successional reserve system–mapped late-successional reserves and known northern spotted owl activity centers.

The Flat Creek grazing allotment is located in the Elk Creek LSR, a 49,557-acre mapped LSR. In the Project Area, 12,048 acres (28 percent) of BLM-administered lands are designated as mapped LSR. The Project Area also contains 16 known northern spotted owl activity centers (3,261 acres or 8 percent of BLM-administered land in the Project Area) located throughout the Summit Prairie grazing allotment. Known spotted owl activity centers are defined as "one hundred acres of best northern spotted owl habitat as close as possible to a nest site or owl activity center for all known (as of January 1, 1994) northern spotted owl activity centers" (USDI 1995a, p. 32).

3.2.2.3 Riparian Reserves

Riparian reserves were designated under the 1995 Medford District ROD/RMP and the NWFP as "areas along all streams, wetlands, ponds, lakes, and unstable or potentially unstable areas where the conservation of aquatic and riparian-dependent terrestrial resources receives primary emphasis" (USDA and USDI 1994b, p. 7). Riparian reserves are managed to provide benefits to riparian-associated species, enhance habitat conservation for organisms dependent on the transition zone between upslope and riparian areas, improve travel and dispersal for many terrestrial animals and plants, and provide habitat connectivity within the watershed. Riparian reserves occur across all land use allocations and may overlap other designations. In the Project Area, 3,990 acres (11 percent) of BLM-administered lands are allocated to riparian reserves.

3.2.2.4 Tier I Key Watershed

Elk Creek was designated a Tier 1 key watersheds in the 1995 ROD/RMP. Key watersheds are a component of the Aquatic Conservation Strategy and contribute directly to the conservation of at-risk anadromous salmonids and resident fish species. Tier 1 key watersheds have "a high potential of being restored as part of a watershed restoration program" (USDI 1995, p. 22). Key watersheds overlay portions of all land use allocations in the District and place additional management requirements or emphasis on activities in those areas. LSRs incorporate key watersheds to the extent possible. The Flat Creek Allotment lies entirely within the Elk Creek key watershed.

3.2.2.5 Deferred Watershed

The 1995 ROD/RMP identified certain watersheds as deferred for high watershed cumulative effects. In these watersheds, surface-disturbing management activities such as timber sales were deferred for a period of 10 years starting in January 1993. "Management activities of a limited nature (e.g., riparian, fish or wildlife enhancement, salvage, etc.) could be permitted in these areas if the effects will not increase the cumulative effects" (1995 ROD/RMP, p. 42).

The environmental impact statement for the 1995 ROD/RMP identified the cumulative effects that contributed to the watershed deferrals. Effects included high levels of timber harvest, large amounts of compacted area from roads and skid roads, and severe wildfire. Grazing was not listed as a contributor to the watershed deferrals. Watershed deferrals were to be reevaluated during the next planning cycle or by January 2003.

The following deferred watersheds are located in the Project Area: Clark Creek (within the Big Butte Creek fifth field watershed); Lost-Floras and Vine Maple (within the Rogue-Lost Creek fifth field watershed); and Flat Creek (within the Elk Creek fifth field watershed). The watershed deferrals have not been reevaluated.

3.2.2.6 Area of Critical Environmental Concern

The Project Area contains the Poverty Flat Area of Critical Environmental Concern (ACEC). The 29-acre ACEC was designated for its natural systems, vernal pool wetlands, and special status plants. The Poverty Flat ACEC is located adjacent to the Butte Falls Highway in Township 34 South, Range 2 East, section 31.

3.2.2.7 Ginger Springs Municipal Watershed

The Ginger Springs Municipal Watershed is a geologically derived watershed that supplies water for the community of Butte Falls. The 1995 ROD/RMP directed a watershed plan should be prepared for this "community water system" for the city of Butte Falls (USDI 1995, 42). The Butte Falls Resource Area prepared *A Watershed Analysis and Management Plan for BLM Lands within the Ginger Springs Recharge Area* in September 1998. This watershed plan provides management recommendations for the BLM-administered lands within the municipal watershed. These recommendations are not management decisions and the impacts of these recommendations were not assessed. BLM management decisions for the municipal watershed must be analyzed in project-specific NEPA analysis.

3.2.3 Other Actions in the Watersheds containing the Project Area

3.2.3.1 Past Actions

This section includes past actions and events that may be relevant to the analysis of cumulative effects in the Project Area. This is not intended to be an exhaustive look at all past activity in the Project Area. Past activities are considered part of the existing condition and are discussed in the Affected Environment for each resource. The existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects.

Flat Creek Allotment

Management actions have created a mosaic of seral stages that reflect the checkerboard ownership pattern in the Elk Creek fifth field watershed. Industrial timberlands have been managed for timber production with harvest occurring on a 60-year rotation. The BLM-administered lands were at one time managed for timber production; however, the last timber sales on public lands in the Elk Creek watershed occurred in the late 1980s. In 1994, the public lands in the Elk Creek watershed were designated as late-successional reserve and management focus switched to protecting or accelerating late-successional forest conditions. Precommercial thinning has been completed on 2,050 acres since 1994.

In 1975, the U.S. Army Corps of Engineers began construction on the Elk Creek Dam approximately 1.7 miles upstream from the confluence of Elk Creek and the Rogue River. Litigation stopped dam construction in 1988 with the project nearly 40 percent complete. The partially completed dam blocked fish passage except at a limited range of flows. Since 1992, fish were trapped below the dam, hauled upstream, and released. The U.S. Army Corps of Engineers notched dam in 2008 to provide fish passage.

Since fire suppression began in 1910, 6 large fires have burned about 46,500 acres in the Elk Creek watershed. The largest fire was the 27,000-acre Timbered Rock Fire that occurred in 2002. The Timbered Rock Fire burned about 12,000 acres of BLM-administered lands and about 11,000 acres of industrial timberlands. Approximately 6,000 acres of industrial timberlands were immediately salvage harvested and replanted. No salvage harvest occurred on the BLM-administered lands and fire-killed trees were left on-site. Nearly 4,500 acres were replanted.

The Timbered Rock Fire in 2002 eliminated the available livestock forage in the Flat Creek Allotment. The BLM and the adjacent landowner deferred livestock grazing in the allotment for 2 years from 2003 to 2005. The deferral was to allow grasses and forbs to reestablish root systems impacted by the fire, reduce the potential for soil disturbance by livestock grazing on steep slopes, protect U.S. Army

Corps of Engineer lands that had been seeded to reduce yellow starthistle, allow riparian areas to recover, reduce damage to tree seedlings planted for fire rehabilitation, and allow shrubs to resprout and reestablish (USDI 2003, 3-216).

The BLM has completed projects in the grazing allotment to protect springs, wetlands, and streams from wildlife and grazing livestock use.

Figure 3-1. Alco Springs was fenced and a spring box installed. Water was piped from the spring to a water trough located in a more stable location.

Summit Prairie Allotment

Field observation and review of aerial photographs indicates most industrial timberlands within the watersheds containing the Summit Prairie Allotment have been harvested. The majority of merchantable overstory trees were removed, leaving a younger stand of Douglas-fir with lesser amounts of ponderosa pine, incense cedar, and scattered hardwoods. Most of these harvested acres have been planted and are now plantations of ponderosa pine or Douglas-fir of varied sizes and ages.

Since implementation of the 1995 ROD/RMP, timber harvest in the fifth field watersheds containing the Summit Prairie Allotment has included approximately 6,800 acres of harvest on BLM-administered lands (Table 3-1). These harvest activities occurred on matrix lands and identified riparian reserve buffers, retained larger remnant green trees in regeneration harvest units, and applied coarse woody debris retention guidelines, as directed by the 1995 ROD/RMP.

Table 3-1. Completed Timber Sale Projects within the Fifth Field Watersheds containing the Summit Prairie Allotment

Project Name	Year Completed	5th Field Watershed	Yarding System			Total Acres
			Tractor	Cable	Helicopter	
Ground Round	1997	Big Butte Creek	638	60	0	698
		Rogue River/Lost Creek	518	10	0	528
		South Fork Rogue River	108	10	0	118
Lower Dudley	1998	Big Butte Creek	15	45	0	60
Tokyo Ginger	1998	Big Butte Creek	330	14	0	344
Rancheria	1999	Big Butte Creek	950	0	0	950
Fred-N-Jack	2000	Big Butte Creek	1,116	273	0	1,389
Ginger Springs	2003	Big Butte Creek	91	36	86	213
Round Forks	2003	South Fork Rogue River	377	171	0	548
“B” Lost	2005	Rogue River/Lost Creek	192	8	0	200
		South Fork Rogue River	6	28	0	34
Flying Lost	2006	Rogue River/Lost Creek	133	64	135	332
Lower Big Butte	2006	Big Butte Creek	351	10	425	786

Table 3-1. Completed Timber Sale Projects within the Fifth Field Watersheds containing the Summit Prairie Allotment

Project Name	Year Completed	5th Field Watershed	Yarding System			Total Acres
			Tractor	Cable	Helicopter	
Titanic	2006	Big Butte Creek	322	0	0	322
		South Fork Rogue River	107	0	0	107
Bowen Over	2008	Big Butte Creek	165	0	0	165
Totals		**Big Butte Creek**	**3,978**	**438**	**511**	**4927**
		South Fork Rogue River	**598**	**209**	**0**	**807**
		Rogue River/Lost Creek	**843**	**82**	**135**	**1,060**
		Grand Totals	**5,419**	**729**	**646**	**6,794**

Camp Stew is a completed stewardship project within the Big Butte Creek fifth field watershed. This project included fence removal, stock tank removal, stream channel restoration, pine plantation pruning, thinning, planting root rot resistant tree species within a root rot infected area, chipping unmerchantable thinned material, and road decommissioning. This work was all completed between 2005 and 2008.

In the Summit Prairie Allotment, 4 springs were fenced and developed in T34S, R3E, sections 9 and 21. Also, a wetland in T34S, R3E, section 15 was fenced to protect the wetland area from cattle and wildlife use. In addition, livestock exclosures were installed on Jackass Creek, Beaver Dam Creek, and a tributary to Beaver Dam Creek in T34S, R3E, sections 3, 9, 29, and 33.

3.2.3.2 Current Actions

Flat Creek Allotment

No timber harvest is occurring on BLM-administered lands in the Elk Creek watershed. The BLM is currently cutting dense vegetation in the Timbered Rock Fire area to promote the growth of conifer trees and hardwoods on approximately 1,200 acres.

Summit Prairie Allotment

The Forest Service is currently implementing the Big Butte Springs Timber Sale located in the Big Butte Creek fifth field watershed. This timber sale is located east of the grazing allotments. The Big Butte Springs Timber Sale includes timber harvest on 6,184 acres. Approximately 5,900 acres will be harvested using ground-based logging systems and 200 acres using skyline cable systems. Reconstruction of 3.2 miles of existing road, construction of 2.0 miles of temporary roads, decommission of 32 miles of existing roads, and road maintenance on 20.7 miles of existing roads will occur. The Forest Service began project implementation in 2006 and expects to continue implementation for three to five years.

In January 2008, a series of winter storms brought strong winds and heavy snow to southern Oregon. These windstorms resulted in uprooted trees throughout the area. The *Butte Falls Blowdown Salvage EA* (2008) assessed the salvaging of trees blown down or damaged by these windstorms. This EA produced five timber sales located within Big Butte Creek, Rogue River/Lost Creek, and South Fork Rogue River fifth field watersheds (Table 3-2).

Table 3-2. Blowdown Salvage Timber Sales within the Fifth Field Watersheds containing the Summit Prairie Allotment

Timber Sale	5th Field Watershed Acres		
	Big Butte Creek	Lost Creek/Rogue River	South Fork Rogue River
Double Down	395	0	0
Lookout B Low	717	0	0
Lower Down	972	112	12
Blown A Round	61	778	53
Windy Salt	9	0	0
Totals	**2,154**	**890**	**65**

3.2.3.3 Future Actions

The BLM will continue to monitor grazing permits and modify authorizations if information shows the allotments are not meeting or making significant progress toward meeting the Rangeland Health Standards and Guidelines. Grazing leases for these allotments will expire in 2019 and the BLM will analyze the potential effects of reauthorizing the leases if the lessees apply for renewal.

Flat Creek Allotment

The BLM does not anticipate entering the Elk Creek fifth field watershed for timber harvest in the next 5 years. The BLM anticipates future activities in the Elk Creek watershed will include continued forest management on industrial forestlands.

Summit Prairie Allotment

The Doubleday Fire in September 2008 burned 932 acres in the Big Butte Creek fifth field watershed. Rehabilitation of the fire suppression activities included erosion control, preventing the establishment of noxious weeds, and restoring road closures. The BLM conducted an environmental analysis to consider the impacts of salvaging 220 acres of trees burned during the fire; 164 acres are located in the Big Butte Creek fifth field watershed. The resulting timber salvage sale was sold in April 2009 and harvest could occur in 2009 using tractor and skyline yarding methods. The burned portions of the allotment (Ginger Creek and Perry School pastures) will be deferred from grazing in 2009 and 2010.

The BLM anticipates future activities in the watersheds containing the Summit Prairie Allotment will include continued forest management on private timber company lands. Future proposed harvest on BLM lands within the next 5 years may include the following projects:

- Twin Ranch Timber Sale (2012) - 785 acres in the Big Butte Creek fifth field watershed. Since the slope in most of the area is less than 35 percent, tractor yarding is likely to be the primary logging system used.
- Eighty Acre Creek Timber Sale (2014) - 700 acres in the Big Butte Creek fifth field watershed. Since the slope in most of the area is less than 35 percent, tractor yarding is likely to be the primary logging system used.

The BLM offered the Camp Cur Timber Sale for bid in 2005. The BLM expects harvesting will be completed in 2 to 4 years. The Camp Cur Timber Sale includes 800 acres; approximately 760 acres are located in the Big Butte Creek fifth field watershed.

The BLM offered the Flounce Around Timber Sale for bid in 2005. The BLM expects harvesting will be completed in 2 to 4 years. The Flounce Around Timber Sale includes 503 acres located in the Big Butte Creek and Lost Creek/Rogue River fifth field watersheds.

The Ranch Stew Young Stand Thinning project would thin approximately 900 acres of ponderosa pine plantations and stands created after previous harvest entries. The project would be located in the Big Butte Creek fifth field watershed.

The Pacific Connector Gas Pipeline is proposed to pass through the Big Butte Creek fifth field watershed in the southwest corner of the Project Area. The pipeline would cross 5.3 miles of the Big Butte Creek fifth field watershed.

The BLM analyzed the impacts of installing exclosure fencing along Jackass Creek and Beaver Dam Creek in the 2005 *Jackass Creek and Beaver Dam Creek Livestock Exclosure EA*. Portions of the project were implemented when fencing was installed on Beaver Dam Creek and at one location on Jackass Creek. The BLM plans to complete the project by installing fencing at a second site on Jackass Creek in Township 34 South, Range 3 East, section 29.

3.3 Range

3.3.1 Definitions

Key Species: An important component of a plant community. Key species serve as indicators of change and may or may not be forage species. In some cases, problem plants (e.g., poisonous or exotics) may be selected as key species. Key species may change from season to season and year to year.

Percent Public Land: A permittee or lessee may be given credit, on a percentage basis, for the estimated grazing capacity of any intermingled unfenced land they control. Such land must be suitable for livestock grazing. The amount of use must be in proportion to the grazing capacity of the unfenced owned or controlled land and the public land.

Permitted Use: The forage allocated by, or under the guidance of, an applicable land use plan for livestock grazing in an allotment under a permit or lease and is expressed in AUMs.

Potential Natural Communities (PNC): The stable biotic community that would become established on an ecological site if all successional stages were completed without human interference under present environmental conditions.

Utilization: The proportion or degree of current year's forage production that is consumed or destroyed by animals (including insects). Utilization may refer either to a single plant species, a group of species, or the vegetation as a whole. Utilization is synonymous with use.

3.3.2 Methodology

The Range Analysis Area encompasses the Flat Creek and Summit Prairie Allotments. The effects of the alternatives are being considered on grazing management in the Summit Prairie and Flat Creek Allotments.

3.3.3 Assumptions

- Livestock grazing will occur according to the terms of the grazing leases that specify AUMs, season of use, and terms and conditions.
- Livestock operators will move cattle as scheduled and will remove livestock at the end of their season of use.
- Short-term is less than 2 years; long-term is 2 years or more.

3.3.4 Affected Environment

Over 90 percent of the public lands in these allotments are in the timber base. The condition within individual allotments is variable based on historic grazing levels, past management actions, and current grazing management. Vegetation treatments affect livestock grazing by changing the use of foraging areas and changing forage production. Forage production declines following vegetation treatments, but increases over time as vegetation recovers. Livestock tend to use forage along roadsides, in openings created by public and private land logging, and in riparian areas.

Current grazing regulations direct BLM to manage livestock grazing in accordance with the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington. The standards are the basis for assessing and monitoring rangeland conditions and trends. If livestock is a significant causal factor in the failure to meet a standard, management is implemented to ensure that progress is being made toward the attainment of the standard.

Utilization data is collected using the key species method, ocular estimates of forage removed by weight, and mapping use zones (Interagency Technical Reference 1734-3, 1996). Utilization data may reflect use by all animals, including livestock, wildlife, and insects, and other uses such as trampling and damage from recreation activities. This data helps classify use into one of six classes based on percent utilization of forage:

No Use . . . . . 0-5 percent

Slight Use . . . . . 6-20 percent

Light Use. . . . . 21-40 percent

Moderate Use . . . . 41-60 percent

Heavy Use. . . . . 61-80 percent

Severe Use . . . . . 81-100 percent

3.3.4.1 Flat Creek

The Flat Creek Allotment is located approximately five miles northwest of Lost Creek Reservoir. The allotment encompasses approximately 25,668 acres of intermingled public (47 percent) and private land (53 percent). The allotment is used by one livestock operator and is managed as a single pasture. In a normal grazing year, 124 cattle are turned out on or around May 1. On June 15, 62 cattle are moved north to USFS lands and 62 cattle remain on the BLM allotment until October 18 (Table 2-1). The U.S. Army Corps of Engineers administers 3,500 acres of land between the Lost Creek and Flat Creek Allotments. This tract of land was once informally part of both allotments, but is not currently included in either allotment.

Vegetation in the Flat Creek Allotment is primarily in the Douglas-fir, pine-fir-fescue, and oak-pine-oatgrass plant communities. Major understory grasses are composed of Idaho fescue, junegrass, *Bromus* sp., *Poa* sp., *Stipa* sp., oatgrass, medusahead rye, and dogstail.

A review of the actual use data shows the allotment has not been grazed for 4 of the last 7 years. The allotment was closed to grazing in 2003 and 2004 to allow vegetation to recover following the 2002 Timbered Rock Fire. In 2007 and 2008, the actual use was 100 percent of the permitted use on BLM lands.

The utilization patterns in the majority of the allotment can be categorized as receiving Slight and Light grazing use. Utilization information from 1997 shows that Moderate and Heavy use occurred in Alco Creek, Middle Creek, Flat Creek, Timber Creek, Elk Creek, and West Branch Elk Creek. Utilization information from 1999 showed the majority of the allotment received Slight and Light use with only small areas along West Branch Elk Creek showing Moderate use.

3.3.4.2 Summit Prairie

The Summit Prairie Allotment occupies a large portion of the area between Highway 140 and Lost Creek Reservoir. The allotment encompasses approximately 91,220 acres of intermingled public (34 percent) and private (66 percent) land. The allotment contains 11 pastures used by 8 livestock operators. Four pastures are used in the spring (April 16 to May 31) on an alternating basis; McNeil Creek and Poverty Flat pastures are used in even-numbered years and Perry School and Rocky Flat pastures are used in odd-numbered years. The Elk Creek Pasture is used in the spring (April 16 to May 31). Following spring use, the cattle are moved to pastures at higher elevations and remain there until September 30. The higher elevation pastures are Ginger Creek, Fredenburg, Round Mountain, Mule Creek, Parsnip Creek, and Carney. Note that the Ginger Creek pasture is only used until July 31 (Table 2-2).

Vegetation in the Summit Prairie Allotment is primarily Douglas-fir Forest and Pine-Fir-Fescue. Major understory grasses are Idaho fescue, junegrass, needlegrass, oatgrass, medusahead rye, and dogstail.

A review of the actual use shows that the actual use is currently lower than permitted use. Table 3-3 provides a summary of actual use by pasture since 2000.

Table 3-3. Summit Prairie Allotment Actual Use Summary by Pasture

Pasture	Actual Use Summary
McNeil Creek	Pasture was grazed 4 of the last 9 years with the most recent use in 2006. Average actual use is 27 percent of the allowable AUMs in the years the pasture was grazed.
Perry School	Pasture has not been grazed in the last 9 years.
Rocky Flat	Pasture was grazed 3 of the last 9 years with the most recent use in 2006. Average actual use is 9 percent of the allowable AUMs in the years the pasture was grazed.
Poverty Flat	This pasture has been grazed 2 of the last 9 years with the most recent use in 2008. Average actual use is 18 percent of the allowable AUMs in the years the pasture was grazed.
Elk	Pasture was grazed 1 of the last 8 years with the most recent use in 2006. Average actual use is 100 percent of the allowable AUMs in the year the pasture was grazed.
Ginger Creek	Pasture was grazed 8 of the last 9 years with the most recent use in 2007. Average actual use is 89 percent of the allowable AUMs in the years the pasture was grazed.
Fredenburg	Pasture was grazed the last 9 years. Average actual use is 71 percent of the allowable AUMs in the years the pasture was grazed.
Round Mountain	Pasture was grazed the last 5 years with data not available for 2000 to 2003. Average actual use is 67 percent of the allowable AUMs in the years the pasture was grazed.
Mule Creek	Pasture was grazed the last 9 years. Average actual use is 120 percent of the allowable AUMs in the years the pasture was grazed.
Parsnip Creek	Pasture was grazed the last 9 years. Average actual use is 75 percent of the allowable AUMs in the years the pasture was grazed.
Carney	Pasture was grazed the last 6 years with data not available for 2000 to 2002. Average actual use is 100 percent of the allowable AUMs in the years the pasture was grazed.

The BLM conducted an allotment evaluation for the Summit Prairie Allotment in 1991 that assessed the data available between 1985 and 1989. The evaluation included ecological range condition classifications, trend studies, and utilization information. A summary of the information is shown below:

Ecological Range Condition

Ecological Range Condition Classification[1], as used in the evaluation document, and as used in the Medford Grazing Environmental Impact Statement published in 1983, is technically defined as the

1 Now referred to as Ecological Site Inventory (ESI).

degree of similarity between the present vegetation and the potential, or climax, plant community. The Soil Conservation Service[2] estimated what each range site[3] would have produced, in terms of species composition and amount of each species, had that range site not been impacted. The developmental stages of an ecological succession are

Early Seral:	0-25% similar to PNC (potential natural community)
Mid-Seral:	26-50% similar to PNC
Late Seral:	51-75% similar to PNC
PNC:	76-100%

The BLM completed inventories in 1982 to determine the percentages within each stage in the Summit Prairie Allotment. A resurvey has not been completed. The stages found in the 1982 inventory were

Early Seral:	55%
Mid-Seral:	43.5%
Late Seral:	1.5%
PNC:	0%
Unclassified:	0%

Trend Studies

The BLM established 10 vegetative trend study plots in this allotment in the late 1970s. Monitoring data from these studies indicated that trend was upward in two pastures, down in one pasture, and static in seven pastures. Overall trend in the allotment, as determined from the monitoring data, is static.

Utilization Information

Table 3-4 summarizes utilization information from 1985 to 1989.

The utilization patterns in the majority of the allotment can be categorized as receiving Slight and Light grazing use. The utilization maps for 1985 to 1989 show similar patterns. The Moderate and Heavy use generally occurs in portions of the Fredenburg, Mule Creek, and Parsnip Creek Pastures.

2 Name changed to Natural Resources Conservation Service.
3 Now referred to ecological site.

Table 3-4. Summit Prairie Allotment Utilization Summary by Percent from 1985 to 1989

Pasture/Year	Slight Use	Light Use	Moderate Use	Heavy Use	Severe Use	Unsurveyed
McNeil Pasture						
1985	61	13	2	0	0	24
1986	62	29	7	2	0	0
1987	Nonuse	Nonuse	Nonuse	Nonuse	Nonuse	Nonuse
1988	77	21	0	0	2	0
1989	Nonuse	Nonuse	Nonuse	Nonuse	Nonuse	Nonuse
Perry School Pasture						
1985	0	0	0	0	0	100
1986	Nonuse	Nonuse	Nonuse	Nonuse	Nonuse	Nonuse
1987	79	0	0	0	0	21
1988	Nonuse	Nonuse	Nonuse	Nonuse	Nonuse	Nonuse
1989	96	4	0	0	0	0
Ginger Pasture						
1985	0	0	0	0	0	100
1986	0	0	0	0	0	100
1987	49	5	5	<1	0	41
1988	86	4	2	4	4	0
1989	97	<1	3	0	0	0
Fredenburg Pasture						
1985	20	24	24	3	0	29
1986	44	25	13	<1	0	18
1987	60	20	11	2	0	7
1988	62	10	9	0	0	19
1989	67	24	9	0	0	0
Rocky Flat Pasture						
1985	0	0	0	0	0	100
1986	0	0	0	0	0	100
1987	100	0	0	0	0	0
1988	78	3	9	10	0	0
1989	54	27	13	6	0	0
Poverty Flat Pasture						
1985	13	5	4	78	0	0
1986	0	0	0	0	0	100
1987	Nonuse	Nonuse	Nonuse	Nonuse	Nonuse	Nonuse
1988	50	17	26	7	0	0
1989	Nonuse	Nonuse	Nonuse	Nonuse	Nonuse	Nonuse
Round Mountain Pasture						
1985	13	4	9	<1	0	73
1986	29	49	6	<1	0	16
1987	63	29	0	0	0	8
1988	81	18	1	0	0	0
1989	80	20	0	0	0	0

Table 3-4. Summit Prairie Allotment Utilization Summary by Percent from 1985 to 1989

Pasture/Year	Slight Use	Light Use	Moderate Use	Heavy Use	Severe Use	Unsurveyed
Mule Creek Pasture						
1985	9	6	23	13	0	49
1986	55	12	23	2	0	8
1987	39	11	7	1	0	42
1988	67	29	4	0	0	0
1989	72	23	5	0	0	0
Parsnip Pasture						
1985	14	46	23	16	1	0
1986	31	38	14	7	0	10
1987	49	28	18	5	0	0
1988	33	55	12	0	0	0
1989	44	51	5	0	0	0
Carney Pasture						
1985	0	0	0	0	0	100
1986	3	17	6	3	0	71
1987	30	9	7	2	0	52
1988	70	18	12	0	0	0
1989	44	53	3	0	0	0

3.3.5 Environmental Consequences

3.3.5.1 Effects of Alternative 1 (No Action) on Range

Direct and Indirect Effects

Under Alternative 1, grazing leases for the Flat Creek and Summit Prairie Allotments would be renewed with the same terms and conditions. There would be no direct or indirect effects to grazing management. Monitoring would continue as described. If monitoring indicates rangeland standards are not being met, the terms and conditions for grazing leases may be modified.

Cumulative Effects

Past Actions

Timber management actions can affect forage production through changes to vegetation. In the short-term, forage production at the site level would decline. However, in the long-term (2 or more years), timber management actions would result in increased forage production at the site level until the tree canopy develops and forage production is reduced.

Timber management actions can also affect grazing by changing the distribution of livestock and use of foraging areas. Livestock tend to graze in openings created by timber management actions such as logging on public and private land.

Present Actions

Windstorms in January 2008 uprooted trees in portions of the Perry School, Fredenburg, Round Mountain, Mule Creek, Rocky Flat, Poverty Flat, Ginger Creek, and McNeil Creek pastures. The BLM is currently salvaging trees throughout the pastures. It is likely the blowdown event as well as subsequent salvage harvest would change the distribution of livestock and use of current foraging areas. The areas most likely affected were those categorized as Moderate Damage (10 to 40 percent of the ground was covered) and Severe Damage (40 to 95 percent of the ground was covered) where movement is difficult due to root wads and logs (USDI 2008a). In the short-term, the root wads and logs in the Moderate and Severe damage areas would block livestock movement and forage at the site. In the long-term, movement and forage production would return to the sites planned for salvage harvest.

Future Actions

The Doubleday Fire in September 2008 occurred in portions of the Ginger Creek and Perry School pastures within the Summit Prairie Allotment. The burn areas will be closed to grazing in 2009 and 2010 but due to the small size of the fire and large size of the pastures, grazing could still occur in the remainder of the pastures.

Timber management actions affect forage production through changes to vegetation. Future actions would not affect the quantity of forage production in the Summit Prairie and Flat Creek Allotments. Vegetation treatments would be so scattered geographically that there would be no overall change in forage production.

3.3.5.2 Effects of Alternative 2 on Range

Direct and Indirect Effects

Flat Creek – There are no apparent differences in the impacts to grazing management between the two alternatives.

Summit Prairie – Under Alternative 2, the season of use for the spring pastures (McNeil Creek, Perry School, Rocky Flat, Poverty Flat, and Elk) would change from April 16 to May 1. The total AUMs would stay the same but the livestock numbers would increase to account for the shorter season (Table 2-4).

The construction of an exclosure in the Ginger Creek pasture would not impact grazing management in the Summit Prairie Allotment. The proposed exclosure is an extension between two existing exclosures. The construction of the exclosure would exclude less than 1 percent of the Ginger Creek Pasture and would not limit overall watering or foraging opportunities. Maintenance of three riparian exclosures would be transferred to the lessee in the Ginger Creek Pasture. This would require additional maintenance for the lessee.

Monitoring would continue as described. If monitoring indicates changes in management are needed to ensure that these allotments are meeting or making significant progress towards meeting the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Oregon and Washington, the Terms and Conditions for the grazing leases could be modified before the expiration of the term.

Cumulative Effects

The cumulative impacts would be the same as described for Alternative 1.

3.4 Botany

3.4.1 Definitions

Annual: A plant that completes its life cycle in 1 year. Annuals are said to go from seed to seed in 1 year or growing season. During this period, they grow, mature, bloom, produce seeds, and die.

Mycelium: The mass of threadlike filaments constituting the vegetative body of a fungus.

Perennial: A plant that live more than 2 years.

3.4.2 Summary

- Reissuing the 10-year grazing permit for the Flat Creek Allotment under either Alternative 1 or 2 would be "no **affect"** to T&E plants because the allotment is outside the ranges of the three T&E plant species that occur in the Butte Falls Resource Area and no sites have been documented there.
- Reissuing the 10-year grazing permits for all pastures in the Summit Prairie Allotment under either Alternative 1 or 2 would be "no affect" to the Federal Endangered species *Limnanthes floccosa* ssp. *grandiflora* and *Lomatium cookii* because the pastures are outside the ranges of the species and no sites have been documented in them.
- Reissuing the 10-year grazing permits under either Alternative 1 or 2 for the McNeil Creek, Perry School, Ginger Creek, Parsnip Creek, Elk, Fredenburg, Round Mountain, Parsnip Creek, and Carney Pastures in the Summit Prairie Allotment would be "no affect" to the Federal Endangered species *Fritillari gentneri* either because they are outside the range or all suitable habitat has been surveyed and no sites have been documented in the pastures.
- Reissuing the 10-year grazing permits for the Rocky Flat, Poverty Flat, and Mule Creek Pastures in the Summit Prairie Allotment "**may affect**, but would **not likely adversely affect**" the Federal Endangered species *Fritillaria gentneri*. Suitable habitat has been surveyed, sites are monitored yearly, and no impacts have been observed due to livestock or grazing. If impacts are detected, mitigation measures would be implemented to protect plants and habitat.
- Reissuing 10-year grazing permits under Alternatives 1 or 2 in the Flat Creek and Summit Prairie Allotments would not trend Sensitive vascular or nonvascular plant species toward listing because they have not been impacted by livestock or grazing or because other populations are protected outside the allotments. If monitoring detects impacts from livestock or grazing, mitigation measures would be implemented.
- Reissuing the 10-year grazing permits under either Alternative 1 or 2 in the Flat Creek and Summit Prairie Allotments would not trend Sensitive fungi toward listing because they are not in fruit when livestock are present and because they occur in forested stands which livestock do not frequent.

3.4.3 Introduction

Special Status plants include Federal Threatened and Endangered (T&E) and Bureau Sensitive vascular plants, lichens, bryophytes, and fungi. The BLM's policy is to conserve, manage, and protect T&E and Sensitive plants and their habitats and ensure that actions authorized on BLM-administered lands do not contribute to the need to list any Special Status species under the provisions of the Endangered Species Act (USDI 2008b; USDI 1995a, p. 50-53).

Areas of Critical Environmental Concern (ACEC) are areas of BLM-administered lands where special management attention is needed to protect and prevent irreparable damage to important historic, cultural or scenic values, fish and wildlife resources or other natural systems or processes; or to protect life and provide safety from natural hazards (USDI 1995a, p. 101).

3.4.4 Methodology

The analysis area for Special Status plants in this EA encompasses the Flat Creek and Summit Prairie Allotments. The project botanist considers the effects of the proposed actions on Special Status plants occurring on BLM-administered lands only in each allotment, but takes into consideration the location and number of populations outside the allotments when assessing the cumulative effects of grazing on the species across their ranges. The BLM does not conduct surveys on private lands and the presence of Special Status plants on private lands is not known or considered in this EA.

3.4.4.1 Botanical Surveys

Threatened and Endangered Plants

To comply with the programmatic consultation with the U.S. Fish and Wildlife Service for T&E plants, the BLM conducts surveys within the range of T&E plants in suitable habitat prior to authorization of livestock grazing (USDI 2008d, p. 7; USDI 2008c, p. 27). The Flat Creek Allotment is entirely outside the range of all T&E plants. Approximately half of the Summit Prairie Allotment lies within the range of the Endangered plant Fritillaria gentneri, although not all of that area contains suitable habitat (see Affected Environment/T&E Plants for a description of suitable habitat). The BLM is required to conduct 2-year surveys within a 10-year period for Decision Records signed after September 30, 2009. Decision Records signed before September 30, 2009 require only 1 survey within a 10-year period.

Bureau Sensitive Plants

The Medford District RMP gives management direction to conduct field surveys for Special Status plant species prior to management activities to determine if species are present or if habitat would be affected (USDI 1995a, 51). Funding has not been available to survey all acres of the allotments. Therefore, the project botanist used a stratified approach to prioritize areas for surveys:

1. Suitable habitat for T&E species within the range of those species
2. Areas expected to receive the highest use by livestock
   - Meadows or grasslands
   - Oak woodlands

- Chaparral
- Riparian areas

3. Conifer forests and woodlands

The BLM has surveyed all areas in suitable habitat for T&E species and many areas expected to receive the most use by livestock. In addition to the surveys that focused on specific areas of the allotments, botanical surveys over the last 15 years in both allotments have sampled a variety of plant communities, including all seral stages of conifer stands, oak woodlands, chaparral stands, wet meadows, and riparian areas. Those surveys were conducted prior to timber sale, fuels reduction, and silviculture projects. All surveys are conducted by qualified botanists and have followed applicable protocols in place at the time the surveys were completed.

The BLM does not require predisturbance surveys for Special Status fungi (USDI 2004, Attachment 5, p. 1-2) because they fruit irregularly and are difficult to identify. Landscape-level strategic surveys and sampling were developed to gather information about the distribution and extent of Special Status fungi. Some areas in the allotments were surveyed for fungi in the past prior to timber sales. Fungi on the current 2009 Special Status Species list discovered during those surveys and can be located again are considered known sites and impacts from livestock grazing on those sites would be considered in this EA.

Flat Creek Allotment

The Flat Creek Allotment contains 25,668 acres, of which 12,066 acres are managed by the BLM. Approximately 7,955 acres (66 percent) of BLM-administered lands have been surveyed for vascular Special Status plants and approximately 800 acres (7 percent) for nonvascular Special Status plants.

Summit Prairie Allotment

The Summit Prairie Allotment contains 91,220 acres, of which 30,579 acres are managed by the BLM. Approximately 17,660 acres (58 percent) of BLM-administered lands in the Summit Prairie Allotment have been surveyed for Special Status vascular plants and approximately 13,000 acres (43 percent) have been surveyed for Special Status nonvascular plants. All suitable habitat for *Fritillaria gentneri* has been surveyed within the last 10 years.

3.4.4.2 Livestock Use and Impacts to Botanical Resources

Impacts to Special Status plant sites and habitats from livestock and grazing have been recorded based on observations during the past several years in the allotments. However, grazing use in the allotments has not occurred at the fully authorized levels. In Environmental Consequences discussions for specific sites, the actual use of the allotment or pasture is given, based on the number of AUMs turned-out from 2000 to 2008. All cows are not always turned-out or removed at the same time, so the numbers do not in all cases reflect use for the entire season, but the highest number turned-out during that season. In both cases, potential impacts to sites and habitat could be greater than those observed when the site visits occurred.

3.4.5 Assumptions

- There are no legal directives for protecting T&E or Special Status plants on private lands. We assume private lands do not contribute suitable habitat or protection for T&E or Special Status plants although suitable habitat exists on private lands and Special Status plants may occur there.
- If future monitoring in the Flat Creek or Summit Prairie Allotments discovers grazing is negatively impacting Special Status plant sites, the BLM can make changes to the permit to mitigate those impacts. Mitigation measures may include, but are not limited to, fence construction, changing season-of-use, modifying livestock numbers, modifying turn-out locations, or constructing new improvements to protect Special Status plant populations.
- Not all areas of the allotments have been surveyed for Special Status plants. It is likely they contain additional unknown populations that may be impacted by livestock or grazing. We assume if there are additional sites, potential impacts from livestock or grazing would be similar to the effects described in Environmental Consequences.
- Short-term effects occur within the first 5 years of an event. Long-term effects occur more than 5 years after an event.

3.4.6 Affected Environment

3.4.6.1 Flat Creek Allotment

General Description

The Flat Creek Allotment lies in the Elk Creek fifth field watershed, located in the western Cascade ecoregion. Elevation ranges from 1,760 feet along Elk Creek to 4,600 feet at Timbered Rock along the Rogue/Umpqua Divide. The allotment lies entirely within the perimeter of the 2002 Timbered Rock Fire which burned at mixed severity. Ownership is checkerboard with the majority of private lands owned by timber companies. The main branch of Elk Creek forms the east boundary of the allotment and the West Branch of Elk Creek forms the western boundary. Tributaries of the main and west branches of Elk Creek drain to the east and the west, bisecting the drainage and creating steep slopes throughout the allotment. Volcanic rock outcrops with sheer rock faces are scattered across the landscape and also contribute to the steep topography.

Approximately 95 percent of BLM-administered lands in the allotment are conifer forest communities, with the remainder being rock outcrops and oak woodlands. Although the BLM does not have plant community and seral stage information for private lands, a review of aerial photographs and observations during field trips indicates that private lands are also primarily forest communities. Conifer stands are in the white fir, Douglas-fir, and ponderosa pine series. All seral stages are represented. Stands that burned at high severity in the Timbered Rock Fire are currently dense with impenetrable layers of brush and conifer seedlings. Only about 4 percent of BLM-administered lands in the allotment contain oak woodlands. These are located at the lowest elevations of the watershed along the main drainages. The overstory in the oak woodlands consists of various ages and densities of Oregon white oak, Douglas-fir, ponderosa pine, and incense cedar. Understory shrubs include poison oak, tall Oregon grape, wedgeleaf ceanothus (buckbrush), and baldhip rose (USDI 2003a, p. 3-97). Some oak woodlands are more open, with scattered oak trees and an understory of grasses and herbaceous vegetation. Over time the herbaceous vegetation in these meadows has transitioned from predominantly native

bunchgrasses and forbs to being dominated by nonnative grasses and forbs, including noxious weeds. Medusahead, hedgehog dogtail, nonnative bromes, and yellow star-thistle are especially prevalent on the dry, south- and east-facing slopes along the main branch of Elk Creek and Elk Creek Road.

The combination of steep slopes, volcanic rock outcrops, and dense post-fire vegetation creates a barrier to livestock for accessing the interior of the allotment. As a result, livestock congregate along roads, riparian areas, and in the oak woodlands where access is easier and forage is available. Past grazing surveys have found that livestock congregate predominantly along Elk Creek and the tributaries of Elk Creek, including Sugar Pine, Hawk, Jones, Flat, Middle, and Alco creeks (USDI 1998c, p. 1). The areas of most concern for livestock use that were identified in this allotment are the bottomlands of Elk Creek, most of which is owned by the U.S. Army Corps of Engineers, and Sugar Pine Creek.

Threatened and Endangered (T&E) Plants

Three Federal Endangered plants have their ranges within the Butte Falls Resource Area - Fritillaria gentneri, Limnanthes floccosa ssp grandiflora and Lomatium cookii. The Flat Creek Allotment is completely outside the ranges all three species. It contains suitable habitats for Fritillaria gentneri, some of which the BLM has surveyed in the last 10 years for various projects, but no sites have been discovered to date.

Bureau Sensitive Plants

Four Sensitive vascular plant species (22 sites total) occur in the Flat Creek Allotment (see Appendix B, Botany for species and habitat descriptions). Most of the sites were discovered during surveys in 2003 and 2004 after the 2002 Timbered Rock Fire. At that time, no impacts from grazing were observed; however, the allotment was rested from grazing for two years following the fire and cows were not released again until 2006. The populations have not been monitored for impacts since grazing resumed in the allotment.

3.4.6.2 Summit Prairie Allotment

General Description

The Summit Prairie Allotment is located on the western slopes of the Cascade Range. Elevation ranges from 1,840 feet on the western side of the allotment to 4,960 feet at Round Mountain, in the north central part of the allotment. The allotment is divided into 11 pastures. Ownership is checkerboard with private lands including commercial timber land and individual farms and ranches. The major landforms in the allotment are the mountains east of Lost Creek Lake, much of the Big Butte Creek drainage, the flats east of the Butte Falls-Prospect Road, and some of the mountains south of Butte Falls.

The area contains a broad mix of plant communities, including forested associations, riparian zones, wet riparian meadows, oak woodlands, chaparral stands, Oregon ash thickets, and dry scablands. Stands at the lower elevations and southerly-facing aspects are in drier Douglas-fir and Douglas-fir/ponderosa pine plant associations. Northerly-facing stands and stands at higher elevations are in moister Douglas-fir and Douglas-fir/white fir plant associations.

In the Summit Prairie Allotment, livestock mainly use meadows, roadsides, riparian areas, and areas around ponds and lakes. Areas identified multiple times in the past as receiving the most livestock use are the grassy flats, wet meadows, and riparian areas around the Butte Falls-Prospect Road. Specific

areas include Beaver Dam, Parsnip, North Fork Big Butte, and Jackass creeks. The wet meadows along these streams, which contain perennial grasses, forbs, and riparian shrubs, are unique in the Butte Falls Resource Area. The majority of grassy openings in the resource area are rocky with shallow soils on gentle to steep slopes and containing predominantly annual nonnative grasses. The wet meadows northeast of Butte Falls have deeper soils and often high water tables. Historically they contained native grasses, rushes, sedges, and riparian shrubs. The BLM has fenced a section of Beaver Dam Creek to protect stream banks and vegetation. A comparison of the vegetation inside and outside the exclosures indicates the ungrazed areas contain a larger complement of native plants and higher sedge diversity than the grazed areas outside the exclosures. A sedge inventory of meadows around Beaver Dam and Parsnip Creeks found the grazed areas contain more weedy herbaceous species; rare or uncommon species were only found in ungrazed or lightly grazed areas (Carex Working Group 2001, p. 7-8).

Threatened and Endangered Plants

The Summit Prairie Allotment is outside the ranges of Limnanthes floccosa ssp grandiflora and Lomatium cookii, but about one-third of the allotment lies within the range of Fritillaria gentneri.

Fritillaria gentneri (Gentner's fritillary) blooms in April and May in the foothills of the Rogue and Illinois River valleys at elevations between 1,004 and 5,064 feet. It is found within or at the edges of white oak woodlands and chaparral stands, and at the edges between these habitats and dry mixed hardwood-conifer stands. Fritillaria gentneri plants often grow underneath shrubs, which protect them from wind, sun, and browsing by livestock or wildlife. They do not grow in fully exposed or extremely dry sites. Reproduction is mainly asexual via bulblets that develop on the mother bulb, break off, and produce new plants. Sexual reproduction occurs irregularly and seed viability may be low (USDI 2003b, p. 10).

The BLM has surveyed all suitable Fritillaria gentneri habitat within the Summit Prairie Allotment. Surveys focused on meadows, oak woodlands and savannas, and chaparral, as well as adjacent mixed hardwood-conifer stands. The BLM has discovered 13 *Fritillaria gentneri* populations in the allotment to date: 2 in the Poverty Flat Pasture, 10 in the Rocky Flat Pasture, and 1 in the Mule Creek Pasture. Plants at these sites bloom between late April and mid-May. The BLM annually monitors these sites to count flowering plants and to detect threats from cattle grazing or other activities. There has been no evidence of impacts from cattle to the habitat or the plants at any of the populations to date; however, livestock use in the Poverty Flat and Rocky Flat Pastures over the last 9 years has only been an average of 9 to 18 percent of the fully authorized AUMs. Use in the Mule Creek Pasture has averaged 122 percent of the authorized AUMs, although the *Fritillaria gentneri* site in that pasture is not likely to be accessed by livestock due to its location.

Bureau Sensitive Plants

The BLM has documented 11 Special Status plant and fungi species (66 sites total) in the Summit Prairie Allotment (see Appendix B, Botany, for species and habitat descriptions).

Area of Critical Environmental Concern

One special area is located within the Summit Prairie Allotment. The Poverty Flat Area of Critical Environmental Concern (ACEC) is located in section 31, Township 34 South, Range 2 East. It was designated an ACEC to protect the vernal pool habitat and Special Status plants that grow there.

The BLM and The Nature Conservancy jointly manage the ACEC, although it is located on BLM-administered lands. The ACEC was fenced by The Nature Conservancy to keep cows out of the vernal pools and to prevent them from damaging plants and bringing in noxious weeds.

3.4.7 Environmental Consequences

See Table B-1 in Appendix B, Botany, for a determination of which Special Status plant species are vulnerable to impacts from livestock or grazing.

3.4.7.1 Effects Common to Both Alternatives

Direct and Indirect Effects

Areas most used by livestock are meadows, oak woodlands, and riparian areas. Special Status plants associated with these habitats, especially species with few sites or few plants per site, would be most at risk from browsing or trampling impacts. Annuals are especially vulnerable to browsing if the plants are eaten before they complete their reproductive cycle and drop seed. However, seed may be present in the soil for several years and populations would only decrease over the long-term if the site was heavily browsed year after year. Perennial species and species that reproduce asexually are less likely to be impacted by browsing because they do not totally depend on flowering and dropping seed in order to return the following year, although population vigor could decline over the long-term if there was no new recruitment.

Special Status plants that grow in riparian areas and wet meadows are at risk from trampling because cattle tend to congregate in those areas and soil is most disturbed and compacted when it is wet. Occasional trampling of plants would not be likely to adversely affect a population. But if persistent heavy trampling occurs at Special Status plant sites, plants could be destroyed, flowers would not set seed, and the populations could eventually be destroyed, especially if population numbers are few.

Impacts from livestock to Special Status plant species found in conifer forests would be negligible because cattle do not congregate in forested areas. They pass through forest stands on their way to streams or areas containing more forage or they bed down within forest stand edges in the shade of conifer trees. Cattle are habitual and tend to travel the same paths and congregate in the same areas. They could potentially disturb terrestrial vascular or nonvascular plants or fungi along those trails. However, the amount of area impacted by trails is very small relative to the total number of acres in the allotments. Cow trails in forested areas, although wider than those created by elk and deer, are fewer in number and account for less area than those created by wildlife. The possibility of Special Status plants being present or impacted on those cow trails is small (see also the discussion about the bryophyte *Tayloria serrata* below).

Special Status species that grow on rock outcrops, including lichens, bryophytes, and vascular plants, are not at risk from direct or indirect effects from livestock or grazing because they are inaccessible to cows.

Grazing could indirectly contribute to the introduction or spread of noxious weeds, which could negatively impact Special Status plants by competing with them for water, light, and soil nutrients. Livestock could transport weed seed on their hooves or hair or in their feces from existing populations to unoccupied areas.

Repeated heavy grazing of a site could result in an increase in noxious weeds. Livestock preferentially select native grasses to graze over noxious weeds, which often have spines or are unpalatable in other ways. When native grasses are grazed close to the ground, the surrounding areas are opened up to invasion by noxious weeds, whose reproductive strategies facilitate rapid establishment. The risk of Special Status populations being impacted by noxious weeds as a result of grazing would only occur if a noxious weed seed source occurred in proximity to sites and if grazing was heavy at that location.

Special Status species susceptible to the threat of encroachment by noxious weeds as a result of grazing are those that grow in habitats containing grasses or other desirable forage for livestock, e.g. meadows, chaparral, oak woodlands, mixed hardwood-conifer forested stands, riparian areas, and along roads. All vascular plants identified in Table B-1 in Appendix B and the bryophyte Meesia uliginosa could potentially be impacted by noxious weeds. However, the risk of this occurring as a result of grazing is low because of their rarity and the relatively few livestock per acre spread across the allotments. In addition, the BLM's ongoing program of noxious weed documentation and treatment would reduce this risk.

Fungi

No direct impacts to Special Status Sensitive fungi would occur because they fruit in late fall and early spring when cattle are not in the allotments. In theory, fungi could be impacted during the summer months when the fruiting bodies are not present if cattle disturb the duff where their mycelia occur. The mycelial network could be broken or exposed, which could result in reduced fruiting capacity. However, this risk is very small because the cattle are dispersed over many acres and do not regularly frequent or use forest habitats where Sensitive fungi grow. For these reasons, grazing would not contribute additional effects to Sensitive fungi that would cause them to trend toward listing.

Areas of Critical Environmental Concern

The Poverty Flat ACEC is fenced to protect the vernal pool habitat and *Limnanthes floccosa* ssp. *bellingeriana* populations that occur there. Therefore, grazing would not result in direct, indirect, or cumulative effects to the ACEC located in the Perry School Pasture within the Summit Prairie Allotment.

3.4.7.2 Effects of Alternative 1 (No Action) on Botany

Under Alternative 1, the BLM would renew the 10-year grazing permits for the Flat Creek and Summit Prairie Allotments with their existing terms and conditions.

Direct and Indirect Effects

Flat Creek Allotment

Grazing in the Flat Creek Allotment was suspended for 2 years following the Timbered Rock Fire in 2002. The allotment was not grazed in 2004 or 2006 and use was at 100 percent in 2007 and 2008. Most of the sites documented in the allotment were discovered during post-fire surveys in 2003 and 2004 and the information about the condition of the populations and their habitats was collected during that rest period. The sites have not been monitored since grazing has resumed. Potential impacts to the sites in this allotment are based on knowledge about the species, their locations in the allotment, and conjecture about possible effects from livestock. The fact that Special Status plant populations were discovered after a catastrophic fire and after livestock grazing indicates they are able to withstand some level of disturbance.

Threatened and Endangered Plants: Reissuing the 10-year grazing permit in the Flat Creek Allotment with existing Terms and Conditions would have "no affect" on the three T&E plants that occur in the Butte Falls Resource Area (*Limnanthes floccosa* ssp *grandiflora*, *Lomatium cookii*, and *Fritillaria gentneri*). The allotment is outside their ranges and no populations have been documented in the allotment.

Bureau Sensitive Plants: See Appendix B for a list and description of Special Status plant species documented in the Flat Creek Allotment and an assessment of the vulnerability of those species to livestock and grazing. The BLM botanist determined all four Special Status species that have been documented in the allotment were identified as potentially vulnerable – *Carex serratodens*, *Cimicifuga elata*, *Illiamna latibracteata*, and *Solanum parishii*.

One population of *Carex serratodens* (sawtooth sedge) is growing in a ditch beside a road, which makes it vulnerable to browsing or trampling by cows. Cows use roadside vegetation for forage because of the steepness of most of the terrain in the allotment. Because perennial sedges grow in areas that remain wet throughout the year, this site would support green vegetation, including the sedge, which livestock are drawn to during the dry summer months. When documented in 2008, the sedge population consisted of only 10 plants. The surveyor documented no livestock impacts to the population. Potential direct impacts from livestock are browsing leaves and flowers. Perennial plants may survive one or two seasons of browsing and trampling. If continued over time, however, the population would decline because plants would have diminished opportunities for food production through photosynthesis and reproduction through seed production.

Only a small portion of the *Cimicifuga elata* (tall bugbane) population in the Flat Creek Allotment is located on BLM-administered land; the rest is on adjacent Forest Service land, which is not fenced to exclude cattle. The population covers roughly 30 acres on both Forest Service and BLM lands and contains hundreds of plants. The site is on moderate to very steep slopes in a forested stand with a semi-open canopy and abundant grasses and forbs in the understory. The grasses would attract cattle, but the steepness of the slopes may deter them. Tall bugbane grows to 7.5 feet tall, although the plants in the Flat Creek Allotment average around 4 feet tall. Populations of this species in the Ashland Resource Area have been browsed heavily in the past (Tong 2009). Plants could be directly impacted by browsing or trampling, although BLM contractors and BLM and Forest Service botanists have not reported impacts to the site from livestock or observed livestock at the site during several visits between 2002 and 2004. Even if some plants in the population are impacted by livestock, the population, including the portion on the Forest Service, is so large that not all plants would be impacted. Monitoring studies conducted of tall bugbane populations throughout Oregon concluded the species is stable across its range (Kaye 2000, p. 21).

Nine of the ten sites of *Illiamna latibracteata* (California globe mallow) in the Flat Creek Allotment are located along the Rogue-Umpqua Divide. Eight of the ten sites are situated in the interior of units that burned in the Timbered Rock Fire and are currently early seral conifer stands with a dense understory of resprouting hardwoods and shrubs. The topography is steep, creating difficult access, and there is little forage that would attract livestock. Two sites are located near roads. One is on a cut bank above the road and the other is on a very steep, brushy slope below the road. Only one plant was observed at each of the road side populations, but other populations located in the interior of units contain hundreds of plants. The palatability of this species to livestock is unknown. Although livestock could potentially directly impact plants by browsing or trampling, this is unlikely because the sites are inaccessible and the species grows in forest habitats that contain little to no desirable forage. While this species could be vulnerable to impacts by livestock, the populations in the Flat Creek Allotment are protected from these impacts.

Of the 10 *Solanum parishii* (Parish's nightshade) sites located in the Flat Creek Allotment, only 3 would be accessible to livestock or contain vegetation that may attract them. When the populations were documented, 2 of the populations contained 15 plants and 1 contained 43 plants. The other seven populations are located on steep slopes or in brushy early seral conifer stands where access would be difficult and where no vegetation exists that would attract cows. The palatability of Parish's nightshade to cows is not known, but many other nightshade species are toxic (Whitson et al. 2004, p. 564-579). Therefore, the risk of browsing for this species is probably low. Plants could be trampled, however, when cows are grazing on other vegetation.

Summit Prairie Allotment

Of the 11 Special Status plants and fungi that have been documented in the Summit Prairie Allotment, 1 Federal endangered species – *Fritillaria gentneri* – and five Sensitive species – *Limnanthes floccosa* ssp. *bellingeriana*, *Meesia uliginosa*, *Plagioborthrys greenei*, Ranunculus austro-oreganus, and *Tayloria serrata* – were identified as potentially vulnerable to impacts from livestock or grazing (Table B-1, Appendix B, Botany).

Threatened and Endangered Plants: Reissuing the grazing permit for the Summit Prairie Allotment under Alternative 1 would have "no affect" on the Federal endangered plants *Limnanthes floccosa* ssp *grandiflora* or *Lomatium cookii* because the allotment is outside their ranges and no populations have been documented there.

The BLM has documented 13 *Fritillaria gentneri* sites in the Poverty Flat, Rocky Flat, and Mule Creek Pastures of the Summit Prairie Allotment. The season-of-use for the Mule Creek Pasture is June 1 to September 30, which is after *Fritillaria gentneri* blooms and sets seed. The seasons-of-use for the Poverty Flat and Rocky Flat Pastures are April 15 to May 31, which is the same time *Fritillaria gentneri* blooms. Poverty Flat is grazed in even years, while Rocky Flat is grazed in odd years. Potential direct effects to this species from livestock could include browsing and trampling while it is in bloom and prior to seed set. Because sexual reproduction involving the flowers occurs irregularly, some browsing of flowers is not likely to affect a population over the short-term as the bulbs would remain protected underground. However, persistent browsing of flowers could limit the potential for sexual reproduction, which is the primary avenue for maintaining genetic variability within and between populations. Losing genetic diversity could reduce a population's ability to adapt to environmental changes or other impacts over time. Persistent browsing of leaves could negatively impact plants by reducing the amount of photosynthesis that occurs in a season. Photosynthesis provides the primary source of food to the plants and the bulbs. Reducing this function would decrease plant vigor and, over the long-term, would result in a decline in the population numbers. However, because cattle graze on grasses low to the ground, they would not likely eat this species, which is 1.5 to 3 feet tall. Deer, on the other hand, have a preference for Fritillaria and are likely responsible for browsing *Fritillaria gentneri*.

Livestock could trample plants, which could hinder flowering and sexual reproduction. If a population is continually impacted year after year, especially a population with few plants, it could eventually suffer reduced vigor or viability or be extirpated.

The 2008 programmatic consultation with USFWS includes the following mandatory project design criteria for grazing (USDI 2008d; USDI BLM 2008c, p. 27):

- Surveying suitable habitat prior to renewing 10-year grazing authorizations, identifying *Fritillaria gentneri* sites, and implementing protection measures if use is occurring.
- Monitoring known sites to determine if use is occurring and if protection is needed.

The BLM surveyed *Fritillaria gentneri* suitable habitat in the Summit Prairie Allotment within the last 10 years. All *Fritillaria gentneri* sites in the Summit Prairie Allotment are monitored annually to count flowering plants and detect impacts to plants or surrounding habitat. If additional sites are discovered, they would also be monitored. None of the sites in the allotment currently shows evidence of cattle use. Some plants are caged to protect them against browsing by wildlife, which would also protect them from impacts from livestock. However, livestock have only grazed on Poverty Flat Pasture for 2 of the last 9 years and only at 18 percent of the fully authorized AUMs. Rocky Flat pasture has only been used 3 of the last 9 years and only at an average of 9 percent of the authorized AUMs. Therefore, monitoring observations of livestock use in those pastures and impacts to populations do not reflect potential use. If future monitoring reveals sites need protection, the sites would be fenced or the turn-out dates would be changed. Reissuing the 10-year grazing permits for the Poverty Flat, Rocky Flat, and Mule Creek Pastures of the Summit Prairie Allotment "may affect, but would not likely adversely affect" *Fritillaria gentneri*. Reissuing the 10-year permit in the other pastures in the Summit Prairie Allotment would be "no affect" to *Fritillaria gentneri* as no sites occur in those pastures.

Bureau Sensitive Plants: All three Sensitive vascular plants in the Summit Prairie Allotment that could be impacted by grazing are spring-blooming annuals. *Limnanthes floccosa* ssp. *bellingeriana* and *Plagiobothrys greenei* grow in vernally wet, rocky meadows and *Ranunculus austro-oreganus* grows in oak woodlands. One characteristic of annuals that makes them difficult to monitor and determine effects is that their numbers fluctuate annually, depending on the amount of rainfall and other conditions that may affect their germination, flowering, and seed production. Pinpointing grazing or another activity as the main cause of a population's decline is difficult.

One of the 18 sites of *Limnanthes floccosa* ssp. *bellingeriana* in the Summit Prairie Allotment is located in the Ginger Creek Pasture where the season-of-use is June 1 to July 31. Because this species blooms and sets seed in April and May, this site is less vulnerable to impacts than the other 17 sites located in the Rocky Flat, Poverty Flat, and Perry School Pastures where the season-of-use is April 16 to May 31. Two sites in the Perry School Pasture are protected from grazing impacts in the Poverty Flat ACEC, which is fenced to exclude cows.

The meadows where *Limnanthes floccosa* ssp. *bellingeriana* and *Plagiobothrys greenei* grow are not meadows in the traditional sense. Soils are shallow clay, littered with volcanic cobbles. Wedgeleaf ceanothus shrubs are scattered or in dense patches. Rainfall and snow melt pool in the shallow areas between cobbles. The water does not quickly infiltrate because of the low permeability of clay soils and volcanic rock. Native annual forbs bloom in the spring and nonnative annual grasses and native forbs take over in the hotter summer months. Grasses are generally brown by July.

Potential direct effects to *Limnanthes floccosa* ssp. *bellingeriana* from livestock or grazing include browsing or trampling. Populations could also be indirectly affected by changes to hydrology as a result of livestock trampling. Because the soil is seasonally wet and soils are predominantly clay, hoof indentations compact soil which hardens after the water evaporates or runs off. This could result in changes in water flow at the microsite level that would negatively impact these annual species that are adapted to moist conditions. However, some seeds would likely fall into places with favorable

conditions and would bloom in subsequent years. Seed may be present in the soil for several years; therefore, populations would only decrease over the long-term if the site was heavily browsed or trampled year after year.

When *Limnanthes floccosa* ssp. *bellingeriana* sites were documented, only three showed evidence of grazing or trampling, but plants did not appear to be impacted. However, grazing use in all four pastures over the last nine years has not been at the fully authorized AUMs. Use in the Ginger Creek Pasture has been at an average of 89 percent of the fully authorized AUMs for 8 years with 1 year of nonuse. The Perry School Pasture has had no use for the last 9 years. Use in the Poverty Flat Pasture was at 18 percent of the fully authorized AUMs for 2 years with 7 years of nonuse. Use in the Rocky Flat Pasture was at 9 percent of the fully authorized AUMs for 3 years with 6 years of nonuse. If the pastures are grazed at their fully authorized rates, impacts to the populations would be greater than those observed during the last nine years.

The *Plagiobothrys greenei* site is located in a spring pasture, Rocky Flat. The population of around 50 plants is located in a rocky meadow on a steep slope. The palatability of *Plagiobothrys greenei* is unknown. However, grasses are beginning to grow when it is in bloom and livestock could browse it along with other vegetation. They could also damage plants by trampling. Potential indirect effects include changes in hydrology from trampling that would negatively impact the population by reducing regeneration. When the *Plagiobothrys greenei* site was originally documented, no grazing impacts were observed. However, usage in the Rocky Flat Pasture has only been at 9 percent of the fully authorized AUM rate for 3 of the last 9 years, with nonuse for 6 years.

Three sites of *Ranunculus austro-oreganus* have been documented in the Rocky Flat Pasture. When the surveyors documented the sites, they noted the area was heavily grazed, but the populations appeared to be withstanding grazing pressure. Because buttercup species are toxic to livestock, it is unlikely they graze this species. However, livestock could impact them through trampling. In the last 9 years, use in the Rocky Flat Pasture has only been at an average of 9 percent of the fully authorized AUMs for 3 years with 6 years of nonuse. If used at the fully authorized rate, impacts to the populations would be greater than those observed during the last 9 years.

The BLM has documented 13 populations of the bryophyte *Tayloria serrata* along the eastern portion of the Summit Prairie Allotment: one population is in Ginger Creek Pasture, five are in the Mule Creek Pasture, and seven are in the Parsnip Creek Pasture. This species grows on dung, dung-enriched soil, or peat. The substrate at all but two sites is cow dung; the substrate at the other two sites is coyote dung. All sites are in semi-shaded conifer stands adjacent to open grassy meadows or along roads. Populations are ephemeral and disappear when substrate disappears. New populations are created when spores are carried by flies from mature bryophyte capsules to unoccupied suitable substrate. The presence of cattle in the area has likely contributed to the occurrence and maintenance of this species in the Summit Prairie Allotment. While removing livestock would mean less potential substrate for the moss, it is also possible that populations could diminish with heavy use. At this time, none of the sites in the Summit Prairie Allotment show evidence of negative impacts from cattle. Grazing use in the Ginger Creek Pasture has been at an average of 89 percent with only 1 year of nonuse; use in the Mule Creek Pasture has been at an average of 120 percent over the last 9 years; and use in the Parsnip Creek Pasture has been at an average of 75 percent of the authorized AUMs over the last 7 years. An assessment of impacts at the populations in Ginger Creek, Mule Creek, and Parsnip Creek Pastures is probably accurate; an increase in use to the fully authorized rates would not be a large increase in impacts.

Meesia uliginosa is a moss with only two occurrences in the Medford District, both in perennially wet meadows in the McNeil Creek Pasture of the Summit Prairie Allotment. Because it grows in areas where the grasses, sedges, and rushes remain green throughout the summer months and the surrounding grasses are dead, it is potentially vulnerable to trampling by cattle. At this time, these two sites do not appear to be impacted by cattle. However, the McNeil Creek pasture has only been used at an average of 27 percent of its fully authorized AUMs for 4 of the last 9 years, with nonuse for the other 5 years. If future monitoring reveals impacts to the populations, the BLM would implement mitigation measures to protect them.

Native Plant Communities: Cattle's preference for native perennial bunchgrasses over nonnative annual grasses could lead to a decrease in native species, an increase in nonnatives, and overall reduced plant diversity in meadows and open woodlands. Plants that grow in wet meadows or vernal pools are especially vulnerable to changes in soil or hydrology that could result from livestock trampling. An inventory of some of the wet meadows along Beaver Dam Creek in the Parsnip Creek Pasture reported that some areas were especially impacted by livestock (Carex Working Group 2001). The water table is high in the meadows along the stream and the area is semi-marshy. In some years and at some times of the year, BLM specialists have observed the grasses were heavily grazed. The marshy meadow is covered with hoof indentations from cows and possibly elk. The BLM has constructed fence along portions of the creek to allow vegetation to recover along the stream and protect banks from further degradation. Vegetation along these stretches has recovered and banks have become more stabilized. Continued grazing in the unfenced meadows when wet would likely result in reduced overall species diversity and an increase in nonnative species.

Cumulative Effects

Past activities that may have affected Special Status plants in the Flat Creek Allotment include Euro-American settlement, agriculture, development, road construction, grazing, logging, dam construction, high severity fires outside the range of natural variability, fire suppression, and recreational activities. Most of the Special Status plant sites in the allotment were discovered after the Timbered Rock Fire in 2002. Past activities that may have affected Special Status plants in the Summit Prairie Allotment include agriculture, development, road construction, grazing, logging, high severity fires outside the range of natural variability, fire suppression, and recreational activities. Special Status plants may have been directly impacted and the extent and quality of their habitats reduced. Data are not available for the historic number or condition of these species and their populations, which makes it difficult to evaluate the long-term effects of grazing on them. Natural plant communities and species composition have been altered in many cases. Nonnative and noxious weeds introduced from other areas have outcompeted native vegetation. The grasslands and oak woodlands at the lower elevations have been especially impacted. Native perennial bunchgrasses have been replaced by annual nonnative grasses. Nonnative annuals provide less desirable and less valuable forage for both native ungulates and livestock. While the BLM and many private landowners adjacent to BLM-administered lands implement weed control measures, it is impossible to completely control and prevent infestations of nonnative plants on BLM land.

It is expected that activities that could impact Special Status plants and native plant habitats will continue in the future on both private and public lands in the allotments. While Special Status plants do not receive protection on private lands, they are protected on BLM-administered lands, according to BLM policy and Federal regulations. The BLM will continue to survey for them prior to planned activities and when discovered will protect populations from potential impacts of those activities.

When considering possible cumulative effects of livestock grazing on plant populations, it is necessary to recognize that even though a population may be grazed one year and negatively impacted over the short-term, it does not mean it will be grazed every year. Populations most likely to be negatively impacted over the long-term are sites livestock visit every year and sites intensely grazed. Four of the pastures in the Summit Prairie Allotment – Rocky Flat, Poverty Flat, McNeil, and Perry School – are grazed every other year, which gives vegetation a chance to recover between grazing.

It also must be recognized that although these allotments have been grazed in the past and at times have been more intensively grazed, Special Status plant sites have still been discovered. At this time there is no evidence Special Status plant sites are being impacted to the extent that would cause the populations to be extirpated, although only *Fritillaria gentneri* populations are regularly monitored. Added to past, present, and foreseeable future activities in the Flat Creek and Summit Prairie Allotments, the current level of grazing would not contribute additional cumulative effects to the Special Status plants that occur there because existing populations are not being impacted and other populations outside the allotment are secure. Grazing would not result in the need to list the Sensitive species that occur in the allotment. Yearly monitoring of *Fritillaria gentneri* sites and implementing mitigation measures, if needed, would prevent grazing from contributing additional effects to T&E plants.

If grazing intensity increases in specific areas, it could lead to an increase in nonnative or noxious weeds in those areas, which could negatively impact Special Status plants or native plant habitats. However, it is not possible to quantify with any degree of confidence the amount or to distinguish it from the background risk of introduction from ongoing activities in the project area. Ongoing noxious weed inventories and treatments in the Project Area would reduce the risk that grazing would result in an increase in noxious weeds. Priority is given to treating noxious weeds around Special Status plant sites.

Under Alternative 1, grazing would continue in the meadows along Beaver Dam Creek. There are currently nonnative grasses and forbs in the meadows, but no noxious weeds. Native ungulates also use the area, but evidence of their presence is sparse. Their habit is to pass quickly through areas, whereas livestock tend to congregate and graze an area as long as forage remains. Added to past, present, and foreseeable future activities, grazing in these meadows, especially if use is at the fully authorized rate, could contribute to reduced species diversity and an increase in nonnative and possibly noxious weed species.

One of the Rangeland Health Standards and Guidelines stipulates that plant communities be maintained or restored to provide habitat for T&E, Special Status, and native plants (see Appendix A, Grazing, Standards for Rangeland Health, Guidelines for Livestock Management). If future monitoring in the Flat Creek and Summit Prairie Allotments detects impacts to specific rare plant sites or habitat from livestock or grazing, mitigation measures could be implemented to reduce those impacts and protect sites. Mitigation measures may include, but are not limited to, fence construction, changing season-of-use, modifying livestock numbers, modifying turn-out locations, or constructing new improvements to protect Special Status plant populations.

3.4.7.3 Effects of Alternative 2 on Botany

Under Alternative 2, the turn-out dates for the five spring pastures in the Summit Prairie Allotment – Elk, Poverty Flat, Rocky Flat, McNeil Creek, and Perry School – would be changed from April 16 to May 1. The number of livestock in each pasture would be increased by 46 to 48 percent although the

authorized AUMs would remain the same as currently authorized. Additionally, the BLM would extend existing exclosure fencing to include a fence wet meadow along Beaver Dam Creek.

Direct and Indirect Effects

Flat Creek Allotment

Direct and indirect effects on botanical resources from grazing would be the same in Alternative 2 as those described in Alternative 1 because the alternatives are essentially the same.

Summit Prairie Allotment

Threatened and Endangered Plants: Reissuing grazing permits for Flat Creek and Summit Prairie Allotments would be "no affect" to *Limnanthes floccosa* ssp. *grandiflora* and *Lomatium cookii* because they are outside the ranges of these species, do not contain suitable habitat, and no sites occur in the allotments.

Changing the turn-out dates for the 5 spring pastures in the Summit Prairie Allotment and increasing the number of cattle in each pasture could potentially increase impacts to the 12 *Fritillaria gentneri* sites in the Rocky Flat and Poverty Flat Pastures, especially if the pastures are used at their fully authorized amounts. With more livestock grazing during the peak blooming time, the odds of plants being browsed or trampled is slightly higher. The risk of noxious weeds being introduced or increasing and competing with Fritillaria gentneri would also be greater if meadows are grazed at a more intense level. However, because sites are monitored annually, impacts would be detected and mitigation measures implemented to maintain protection of plants. Therefore, reissuing the grazing permits with the new season-of-use dates "may affect, but would not likely adversely affect" *Fritillaria gentneri*.

Constructing fences around Beaver Dam Creek meadows in Parsnip Pasture would be "no affect" to *Fritillaria gentneri* because the pasture is outside the range of this species and no sites occur there.

Bureau Sensitive Plants: All three vascular plants documented in the Summit Prairie Allotment that could be vulnerable to livestock or grazing grow in three spring pastures – Rocky Flat, Poverty Flat, and Perry School. Changing the cattle turn-out dates from April 16 to May 1 for those pastures would not affect *Limnanthes floccosa* ssp. *bellingeriana*, *Plagiobothrys greenei*, and *Ranunculus austro-oreganus* and may even benefit them if some plants bloom and set seed before the cows are released. However, releasing more cows could potentially increase impacts at populations, especially if use is at the fully authorized AUMs.

There are no Sensitive plant sites known in the meadows where the fence would be constructed around Beaver Dam Creek; however, this area has not been entirely surveyed. If there are Sensitive species in the area, building the fence would benefit them because it would eliminate potential direct and indirect impacts from livestock and grazing and it would allow vegetation, including Special Status plants, to recover.

Releasing more cows for a shorter period would not be likely to create more impacts to the two *Meesia uliginosa* sites in the McNeil Creek Pasture, unless it was a dry year and grasses around the sites were already curing. In this event, the grasses and sedges growing at the sites may attract livestock and the plants could be trampled. If use is at the fully authorized AUMs, there could also be more impacts to the populations than what has been observed there in the past. However, if monitoring discovers damage to the sites, mitigation measures would be implemented.

It is unknown if Sensitive nonvascular species occur in the meadow where the fence would be constructed in Alternative 2 because it has not been surveyed. The BLM would survey the area, however, before installing the fence. If Sensitive nonvascular species occur in the meadows, fencing the area would not negatively impact them, but would benefit them by eliminating direct or indirect effects from livestock.

Native Plant Communities: Constructing a fence around the wet meadows along Beaver Dam Creek would benefit them by allowing native vegetation to recover. No negative direct or indirect effects are anticipated from this action.

Cumulative Effects

Under Alternative 2, the cumulative effects of grazing on Sensitive plants in the Flat Creek Allotment would be the same as under Alternative 1.

Under Alternative 2, the cumulative effects of grazing on Sensitive plants in the Summit Prairie Allotment would be similar to Alternative 1. Changing the cattle turn-out dates in the five spring pastures – Elk, Poverty Flat, Rocky Flat, McNeil Creek, and Perry School – from April 16 to May 1 and increasing the number of livestock in each pasture by 46 to 48 percent may increase use at Special Status plant populations when the plants are blooming. However, this may not happen; the effects cannot be quantified and would likely be so small as to be indistinguishable from the cumulative effects in Alternative 1. Reissuing the permits for grazing in Alternative 2 would not trend any species toward listing because the Sensitive species that occur in the allotment have populations outside the allotment that are protected and because populations in the allotment are not currently being impacted by livestock. Monitoring *Fritillaria gentneri* sites yearly and implementing mitigation measures as needed would prevent activities in Alternative 2 from contributing additional effects to T&E plants.

3.5 Invasive Plants

3.5.1 Definitions

Invasive Plant: A nonnative plant species whose introduction does or is likely to cause economic or environmental harm or harm to human, animal, or plant health.

Noxious Weed: A subset of invasive plants. Plant species designated by Federal or State law and generally possesses one or more of the following characteristics: aggressive and difficult to manage; parasitic; carrier (or host) of serious insects or disease; or nonnative, new, or not common to the United States.

3.5.2 Summary

- The use of PDFs under Alternatives 1 and 2 would reduce the risk that grazing would contribute to the introduction or spread of invasive plants in the Flat Creek and Summit Prairie Allotments. PDFs include treating noxious weed populations and implementing mitigation measures if monitoring detects areas where intensive grazing is occurring.

3.5.3 Introduction

Noxious weeds are plants growing outside their native lands or habitats that are injurious to public health, agriculture, recreation, wildlife, or public or private property (ODA 2009, p. 4). The Oregon Department of Agriculture (ODA) designates and classifies noxious weeds according to their detrimental effects, reproductive strategies, distribution, and difficulty of control (see Table 3-5).

Table 3-5. Oregon Department of Agriculture Noxious Weed Control Rating System

Category	Criteria	Recommended Action
A	Weeds that occur in the state in small enough infestations to make eradication or containment possible; or are not known to occur, but their presence in neighboring states makes future occurrence in Oregon seem imminent.	Infestations subject to eradication or intensive control when and where found.
B	Regionally abundant weed, but which may have limited distribution in some counties.	Limited to intensive control at the state, county, or regional level as determined on a case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the main control approach.
T	A select group of A or B designated weeds.	Identified by the Oregon State Weed Board as a priority target on which the Oregon Department of Agriculture will develop and implement a statewide management plan

Source: Oregon Department of Agriculture, Plant Division, Noxious Weed Control Program. May 2009. http://oregon.gov/ODA/PLANT/WEEDS/docs/weed_policy.pdf

Weeds spread via seeds carried from one location to another by air, water, animals, humans, or vehicles. Some weeds also spread when roots or other plant parts break off and resprout to create new plants. Newly disturbed areas are most vulnerable to noxious weed establishment. Roads are common avenues of invasion, as seeds lodge in tire treads and are carried from occupied areas into newly disturbed unoccupied areas. Road construction, logging, farming, overgrazing, recreation, and residential development are activities that contribute to the establishment and spread of noxious weeds (USDI 1985, p. 59) (see Table 3-6).

Table 3-6. Factors Affecting Noxious Weed Spread

Activity	Role in Dispersing Noxious Weed Seed
Private Lands	Private lands host a perpetual source for noxious weed seed, which can be dispersed when seeds attach to tires, feet, fur, feathers, or feces, or when natural processes such as wind and/or flooding events transport the seed from its source to another geographical vicinity.
Farming and Grazing	Farming creates soil disturbance and openings that noxious weeds can occupy. Farming equipment may move noxious weed seed from one area to another. Agricultural seed may be contaminated with noxious weed seed and spread during farming activities. Overgrazing of pastures or rangelands removes vegetation leaving bare, open spaces that noxious weeds could invade. Noxious weeds may be spread by livestock from infested to noninfested areas if they consume noxious weed plants or grain or hay containing noxious weed seeds or parts. Livestock in open range move between private and public lands and may transport weed seeds in their hair, on their hooves, or in their feces from one area to another.
Logging on Private Lands	Logging activity presents a key dispersal opportunity for noxious weed seeds. They may attach to tires or tracks of mechanized logging equipment, tires of log trucks, and various other logging-related substrates and be subsequently transported from their source to another geographic vicinity. Logging creates openings during ground disturbance and canopy removal which noxious weeds may colonize. Not using Project Design Features, such as equipment/vehicle washing, etc., also increases the risk of introducing or spreading noxious weed seed during logging operations.
Motor Vehicle Traffic (including Log Trucks)	Roads on public land are for public use, which results in a plethora of seed-dispersal activities occurring on a daily basis. Private landowners use public roads to haul logs, undertake recreational pursuits, and/or access their properties. This transportation often occurs along BLM-administered roads, which are situated within a checkerboard ownership arrangement. How or when seed detachment occurs is a random event and could take place within feet or miles from the work site/seed source, presenting a high likelihood of detachment on public lands.
Recreational Use	The public often recreates on BLM-managed lands and can spread seed from their residences or other areas to public lands in a variety of ways, including attachment to vehicle tires; recreational equipment; hikers' socks, shoes, or other clothing; fur of domestic animals, etc.
Rural and Urban Development	Because of BLM's checkerboard land ownership, BLM parcels are generally interspersed with private lands, many of which are used for homesites, businesses, or agricultural endeavors. Rural and urban development often involves ground disturbance during building or road construction which creates openings for noxious weeds to occupy. See "Motor Vehicle Traffic" and "Private Land" for additional information about how this affects the spread of noxious weeds from private to public lands.
Natural Processes	Wind, seasonal flooding, and migration patterns of birds or animals are a few of the natural processes that contribute to the spread of noxious weeds by carrying seeds or other plant parts to new locations at random intervals.

Management objectives in the 1995 Medford District ROD/RMP are to continue to survey for, avoid introducing or spreading, and contain and/or reduce infestations on BLM-managed land (USDI 1995a, p. 92-93). Noxious weeds are detected on BLM-managed lands during pre-project botanical inventories or incidental sightings. The BLM treats noxious weed populations under the *Medford District Integrated Weed Management Plan and Environmental Assessment* OR-110-98-14 (1998c), *Northwest Area Noxious Weed Control Program Environmental Impact Statement* (USDI 1985), and *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (USDI 2007). The BLM treats weeds by manual, mechanical, chemical, or biological means.

3.5.4 Assumptions

This EA analyzes the effects of grazing on invasive plants that have been documented in the allotments. More populations may be present that have not yet been documented because not all areas have been surveyed or populations may have become established since surveys were conducted. The BLM will continue to survey for invasive plants throughout the resource area and treat sites when detected during pre-project surveys or incidental sightings. Weed treatments are dependent on the availability of funding. The effects of grazing on new noxious weed sites and the spread of noxious weeds would be the same as those described in this EA.

3.5.5 Affected Environment

3.5.5.1 Flat Creek Allotment

Past disturbances in the Elk Creek fifth field watershed that may have contributed to the introduction and spread of noxious weeds include wildfire, dam construction, grazing, agriculture, road building, logging, rural development, recreation, vehicle traffic, and natural processes. Those activities have removed vegetation and transported weed seeds and parts.

The most altered native plant communities in the allotment are oak woodlands and dry meadows on the south- and east-facing slopes in the southern part of the allotment, where native grasses and forbs have been replaced by nonnative species. Infestations of yellow star-thistle have also become established along roadsides and in woodlands and meadows where native bunchgrasses historically grew. Livestock that graze on BLM-administered land in the Flat Creek Allotment move back and forth between the allotment boundary and U.S. Army Corps of Engineer land along the main branch of Elk Creek because no fences separate them. Yellow star-thistle is abundant in the meadows and oak woodlands along Elk Creek. Cows may transport seeds from these heavily infested areas onto BLM-administered lands during their wanderings between areas.

The extent of other noxious weed species throughout the rest of the allotment, which is mostly forested, is patchy and occurs mainly along roads. See Appendix C for a description of noxious weeds in Table 3-7.

Weed treatments are on-going in the allotment, although funds are not available to treat all weeds or populations. Because populations are only reported during botanical surveys for planned projects or from incidental sightings, it is highly likely additional noxious weed populations exist in the allotment that have not been detected. Noxious weed control efforts in the Elk Creek drainage in the last few years have focused on treating roadside noxious weeds, especially Scotch broom.

Table 3-7. Noxious Weeds Documented in the Flat Creek Allotment*

Species	ODA Designation	Number of Reported Sites
Armenian (Himalayan) blackberry	B	5 (may be undocumented sites)
Canada thistle	B	25
Meadow knapweed	B	1
Rush skeletonweed	B and T	1
Scotch broom	B	3
Spanish broom	B	2
Tansy ragwort	B and T	1
Yellow star-thistle	B and T	widespread in lower elevations along roads and in oak woodlands and meadows

*As of April 22, 2009

3.5.5.2 Summit Prairie Allotment

Past disturbances in the Summit Prairie Allotment that may have contributed to the introduction and spread of noxious weeds include wildfire, grazing, agriculture, road building, logging, rural development, recreation, vehicle traffic, and natural processes. Those activities have removed vegetation and transported weed seeds and parts. Noxious weed sites occur in the western half of the allotment. The most vulnerable areas that have been infested are riparian zones where Himalayan blackberry has become established and lower elevation oak woodlands and meadows where yellow star-thistle has invaded. The other noxious weeds in the allotment consist of a few scattered populations. See Appendix C, Noxious Weeds, for a description of noxious weeds in Table 3-8.

Table 3-8. Noxious Weeds Documented in the Summit Prairie Allotment*

Species	ODA Designation	Pasture	Number of Reported Sites
Armenian blackberry	B	• Round Mountain • Mule Creek • Rocky Flat • McNeil Creek • Fredenburg • Ginger Creek	21**
Canada thistle	B	• Round Mountain • Fredenburg	5
Houndstongue	B	• Mule Creek	2
Scotch broom	B	• Round Mountain • Fredenburg	2
Spotted knapweed	B and T	• Round Mountain	1
Yellow star-thistle	B and T	• Round Mountain • Mule Creek • Rocky Flat • McNeil Creek	14**

*As of April 22, 2009.
**More may be present.

Weed treatments in the Summit Prairie Allotment have focused on treating species with few sites, such as Canada thistle, spotted knapweed, Scotch broom, and Houndstongue, in order to prevent them from developing into larger, unmanageable infestations.

3.5.6 Environmental Consequences

3.5.6.1 Effects on Invasive Plants Common to Both Alternatives

Noxious weed populations have become established in the allotments as a result of past activities and natural processes. Livestock and grazing could also contribute to the introduction and spread of noxious weeds. Livestock may transport weed seeds or plant parts from infested areas on private or BLM-administered lands to noninfested areas. Livestock often avoid eating noxious weeds because they are not palatable, either because they contain toxins or have spiny bracts. In areas where noxious weed populations currently exist, avoidance of weeds and a preference for other vegetation may lead to a decrease in native species and an increase in weeds because competing vegetation is removed. However, the rate at which the potential spread would occur is unknown. Pinpointing grazing as a contributing factor is difficult due to the indistinguishable causal effect of other activities and factors listed in Table 3-6.

3.5.6.2 Effects of Alternative 1 on Invasive Plants

In Alternative 1, 10-year grazing permits would be reissued as currently written for the Flat Creek and Summit Prairie Allotments.

Direct and Indirect Effects

The Flat Creek Allotment was rested for two years after the Timbered Rock Fire in 2002. Since grazing was reauthorized in 2005, the allotment was grazed at 100 percent of the authorized AUMS for 1 year, 64 percent for 2 years, and was unused 1 year. At the current rate of use, it is unlikely grazing is contributing to the introduction or spread of noxious weeds in the allotment beyond the background rate caused by other activities and processes. In theory, an increase in noxious weeds could result if grazing increases to the fully authorized AUMs. However, this risk is low because the cows are mostly spread throughout the allotment along the road system and the additional impacts would be distributed across the allotment.

Over the last 9 years, the pastures in the Summit Prairie Allotment have not been grazed at their fully authorized AUMs. Use has varied between pastures, from an average of 9 percent in the Rocky Flat Pasture to 100 percent in the Carney Pasture. At the current rate of use, it is unlikely grazing is contributing to the introduction or spread of noxious weeds in the allotment beyond the background rate caused by other activities and processes. However, if grazing increases to the fully authorized rate, in theory, noxious weeds could also increase as a result.

The spring pastures (Elk, McNeil Creek, Perry School, Rocky Flat, and Poverty Flat) have received very little use in the last 8 years (Table 3-4) and contain plant communities (oak woodlands, meadows, and chaparral) that are especially vulnerable to invasion by yellow star-thistle. Populations of yellow star-thistle have been documented in three of the pastures (Table 3-8). It is expected that the range management program would regulate use in these pastures to prevent heavy grazing which could open up areas to invasion from existing populations of yellow star-thistle. Because these pastures are grazed in alternate years, this allows vegetation to recover and also reduces the risk that noxious weeds would increase.

Informal observations in the Summit Prairie Allotment during botanical surveys and site visits for other projects have discovered heavy use only in some riparian meadows in the Parsnip Creek Pasture, especially along Beaver Dam, Parsnip, and Jackass creeks. Nonnative species, but no noxious weeds, are currently found in a large meadow along Beaver Dam Creek. The BLM has not documented any noxious weed populations in the surrounding areas. However, continual heavy grazing of native species would result in fewer native species, more nonnative species, and increased risk of invasion by noxious weeds.

PDFs would be used to reduce the risk that invasive plants would increase in the Flat Creek and Summit Prairie Allotment due to grazing:

- The BLM will treat noxious weeds on BLM-administered land by control techniques including chemical, mechanical, manual, and biological methods, as funding is available.
- Areas disturbed during range improvement projects will be seeded with native plants after projects are completed.
- If future monitoring discovers heavily grazed areas that may be at risk of invasion by noxious weed populations, mitigation measures will be implemented to reduce those risks. Mitigation measures may include, but are not limited to fence construction, changing season-of-use, modifying livestock numbers, modifying turn-out locations, moving livestock to distribute them throughout the allotment and prevent overuse of specific areas.

Cumulative Effects

Past activities that may have contributed to the introduction and spread of invasive plants in the Project Area are described in Table 3-6. It is expected these activities would continue on private and public lands in the present and the future and noxious weed populations will increase in the allotments whether or not grazing is reauthorized or occurs. Added to these past, present, and foreseeable future activities and processes in the Flat Creek and Summit Prairie Allotments, livestock grazing could potentially add to the problem of noxious weeds and invasive plants. The use of PDFs and the BLM's ongoing weed control program reduce this risk.

3.5.6.3 Effects of Alternative 2 on Invasive Plants

Direct and Indirect Effects

Under Alternative 2, the turn-out dates for Elk, Rocky Flat, Poverty Flat, McNeil Creek, and Perry School Pastures in the Summit Prairie Allotment would be changed from April 16 to May 1. The number of livestock for these pastures would increase by 46 to 48 percent over current authorized levels but the AUMs would remain the same. Changing the turn-out dates for the five spring meadows in the Summit Prairie Allotment would not change the type of potential direct and indirect effects to invasive plants. They would be the same as those described for Alternative 1. The only difference in effects could be heavier grazing at localized areas if cows congregate because more livestock would be released over a shorter period of time. However, this is not expected to result in an increased risk that livestock or grazing would introduce or spread noxious weeds because grasses would have more time to grow before livestock are released and would recuperate in the years the pastures are rested.

At the current rate of use, it is unlikely grazing is contributing to the introduction or spread of noxious weeds in the allotment beyond the background rate caused by other activities and processes. It is expected that under Alternative 2, the range management program would regulate use in these pastures

to prevent heavy grazing which could open up areas to invasion from existing populations of yellow star-thistle.

Under Alternative 2, a fence would be constructed around 4.6 acres of wet meadows along Beaver Dam Creek. This would allow vegetation to recover which would reduce the risk of noxious weeds becoming established at that location.

Cumulative Effects

Cumulative effects in Alternative 2 in the Summit Prairie Allotments would be similar to those described for Alternative 1. Implementing PDFs and the BLM's ongoing noxious weed treatment program would reduce the risk that invasive plants would be introduced or increase as a result of grazing or fence construction.

3.6 Soil

3.6.1 Definitions

Soil Productivity: The capacity of a soil to support plant growth.

3.6.2 Methodology

- The Medford District Office Butte Falls Resource Area *1998 Livestock Grazing Monitoring Report, Rangeland Health Assessments* (2000) was used to identify past problems areas and to help describe existing landscape soil conditions from cattle grazing.
- Some of the descriptions and information presented about the condition of the soils within the two grazing allotments were developed from the Project soil scientist's 30 years of soil experience working with various projects in these areas. Therefore, some of the information presented about soil impacts from grazing is not from site-specific data or inventories but from informal field observations over time.
- The Butte Falls Resource Area Soil Scientist conducted several field visits to specific areas of concern in spring 2009 to evaluate current soil conditions.
- The soil series descriptions and soil maps used for this analysis are derived from the *Soil Survey of Jackson County, Oregon* published by the Natural Resource Conservation Service (USDA 1993).
- GIS was used to calculate percent soil distribution by soil series within the two allotments.

3.6.3 Assumptions

- Upland soils are typically dry enough for "range ready" conditions prior to cattle turnout dates.
- Cattle exclosures will be effective in keeping cattle from accessing the excluded areas.
- All access gates within exclosures will remain closed during the grazing season.
- Cattle avoid dense canopies and prefer open meadows, roadways, and perennial streams for access to forage and ease of travel.

- Cattle prefer riparian areas because of topography; variety and palatability of forage; and availability of shade, water, and thermal cover.

3.6.4 Affected Environment

3.6.4.1 Flat Creek Allotment

Typically, the well-drained soils in the uplands within the approximately 25,700-acre Flat Creek Allotment exhibit very little soil disturbance across the landscape from cattle grazing. The allotment is characterized by mostly steep rocky terrain with few large meadows and few ponds or other man-made water impoundments.

The greatest adverse impacts to the soil resources in the Flat Creek Allotment were from past wildfire (Timbered Rock 2002), timber harvest activities, and road construction. The wildfire along with existing roads, skid trails, and landings have created unvegetated areas and compacted soil conditions that are subject to runoff, erosion, and soil productivity losses. These are the most common and abundant impacts on the soil resource within the Flat Creek Allotment.

Areas of concern for livestock grazing on the soil resources in this grazing allotment come primarily from compaction and disturbance in and around riparian areas, meadows, and pump chances. This is where cattle tend to congregate and forage and do the most damage by trampling the wet soil along the periphery of these areas.

In 2009, field visits to this area by the BLM soil scientist and hydrologists indicate little evidence of recent damage to the soils along the streambanks or riparian areas from grazing. However, there is evidence of past use by cattle along scattered open areas in the riparian area along Sugar Pine Creek, especially where cattle have easy access to the stream and have grazed and trampled some the of vegetation. Most of these areas currently appear to be revegetating and are not actively eroding. This is mostly likely due to the deferral of grazing in this allotment for the 2003 and 2004 grazing seasons after the Timbered Rock Fire.

Soil Series Descriptions for Predominant Soils in the Flat Creek Allotment

Most soils within these two allotments are mapped in a complex with other soils as they are too intermingled to identify separately on the landscape. A brief description of each dominant soil series (USDA 1993) follows and a map can be found on file in the BLM's Medford District Office.

Freezener soil is very deep, well-drained, and formed in colluvium derived from andesite. Typically, the surface layer is dark reddish brown gravelly loam about 9 inches thick. The upper 9 inches of the subsoil is dark reddish clay loam and the lower 42 inches of subsoil is dark reddish brown and dark brown clay and clay loam. The depth to bedrock is 60 inches or more. In some areas the surface layer is cobbly or stony. Permeability is moderately slow, available water capacity is about 9 inches, and the effective rooting depth is 60 inches or more. Runoff is rapid and the hazard of water erosion is high. Freezener soils are typically found on upland sideslopes and on toeslopes and terraces near streams.

Geppert soil is moderately deep, well-drained, and formed in colluvium derived from andesite. Typically, the surface layer is dark reddish brown very cobbly loam about 13 inches thick. The subsoil is

dark reddish brown extremely cobbly clay loam about 17 inches thick. Weathered bedrock is at a depth of about 30 inches. In some areas the surface layer is stony. Permeability is moderate, available water capacity is about 3 inches, and the effective rooting depth is 20 to 40 inches. Runoff is slow, and the water erosion hazard is slight. The Geppert soils are typically found on upland sideslopes.

Straight soil is moderately deep and well-drained, and is on hillslopes formed in colluvium derived from andesite, tuff, and breccia. Typically, the surface layer is dark reddish brown extremely gravelly loam about 9 inches thick. The next layer is dark brown very gravelly loam about 10 inches thick. The upper 11 inches of the subsoil is also dark brown very gravelly loam. The lower 5 inches is dark brown very cobbly clay loam. Weathered bedrock is at a depth of 35 inches. In some areas, the surface layer is gravelly or stony. Permeability is moderate, available water capacity is about 3 inches, and the effective rooting depth is 20 to 40 inches. Runoff is medium, and the water erosion hazard is moderate. The Straight soils are typically found on upland sideslopes.

Shippa soil is shallow and well-drained, and is on steep hillslopes formed in colluvium derived from andesite, tuff, and breccia. Typically, the surface layer is dark brown extremely gravelly loam about 4 inches thick. The subsoil is brown extremely cobbly loam about 12 inches thick. Bedrock is at a depth of about 16 inches. In some areas the surface layer is stony. Permeability is moderately rapid, available water capacity is about 1 inch, and the effective rooting depth is 12 to 20 inches. Runoff is rapid, and the water erosion hazard is high. The Shippa soils are typically found on upland sideslopes and in steep rocky meadows in association with rock outcroppings.

McMullin soil is shallow and well-drained. It formed in colluvium derived dominantly from andesite, tuff, and breccia. Typically, the surface layer is dark reddish brown gravelly loam about 7 inches thick. The subsoil is dark reddish brown gravelly clay loam about 10 inches thick. Bedrock is at a depth of about 17 inches. The depth to bedrock ranges from 12 to 20 inches. In some areas the surface layer is stony. Permeability is moderate in the McMullin soil. Available water capacity is about 2 inches. The effective rooting depth is 12 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate or high. McMullin soils are typically found in meadows associated with rock outcroppings and in oak grasslands in association with the McNull and Medco soils.

Hukill soil is similar to the Freezner soil except that it is deep (40 to 60 inches to bedrock) instead of very deep (60+ inches to bedrock).

3.6.4.2 Summit Prairie Allotment

The approximately 91,000-acre Summit Prairie Allotment covers a very large area. As a result, the soils, climate, and landscape features within this allotment exhibit much diversity. This diversity creates complex interactions throughout the area from various land management activities. The most common adverse soil impacts (erosion and compaction) within this allotment resulted from disturbances caused by roads (logging and jeep roads), past timber harvest activities (skid trails and landings), and, to a lesser extent, cattle grazing.

Typically, the soils on the upland hillslopes, which occupy most of the landscape in this area, are well-drained and exhibit little evidence of adverse impacts (e.g., trampling or bare soil) from cattle grazing. As with most grazed areas, the major soil concerns are where cattle trample the wet soil near streams, ponds, and wet meadows. These “hot spots” are scattered throughout this allotment and although they do not represent a large portion of the landscape, the wet soils associated with these water sources are

extremely susceptible to compaction and structural degradation from trampling. No inventories have been completed to date that would quantify how many degraded wet soil areas there are.

Presently, there are fenced exclosures along portions North Fork Big Butte Creek, Jackass Creek, and Beaver Dam Creek. Field observations by the BLM soil scientist and hydrologist in spring 2009 indicate the areas within these exclosures are showing signs of vegetative and streambank recovery as compared to outside the exclosure.

Field visits in spring 2009 by the BLM soil scientist and hydrologist to a 4.6-acre wet meadow along Beaver Dam Creek (T34S, R3E, NE¼ of Section 9) found current evidence of grazing pressure such as soil compaction, streambank degradation, bare soil areas, and altered vegetative communities. Although this is a very small portion of the allotment, the function of the soil in this wet meadow is important to maintaining water quality and quantity in this portion of Beaver Dam Creek. An existing cattle exclosure in this meadow dramatically exhibits the difference between grazed and ungrazed areas under wet soil conditions. Inside the exclosure, the vegetation is more abundant with significantly less bare soil areas; the streambanks are beginning to stabilize with deepening channels and reduced braiding (widening and splitting) of the stream channels.

In 2006, the BLM constructed a fenced exclosure along 0.25 miles of riparian area on lower Jackass Creek to reduce grazing pressure and to allow for monitoring. In 2009, field visits to Jackass Creek (SE¼ of section 29 in T34S, R3E,) indicate that approximately 4 acres of the riparian area show signs of destabilized stream banks and bare soil areas subject to erosion. These areas were analyzed for exclosure in the 2005 *Jackass Creek and Beaver Dam Creek Livestock Exclosures EA* (EA #OR115-05-04).

Soil Series Descriptions for Predominant Soils in the Summit Prairie Allotment

Freezener soil is very deep, well-drained, and formed in colluvium derived from andesite. Typically, the surface layer is dark reddish-brown gravelly loam about 9 inches thick. The upper 9 inches of the subsoil is dark reddish clay loam and the lower 42 inches of subsoil is dark reddish-brown and dark brown clay and clay loam. The depth to bedrock is 60 inches or more. In some areas, the surface layer is cobbly or stony. Permeability is moderately slow, available water capacity is about 9 inches and the effective rooting depth is 60 inches or more. Runoff is rapid and the hazard of water erosion is high. Freezner soils are typically found on upland sideslopes and on toeslopes and terraces near streams.

Geppert soil is moderately deep, well-drained, and formed in colluvium derived from andesite. Typically, the surface layer is dark reddish-brown very cobbly loam about 13 inches thick. The subsoil is dark reddish-brown extremely cobbly clay loam about 17 inches thick. Weathered bedrock is at a depth of about 30 inches. In some areas the surface layer is stony. Permeability is moderate, available water capacity is about 3 inches, and the effective rooting depth is 20 to 40 inches. Runoff is slow and the water erosion hazard is slight. The Geppert soils are typically found on upland sideslopes.

McMullin soil is shallow and well-drained. It formed in colluvium derived dominantly from andesite, tuff, and breccia. Typically, the surface layer is dark reddish brown gravelly loam about 7 inches thick. The subsoil is dark reddish-brown gravelly clay loam about 10 inches thick. Bedrock is at a depth of about 17 inches and ranges from 12 to 20 inches thick. In some areas, the surface layer is stony. Permeability is moderate in the McMullin soil. Available water capacity is about 2 inches. The effective rooting depth is 12 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate or high.

McMullin soils are typically found in meadows associated with rock outcroppings and in oak grasslands in association with the McNull and Medco soils.

Donegan soil is similar to the Geppert soil except it is found at higher elevations (4,000 to 5,000 feet).

Killet soil is similar to the Freezner soil except it is found at higher elevations (4,000 to 5,000 feet).

Dumont soil is similar to the Freezner soil except it has a higher rainfall regime (40 to 50 inches annually).

Coyata soil is similar to the Geppert soil except it has a higher rainfall regime (40 to 50 inches annually).

Sibannic soil is a very deep, poorly drained soil found in basin bottoms. It has formed in alluvium derived from andesite, tuff, and breccias. Typically, the surface layer is a black silt loam about 6 inches thick. The next layer is a black silty clay loam about 5 inches thick. The subsoil is very dark gray and very dark grayish brown clay loam about 21 inches thick. The substratum to a depth of 60 inches is very dark grayish brown and black clay loam. The depth to bedrock is 60 inches or more. Permeability is moderately slow, available water capacity is about 12 inches, and the effective rooting depth is limited by the water table which is within a depth of 1 foot from January through June. Runoff is slow and the water erosion hazard is slight.

Although this soil is very minor in extent (less than 0.1 percent of total acreage), the Sibbanic soil is found along the riparian areas of Beaver Dam Creek and in a large wet meadow along Beaver Dam Creek in the northeast portion of section 9 in T34S, R3E. This soil is unique because it has a seasonal water table which functions to store, filter, and release water in wet meadows and streams. The physical properties of this wet soil also increase its susceptibility to compaction and structural destabilization from cattle trampling.

Table 3-9 provides a breakdown by percentage of the dominant soil types found in these two allotments (soil types that comprise less than 1 percent of total acreage are not included).

Table 3-9. Dominant Soil Types in the Flat Creek and Summit Prairie Allotments

Soil Number	Soil Name	Percent in Allotment
Flat Creek Allotment		
113G	McMullin-Rock outcrop complex	4
183E	Straight	2
184G, 185G	Straight-Shippa complex	62
63E, 64E	Freezener	9
66G, 67G	Freezener-Geppert complex	21
Summit Creek Allotment		
113E	McMullin-Rock outcrop complex	1
62C, 63E, 64E	Freezener	25
65C, 66G, 67E, 67G	Freezener-Geppert complex	9
69E, 70E, 86C	Geppert, Hukill	13
52C, 53E, 53G, 54E, 54G	Dumont-Coyata complex	23
49E, 47C, 48E	Donegan- Killet complex	9

3.6.5 Environmental Consequences

3.6.5.1 Effects of Alternative 1 (No Action) on Soil

Direct and Indirect Effects

Flat Creek Allotment

The existing cattle grazing operations would continue under this alternative. The effects of cattle grazing in the Flat Creek Allotment are similar to those in the Summit Prairie Allotment except fewer water sources and wet soil areas are available for cattle to congregate near. The terrain is steep in this allotment which restricts cattle movement across the landscape. One exception is the riparian area along Sugar Pine Creek where cattle have accessed streambanks and created bare soil in areas where no barriers prevent cattle access. The BLM soil scientist, during recent visits to the area, found signs of recovery (reestablished vegetation) in some portions of the riparian areas. This is most likely due to the grazing deferral in 2003 and 2004 in this allotment. The existing condition is not expected to change under the No Action Alternative. There is currently no site-specific data available to quantify these effects.

Summit Prairie Allotment

Field observations indicate the majority of soil impacts from cattle grazing are occurring at or near water sources (e.g., streams, riparian areas, and wet meadows) where cattle tend to congregate. The wet soil conditions along these water sources are highly susceptible to compaction and structural degradation from cattle trampling.

Where soil compaction and structural degradation occurs, infiltration into the soil is reduced, runoff is increased, and the capacity of the compacted soil to supply water and oxygen to plants is diminished. The direct effects are increased erosion rates, reduced vegetative growth, and stream bank destabilization. Indirectly, these effects can lead to increased sedimentation and increased stream temperatures. It is unlikely the wet soil areas currently impacted by cattle grazing would recover to a more stable functioning condition under this alternative. There is currently no site-specific data available to quantify these effects.

Cumulative Effects

Flat Creek and Summit Prairie Allotments

The areas where the soil is impacted most by cattle grazing are in and around water sources scattered throughout the landscape. Although the impacts from cattle grazing are direct and intensive in localized areas, on a landscape scale (fifth field watershed), the effects of erosion and subsequent sedimentation are much less from grazing than from the predominance of roads, landings, and skid trails created from past timber harvest activities. Due the complex interaction of all land management activities on the landscape, it would be infeasible to distinguish how much each individual management activity contributes to erosion and subsequent sedimentation. Erosion rates and nonpoint sources of sedimentation from cattle grazing would continue at the current rates. There is currently no site specific data available to quantify these effects.

3.6.5.2 Effects of Alternative 2 on Soil

Direct and Indirect Effects

Flat Creek Allotment

Livestock grazing would be authorized at existing levels and season-of-use under Alternative 2. No range improvements are proposed. The effects to soil would be the same as those under Alternative 1.

Summit Prairie Allotment

The cattle turn-out date would change from April 16 to May 1 under Alternative 2. Delaying the cattle turn-out date approximately two weeks in the five spring pastures is not expected to change impacts on the upland soils which are typically dry prior to these dates. Effects would be the same as those under Alternative 1 for the wetted soil areas.

Installing the Beaver Dam Creek fence exclosure would improve vegetative recovery and reduce bare soil areas prone to erosion within the exclosure. Excluding cattle from the 4.6-acre wet meadow would reduce compaction, improve streambank stability, and aid in the recovery of stream channels where they have been degraded from cattle trampling. Indirectly, this would improve the function of the Sibannac soil found in the wet meadow which serves to seasonally store, filter, and release ground water to Beaver Dam Creek.

Impacts to the soil from fence construction would be negligible because all construction work would be completed manually using hand tools and would occur during dry summer months (see Section 2.3.5, Project Design Features).

Cumulative Effects

Flat Creek and Summit Prairie Allotments

Cumulative effects under Alternative 2 would be the same as those under Alternative 1 since only subtle differences exist between the 2 alternatives.

3.7 Water Resources

3.7.1 Methodology

The project hydrologist used the following sources for analysis:

- The *Central Big Butte, Lower Big Butte, Lost Creek,* and *Elk Creek* watershed analyses (USDI 1995b; USDI 1999a; USDI 1998b; USDI 1997a) provided general water resources background information for the Project Area.
- Geographic Information System and BLM Field Visits were used to analyze the existing condition of the Project Area.
- Stream types on BLM-administered lands were identified through site visits; non-Federal land stream types were estimated using aerial photo interpretation and information on adjacent BLM-administered lands.
- The scale for analysis for Water Resources will be the allotment boundaries.

3.7.2 Assumptions

- Cattle exclosures will be effective in keeping cattle from accessing the excluded areas.
- All access gates within exclosures will remain closed during the grazing season.
- Cattle avoid dense forest stands and vegetation along streams (i.e., heavy vine maple) and prefer open meadows, roadways, and perennial streams for access to forage and ease of travel.
- Cattle prefer riparian areas because of topography; variety and palatability of forage; and availability of shade, water, and thermal cover.
- Streams with flat upland slopes adjacent to them which do not have dense vegetation will be used the most year after year.

3.7.3 Affected Environment

3.7.3.1 Introduction

The Flat Creek and Summit Prairie Allotments are both contained within the Upper Rogue River fourth field subbasin. The average annual precipitation varies substantially depending on location and elevation and ranges from less than 35 inches to more than 60 inches within the allotment boundaries. Most precipitation occurs during the fall, winter, and early spring months. Low stream flows normally prevail from July through September or October, the period of low precipitation. Moderate to high flows exist during the remainder of the year. High flows begin about mid-November and can last through April. During the months of May and June, stream flows are increased by melting snowpack. Historically, extreme high flows have been the result of rain-on-snow events during the warmer months of winter.

Rain predominates in the lower elevations (generally less than 3,500 feet) with the majority occurring in late fall, winter, and early spring. No snow-dominated precipitation zones are located within the allotments. A mixture of rain and snow occurs between approximately 3,500 and 5,000 feet; this area is

referred to as either the rain-on-snow zone or transient snow zone. The snow level in this zone fluctuates throughout the winter in the watersheds in response to alternating warm and cold fronts. The transient snow zone occupies approximately 15 percent of the Flat Creek Allotment, while the rain-dominated precipitation zone occupies the remainder of the allotment (85 percent). The transient snow zone occupies approximately 31 percent of the Summit Prairie Creek Allotment, while the rain-dominated precipitation zone occupies the remainder of the allotment (69 percent).

3.7.3.1 Water Quality

Water quality is the measure of the suitability of water for a particular use based on the chemical, physical, and biological characteristics of the water. To determine water quality, characteristics of the water, such as temperature, dissolved mineral content, and number of bacteria, are measured and analyzed. Selected characteristics are then compared to numeric standards and guidelines to decide if the water is suitable for a particular use.

303(d) Listed Streams

Oregon's Department of Environmental Quality (DEQ) is the state agency responsible for protecting Oregon's surface waters and groundwaters. The DEQ develops water quality standards for Oregon's waters and publishes them in Oregon Administrative Rules (OAR) 304-041. The DEQ is required by the Federal Clean Water Act to maintain a list of stream segments that do not meet water quality standards. This list is called the 303(d) list because of the section of the Clean Water Act that makes the requirement. The U.S. Environmental Protection Agency approved the DEQ's 2004/2006 303(d) list on February 26, 2007.

Water bodies can be listed for a variety of reasons. The most common reasons for listing a stream are stream temperature, dissolved oxygen, and *Escherichia coli (E. coli)* bacteria, all of which could potentially be affected by grazing practices. Streams and rivers are usually not placed on the 303(d) list until sufficient data are available that indicate water quality standards have not been met.

The Big Butte Creek and the Elk Creek fifth field watersheds are the only two watersheds that contain 303(d) listed streams in the Project Area. Within the Project Area, 11 streams are included on the 303(d) list for exceeding one or more of the following water quality criteria: dissolved oxygen, bacteria (*E. coli*), and temperature (Table 3-10).

The small portion of the Project Area located in the Little Butte Creek fifth field watershed does not contain any listed streams and only one small reach (approximately 300 feet) of Horse Creek is within the allotment on BLM-administered lands. This area will be deferred from grazing for two seasons due to the Doubleday Fire.

Table 3-10. Streams on the ODEQ 2004/2006 303(d) List in the Project Area by 5th Field Watershed

Stream Segment	Listed Parameter	Season	Applicable OAR (at time of listing)	Total Miles Affected
Big Butte Creek Fifth Field Watershed–Summit Prairie Allotment				
Big Butte Creek	Dissolved Oxygen	Summer	340-041-0016(1)(a)(c)(2)	11.6
	Bacteria (*E. coli*)	Summer	340-041-0009(1)(a)(A,B)	11.6
	Temperature	Summer	340-041-0365(2)(b)(A)	11.6
Clark Creek	Temperature	Year-round; nonspawning season	340-041-0028(4)(b)	7.7
Dog Creek	Temperature	October 15 – June 15	340-041-0028(4)(a)(b)	0.5
	Temperature	Year-round; nonspawning season	340-041-0028(4)(b)	4.7
Doubleday Creek	Temperature	Year-round; nonspawning season	340-041-0028(4)(b)	3.4
Hukill Creek	Temperature	Year-round; nonspawning season	340-041-0028(4)(b)	3.6
Jackass Creek	Temperature	October 15 – June 15	340-041-0028(4)(a)(b)	0.3
	Temperature	Year-round; nonspawning season	340-041-0028(4)(b)	4.8
North Fork Big Butte Creek	Temperature	January 1 – June 15	340-041-0028(4)(a)(b)	6.9
	Temperature	October 15 – June 15	340-041-0028(4)(a)(b)	7.0
	Temperature	Year-round; nonspawning season	340-041-0028(4)(b)	13.9
Willow Creek	Temperature	Summer	340-041-0365(2)(b)(A)	4.5
Total Stream Miles listed for Bacteria (E. coli) Criteria (Summer)				11.6
Total Stream Miles listed for Dissolved Oxygen Criteria (Summer)				11.6
Total Stream Miles listed for Temperature Criteria (October 15 - June 15)				7.8
Total Stream Miles listed for Temperature Criteria (Summer)				16.1
Total Stream Miles listed for Temperature Criteria (Year-round; nonspawning season)				38.1
Total Stream Miles listed for Temperature Criteria (January 1 - June 15)				6.9
Elk Creek Fifth Field Watershed-Flat Creek Allotment				
Elk Creek	Dissolved Oxygen	Summer	340-041-0016(1)(a)(c)(2)	11.2
	Bacteria (*E. coli*)	Summer	340-041-0009(1)(a)(A,B)	20.7
	Temperature	Summer	340-041-0365(2)(b)(A)	13.3
West Branch Elk Creek	Temperature	Summer	340-041-0365(2)(b)(A)	7.4
Sugar Pine Creek	Temperature	October 15 – June 15	340-041-0028(4)(a)(b)	6.0
	Temperature	Year-round; nonspawning season	340-041-0028(4)(b)	9.1
Bitter Lick Creek	Temperature	Summer	340-041-0365(2)(b)(A)	8.6

Table 3-10. Streams on the ODEQ 2004/2006 303(d) List in the Project Area by 5th Field Watershed

Stream Segment	Listed Parameter	Season	Applicable OAR (at time of listing)	Total Miles Affected
Total Stream Miles listed for Bacteria (E. coli) Criteria (Summer)				20.7
Total Stream Miles listed for Dissolved Oxygen Criteria (Summer)				11.2
Total Stream Miles listed for Temperature Criteria (October 15 - June 15)				6.0
Total Stream Miles listed for Temperature Criteria (Summer)				29.3
Total Stream Miles listed for Temperature Criteria (Year-round; nonspawning season)				9.1

Waters placed on the 303(d) list require the preparation of Total Maximum Daily Loads (TMDLs), a key tool in the work to clean up polluted waters. TMDLs identify the maximum amount of a pollutant allowed to be released into a waterbody so as not to impair uses of the water and allocate that amount among various sources.

In December 2008, the Oregon DEQ issued the Rogue River Basin TMDL as an executive order. The TMDL addresses temperature and bacteria (*E. coli*) impairments for an area that includes the two allotments. TMDLs are numerical loadings that are set to limit pollutant levels such that instream water quality standards are met. The BLM is recognized by Oregon DEQ as a Designated Management Agency (DMA) for implementing the Clean Water Act on BLM-administered lands in Oregon. Each DMA has 18 months from the time the Rogue River Basin TMDL becomes an executive order to develop or submit to Oregon DEQ an implementation plan. The BLM and Oregon DEQ have a Memorandum of Agreement that defines the process by which the BLM will cooperatively meet State and Federal water quality rules and regulations. In accordance with the Memorandum of Agreement, the BLM will develop or revise existing Water Quality Restoration Plans (WQRPs) as described in the Memorandum of Agreement; the WQRPs will be the TMDL implementation plans for the BLM (ODEQ and USDI 2003). A WQRP for BLM-administered lands in the Big Butte Creek Watershed (USDI 2008e) was prepared by the BLM in 2007 and approved by the Oregon DEQ. The BLM prepared a draft WQRP for BLM-administered lands in the Elk Creek Watershed and final edits are being made for submittal. Recovery goals focus on protecting areas where water quality standards are being met and avoiding future impairments of these areas, and restoring areas that do not currently meet water quality standards.

Grazing and Water Quality

Livestock have the potential to affect water quality by increasing stream temperature, sedimentation, and bacterial contamination. The magnitude of cattle grazing impacts to water quality is influenced by the terrain, preferred diet, behavioral characteristics, and climate. Impacts to stream channels and streambanks can result from cattle grazing in the riparian zones (Hubert et al. 1992). In general, cattle prefer riparian areas because of the topography; variety of forage; and availability of shade, water, and thermal cover. Riparian areas are important because of the role they play in maintaining water quality. This fact, in relation to the preference of cattle to seek riparian areas, heightens potential problems with water quality (Hubert et al. 1992).

Potential impacts to riparian areas by livestock include accelerated runoff, erosion, and sediment deposition. Soil bulk density, infiltration rates, and ground cover are parameters that influence runoff. All of these factors can be affected by cattle grazing and trampling in and around riparian areas. Because grazing alters soil properties, runoff levels and soil erosion are affected to varying degrees.

Cattle may also impact riparian vegetation, reducing its effectiveness in maintaining water quality. Riparian vegetation helps maintain water quality by shading streams and filtering sediment from upslope sources. Stream habitat characteristics including width, depth, and pools can be altered by cattle grazing. Levels of contamination are dependent on the intensity and duration of cattle grazing. Grazing at low to moderate levels, as occurs in these allotments, did not result in high bacteria levels in streams (Hubert et al. 1992).

The level of impacts to water quality is determined by the proximity of cattle to the stream. The closer to the stream livestock grazing occurs, the greater the impact to water quality will be (Hubert et al. 1992). Bacterial contamination is unlikely unless animals are defecating immediately adjacent to or directly into the stream (Hubert et al. 1992). Delivery of off-site animal wastes to streams is affected by runoff (Hubert et al. 1992). It has been found that within rangelands where livestock grazing occurs, nutrient levels in streams are not increased significantly. Runoff has also been found to increase the levels of bacteria, nitrate, and phosphate with cattle grazing in the bottomlands, but water quality generally remains acceptable (Hubert et al. 1992).

Studies clearly show that levels and intensity of cattle grazing influence water quality degradation (Hubert et al. 1992). Definitions of grazing levels are variable because of climatic and vegetative factors. Heavy grazing can severely impact riparian areas, but the impacts of moderate and light grazing are poorly defined. Several studies have shown that impacts caused at light and moderate grazing levels, like those occurring on these allotments, are not considerably different, and only heavy grazing causes detrimental impacts to riparian zones and water quality (Hubert et al. 1992).

Because the riparian zone is important to large wild ungulates, concern has arisen that these animals may also impact riparian zones and water quality. If large wild ungulates use the landscape in a manner similar to livestock, impacts to riparian zones and water quality are likely to occur (Hubert et al. 1992).

In these allotments, land ownership also plays a significant role. Timber on lands owned by private timber companies is harvested at a more regular frequency than those on BLM lands. In those instances, acres cleared of trees attract livestock, since grasses and weeds tend to occupy the open areas. As use increases, so do impacts to riparian areas.

Riparian Condition

Riparian areas (streams, wetlands, springs, and seeps) within the allotments were inventoried using BLM's Process for Assessing Proper Functioning Condition (USDI 1993). The process used an interdisciplinary evaluation to rate riparian areas as one of the following:

> **Proper Functioning Condition (PFC)** – Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to reduce erosion and improve water quality by dissipating stream energy associated with high waterflows; filter sediment, capture bedload, and aid floodplain development; improve flood-water retention and ground-water recharge; develop ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is a result of interaction among geology, soil, water, and vegetation.
>
> **Functional - At Risk (FAR) –** Riparian-wetland areas in functional condition but an existing soil, water, or vegetation attribute makes them susceptible to degradation.

Nonfunctional – Riparian-wetland areas that clearly are not providing adequate vegetation, landform, or large woody debris. The absence of certain physical attributes, such as a floodplain where one should exist, is an indicator of nonfunctioning conditions.

3.7.3.2 Flat Creek Allotment

The Flat Creek Allotment (25,668 acres) is entirely within the Elk Creek fifth field watershed and occupies approximately 30 percent of the watershed. The allotment is characterized as having mostly steep rocky terrain with many roads. There are few ponds or other man-made water sources. Most water is confined to intermittent and perennial streams. The Flat Creek Allotment has an estimated 231 miles of stream channels on private and Federal lands: 138 miles on private and 93 miles on BLM-administered land (GIS data). The BLM rated the riparian areas on approximately 58 miles in the Elk Creek watershed after the Timbered Rock Fire (Table 3-11). The majority (approximately 70 percent) of the stream reaches assessed in the Flat Creek Allotment are rated as PFC or Functional - At Risk with an upward trend. Stream channels rated as Functional - At Risk with a downward trend or Nonfunctional make up a small percentage of the overall stream network (8 percent or 4.8 miles). Of the 4.8 miles of stream reaches surveyed that are rated as Nonfunctional or Functional - At Risk with a downward trend, only 0.2 miles of these (less than 1 percent of total streams surveyed) have impacts associated with grazing. The remaining 4.6 miles were given these ratings based on other factors including roads, skid trails, lack of large woody debris, and prior timber harvesting. The grazing-related impacts are localized and would have negligible effects at the watershed scale.

Table 3-11. Proper Functioning Condition of Assessed Streams in the Flat Creek Allotment (Miles)

Stream	Proper Functioning Condition	Functional - At Risk			Nonfunctional	Total
		Upward Trend	No Trend	Downward Trend		
Flat Creek-Elk Creek	10.3	10.0	8.2	3.4	0.7	32.6
Sugar Pine Creek	5.7	9.1	2.8	0.3	0.1	18.0
West Branch Elk Creek	2.4	2.4	2.2	0.3	0.0	7.3
Total	**18.4**	**21.5**	**13.2**	**4.0**	**0.8**	**57.9**

The stream channels on West Branch Elk Creek have limited access for livestock and little use was observed. Livestock access on Flat Creek is good but because the Timbered Rock fire burned so intensely here, there is little cover for shade so cattle are not expected to congregate here. Sugar Pine and Hawk Creeks have the best access and cover for livestock and this is where most of the use was observed. Cattle are accessing streams but little stream bank disturbance was observed because Sugar Pine and Hawk Creeks are bedrock dominated streams (field visit 4/21/09).

3.7.3.3 Summit Prairie Allotment

The Summit Prairie Allotment covers approximately 91,220 acres over four different fifth field watersheds (Table 3-12). A small portion of the Little Butte Creek fifth field watershed (less than .001 percent) near a ridge is within the allotment and will not be analyzed in detail at this scale.

Table 3-12. Percent of 5th Field Watersheds in the Summit Prairie Allotment

5th Field	Total Acres in 5th Field	Acres of Allotment in 5th Field	Percentage of 5th Field in Allotment
Lost Creek/Rogue River	32,062	12,173	38
South Fork Rogue River	160,653	27,082	17
Big Butte Creek	158,134	51,735	33
Little Butte Creek	238,696	230	<.001

The Summit Prairie Allotment has an estimated 400 miles of stream channels on private and Federal lands: 275 miles on private and 125 miles on BLM land (GIS data). In the portion of the allotment in the Lost Creek/Rogue River fifth field watershed and the Beaver Dam Creek sixth field subwatershed, approximately 75 miles of stream were classified as intermittent or perennial. The riparian areas on these streams were rated with the following results: 14 miles of PFC; 55 miles of Functional - At Risk, with 12 short sections rated as Functional - At Risk in a downward trend; and 5 miles of Nonfunctional (USDI 1998b).

In the portion of the allotment within the Big Butte Creek fifth field watershed, approximately 40 miles of riparian areas were rated. The surveys indicate that 18 stream miles (42.5 percent) within the allotment were PFC, 14 stream miles (35 percent) were Functional - At Risk with an upward trend (improving), 3 stream miles (7.5 percent) were Functional - At Risk with a downward trend (degrading), 5 stream miles (12.5 percent) were Functional - At Risk with no apparent trend, and 1 mile (2.5 percent) was Nonfunctional. Of the 4 stream miles that were rated as Nonfunctional or Functional - At Risk with a downward trend, grazing impacts contributed to the rating on about 3 miles of stream. The remaining mile of stream was given these ratings based on other factors including roads, skid trails, lack of large woody debris, and prior timber harvesting. The cattle related impacts are generally low level, localized and therefore at a watershed scale would be negligible.

Approximately 340 stream reaches were assessed in the Summit Prairie Allotment, throughout all four watersheds, for PFC (Table 3-13).

Table 3-13. Proper Functioning Condition of Assessed Streams in the Summit Prairie Allotment

Functioning Condition	Number of Streams	Percent
Proper Functioning Condition	137	40
Functional - At Risk, Upward Trend	92	27
Functional - At Risk, No Trend	89	26
Functional - At Risk, Downward Trend	7	2
Nonfunctional	15	5
Total	**340**	**100**

Source: Central Big Butte Riparian Database, 1998; Lost Creek Riparian Database, 12/04/98; Lower Big Butte Riparian Database Master database, 2000

The majority (approximately 70 percent) of the stream reaches assessed in the Summit Prairie Allotment are rated as PFC or Functional - At Risk with an upward trend. Stream channels rated as Functional - At Risk with a downward trend or Nonfunctional make up a small percentage of the stream reaches assessed (between 6 and 10 percent). These impacts are generally low level, localized and would be negligible at the watershed scale.

Ginger Springs Municipal Watershed, within the Ginger Creek and Perry School Pastures, is the source of the municipal water supply for the town of Butte Falls. Ginger Springs is located on private land and the springs are protected from cattle disturbance by a 2-acre fence around the springs and two spring boxes (H.G.E., 1993).

Upland areas observed appear to have minimal impacts from cattle grazing in this allotment. However, two streams are of concern: Jackass Creek, flowing into North Fork Big Butte Creek, and Beaver Dam Creek, flowing into the Middle Fork Rogue River. The streambank vegetation along Jackass Creek (Mule Creek Pasture) below the Butte Falls-Prospect Highway receives grazing each year. Portions of the banks have virtually no stabilizing vegetation which helps to capture and retain sediment. The banks are actively eroding and portions of the sidewalls are calving. The channel is i**ncised** along the lower portion of the stream. Elevated sediment has been observed in the channel bottom, possibly due in part to the lack of stabilizing vegetation. The characteristics of elevated sediment include loose silt covering streambed material that is readily available for transport.

Beaver Dam Creek (Parsnip Creek Pasture) exhibits channel widening, high sediment loading, and active sidewall and headwall erosion. The channel also shows shifting characteristics and branching behavior in the flatter meadow-like areas. The soils are highly saturated in the flatter areas of the Parsnip Creek Pasture and along the riparian zone of Beaver Dam Creek in particular, creating sources for sediment entering the stream channel. The bank stabilizing vegetation is lacking most of the summer months due to livestock grazing, but appears to recover slightly following livestock removal. Canopy cover along the BLM portions of Beaver Dam Creek is inadequate for providing shade for cool stream temperatures. Channel widening effects are easily distinguishable from those within the adjacent riparian exclosures. These exclosures show the potential for recovery for the channel and the riparian habitat. The channel within the exclosures exhibits less branching, shifting, and widening than along the unfenced parts of the land. More stream bank vegetation is present to capture and retain sediment within the exclosures as well (field visit 4/21/09).

In 2006, the BLM constructed a fenced exclosure along 0.25 miles of riparian area on lower Jackass Creek to reduce grazing pressure and to allow for monitoring. In 2009, field visits to Jackass Creek (SE¼ of section 29 in T34S, R3E) indicate that approximately 4 acres of the riparian area show signs of destabilized stream banks and bare soil areas subject to erosion. These areas were analyzed for exclosure fencing in the 2005 *Jackass Creek and Beaver Dam Creek Livestock Exclosures EA* (EA #OR115-05-04) but have not been fenced at this time.

3.7.4 Environmental Consequences

3.7.4.1 Effects of Alternative 1 (No Action) on Water Resources

Direct and Indirect Effects

Under the No Action Alternative, the grazing leases on the Flat Creek and Summit Prairie Allotments would be issued at the same livestock numbers, AUM levels, and seasons-of-use currently in effect.

Flat Creek Allotment

Under Alternative 1 (No Action), 124 cattle would be grazed on the approximately 12,200-acre allotment from May 1 to June 15. On June 15, 62 cows are moved north to graze on Forest Service

lands and 62 cows remain on the BLM allotment until October 18. Generally, livestock tend to stay out of riparian reserves during the spring season when forage is abundant in the uplands (Parsons et al. 2003). During late summer and fall, they are likely to congregate in riparian areas when the forage in the uplands dry up and the riparian areas still contain ample water, forage, shade, and cooler temperatures (Kauffman and Krueger 1984). Livestock use riparian areas little during spring and early summer, but spend considerably more time there in late summer and fall.

Under Alternative 1, the current grazing levels and practices would continue. The current grazing levels would maintain the trends occurring on this allotment. Due to the few numbers of cattle spread across a large area it is difficult to distinguish effects from grazing and other sources at a watershed scale. Most riparian areas have dense vegetation, or lie at the bottom of steep terrain, or both, which limits livestock use and their impacts on 303(d) listed streams and PFC on BLM-administered lands. The Flat Creek allotment is steep and rocky with few flat areas. Areas with flat terrain and more open vegetation are expected to receive heavier livestock use. In these flatter areas, some reductions and physical damage to young hardwood trees, shrubs, grasses, and sedges would occur. Most riparian areas have mature hardwood trees along streams that provide shade and bank stability and are too tall for livestock to browse on. Livestock would continue to browse small trees, shrubs, grasses, and sedges and impact their growth in the more easily accessed areas. More heavily used areas occur along Hawk Creek and Sugar Pine Creek. There are few of these areas across the allotment and the overall impacts would be negligible. It is expected the same level of impacts would occur over the next 10 years.

Summit Prairie Allotment

Under Alternative 1 (No Action), 482 cattle would be grazed on 5 spring pastures (5,654 acres in even years and 9,370 acres in odd years), from April 16 to May 31. There is abundant vegetation available during the spring and early summer, and as a result, livestock tend to spend most of their time in the uplands. Livestock use of riparian areas in these pastures has been very minor as indicated by BLM riparian grazing surveys. This is consistent with Parsons et al. (2003) who found that livestock will spend most of their time in the uplands during the spring. Shrubs and grasses were browsed in only a few spots throughout the pastures. It is expected that the same level of use would occur in the future for these pastures.

In the summer pastures, cows are grazed on 7 pastures (70,415 acres) from June 1 to September 30. During late summer and early fall, forage in the uplands dries up, and livestock tend to migrate to the riparian areas. This change in available forage, coupled with cooler temperatures in riparian areas, and livestock's increased need for water, results in livestock spending much of their time in riparian areas (Kauffman and Krueger 1984). This is consistent with BLM observations.

Under Alternative 1, the current grazing levels and practices would continue. The current grazing levels would maintain the trends occurring on this allotment. Long-term consequences of continued grazing at current levels would mean the "hot spots" identified in stream surveys and by specialists would continue to have compaction, eroding banks, localized sedimentation, and reduced productivity of riparian vegetation. These hot spots include, but are not limited to, the wet meadow and wetland along Beaver Dam Creek and the riparian area along Jackass Creek. Under the No Action Alternative, soil disturbance, structural degradation, and compaction from cattle congregating in these areas would continue on Beaver Dam Creek, threatening the water holding and filtering capacity of this ecosystem. The remaining majority of the allotment, both uplands and streams, would continue to have low level, localized effects that would not persistent; these impacts would be negligible at a watershed scale.

Livestock would continue to graze in riparian reserves in late summer and fall, which would lead to removal of vegetation in riparian areas that may prevent or hinder willow, alder, and sedge establishment. This could influence stream shade, water retention, surface erosion, vegetation production, and the spread of noxious weeds in riparian areas (Belsky et al. 1999). These effects would be localized over small areas due to dense vegetation in most of the riparian reserves in this allotment.

Cumulative Effects

Historic human activities and natural events that have affected riparian areas across the Project Area include timber harvest, grazing, recreation, water diversion, private land development, road development wildfire, and windstorms. The spatial distribution of these activities varies from large (i.e., timber harvest, grazing, road development, and wildfire) to small (water diversion and recreation).

Livestock grazing has occurred on both allotments for over 100 years. Most of the BLM-administered lands in the Project Area are forested and do not have typical range conditions. Livestock are limited to grazing in meadows, oak savannah habitat, clear-cuts, and along roads. Riparian areas are typically preferred during late summer and fall by livestock because of the water, ample forage available, shade, and cooler temperatures (Kauffman and Krueger 1984). Timber harvest, road building, and livestock grazing are the primary past, present, and future land uses that could cumulatively impact riparian reserves and water quality in the analysis area.

The effects of Alternative 1 on riparian reserves and related water quality on a landscape scale – when combined with past, ongoing, and reasonably foreseeable activities – would be negligible and difficult to distinguish from other activities in the watershed, especially when compared to other impacts to water quality such as wildfire and past road, skid trail, and landing construction. Hot spots would continue to have localized impacts and would be improved as identified. The hot spot in the riparian area along Jackass Creek would be fenced and is expected to allow for vegetative recovery which would result in streambank stabilization and improved water quality locally.

3.7.4.2 Effects of Alternative 2 on Water Resources

Direct and Indirect Effects

Flat Creek Allotment

Under Alternative 2, livestock grazing would be authorized at existing levels and season of use. An additional Term and Condition would be included on the grazing lease that relates to administration of the lease and would not affect water resources. No range improvements are proposed. The effects to water resources in the Flat Creek Allotment would be the same as those under Alternative 1.

Summit Prairie Allotment

Under Alternative 2, the turnout date in the spring pastures would be 2 weeks later, changing from April 16 to May 1. The number of livestock allowed would increase but the total number of AUMs would remain the same. This new turnout date would not change the overall impacts to water quality or riparian vegetation disclosed in Alternative 1 because AUMs would remain the same on this allotment and soils in riparian areas would remain wet during this time. Also, soils in riparian areas typically would still be wet during this time frame and would remain susceptible to disturbance from grazing if cattle were to enter the riparian area.

Alternative 2 includes fencing off approximately 4.6 acres of a wet meadow on Beaver Dam Creek in the Parsnip Creek Pasture. This wet meadow has a seasonally high water table with unique soils. Past grazing has resulted in heavy pressure on riparian vegetation, degraded streambanks, and altered stream channel morphology.

This exclosure would allow riparian vegetation to recover, increase streambank stability, and improve stream channel morphology on the stream channels in the wet meadow on Beaver Dam Creek. As streambanks stabilize, stream channels are expected to become narrower and deeper which would reduce stream temperatures and improve water quality and aquatic habitat. This exclosure would help meet ACS objectives in the allotment.

Cumulative Effects

Historic human activities and natural events that have affected riparian areas across the Project Area include timber harvest, grazing, recreation, water diversion, private land development, road development wildfire, and windstorms. The spatial distribution of these activities varies from large (i.e., timber harvest, grazing, road development, and wildfire) to small (water diversion and recreation).

Livestock grazing has occurred on both allotments for over 100 years. Most of the BLM-administered lands in the Project Area are forested and do not have typical range conditions. Livestock are limited to grazing in meadows, oak savannah habitat, clear-cuts, and along roads. Riparian areas are typically preferred during late summer and fall by livestock because of the water, ample forage available, shade, and cooler temperatures (Kauffman and Krueger 1984). Timber harvest, road building, and livestock grazing are the primary past, present, and future land uses that could cumulatively impact riparian reserves and water quality in the analysis area.

The effects of Alternative 2 on riparian reserves and related water quality on a landscape scale – when combined with past, ongoing, and reasonably foreseeable activities – would be negligible and difficult to distinguish from other activities in the watershed, especially when compared to other impacts to water quality such as wildfire and past road, skid trail, and landing construction. Hot spots would continue to have localized impacts and would be improved as identified. The hot spot in the riparian area along Jackass Creek would be fenced and is expected to allow for vegetative recovery which would result in streambank stabilization and improved water quality locally.

3.8 Fisheries

3.8.1 Definitions

Alevins: Newly hatched fish fry still attached to the yolk-sac.

Anadromous: Species that live their adult lives in the ocean but move into freshwater streams to reproduce or spawn.

Critical Coho Habitat (CCH): On May 5, 1999, the National Marine Fisheries Service (NMFS) designated CCH for Southern Oregon/Northern California (SO/NC) coho salmon. CCH includes “all waterways, substrate, and adjacent riparian zones below longstanding, naturally impassable barriers.”

It further includes "those physical or biological features essential to the conservation of the species and which may require special management considerations or protection . . . ," including all historically accessible waters (64 FR 86:24049).

Essential Fish Habitat (EFH): Essential Fish Habitat is defined by NMFS as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." This definition includes all waters historically used by anadromous salmonids of commercial value (including coho salmon).

Evolutionarily Significant Unit (ESU): A population or group of populations of salmon that 1) is substantially reproductively isolated from other populations and 2) contributes substantially to the evolutionary legacy of the biological species.

Fry: Young salmonid that is free swimming and feeding.

Osmoregulation: The active regulation of the osmotic pressure of an organism's fluids to maintain the homeostasis of the organism's water content; that is, it keeps the organism's fluids from becoming too dilute or too concentrated.

Redds: Salmonid spawning nests.

Turbidity: A unit of measurement quantifying the degree to which light traveling through a water column is scattered by the suspended matter. Turbidity is measured in Nephelometric Turbidity Units (NTU).

3.8.2 Methodology

- Information used in this analysis includes GIS, Aquatic Habitat Inventories (ODFW), BLM Field Observations (2008, 2009), Medford District Office Butte Falls Resource Area *1998 Livestock Grazing Monitoring Report, Rangeland Health Assessments* (2000), *Central Big Butte Creek Watershed Analysis, Lost Creek Watershed Analysis*, *Lower Big Butte Creek Watershed Analysis,* and *Elk Creek Watershed Analysis*. Literature related to fisheries, streams, hydrology, and grazing activities were also used for the analysis of this project (see references).
- The Fisheries analysis area is composed of the Big Butte Creek, Lost Creek/Rogue River, South Fork Rogue River, and Elk Creek fifth field watersheds. These fifth field watersheds are four of the eight fifth field watersheds located in the Upper Rogue fourth field subbasin. A small portion of the Project Area is located in the Little Butte Creek fifth field watershed.

3.8.3 Assumptions

- Juvenile fish are dynamic and adaptive and move throughout the stream systems (Bramblett et al. 2002; Kahler et al. 2001; Hilderbrand and Kershner 2000) to avoid short-term increases in sediment levels (Kahler et al. 2001).
- Recently emerged young are less mobile and generally stay in shallow, slow moving water.
- Cattle exclosures will be effective in keeping cattle from accessing the excluded areas.
- All access gates within exclosures will remain closed during the grazing season.

- Cattle avoid dense canopies and prefer open meadows, roadways, and perennial streams for access to forage and ease of travel.
- Cattle prefer riparian areas because of topography; variety and palatability of forage; and availability of shade, water, and thermal cover.
- Year after year, cattle will primarily use streams with flat upland slopes adjacent to them that do not have dense vegetation.
- Cattle will graze on vegetation that is just above head height or below.
- The exclosure on Jackass Creek in section 29, Township 34 South, Range 3 East will be completed as analyzed in EA #OR-115-05-04.

3.8.4 Affected Environment

3.8.4.1 Introduction

Flat Creek Allotment

The Flat Creek Allotment is a single pasture allotment located in the Elk Creek fifth field watershed within the Upper Rogue fourth field watershed. Streams containing CCH in the Flat Creek Allotment are Elk Creek, Flat Creek, Hawk Creek, Sugar Pine Creek, Middle Creek, Alco Creek, Timber Creek, Bitter Lick Creek, and West Branch Elk Creek.

The Elk Creek fifth field watershed was designated a Tier 1 Key Watershed in the 1995 ROD/RMP primarily due to the presence of anadromous fish. Key watersheds contribute to the conservation of anadromous salmon, steelhead, and trout and are high priority areas for watershed restoration.

The Flat Creek Allotment contains four deferred watersheds (7,611 acres BLM-administered land) within the Elk Creek fifth field watershed: Flat Creek, Miller-Jones, Alco-Middle, and Yellow Rock. These watersheds were deferred from management activities for 10 years in the 1995 Medford District ROD/RMP due to high cumulative effects resulting from compaction and openings in the transient snow zone (TSZ). “Management activities of a limited nature (e.g., riparian, fish, or wildlife enhancement, salvage, etc.) could be permitted in these areas if the effects will not increase the cumulative effects” (USDI 1995a, 42). Grazing is not expected to increase compaction or create openings in the transient snow zone and would therefore not contribute to an increase in the cumulative effects.

The Flat Creek Allotment was grazed 3 of the last 7 years; the allotment was closed in 2003 and 2004 to allow for recovery of the vegetation following the 2002 Timbered Rock Fire. In 2007 and 2008, the actual use was at 100 percent of the authorized use on BLM lands.

Summit Prairie Allotment

The Summit Prairie Allotment contains 11 pastures located in the Lost Creek/Rogue River, South Fork Rogue River, Big Butte Creek, and Little Butte Creek fifth field watersheds within the Upper Rogue fourth field watershed. A small portion of the Summit Prairie Allotment (230 acres) is located in the Little Butte Creek fifth field watershed. The area is near a ridge and the closest EFH and CCH is about 1.2 stream miles from the closest point. Therefore, this analysis will focus on the other three fifth field watersheds in the Summit Prairie Allotment.

Streams containing CCH within the Summit Prairie Allotment are Eighty Acre Creek, Clark Creek, Big Butte Creek, Box Creek, Dog Creek, Jackass Creek, Camp Creek, McNeil Creek, North Fork Big Butte Creek, and South Fork Big Butte Creek.

The Summit Prairie Allotment contains three deferred watersheds (6,316 acres BLM-administered land): Vine Maple and Lost-Floras (Rogue River/Lost Creek fifth field watershed) and Clark Creek deferred watershed (Big Butte Creek fifth field watershed).

In the Summit Prairie Allotment, the actual use from 2000 to 2008 was lower than the authorized AUMs for all pastures except Mule Creek, which exceeded the authorized AUMs 6 out of 9 years. See Table 3-3, Summit Prairie Actual Use Summary for more information.

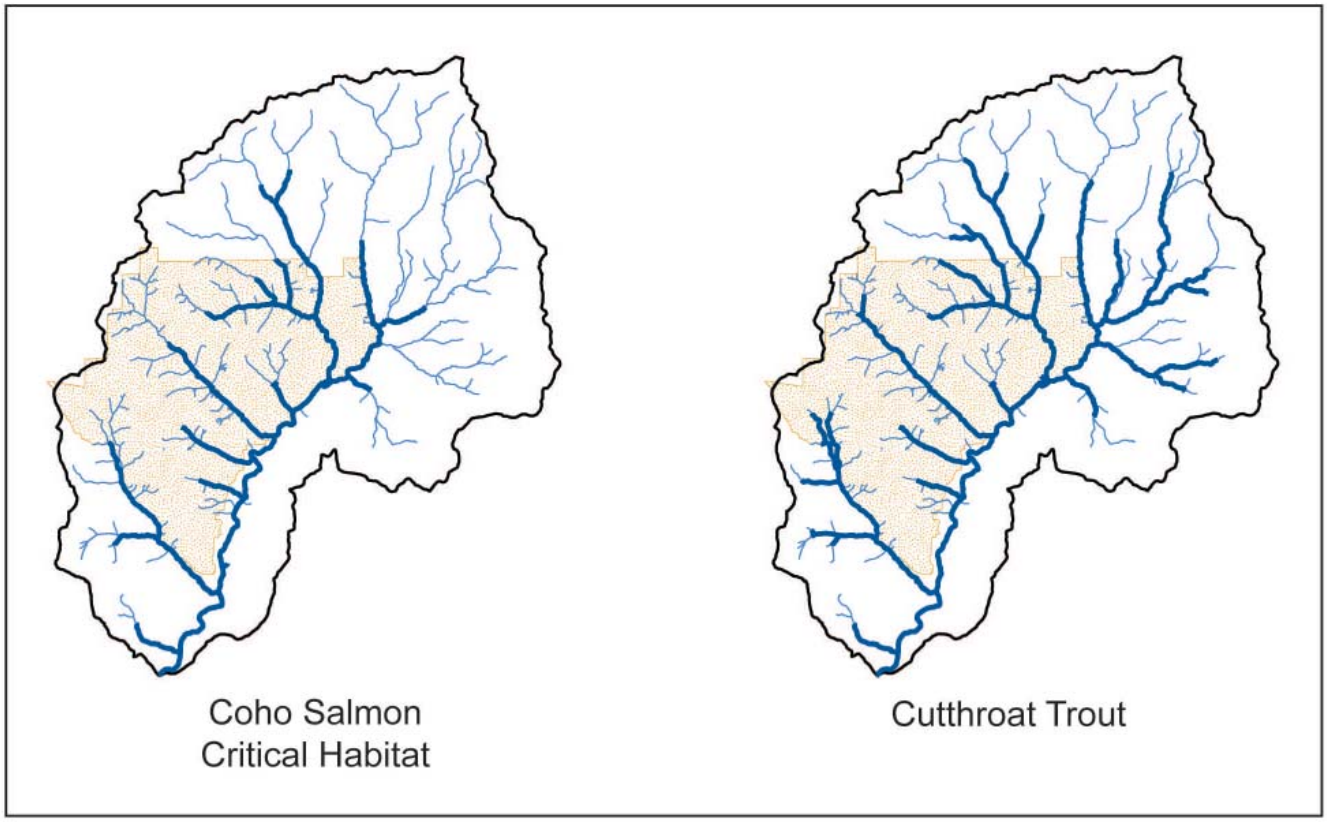
3.8.4.2 Fish Populations

Major fish species found within the four main fifth field watersheds containing the Project Area are coho salmon (Oncorhynchus kisutch), steelhead trout (O. mykiss), cutthroat trout (O. clarki), and Chinook salmon (O. tshawytscha). Cutthroat trout have the widest distribution, followed by steelhead trout, and coho salmon. Chinook salmon are found only in South Fork Big Butte Creek and in the main stem of Big Butte Creek. See Maps 5 and 6 for fish distribution in the Flat Creek and Summit Prairie Allotments based on fifth field watersheds. NMFS listed wild coho salmon as a threatened species in May 1997.

Table 3-14 displays miles of fish habitat available in the three main fifth field watersheds containing the Summit Prairie Allotment and the fifth field watershed containing the Flat Creek Allotment. Fish habitat may extend much further up in these watersheds; however, these stream miles are only where fish presence has been verified.

Table 3-14. Available Fish Habitat in the Flat Creek and Summit Prairie Allotments by Fifth Field Watershed

Fifth Field Watershed	Miles	Species
Flat Creek Allotment		
Elk Creek	50.1	coho salmon
	79.1	cutthroat trout
	0.0	Chinook salmon
Summit Prairie Allotment		
Big Butte Creek	54.6	coho salmon
	177.2	cutthroat trout
	13.3	Chinook salmon
Lost Creek/Rogue River	2.9	coho salmon
	14.6	cutthroat trout
	1.0	Chinook salmon
South Fork Rogue River	0.0	coho salmon
	94.5	cutthroat trout
	0.0	Chinook salmon



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Medford District
May 2009

NATIONAL SYSTEM OF PUBLIC LANDS

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LEGEND

- Fish Species Present
- Elk Creek 5th Field
- Flat Creek Allotment
- Perennial Stream

Map 5. Fish Distribution within the Flat Creek Allotment by 5th Field Watershed

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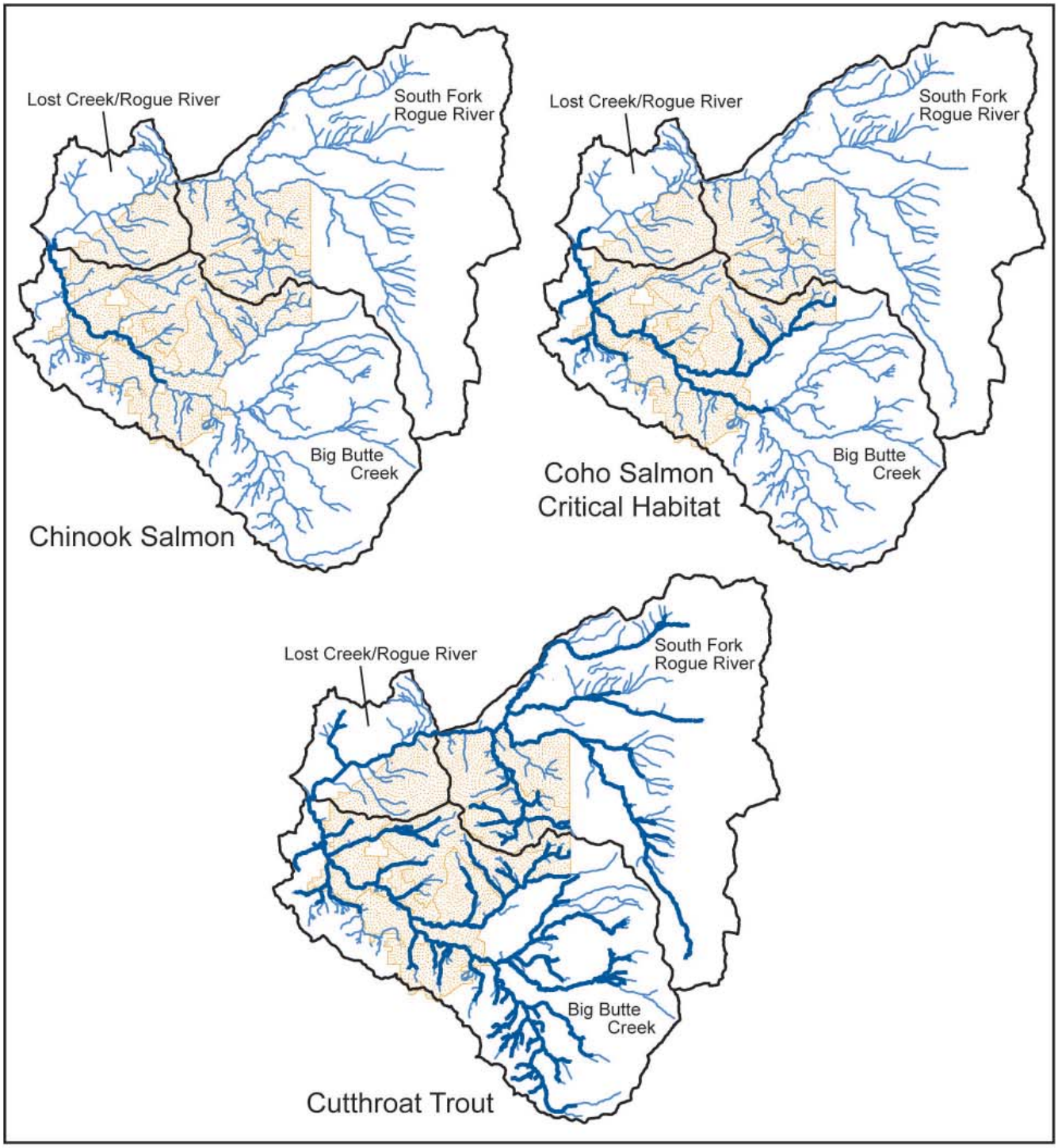

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May 2009

NATIONAL SYSTEM OF PUBLIC LANDS

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LEGEND

- Fish Species Present
- 5th Field Watershed
- Summit Prairie Allotment
- Perennial Stream

Map 6. Fish Distribution within the Summit Prairie Allotment by 5th Field Watershed

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these datea for individual or aggregate use with other data. Original data was compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

Anadromous Salmonid Life Cycle

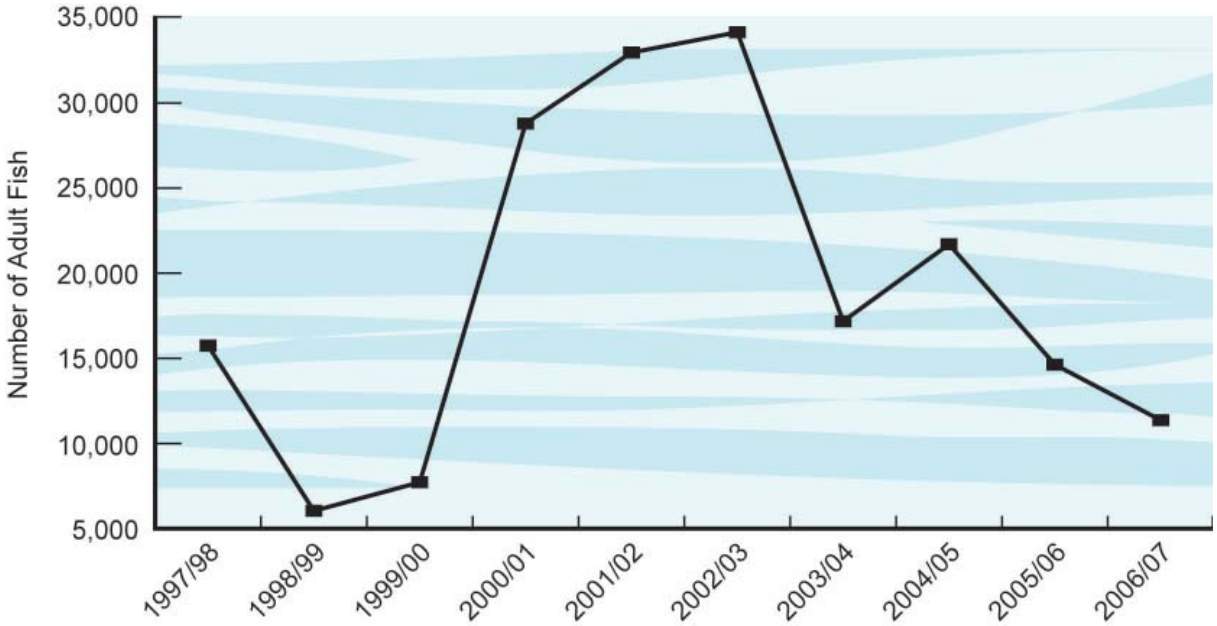
All salmonid species dig a nest (redd) in the gravel bottom of streams where the eggs are deposited by the female and fertilized by the male. Incubation of the egg depends on the species and is water temperature dependent. After incubation, an alevin (a small fry with an attached egg yolk sac) emerges from the egg into the gravel. Once the egg sac has been completely absorbed, the alevin emerges from the gravel as a fully developed fry.

In most areas, Chinook salmon alevins emerge by early March; coho salmon and steelhead trout alevins emerge from redds by mid-May. Fry are free-swimming and are able to leave the safety of gravel streambeds to forage for food.

Population Trends

The four fifth field watersheds in the Fisheries analysis area are located above Gold Ray Dam on the Rogue River. The coho salmon numbers over the dam reflect the overall population trends for the entire Rogue River and ESU, including the Fisheries analysis area. The coho salmon population for the Upper Rogue River fourth field watershed has been monitored by Oregon Department of Fish and Wildlife (ODFW) at Gold Ray Dam since 1942. The wild adult coho salmon population was extremely low from 1965 to 1979 when numbers were as low as 12 returning adults (Satterthwaite 2002). Populations were on an upward trend since 1979; however, since 2002, the wild adult population has been dropping. The 2007 returns are among the lowest of the last 10 years (ODFW Gold Ray Counts 1997-2007) and the coho population remains low throughout their range (Figure 3-2).

Figure 3-2. Number of coho salmon returning to the upper Rogue River from 1997 to 2006 (ODFW Gold Ray Counts 1997-2007)



BLM and ODFW trap data concluded Big Butte Creek produced more (estimated) coho salmon smolts in 2000 than any other stream in the Rogue River Basin. When the number of miles of spawning and rearing habitat in fifth field watersheds is considered, Big Butte Creek produced the highest number of both coho salmon and steelhead smolts per mile of spawning and rearing habitat.

The Oregon Native Fish Status Report (ODFW 2005) assessed production and abundance of coho salmon, spring Chinook salmon, and steelhead within the Upper Rogue River fourth field watershed. All three species met ODFW production and abundance goals, indicating short-term (5 to 10 years) sustainability for these species is not at risk. For more information on fish population trends within the Big Butte Creek fifth field watershed, please refer to the Butte Falls Blowdown Salvage EA (USDI 2008a).

Fish Passage/Barriers

Connectivity, the ability of organisms to freely move in and out of habitat areas, is important for fish production; restoring fish passage is an effective way to increase the availability of habitat (Roni et al. 2002). It is common for fish to move within streams and between stream systems throughout the year (Kahler et al. 2001). The historic distribution of fish was likely not much different than today since most fish distributions end where gradients get steep or at natural waterfalls. The Butte Falls waterfall, at river mile 1.4 on South Fork Big Butte Creek, is a barrier to Chinook salmon, coho salmon, and steelhead on most years. ODFW monitored steelhead and coho salmon smolt populations in South Fork Big Butte Creek above Butte Falls from 1999 to 2001. Surveys indicate coho salmon and steelhead migrate above the falls but passage and fish use is limited (Vogt 1999; Vogt 2000; Vogt 2001). NMFS designated South Fork Big Butte Creek as SO/NC CCH. Lost Creek Dam on the Rogue River is a complete fish barrier to all fish species.

Fish Hatcheries

Two fish hatcheries are located within the Upper Rogue River fourth field watershed, Cole Rivers Hatchery and Butte Falls Hatchery. Cole Rivers Hatchery began operation in 1975 and was built to mitigate for loss of anadromous salmonid habitat above Lost Creek Dam (USDI 1998b, 71). The Butte Falls Hatchery was constructed in 1915 to enhance or maintain fisheries without impairing naturally reproducing populations.

3.8.4.3 Habitat

Salmon and trout species need cool water temperatures, hiding cover, clean spawning gravels, rearing pools, and an adequate food supply for good fish production. Fish production is largely determined by habitat quantity and quality (Meehan 1991).

Aquatic Habitat

Fish populations are influenced by natural and human-caused disturbances. Factors such as habitat loss or degradation, commercial fishing, and variable ocean conditions are primarily responsible for the depressed status of most fish species (Nehlsen et al. 1991). Primary factors for analysis in the Fisheries analysis area include sediment, lack of large woody debris, and stream temperature (USDI 1995a).

Sediment

Extremely high turbidity and suspended sediment can affect salmonid physiology, behavior, and habitat (Bash et al. 2001). Physiological effects include, but are not limited to, reduced reproduction and growth, gill trauma, and osmoregulation difficulties. Sigler et al. (1984) found a significant difference between steelhead and coho salmon growth rates in clear versus turbid water. Turbidities in the 25 to

50 NTU range caused a reduction in growth. Effects of high turbidity include avoidance, territoriality, foraging and predation, and a decrease in the abundance and diversity of prey. Juvenile coho salmon that were acclimated to clear water did not exhibit significant sediment avoidance until the turbidity reached 70 NTUs (Bisson and Bilby 1982); however, Sigler et al. (1984) found that turbidities in the 25 to 50 NTU range caused more young coho salmon and steelhead to emigrate from laboratory streams than did clear water. Excessive or chronic increases in sediment and turbidity affect salmonid habitat by reducing permeability of spawning gravels, reducing or eliminating habitat for aquatic insects, filling in pools, and blocking the interchange of subsurface and surface waters (Meehan 1991). Pools provide important rearing habitat for juvenile salmon and trout (Nickelson et al. 1992; Rosenfeld et al. 2000) and winter holding habitat for adult fish (Cunjak 1996). Streams with high levels of fine sediments tend to have shallow pools because sediment deposits fill in these areas (Meehan 1991).

Spawning gravel for salmon and trout ranges in size from 0.5 to 4 inches (Meehan 1991). When excessive fine sediment levels occur in spawning gravels, less spawning occurs, eggs tend to suffocate, and emerging fry become trapped resulting in mortality and reduced production (Philips et al. 1975; Tappel and Bjornn 1983; Chapman 1988). Sedimentation can also impair water flow in gravel resulting in developing embryos not receiving sufficient oxygen and metabolic wastes not being flushed. Siltation of cobble and gravel also covers hard substrates required for algal growth. This means that invertebrates that scrape algae from gravel and cobble for food will decline. Generally, invertebrates that dwell in rock spaces are the most important food source for fish such as salmonids that feed on invertebrates (Waters 1995). As a result of changing forest management practices and the establishment of Riparian Reserves the input of fine sediments to streams has decreased and episodic events of excessive sediment inputs are rare.

Hausle and Coble (1976) reviewed studies on coho salmon and steelhead fry emergence in gravels with concentrations of sand exceeding 20 percent. When concentrations of sand exceed 20 percent in spawning beds, emergence success declined. Fine sediment levels in most streams within both grazing allotments are above 20 percent due to historical timber management and road construction. Substrates are predominately gravel and cobble followed by sands and fine sediment. On average, most stream reaches in the Fisheries analysis area are approximately 20 percent fine sediment and about 15 percent sand (ODFW 1995-2000). Properly functioning substrates have less than 20 percent fine sediment and sands.

Large Woody Debris

Large woody debris (LWD) is important for providing cover for fish, forming pools, stabilizing channels, and trapping and sorting fine sediment (Meehan 1991). LWD is composed of large and small pieces of wood that accumulate within the stream channel and help shape channel function and complexity. LWD also provides channel roughness to dissipate stream energy that causes bank erosion and increases channel width (Montgomery and Buffington 1997). Reductions in LWD through past wood removal and riparian timber harvest have led to channel simplification and reduced cover for fish. The effect of LWD reduction throughout the Pacific Northwest is declining fish production (Meehan 1991).

All streams in both grazing allotments lack LWD (USDI 1995b; USDI 1998b; USDI 1999a); however, since the inception of the Northwest Forest Plan in 1994 and the creation of riparian reserves, riparian areas have been in a state of recovery from previous management actions. LWD deficiency has resulted in the existence of few pools in most streams and excessive amounts of fine sediment distributed throughout most streams in both grazing allotments. Recent blowdown has improved LWD in the Summit Prairie Allotment stream reaches (see Butte Falls Blowdown Salvage EA, 2008a). The Timbered Rock Fire in 2002 (see Timbered Rock Fire EIS, 2003) contributed a pulse of LWD to area streams

within the Flat Creek Allotment. This LWD will continue to trap debris and material. Restoration projects implemented by ODFW and BLM have added LWD to streams in both allotments including Sugar Pine Creek, Hawk Creek, Flat Creek, and West Branch Elk Creek in the Flat Creek Allotment; however, LWD in the Flat Creek and Summit Prairie Allotments remains low.

Stream Temperature

Water temperature is one of the most important variables controlling habitat suitability for salmonids. Optimum temperatures for coho salmon, steelhead, and cutthroat trout are 55 degrees Fahrenheit (°F) to 60 °F; temperatures over 84 °F are considered lethal (Meehan 1991). Sunlight is the largest cause of increasing stream temperatures. Other factors such as climate, stream size, elevation, and groundwater flows also influence stream temperatures.

The following four streams in the Flat Creek Allotment are on Oregon DEQ's 2004/2006 303(d) list for exceeding temperature: Sugar Pine Creek, West Branch Elk Creek, Bitter Lick Creek, and Elk Creek. All four of these streams contain EFH and CCH (see Section 3.7, Water Resources, for more information on stream temperature).

The following eight streams in the Summit Prairie Allotment are on the Oregon DEQ's 2004/2006 303(d) list for exceeding stream temperature: Clark Creek, Dog Creek, Jackass Creek, North Fork Big Butte Creek, Hukill Creek, Doubleday Creek, Willow Creek, and Big Butte Creek. All eight streams contain EFH and, with the exceptions of Hukill Creek, Doubleday Creek, and Willow Creek, all streams also contain CCH.

Aquatic Vegetation

The presence of some aquatic vegetation is normal in streams and indicates a healthy stream. An excessive amount of aquatic vegetation, however, is not beneficial to most stream life. An increase in stream temperatures and nutrients in the streams can promote an overabundance of plant life including algae and floating and rooted aquatic plants. Plant respiration and the decomposition of dead plant life consume dissolved oxygen in the water that fish need to breathe (Belsky et al. 1999). Aquatic vegetation is not overabundant within these allotments; however, some small areas of aquatic vegetation occur within North Fork Big Butte Creek near Jackass Creek. Currently, fish use this vegetation as cover.

Elk Creek in the Flat Creek Allotment is on the 303(d) list as dissolved oxygen impaired from river mile 9.5 to river mile 20.7. Big Butte Creek in the Summit Prairie Allotment is on the 303(d) list as dissolved oxygen impaired from river mile 0.0 to river mile 11.6.

Riparian Habitat

Riparian habitat is the assortment of native vegetation that occurs adjacent to lakes, streams, and rivers. Riparian vegetation is important to aquatic habitat for many reasons. Riparian vegetation holds streambanks to prevent erosion, traps sediment and other pollutants, shields streams from summer and winter extreme temperatures, and dissipates floodwaters. Intensive grazing in riparian areas can remove vegetation from stream banks that shade stream channels. The removal of this shade can increase direct solar radiation and increase the average daily temperature in the summer months. The Timbered Rock Fire in 2002 burned the riparian areas of Flat Creek and Middle Creek resulting in a decrease in canopy cover and a pulse of LWD input to the streams.

Riparian grazing recommendations suggest that 10 to 15 centimeters (4 to 6 inches) of forage stubble height should remain on meadow riparian systems and streamside areas at the end of the growing season, after fall frost, to limit potential impacts to the herbaceous plant community, woody plant community, and streambank stability (Clary 1999). Stubble heights of 15 to 20 centimeters (6 to 8 inches may be required to reduce browsing of willows or limit trampling impacts to vulnerable streambanks (Clary and Leininger 2000). According to Hall and Bryant (1995), cattle preference will shift to woody vegetation as stubble height of the more palatable herbaceous species is reduced to three inches. Stubble height resulting from livestock grazing is a short-term indicator that is generally used to predict when grazing animals shift from mostly herbaceous plants to woody plants. It can be used as a "trigger" for when livestock should be moved from an area. It may or may not reflect long-term riparian management objectives are being met.

The BLM conducted riparian stubble height surveys in 2003 on 1 site in the Flat Creek Allotment and 11 sites in the Summit Prairie Allotment. Small areas at each site were fenced and used as the control, or ungrazed, measurement area. The 1-year survey was inconclusive in the Flat Creek Allotment because the BLM rested the allotment after the Timbered Rock Fire and no grazing occurred in 2003. The survey showed 7 sites in the Summit Prairie Allotment were grazed below the recommended 4- to 6-inch stubble height, 2 sites were grazed to 5 inches, and 1 site was grazed to 9 inches. Although this study was only conducted for 1 year, BLM personnel have observed similar results in subsequent years.

Exclosures

In the Flat Creek Allotment, one spring was fenced to protect the fragile spring area from trampling by cattle and wildlife. Water was piped from the spring to a water trough in a more stable location to protect riparian areas from overuse. Three pump chances in the allotment that were developed to provide water for fire suppression also serve as water sources outside of stream channels for cattle and wildlife.

Within the Summit Prairie Allotment, cattle exclosures protect 0.7 miles of cutthroat trout habitat on Beaver Dam Creek, about 2.5 miles of CCH on North Fork Big Butte Creek, and 0.2 miles of CCH on Jackass Creek. Another 0.8 miles of CCH on Jackass Creek is going to be fenced and was analyzed in EA #OR-115-05-04. Jackass Creek was identified as an area of intense cattle grazing and continues to be an area of heavy cattle use resulting in heavily browsed shrubs, sedges and young hardwood trees as well as a reduction in bank stability.

These cattle exclosures were installed to limit cattle access to CCH, allow previously heavily grazed riparian areas to recover, and provide areas for monitoring purposes. The Summit Prairie Allotment also contains 6 spring developments and 12 pump chances.

The exclosures and spring developments have enabled some previously heavily grazed riparian areas to recover. On Beaver Dam Creek, however, the area adjacent to the existing exclosures has become heavily grazed. The water table in this area is high and, based on 2008 and 2009 field observations the channel shows extensive braiding due to cattle trampling the streambanks. Cattle are defecating in the stream, which may cause an increase in nutrients. Cattle are overgrazing the streamside cover, which may increase temperature and remove cover for cutthroat trout in the area outside of the existing exclosure (see Section 3.7 Water Resources, for more information).

Figure 3-3 demonstrates the difference in the vegetation on Beaver Dam Creek in the cattle exclosure compared to outside the exclosure where cattle graze.

Figure 3-3. Parsnip Pasture's Beaver Dam Creek south fenceline before cattle turn-out in May 2009.

Looking down the fence line to the east. The exclosed area is on the right and the area open to cattle is on the left.

Looking down the fence line to the west. The exclosed area is on the left and the area open to cattle is on the right.

Aquatic and Riparian Habitat Trend

In 1998, BLM fisheries and rangeland management staff produced a grazing and monitoring report for six sites on four creeks in the allotments: West Branch Elk Creek, Sugar Pine Creek, Jackass Creek (2 sites), and North Fork Big Butte Creek (2 sites). Stream indicators were streambank vegetative cover, streambank soil stability, and turbidity; the tools to assess these indicators were channel cross-sections and photo points. Indicators were chosen based on relevance to livestock management and fish habitat, the degree of influence livestock grazing can have on affecting fish habitat, and ease of implementation. All six sites were monitored from April through September and four of the six sites were surveyed through October. Five of the six sites received a "good condition" assessment throughout the six to seven month monitoring project. West Branch Elk Creek was in "excellent condition" in April, June, and October and in "good condition" in July, August, and September.

In 2005 and 2006, BLM fisheries and rangeland management staff produced a grazing and monitoring report for two sites in the Summit Prairie Allotment (Jackass Creek and North Fork Big Butte Creek) and one site in the Flat Creek Allotment, Sugar Pine Creek. All three sites were in unenclosed livestock use areas. Monitoring techniques included stream bank stabilization assessment and stream side shrub and hardwood use developed by Cowley and Burton (2004). Cowley and Burton considered streams with 90 percent of the potentially stable banks unaltered (10 percent or less alteration) as optimal. They also considered annual woody species consumption below 20 percent to be low. Findings for 2005

and 2006 were consistent. Jackass Creek had suboptimal bank stability of 83 percent and a low annual woody species consumption of 14 percent. North Fork Big Butte Creek had optimal bank stability of greater than 90 percent and a low annual woody species consumption of 15.9 percent. Sugar Pine Creek had optimal bank stability of 99 percent and an annual woody species consumption of only 1 percent.

The Rangeland Health Assessment the BLM completed in 2000 indicated the riparian and wetland areas in the Flat Creek Allotment were meeting the Riparian/Wetland Areas standard (riparian and wetland areas are in properly functioning physical condition appropriate to soil, climate, and landform).

Based on the Rangeland Health Assessment the BLM completed in 1999, the Summit Prairie Allotment was not meeting the Riparian/Wetland Areas standard. The main reason the allotment failed to meet the standard was due to logging on private timber lands in the 1990s. Although these actions took place on private land, they impacted stream and riparian quality across the entire landscape. These impacts were not caused by livestock, but by those actions outside the control of the livestock operators.

Aquatic habitat is improving in the analysis area because road decommissioning, improvement, and renovation continue to reduce the amount of chronic erosion and improve hydrologic function. Culverts have been upgraded to accommodate 100-year flood events resulting in less risk of major washouts and fill failure. LWD levels, including localized contributions from recent blowdown and the addition of LWD through restoration projects, have increased habitat complexity and cover for fish. As a result, fine sediment levels have decreased and LWD levels are higher than observed in previous ODFW surveys; however, the upward trend for the entire analysis area is at a slow rate of recovery.

Riparian areas are improving throughout the analysis area because they are no longer managed for timber production on BLM-administered lands. As a result, younger stands are recovering and will eventually provide a good supply of LWD and increased shade levels. Thinning overstocked riparian areas can help recover riparian health and function by accelerating tree growth for future LWD recruitment and increased canopy structure. Private lands are still being managed for timber production and limited riparian areas remain after harvest, which keep riparian areas in a fractured state.

3.8.5 Environmental Consequences

Due to the large numbers of acres available to relatively few cows, effects from cattle grazing are anticipated to be inconsequential. It is assumed that cattle will use riparian and streamside areas much more than drier upland areas. However, the BLM predicts current monitoring and the lessee's active pasture management would allow only small inconsequential effects from cattle congregating in one area for an extended period of time. If areas are not meeting standards after the grazing season, the BLM could reduce the numbers of cows, fence off the area, or employ other mitigation measures to improve the affected area. By using this active management approach, effects should remain insignificant and distributed across the landscape.

3.6.5.1 Effects of Alternative 1 (No Action) on Fisheries

Direct and Indirect Effects

Under Alternative 1, the current grazing methods would continue. The wet meadow along Beaver Dam Creek in the Parsnip Creek Pasture would not be fenced in this alternative. The current aquatic condition, resulting from previous activities, would likely persist under the No Action Alternative.

Despite active management practices, there is still the potential for livestock to congregate in specific riparian zones where there is succulent vegetation, shade, and water. In the process, the livestock compact the soil, degrade streambanks, and add sediment to streams by accessing streambanks and crossing stream channel. Cattle add nutrients to the stream through relieving themselves directly in the stream. Livestock will also rub, trample, and browse riparian vegetation. These behaviors have the potential to result in widening stream channels, decreasing average stream depth, and increasing sediment and nutrient loads and average stream temperature.

Where minimum stubble heights are not maintained throughout the grazing season and where repeated grazing inhibits plant vigor, riparian vegetation has a reduced capacity to trap sediment during elevated stream flows. Stream bank stability decreases when riparian vegetation is lost. Additionally, removal of riparian vegetation allows higher levels of sunlight to reach the water surface in seeps, springs, and streams resulting in increased water temperatures. These effects are potentially damaging to fish spawning and fish production.

Summer grazing has the potential to exacerbate physical effects to streams as cattle focus on riparian areas because vegetation is palatable, water is available, and more shade is present (Chaney et al. 1993). Grazing that extends to late summer and early fall can lead to increased bank disturbance, bare ground, and sediment because the cattle spend more time in riparian areas. Most riparian areas lie at the bottom of steep terrain or contain dense vegetation, which prevents livestock use. Areas that have flat terrain and do not have dense, brushy vegetation are expected to receive heavier livestock use.

Past monitoring concluded livestock use along streams containing CCH has created very little fine sediment. It is expected livestock would have a minimal effect to the fine sediment levels. Any added sediment would be insignificant and undetectable and would only occur at small site-specific areas throughout the allotments.

Some conifer seedlings would be trampled by livestock and young hardwoods would be browsed or trampled. However, there would be an inconsequential effect to LWD recruitment to the stream from livestock trampling because of the small number of trees that would be trampled or browsed throughout the analysis area.

Salmonids move constantly, with volition and ease (Kahler et al. 2001). Free swimming juvenile coho salmon can avoid being stepped on by moving out of the way of hooves. The encounters between livestock and fish would not be intentional but would be a random occurrence. Livestock would temporarily displace salmonids and cause them to move to adjacent habitats, which could disrupt feeding behavior. Salmonids are opportunistic feeders and can switch easily to other prey. Salmonids would be disrupted temporarily but not to the extent where there is a likelihood of injury. Harassment of fish would not occur because there would be no disruption of behavior to cause undue stress to the survival or production (viability) of a fish.

Flat Creek Allotment

Of the nine streams in the Flat Creek Allotment containing CCH, Sugar Pine Creek and Hawk Creek have the most heavily used riparian areas (based on employee observations) due to flat terrain and ease of access. Livestock are likely to continue to browse riparian vegetation and impact growth in site-specific areas spread throughout the landscape. It is unlikely these areas of heavier use would result in effects detectable from the background; effects would be insignificant.

Based on actual use data for the Flat Creek Allotment, lessees have used an average of 33 percent of the authorized AUMs from 2000 to 2008. If the full amount of authorized AUMs is used, it is expected the effects would increase. However, active range management would adjust cattle use throughout the entire landscape with few site-specific areas of heavier use.

Impacts from livestock would be insignificant or discountable. There would be little chance of livestock trampling coho redds because livestock are not released on the allotment until May 1 and are not likely to reach riparian areas for a few weeks, giving coho salmon fry an opportunity to swim up from area coho salmon redds

Summit Prairie Allotment

In the Summit Prairie Allotment, four of the spring pastures, McNeil Creek and Poverty Flat (used in even years) and Rocky Flat and Perry School (used in odd years), contain a total of four CCH streams: Eighty Acre Creek, North Fork Big Butte Creek, South Fork Big Butte Creek, and McNeil Creek. Cattle are turned out into these pastures on April 16. Coho salmon fry emerge from redds by mid-May in most areas. Due to the early release dates of cattle in the spring use pastures, it is likely these cattle would occupy CCH before coho salmon fry have the chance to emerge leading to the potential trampling of coho salmon redds.

The average use in the spring pastures from 2000 to 2008 ranged from 0 to 27 percent. Observations, monitoring projects, and Rangeland Health Assessments are based on actual use. If all available authorized AUMs were used, we can assume the effects would increase in direct relation to the number of AUMs being used.

The pastures that would exhibit the greatest effects to riparian vegetation are those that have been the most heavily used in the past and those that are used for summer grazing (June 1 to September 30): Parsnip Creek, Round Mountain, Mule Creek, Fredenburg, and Carney Pastures. Ginger Creek is used for a limited period in the summer months (June 1 to July 31). In particular, the wet meadow along Beaver Dam Creek in the Parsnip Creek Pasture would continue to be heavily grazed. Only two of the summer grazing pastures, Fredenburg and Ginger, contain CCH streams: Eighty Acre Creek, North Fork Big Butte Creek, and South Fork Big Butte Creek.

In the summer grazing pastures, six streams, Beaver Dam Creek, Eighty Acre Creek, Jackass Creek, Parsnip Creek, upper North Fork Big Butte Creek, and an unnamed tributary to Beaver Dam Creek, were below the recommended riparian vegetation stubble height of 4 to 6 inches at the end of the grazing season in 2003. Due to the flatter terrain and easy cattle access, these six streams contain most of the more heavily used sites within riparian areas (based on employee observations). In these areas, reductions in and physical damage to young trees, shrubs, grasses, and sedges will continue to occur. Livestock are likely to continue to browse riparian vegetation and impact growth. Continuous grazing (year after year) in these areas could result in riparian vegetation below the minimum of 4 to 6 inches, as seen in the 2003 study. This would further inhibit riparian function including sediment trapping, stream shading from extreme temperatures, and floodwater dissipation, all of which have the potential to damage fish spawning and rearing habitat. However, active monitoring and management by the BLM and the lessees would make continuous use in the riparian areas unlikely. In addition, these sites are small and scattered across the landscape; there is little likelihood these effects would be detectable from the background.

Two of the six streams contain CCH, North Fork Big Butte Creek and Eighty Acre Creek. North Fork Big Butte Creek has 2.5 miles of stream excluded from cattle that is preventing this area from being overgrazed. Eighty Acre Creek has not been heavily grazed for the past couple of years (based on employee observations) and active management practices will keep this area from being overgrazed in the future.

Based on actual use data in the summer pastures, the use ranges from 71 to over 100 percent of the available AUMs. It is reasonable to assume the observable effects in these areas are directly related to the AUMs that have been used. Observations, past monitoring, and Rangeland Health Assessments are based on actual use. If all available AUMs were used, the effects would increase in direct relation to the number of AUMs being used. Due to active monitoring and range management, these effects would be spread over the entire landscape with few site-specific areas of heavier use.

Endangered Species Act (ESA) determinations for Alternative 1

Reissuing the Flat Creek Allotment lease constitutes a "May Affect, Not Likely to Adversely Affect" determination because of discountable direct and indirect impacts on SO/NC coho salmon.

Reissuing the Summit Prairie Allotment lease under Alternative 1 constitutes a "May Affect, Likely to Adversely Affect" determination on SO/NC coho salmon based on the potential for cattle to be in streams before coho salmon fry have emerged from redds and the inability of coho salmon alevins to avoid cattle hooves.

3.8.5.2 Effects of Alternative 2 on Fisheries

Direct and Indirect Effects

Flat Creek Allotment

In Alternative 2, livestock grazing would be authorized at existing levels and seasons-of-use. No range improvement projects are proposed in the allotment. The effects would be consistent with Alternative 1.

Summit Prairie Allotment

In Alternative 2, cattle would be turned-out on spring pastures on May 1, decreasing the grazing season by 2 weeks. This would give coho salmon fry the opportunity to emerge before cattle tramp on the redds. Cattle would be released in the upland areas and would likely take a few weeks or more to reach the riparian areas. The season-of-use would decrease; however, the total AUMs would remain the same so the number of cattle would increase (see Section 2.3.2, Alternative 2-Proposed Action). The season-long effects would be the same as in Alternative 1.

In Alternative 2, the proposed exclosure on Beaver Dam Creek would allow the area to recover from past grazing effects and would create a total area of approximately 13.4 acres along 0.5 miles of Beaver Dam Creek that is excluded from cattle and wildlife. Based on field observations, the quality of fish habitat in the currently excluded area is much greater than in the proposed exclosure. The area proposed for exclosure is heavily trampled resulting in a reduction in cutthroat trout habitat, excessive stream braiding, and bank instability (see Section 3.6 Soil and Section 3.7 Water Resources for more information). The stream in the currently exclosed area contains beaver dam pools, ample riparian cover and vegetation for shade, greater bank stability, and is generally not braided.

When cattle focus on a single riparian area and cause grazing and trampling effects that exceed approved levels, lessees will do inspections and active herding to limit such use and prevent damage to riparian areas. This will decrease the potential for cattle to graze riparian areas below the recommended stubble heights. If the BLM identifies problems related to cattle grazing during the 10-year lease period, mitigation measures would be implemented to ensure the Summit Prairie Allotment is meeting Rangeland Health Standards.

The increase in sediment from trampling of streambanks and increase in temperatures from extensive browsing in riparian areas would occur in isolated areas and would not significantly contribute to the degradation of CCH or EFH. The impacts from livestock would be insignificant or discountable. There would be little chance of livestock walking onto coho salmon redds because livestock would be released after coho salmon fry swim up from coho salmon redds. Therefore no coho salmon would be disturbed within any redds.

The decrease in the grazing season is unlikely to have any other effects on riparian habitat because cattle primarily use riparian areas in the summer months due to the lack of forage and access to water in the upland areas.

Endangered Species Act (ESA) determinations

Alternative 2 constitutes a “May Affect, Not Likely to Adversely Affect” determination on SO/NC coho salmon in both the Flat Creek and Summit Prairie Allotments.

3.8.5.3 Effects on Fisheries Common to All Alternatives

Cumulative Effects

Since the 1994 Northwest Forest Plan, aquatic habitats have been recovering and continue to recover on Federal land. Riparian reserves have been maintained or improved for aquatic and terrestrial habitats. Future Federal timber management would include thinning overstocked stands in riparian areas to maximize conifer growth rates and reduce stand susceptibility to insects by increasing stand and tree vigor. This improves LWD potential, provides shade, and continues to allow the riparian areas to recover from previous timber management. Future Federal actions include timber sales, stewardship contracts, improved road maintenance and drainage, and restoration of disturbed areas. All of these actions would implement project design features and best management practices to minimize impacts and improve riparian and aquatic function. Therefore, future aquatic conditions should have higher LWD levels, reduced fine sediment levels, more complex pools, and increased stream canopy cover.

On private or industrial forest lands, most land would continue to be used for timber production with a relatively short harvest rotation. This causes riparian and aquatic habitat to be fragmented across the landscape. In general, riparian and aquatic habitats on Federal land should continue to recover and riparian and aquatic habitat on private land would continue to be fragmented.

3.9 Wildlife

The BLM project wildlife biologist has completed a review of special status wildlife species for this project (Table D-1, Appendix D-Wildlife). Only the species that could be impacted by grazing will be discussed. If a species is not discussed, it should be assumed the wildlife biologist has considered effects and found the proposed action would have no effect.

3.9.1 Definitions

Bureau Sensitive (BLM): Species that have appeared in the Federal Register as proposed for sensitive classification or are under consideration for official listing as endangered or threatened species, are on the official state list, or are recognized by the implementing agencies as needing special management to prevent being placed on Federal or state lists. Generally, these species are restricted in range and have natural or human-caused threats to their survival.

Ungulate: Hoofed animals, such as domestic cattle, black-tailed deer, and Roosevelt elk, that forage on herbaceous plants (such as grasses) and some nonherbaceous plants.

3.9.2 Methodology

- The Wildlife Analysis Area encompasses the Flat Creek and Summit Prairie grazing allotments. It is the same as the Project Area. The project wildlife biologist specifically considers the effects of the proposed actions on the terrestrial wildlife occurring on the 42,645 acres of BLM-administered land within these two allotments.

3.9.3 Assumptions

- Livestock grazing will only occur in each pasture during the spring and summer in specified months ranging from 1.5 to 4 months.
- Livestock owners will move cattle from spring to summer pastures on schedule and will remove livestock at the end of the season-of-use.
- If no threatened and endangered (T&E) or special status species or their habitat will be impacted by grazing, or the area is outside the range for the species, then no further analysis is needed. If a T&E or special status species is known or suspected to be present and habitat is proposed to be disturbed, then the species will be analyzed.

3.9.4 Affected Environment

3.9.4.1 Threatened and Endangered Species

Northern Spotted Owl - Federally Threatened

Northern spotted owls (*Strix occidentalis caurina*) are present within the Flat Creek and Summit Prairie Allotments. Spotted owls nest in coniferous forests with a well-developed overstory and with the

presence of large stick nests, cavities, or mistletoe, and forage on forest-dependent mammals such as flying squirrels and wood rats. There are 34 historic nesting sites in the two allotments.

Other Threatened and Endangered Species

Vernal pool fairy shrimp (*Brachinecta lynchi*) are not found in the Project Area. The Poverty Flat ACEC contains vernal pool habitat; however, the BLM inventoried the vernal pools and no vernal pool fairy shrimp were found. There is no habitat within the Project Area for vernal pool fairy shrimp and the project is outside of their known range. The area does not contain the required components to harbor this species. This species will not be discussed further.

3.9.4.2 Special Status Species

See Appendix D, Wildlife, for a review of the Special Status wildlife species in the Butte Falls Resource Area considered but found to not be impacted by grazing in these allotments.

Mollusks

Chace sideband (*Monadenia chaceana*) snails occupy late-successional forest and open talus or rocky areas, especially the lower one-third of a talus slope. They also use the surrounding forest areas during moist, cool conditions. No specific threats are identified in the literature (Burke et al. 1999). Monadenia chaceana were found in two locations in the Round Mountain Pasture of the Summit Prairie Allotment in a rock quarry and within timbered stands in leaf litter and duff near coarse woody debris.

Oregon shoulderband (*Helminthoglypta hertleini*) snails are found in basalt rockslides (talus), under rocks and woody debris in moist conifer forests, and in shrubby areas in riparian corridors. No strong riparian association has been identified (Burke et al. 1999). They may be vulnerable to activities which increase temperature, decrease moisture, or decrease food supplies in populated sites. Oregon shoulderband snails were not found during mollusk surveys in either the Flat Creek or Summit Prairie Allotments. They could be present outside the areas surveyed. They have been found in oak woodlands and dry conifer forests west of Lost Creek Lake.

Siskiyou hesperian (*Vespericola sierranus*) snails seek refuge in moist areas under rocks and large woody debris during the summer and late winter seasons and are generally associated with mixed conifer forests with a high percentage of canopy cover. Wildlife biologists found Siskiyou hesperian in nine different locations to the west of the Summit Prairie Allotment during surveys; none were found within the two allotments.

Traveling sideband (*Monadenia fidelis celeuthia*) snails may be found seeking refuge and hibernating under mosses in notches of trees and under leaf litter at the bases of bigleaf maples. They are active during the spring when temperatures are warm and soils are moist. Wildlife biologists found traveling sidebands in four different locations on the Butte Falls Resource Area during protocol mollusk surveys; none were found within the two allotments.

Amphibians

Foothill yellow-legged frogs (*Rana boylii*) live in and near low-gradient streams with rocky, gravelly, or sandy substrate. The tadpoles live in pools with little or no silt. Adults are often found sitting at the edge

of pools on the banks covered with vegetation, including grasses and sedges. They also are observed in open rocky areas at the edges of streams. They jump into the water when disturbed and hide in the substrate at the stream bottom. Biologists have detected foothill yellow-legged frogs within the Flat Creek Allotment. They are suspected to be present in some of the lower gradient streams in both allotments.

Oregon spotted frogs (*Rana pretiosa*) live where there is abundant aquatic vegetation in slow streams, permanent ponds, marshes, or lake edges, and breed in very shallow water in early or mid-spring. Spotted frogs have been observed on the Medford District BLM outside of the Butte Falls Resource Area. It is not known if the species is present within the two allotments, although surveys of ponds have not located them.

Reptiles

Northwestern pond turtles (*Actinemys marmorata marmorata)* spend the majority of their life cycle in aquatic environments, but must leave the water to dig terrestrial nests and lay their eggs. These turtles often overwinter in upland settings as well. They have not been observed within the two allotments, but may be present.

Bats

Fringed myotis (*Myotis thysanodes*) bats roost in caves, abandoned buildings, rock crevices, and trees. They can be found in western North America from British Columbia south to Vera Cruz and Chiapas in Mexico. Fringed myotis are found in habitats ranging from chaparral to ponderosa pine, but the preferred habitat is probably the oak woodland from which they forage out into a variety of other habitats (Hoffmeister 1986). They forage on moths and beetles near the vegetative canopy. Although the fringed myotis usually occurs at elevations of 4,000 to 7,000 feet, it ranges down to sea level on the west coast. Little is known about winter habits. Biologists located these bats within the Summit Prairie Allotment during formal surveys.

Townsend's big-eared bats (*Corynorhinus townsendii*) hibernate and rear their young in sites such as caves, mines, and buildings. Rimrock, cliffs, bridges, boulder fields, and possibly bark of large trees have the potential to be used as day roosts. Bats forage on moths and are known to travel long distances to foraging sites, so the allotments may be used as foraging areas. Bats visit ponds and pools in streams to drink water. Wildlife biologists located these bats within the Summit Prairie Allotment during formal surveys.

Birds

Bald eagles (*Haliaeetus leucocephalus*) in forested areas typically select the tallest mature or old-growth trees in a stand providing views of the surrounding territory and with large enough limbs to support a stick nest weighing up to 1,000 pounds. They generally build their nest structure at or near the top of the tree, not far from an adequate food supply such as a river, lake, stream, or coastline. Bald eagles feed mainly upon fish, but will also forage for waterfowl, shorebirds, turtles, carrion, and small mammals. They require shoreline trees to perch in, providing views and access to aquatic prey, but will also take advantage of human-made structures such as power poles. Bald eagles also locate their prey from soaring overhead. Breeding pairs establish territories they will defend from intruding bald eagles. These territories often get used year after year, with the eagles using the same nest trees, or alternate nest trees,

within their territory. A bald eagle nest site near Parsnip Creek has been used by eagles for nesting since it was first found in 1991.

Grasshopper sparrows (*Ammodramus savannarum*) prefer to nest and forage in relatively dry habitats in open grasslands and grain fields generally free of woody shrubs. They nest on the ground in dome-shaped nests concealed by vegetation. Forage consists of seeds and insects gleaned from the ground. Grasshopper sparrows were found nesting in one small colony in the Rogue Valley outside of BLM-administered land.

Lewis' woodpeckers (*Melanerpes lewis*) are associated with open woodlands near streams and rivers. Habitat preference includes hardwood oak stands with scattered ponderosa pine near grassland shrub communities. They forage on insects gleaned or caught in the air during the spring and summer, and nest in cavities of dead or dying trees. They breed sparingly along Bear Creek and areas of the Upper Rogue Valley in Jackson County.

Oregon vesper sparrows (*Pooecetes gramineus affinis*) favor dry, grassy foothills around the Rogue Valley for nesting. Habitat requirements include elevated perches for singing and an understory dominated by grasses for foraging and nesting, with small patches of woody plants and bare ground. They forage on invertebrates and various seeds. They are known to breed in the foothills and mountains above the Rogue Valley, although it is not known if the affinis subspecies is found within the two allotments.

Streaked horned larks (*Eremophila alpestris strigata*) are commonly found in open fields with short (less than 1 foot), herb-dominated ground cover, and areas of significant sparse vegetation and patches of bare ground (Marshall 2003). Streaked horned larks (strigata subspecies) have not been found nesting in southwestern Oregon since 1976. Horned larks migrate through the Rogue Valley in the spring and fall and have been sighted near Lost Creek Lake during these times (Barrett 2006). Sightings of horned larks on Table Rock were reported in 2007 (Schnoes 2007). It is unknown if this was the subspecies *strigata*.

3.9.4.3 Other Wildlife Species

Deer and Elk

Deer and elk summer range is comprised mostly of timberlands ranging in elevation from 3,000 to 6,000 feet. The quality and quantity of the majority of deer summer range is dictated by past and present timber harvesting, with clear-cutting producing more and higher quality forage than other harvest systems (USDI 1984). Elk tend to winter at higher elevations than deer, on predominantly cut-over timberlands.

Cattle, deer, and elk use the range differently. Cattle use the uplands less than elk and deer and may "camp out" in areas near water with abundant forage. Deer and elk generally make wider-ranging movements on a daily basis than cattle. They are less likely to "camp out" in riparian areas for extended periods, but tend to visit riparian areas in the morning or evening to drink and feed, then feed their way back upland for bedding.

Dietary preference overlap between cattle and deer and elk may occur. The degree and effects of this overlap depends on many variables such as season, forage availability, quality and quantity of forage, rainfall, and season of use. Because of the many variables involved, competition between cattle and wild ungulates for diet is unclear. Most diet studies show overlap, but the significance or importance of the overlap is not always apparent.

Approximately 330 acres, at the south end of the Summit Prairie Allotment, lies within a Big Game Winter Range and Elk Management Area.

3.9.4.4 Neotropical Migratory Bird Species of Conservation Concern and Game Birds below Desired Condition

BLM management direction states that NEPA analysis would occur for actions having the potential to negatively or positively affect birds identified by USFWS in *A Blueprint for the Future of Migratory Birds, Migratory Bird Program Strategic Plan 2004-2014* (USDI 2008h). This publication includes a list of "Western BLM Bird Species of Conservation Concern" (Migratory Birds of Concern) and "Game Birds below Desired Condition," which were compiled from historical records and surveys. BLM biologists reviewed bird species determined to be of concern for the lands in the region where Medford District BLM is located (Bird Conservation Region 5, USFWS Region 1) and compiled the following list of Migratory Birds of Concern and Game Birds below Desired Condition.

Band-tailed pigeon (*Columba fasciata*) (Game Birds below Desired Conditions) inhabit coniferous forests. They are a common summer resident in forested areas west of the Cascade Mountains crest and typically nest in forested mountain areas below 4,000 feet (Marshall et al. 2003). Their abundance increases from east to west with higher abundance in the Coast Range. Closed canopy conifer or mixed hardwood and conifer forests are the primary nesting habitat. They nest mainly in Douglas-fir, but they also will nest in hardwoods and shrubs within closed-canopy conifer stands or mixed hardwood and conifer stands. Band-tailed pigeons build loosely constructed nests in the forks and horizontal branches or near the trunk of conifer or oak trees (Erlich 1988). Band-tailed pigeons visit mineral springs at least once per week while nesting (Marshall et al. 2003). The allotments are at the eastern edge of the known range in Oregon (Marshall et al. 2003). Although band-tailed pigeons have not been detected, they are suspected to be present in the allotments, at least during spring and fall migration.

Mourning doves (*Zenaida macroura*) (Game Birds below Desired Conditions) are well distributed throughout the Butte Falls Resource Area and have adapted to a variety of habitats, although their abundance is unknown within the two allotments. They are abundant in grasslands and agricultural habitats throughout Oregon. Nests are constructed in either trees or on the ground under shrubs. Doves forage on a wide variety of seeds and require a source of water nearby.

Rufous hummingbirds (*Selasphorus rufus*) (Migratory Birds of Concern) are the most common and widespread of the Oregon hummingbirds. They may also be the most wide-ranging hummingbirds in North America, occurring in every state and most Canadian provinces (Marshall et al. 2003). Rufous hummingbirds are positively associated with nectar produced by flowering plants, deciduous shrubs, and trees in early successional habitats (PIF, version 2.0). Rufous hummingbirds are possibly present in the two allotments.

Willow flycatchers (*Empidonax traillii*) (Migratory Birds of Concern) are closely associated with shrub-dominated habitats that contain dense shrubs or tall herbaceous plants with patches of shorter vegetation (Marshall et al. 2003). They prefer riparian areas and willow thickets in southwest Oregon. They nest in shrub-level vegetation, within a few feet of the ground. The willow flycatcher forages on insects in flight. They have been found in several localities in Jackson County, although they have not been documented as occurring within the two allotments.

3.9.5 Environmental Consequences

There are no apparent differences in the impacts to wildlife between the two alternatives. Environmental impacts listed below apply to both alternatives. The No Action Alternative (Alternative 1) would continue current grazing practices. Alternative 2 would have minor changes that would not change impacts to wildlife. See Appendix D, Wildlife, for a review of Special Status Wildlife Species in the Butte Falls Resource Area.

3.9.5.1 Effects on Wildlife Common to both Alternatives

Direct and Indirect Effects

Threatened and Endangered Species

Grazing in these allotments would have no effect on the spotted owl population. No nesting or foraging habitat would be removed and grazing would not negatively impact the persistence of the species. The short duration of grazing in these allotments would not have any impact on the owl's ability to forage, nor would it remove any mature trees spotted owls require for nesting.

Special Status Species

Mollusks: Chace sideband, Oregon shoulderband, Siskiyou hesperian, and traveling sideband snails may be found in moist areas under rocks, leaf litter, and woody debris in the Project Area. They generally occupy shady areas of coniferous forest with a high amount of canopy cover. Cattle could trample an area where the snails are present, resulting in the loss of an individual. The chances of this occurring are minimal and it would not affect the viability of the species. Indirectly, some reduction of the overhead canopy could occur if grasses, forbs, and shrubs are grazed near a snail site; stubble and some vegetation would remain, however, to provide cover for the snails. The chances of impacts to an area where the snails are present are extremely low. The impact to the species would be negligible.

Amphibians: Foothill yellow-legged frogs would be indirectly affected when livestock trample vegetation and break down creek banks, resulting in increased sediment in certain parts of the stream. In some localized areas, there is a reduction in the grass, forbs, and sedges along the stream bank that provide hiding cover for adult yellow-legged frogs. These areas are infrequent, however, and most of the stream banks remain covered with vegetation, including rushes and sedges that provide cover for the adult frogs on the bank. Impacts are expected to be localized at the specific points where cattle are impacting the stream bank. There is some additional sediment at these points, but overall this would not affect the ability of any of the streams in either allotment to provide adequate habitat for yellow-legged frogs. There is no expected loss of viability of the species or a need to list yellow-legged frogs as Threatened or Endangered due to grazing in the Flat Creek or Summit Prairie Allotments.

Grazing may indirectly affect Oregon spotted frogs by changing the structural and functional elements characteristic of the natural stream-riparian ecosystem. While heavy grazing reduces riparian cover and exposes frogs to predation; impacts food supplies; and cuts routes between breeding, feeding, and hibernating sites, the light to moderate use in these allotments is not expected to impact persistence of the species. A study conducted by Bull and Hayes (2000) found no significant impacts from grazing around ponds to spotted frog reproduction or recruitment in northeastern Oregon. Egg and larva development may benefit from reduced bank vegetation density when increased sunlight raises water temperatures and more basking sites are available for adults (Bull 2005). In Washington, where reed

canary grass has invaded wetlands, Oregon spotted frogs preferred habitats where moderate grazing had opened the grass canopy (Watson et al. 2000).

Reptiles: Northwestern pond turtles nest on dry ground where they cover their deposited eggs with soil and vegetation. Their nests are generally found within 300 feet of water and excessive traffic and grazing from cattle around a water source may result in the loss of vegetative cover used for covering their eggs. Cattle could step on a turtle or nest, resulting in the loss of an individual or eggs. The chances of this occurring are minimal and it would not affect the viability of the species.

Bats: Fringed myotis and Townsend's big-eared bats forage on moths and beetles. Heavy or long-term grazing, especially during the spring and summer, has been shown to negatively impact moth communities and may reduce available forage for bats (Hammond and Miller 1998). The moderate to light grazing in the two allotments would not prevent the bats from finding adequate foraging opportunities.

Birds: Bald eagles most recently nested at the Parsnip Creek nest site in T34S, R3E, Section 3 in the Summit Prairie Allotment. The most recent nest tree was first discovered in 2002 and was still in use in 2008. It is about 0.2 miles from Parsnip Creek and over a mile from Medco Pond (where we suspect they do most of their foraging). Medco Pond is a 90-acre reservoir on private property, and it often freezes over during the winter. It is not anticipated that grazing will impact their ability to forage in Medco Pond or remove any of their nest trees. The nest is in the vicinity of the proposed fencing project, but outside the 0.25-mile recommended seasonal restriction distance for human disturbance. The proposed project would not cause the loss of a nest or roost tree or prevent eagles from foraging. Eagles are sensitive to human disturbance during the breeding season. There would be some disturbance if work occurred near the nest while the eagles are nesting. If a nest was discovered within 0.25 miles of the project, a seasonal restriction would protect the site while eagles are at the nest. Installation of a fence after the eagles move away from the nest would have no effect on bald eagles. There are no known direct or indirect consequences to the bald eagles in the Summit Prairie Allotment

Grasshopper sparrows nest and forage in relatively dry habitats in open grasslands and grain fields. They are rarely found in areas with high densities of woody shrubs. A study by Bock et al. correlated grazing in shrub steppe habitat to be negative for the grasshopper sparrow because it tended to increase shrub cover, but moderate grazing in taller grasslands in the Great Plains and the Southwest, where shrubs were minimal, had a positive effect. Grazing in these two allotments is not expected to negatively impact the persistence of this species as they require intermediate levels of ground cover in open grasslands for nesting and foraging, features that would not be removed by the relatively light grazing proposed. Grasshopper sparrow nests may be trampled by cattle, which could result in the loss of eggs or chicks. The consequences would be the loss of individuals, but would not affect the persistence of the species over its range.

Cavity-nesting birds, such as Lewis' woodpeckers, that feed on insects caught in the tree canopy or in bark are essentially unaffected by grazing practices (Bock et al. 1993). Grazing in these allotments would not remove tree cavities or foraging opportunities for Lewis' woodpeckers. It is anticipated there would be no indirect impacts to this species.

Oregon vesper sparrows forage on or near the ground for invertebrates and seeds and may be negatively impacted by intense grazing that removes most or all of the understory grasses and allows woody plants to become dominant. The light to moderate levels of grazing in the Flat Creek and Summit Prairie Allotments would not remove the vesper sparrow's ability to nest and forage. Vesper sparrow nests,

eggs, and chicks may be trampled by cattle, resulting in the loss of individuals or eggs. The chances of this occurring are minimal and it would not affect the viability of the species.

Streaked horned larks nest in areas with a patchwork of bare ground, short grasses and shrubs, and areas of sparse vegetation. As they are aerial foragers in the spring and summer, and prefer to nest on relatively bare ground, horned larks have been shown to respond positively to grazing in the spring and summer in the Great Plains and Southwest (Bock et al. 1993). In the shrub steppe habitats of the Intermountain West, horned larks had mixed responses to the effects of grazing (Bock et al. 1993). They particularly may not respond well if grazing of herbaceous ground cover causes an increase in the shrub density. Within the Flat Creek and Summit Prairie Allotments, the light to moderate amount of grazing is expected to leave a patchwork of ground cover suitable for horned larks in areas where cattle graze. It is not expected to measurably increase the shrub density over the area. Horned lark nests may be trampled by cattle, which could result in the loss of eggs or chicks. The consequences would be the loss of individuals, but would not affect the persistence of the species over its range.

Other Wildlife Species

Deer and Elk: Grazing would reduce the amount of forage available to ungulates. Forage could be reduced along riparian areas and wet meadows. In the BLM-administered lands, however, ODFW has not identified this as a problem in deer and elk survival (Vargas 2000). Cattle grazing can, in some cases, prune back the brush and encourage sprouting of the younger shoots, increasing forage for deer and elk.

One study in Wyoming indicated prescribed grazing may improve forage conditions for elk. Study results showed that complementary interactions may exist between cattle and elk. For example, the study found that in fall and winter, elk preferred to forage where cattle had lightly or moderately grazed the preceding summer. In the spring, elk preferred to graze where cattle had grazed moderately the preceding summer (Crane et al. 2001).

Cattle could remove some cover in some riparian reserves. This is a minor impact to elk and deer. The majority of the allotments are forested, including the riparian areas, and cover would remain. In the Butte Falls Resource Area in western Oregon, grazing by cattle has little impact in forested habitats.

Cattle graze grasses, forbs, and brush that provide forage for deer and elk, reducing the amount of forage available to them. In the higher elevations in the Summit Prairie Allotment, the cattle remain until the end of September. Fall rains usually result in a fall green up, both in the low elevation and upper elevation areas, which provides forage for the ungulates in the fall and winter months.

The amount of forage removed by cattle during the spring months in elk calving areas could diminish the amount of forage available. ODFW identified the high elevation meadows as being important foraging areas for elk cows giving birth (Vargas 2000). There is no evidence that livestock grazing is having a negative impact on elk survival.

Neotropical Migratory Birds of Conservation Concern and Game Birds Below Desired Condition

Band-tailed pigeon nesting and foraging is not expected to be impacted by grazing. Pigeons nest in closed-canopy Douglas-fir and hardwood trees, and forage on buds, fruits, and flowers of deciduous trees and shrubs. Livestock grazing would not remove these tree species. Pigeons visit mineral sites with salt. One such mineral site in the Summit Prairie Allotment shows signs of heavy use by elk. While

mineral sites may get trampled by livestock, it is not expected the sites would lose the ability to supply minerals for the pigeons.

Mourning doves nest either in trees or on the ground and are adapted to surviving in forests, deserts, clear-cuts, and urban and agricultural areas. Dove populations show little or no change in response to grazing (Bock et al. 1993) and grazing in these allotments is not expected to impact the viability of the species. While mourning doves may be affected by the removal of seed-producing plants like some grasses, they forage on seeds of many other herbaceous plants and trees. Mourning dove nests may be trampled by cattle, which could result in the loss of eggs or chicks. The consequences would be the loss of individuals, but would not affect the persistence of the species over its range.

The rufous hummingbird may use these allotments for foraging and nesting, preferring the wooded areas with a well-developed understory and high canopy cover for nesting. Grazing would not affect the persistence of the species because grazing is short duration and because nesting habitat would not be removed. Grazing could reduce the nectar-producing plants that provide forage for hummingbirds. While hummingbirds feed on nectar from flowering plants, they will also forage on insects and take advantage of hummingbird feeders near houses. Grazing within these allotments would not affect the viability of the species.

Willow flycatchers typically nest in riparian zones and forage on insects in the understory vegetation. While intense grazing may have an impact on the flycatcher's ability to nest and forage, the light to moderate levels of grazing in these allotments is not expected to negatively impact the persistence of the species throughout its range.

Cumulative Effects

The past, present, and future actions described in Section 3.2.2, Other Actions in the Watersheds containing the Project Area, in combination with the grazing proposed in these allotments is not anticipated to lead to the need to list sensitive wildlife species as threatened or endangered. The BLM has completed projects that fence spring areas and pipe water to troughs for livestock, drawing cattle away from sensitive riparian areas.

There is no evidence past or present livestock grazing has had a negative impact on the viability of the snail populations, nor is there evidence that proposed livestock grazing would have a negative impact on the viability of the snail populations. No cumulative impacts were identified from grazing. The cumulative impact to the snail species from grazing is negligible.

Frogs are mobile and can move up and down the stream banks to suitable habitat. Livestock access to streams is limited by dense vegetation and steep terrain. Most streams do not have evidence of heavy livestock use. There could be some locations on creek banks where cattle access the stream to cross or get water. These areas usually become vegetated after the cattle are removed from the area at the end of the grazing season. In these places, there would be loss of stream bank cover and an increase in sediment, which could reduce some habitat for the frogs. Fish surveys by ODFW have determined aquatic habitat elements in the allotments are mostly in fair conditions. The majority of the stream banks are not damaged and there would not be a cumulative loss of habitat in the stream. Due to the small number of areas along the streams with obvious livestock disturbance, cumulative effects would be negligible. There would be no loss of viability of the yellow-legged and Oregon spotted frog species due to cumulative grazing impacts.

Grazing is unlikely to have a significant effect on bat populations in the Project Area. Impacts on insect and moth populations that provide foraging for bats would be slight and temporary. Historic information indicates grazing in these allotments is light to moderate and lasts no more than 4 months out of the year.

Grazing in these allotments is unlikely to have a significant impact on the landbird populations and is unlikely to warrant they be listed as threatened or endangered. While individual nests may be disturbed and foraging opportunities may be diminished in moderately-grazed pastures, the long-term effects on their habitats would be minimal. It is expected that the landbird habitats discussed in this assessment would recover from disturbance quickly during the periods of nonuse by cattle.

Cattle use in the Project Area has not been shown to have a cumulative impact on deer and elk populations. Deer and elk browse in clear-cuts and openings that are often not used by cattle, or are lightly grazed by cattle. Some areas along the creeks may be heavily grazed by cattle in late summer, but cattle are generally removed from the range by the beginning of October when fall green up occurs after fall rains begin, providing forage before the snow falls. There may be some reduction in forage in the late spring/early summer in the higher elevation meadows used by elk for calving. These impacts are very low because high elevation meadows are rare on BLM lands in the Project Area.

Cumulative impacts to wildlife from grazing are low in western Oregon forest lands. Impacts to some grasslands and riparian areas may be apparent, but overall the cumulative impacts are low. Some habitat changes brought about by livestock grazing may be beneficial to some wildlife species and detrimental to others. Changes over time would be difficult to determine.

4.0 List of Preparers

List of Preparers	
Name	**Position/Responsibility**
Management Guidance	
Jon Raby	Butte Falls Field Manager/Management Guidance
Matt Azhocar	Natural Resource Staff Administrator/Management Guidance
Interdisciplinary Team	
Kimberly Hackett	Range Management/Project Lead
Steve Slavik	Range Management Specialist
Shawn Simpson	Hydrologist/Water Resources
Ken Van Etten	Soil Scientist/Soil
Marcia Wineteer	Botanist/Botany; Noxious Weeds
Dave Roelofs	Wildlife Biologist/Wildlife
Steve Liebhardt	Fishery Biologist/ESA Fish Consultation
Angela San Filippo	Biological Science Technician (Fisheries)/Fisheries
Robyn Wicks	Natural Resource Specialist/NEPA Compliance; Writer-Editor
Lisa Brennan	Acting District Archaeologist/Cultural Resources
Jim Collins	Natural Resource Specialist (GIS)/Maps
Dianne Keller	GIS Technician/GIS Data

References

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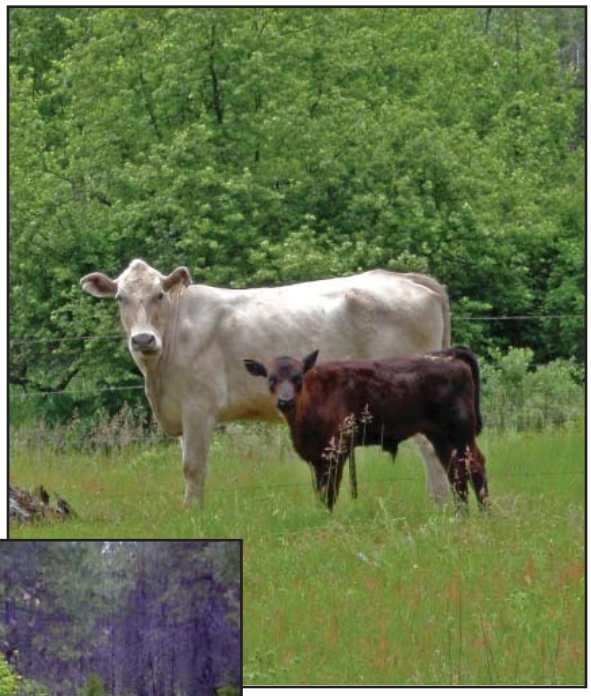
Appendices



Appendix A - Grazing

A.1 Standards for Rangeland Health

The following are the Standards for Rangeland Health developed specifically for BLM-administered lands in Oregon and Washington.

Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in Oregon and Washington

August 12, 1997

Introduction

These Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands in Oregon and Washington were developed in consultation with Resource Advisory Councils and Provincial Advisory Committees, tribes and others. These standards and guidelines meet the requirements and intent of 43 Code of Federal Regulations (CFR), Subpart 4180 (Rangeland Health) and are to be used as presented, in their entirety. These standards and guidelines are intended to provide a clear statement of agency policy and direction for those who use public lands for livestock grazing, and for those who are responsible for their management and accountable for their condition. Nothing in this document should be interpreted as an abrogation of Federal trust responsibilities in protection of treaty rights of Indian tribes or any other statutory responsibilities including, but not limited to, the Taylor Grazing Act, the Clean Water Act, and the Endangered Species Act.

Fundamentals of Rangeland Health

The objectives of the rangeland health regulations referred to above are: “to promote healthy sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangelands to properly functioning conditions; . . . and to provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands.”

To help meet these objectives, the regulations on rangeland health identify fundamental principles providing direction to the States, districts, and on-the-ground public land managers and users in the management and use of rangeland ecosystems.

A hierarchy, or order, of ecological function and process exists within each ecosystem. The rangeland ecosystem consists of four primary, interactive components: a physical component, a biological component, a social component, and an economic component. This perspective implies that the physical function of an ecosystem supports the biological health, diversity and productivity of that system. In turn, the interaction of the physical and biological components of the ecosystem provides the basic needs of society and supports economic use and potential.

The Fundamentals of Rangeland Health stated in 43 CFR 4180 are:

1. Watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian-wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity and the timing and duration of flow.
2. Ecological processes, including the hydrologic cycle, nutrient cycle and energy flow, are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities.
3. Water quality complies with State water quality standards and achieves, or is making significant progress toward achieving, established Bureau of Land Management objectives such as meeting wildlife needs.
4. Habitats are, or are making significant progress toward being, restored or maintained for Federal threatened and endangered species, Federal Proposed, Category 1 and 2 Federal candidate and other special status species.

The fundamentals of rangeland health combine the basic precepts of physical function and biological health with elements of law relating to water quality, and plant and animal populations and communities. They provide direction in the development and implementation of the standards for rangeland health.

Standards for Rangeland Health

The standards for rangeland health (standards), based on the above fundamentals, are expressions of the physical and biological condition or degree of function necessary to sustain healthy rangeland ecosystems. Although the focus of these standards is on domestic livestock grazing on Bureau of Land Management lands, on-the-ground decisions must consider the effects and impacts of all uses.

Standards that address the physical components of rangeland ecosystems focus on the roles and interactions of geology and landform, soil, climate and water as they govern watershed function and soil stability. The biological components addressed in the standards focus on the roles and interactions of plants, animals and microbes (producers, consumers and decomposers), and their habitats in the ecosystem. The biological component of rangeland ecosystems is supported by physical function of the system, and it is recognized that biological activity also influences and supports many of the ecosystem's physical functions.

Guidance contained in 43 CFR 4180 of the regulations directs management toward the maintenance or restoration of the physical function and biological health of rangeland ecosystems. Focusing on the basic ecological health and function of rangelands is expected to provide for the maintenance, enhancement, or creation of future social and economic options.

The standards are based upon the ecological potential and capability of each site. In assessing a site's condition or degree of function, it must be understood that the evaluation compares each site to its own potential or capability. Potential and capability are defined as follows:

> **Potential –** The highest level of condition or degree of function a site can attain given no political, social or economic constraints.

Capability – The highest level of condition or degree of function a site can attain given certain political, social or economic constraints. For example, these constraints might include riparian areas permanently occupied by a highway or railroad bed that prevent the stream's full access to its original flood plain. If such constraints are removed, the site may be able to move toward its potential.

In designing and implementing management strategies to meet the standards of rangeland health, the potential of the site must be identified, and any constraints recognized, in order that plan goals and objectives are realistic and physically and economically achievable.

Standards and Guidelines in Relation to the Planning Process

The standards apply to the goals of land use plans, activity plans, and project plans (Allotment Management Plans, Annual Operating Plans, Habitat Management Plans, etc.). They establish the physical and biological conditions or degree of function toward which management of publicly-owned rangeland is to be directed. In the development of a plan, direction provided by the standards and the social and economic needs expressed by local communities and individuals are brought together in formulating the goal(s) of that plan.

When the standards and the social and economic goals of the planning participants are woven together in the plan goal(s), the quantifiable, time specific objective(s) of the plan are then developed. Objectives describe and quantify the desired future conditions to be achieved within a specified timeframe. Each plan objective should address the physical, biological, social and economic elements identified in the plan goal.

Standards apply to all ecological sites and land forms on public rangelands throughout Oregon and Washington. The standards require site-specific information for full on-ground usability. For each standard, a set of indicators is identified for use in tailoring the standards to site-specific situations. These indicators are used for rangeland ecosystem assessments and monitoring and for developing terms and conditions for permits and leases that achieve the plan goal.

Guidelines for livestock grazing management offer guidance in achieving the plan goal and objectives. The guidelines outline practices, methods, techniques and considerations used to ensure that progress is achieved in a way, and at a rate, that meets the plan goal and objectives.

Indicators of Rangeland Health

The condition or degree of function of a site in relation to the standards and its trend toward or away from any standard is determined through the use of reliable and scientifically sound indicators. The consistent application of such indicators can provide an objective view of the condition and trend of a site when used by trained observers.

For example, the amount and distribution of ground cover can be used to indicate that infiltration at the soil surface can take place as described in the standard relating to upland watershed function. In applying this indicator, the specific levels of plant cover necessary to support infiltration in a particular soil should be identified using currently available information from reference areas, if they exist; from technical sources like soil survey reports, Ecological Site Inventories, and Ecological Site Descriptions,

or from other existing reference materials. Reference areas are lands that best represent the potential of a specific ecological site in both physical function and biological health. In many instances potential reference areas are identified in Ecological Site Descriptions and are referred to as "type locations." In the absence of suitable reference areas, the selection of indicators to be used in measuring or judging condition or function should be made by an interdisciplinary team of experienced professionals and other trained individuals.

Not all indicators identified for each standard are expected to be employed in every situation. Criteria for selecting appropriate indicators and methods of measurement and observation include, but are not limited to: 1. the relationship between the attribute(s) being measured or observed and the desired outcome; 2. the relationship between the activity (e.g., livestock grazing) and the attribute(s) being measured or observed; and 3. funds and workforce available to conduct the measurements or observations.

Assessments and Monitoring

The standards are the basis for assessing and monitoring rangeland condition and trend. Carrying out well-designed assessment and monitoring is critical to restoring or maintaining healthy rangelands and determining trends and conditions.

Assessments are a cursory form of evaluation based on the standards that can be used at different landscape scales. Assessments, conducted by qualified interdisciplinary teams (which may include but are not limited to physical, biological and social specialists, and interagency personnel) with participation from lessees and other interested parties, are appropriate at the watershed and sub-watershed levels, at the allotment and pasture levels and on individual ecological sites or groups of sites. Assessments identify the condition or degree of function within the rangeland ecosystem and indicate resource problems and issues that should be monitored or studied in more detail. The results of assessments are a valuable tool for managers in assigning priorities within an administrative area and the subsequent allocation of personnel, money and time in resource monitoring and treatment. The results of assessments may also be used in making management decisions where an obvious problem exists.

Monitoring, which is the well documented and orderly collection, analysis and interpretation of resource data, serves as the basis for determining trends in the condition or degree of function of rangeland resources and for making management decisions. Monitoring should be designed and carried out to identify trends in resource conditions, to point out resource problems, to help indicate the cause of such problems, to point out solutions, and/or to contribute to adaptive management decisions. In cases where monitoring data do not exist, professional judgment, supported by interdisciplinary team recommendation, may be relied upon by the authorized officer in order to take necessary action. Review and evaluation of new information must be an ongoing activity.

To be effective, monitoring must be consistent over time, throughout administrative areas, and in the methods of measurement and observation of selected indicators. Those doing the monitoring must have the knowledge and skill required by the level or intensity of the monitoring being done, as well as the experience to properly interpret the results. Technical support for training must be made available.

Measurability

It is recognized that not every area will immediately meet the standards and that it will sometimes be a long-term process to restore some rangelands to properly functioning condition. It is intended that in cases where standards are not being met, measurable progress should be made toward achieving those standards, and significant progress should be made toward fulfilling the fundamentals of rangeland health. Measurability is defined on a case-specific basis based upon the stated planning objectives (i.e., quantifiable, time specific), taking into account economic and social goals along with the biological and ecological capability of the area. To the extent that a rate of recovery conforms with the planning objectives, the area is allowed the time to meet the standard under the selected management regime.

Implementation

The material contained in this document will be incorporated into existing Land Use Plans and used in the development of new Land Use Plans. According to 43 CFR 4130.3-1, permits and leases shall incorporate terms and conditions that ensure conformance with 43 CFR 4180. Terms and conditions of existing permits and leases will be modified to reflect standards and guidelines at the earliest possible date with priority for modification being at the discretion of the authorized officer. Terms and conditions of new permits and leases will reflect standards and guidelines in their development.

Indicators identified in this document will serve as a focus of interpretation of existing monitoring data and will provide the basis of design for monitoring and assessment techniques, and in the development of monitoring and assessment plans.

The authorized officer shall take appropriate action as soon as practicable but not later than the start of the next grazing year upon determining, through assessment or monitoring by experienced professionals and interdisciplinary teams, that a standard is not being achieved and that livestock are a significant contributing factor to the failure to achieve the standards and conform with the guidelines.

Standards for Rangeland Health

Standard 1 Watershed Function – Uplands

Upland soils exhibit infiltration and permeability rates, moisture storage and stability that are appropriate to soil, climate and landform.

Rationale and Intent

This standard focuses on the basic physical functions of upland soils that support plant growth, the maintenance or development of plant populations and communities, and promote dependable flows of quality water from the watershed.

To achieve and sustain rangeland health, watersheds must function properly. Watersheds consist of three principle components: the uplands, riparian/wetland areas and the aquatic zone. This standard addresses the upland component of the watershed. When functioning properly, within its potential, a watershed captures, stores and safely releases the moisture associated with normal precipitation events (equal to or

less than the 25 year, 5 hour event) that falls within its boundaries. Uplands make up the largest part of the watershed and are where most of the moisture received during precipitation events is captured and stored.

While all watersheds consist of similar components and processes, each is unique in its individual makeup. Each watershed displays its own pattern of landform and soil, its unique climate and weather patterns, and its own history of use and current condition. In directing management toward achieving this standard, it is essential to treat each unit of the landscape (soil, ecological site, and watershed) according to its own capability and how it fits with both smaller and larger units of the landscape.

A set of potential indicators has been identified for which site-specific criteria will be used to determine if this standard is being met. The appropriate indicators to be used in determining attainment of the standard should be drawn from the following list.

Potential Indicators

Protection of the soil surface from raindrop impact; detention of overland flow; maintenance of infiltration and permeability, and protection of the soil surface from erosion, consistent with the potential/capability of the site, as evidenced by the:

- amount and distribution of plant cover (including forest canopy cover);
- amount and distribution of plant litter;
- accumulation/incorporation of organic matter;
- amount and distribution of bare ground;
- amount and distribution of rock, stone, and gravel;
- plant composition and community structure;
- thickness and continuity of A horizon;
- character of micro-relief;
- presence and integrity of biotic crusts;
- root occupancy of the soil profile;
- biological activity (plant, animal, and insect); and
- absence of accelerated erosion and overland flow.

Soil and plant conditions promote moisture storage as evidenced by:

- amount and distribution of plant cover (including forest canopy cover);
- amount and distribution of plant litter;
- plant composition and community structure; and
- accumulation/incorporation of organic matter.

Standard 2 Watershed Function - Riparian/Wetland Areas

Riparian-wetland areas are in properly functioning physical condition appropriate to soil, climate, and landform.

Rationale and Intent

Riparian-wetland areas are grouped into two major categories: 1. lentic, or standing water systems such as lakes, ponds, seeps, bogs, and meadows; and 2. lotic, or moving water systems such as rivers, streams, and springs. Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and which under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Riparian areas commonly occupy the transition zone between the uplands and surface water bodies (the aquatic zone) or permanently saturated wetlands.

Properly functioning condition of riparian and wetland areas describes the degree of physical function of these components of the watershed. Their functionality is important to water quality in the capture and retention of sediment and debris, the detention and detoxification of pollutants, and in moderating seasonal extremes of water temperature. Properly functioning riparian areas and wetlands enhance the timing and duration of streamflow through dissipation of flood energy, improved bank storage, and ground water recharge. Properly functioning condition should not be confused with the Desired Plant Community (DPC) or the Desired Future Condition (DFC) since, in most cases, it is the precursor to these levels of resource condition and is required for their attainment.

A set of indicators has been identified for which site-specific criteria will be used to determine if this standard is being met. The criteria are based upon the potential (or upon the capability where potential cannot be achieved) of individual sites or land forms.

Potential Indicators

Hydrologic, vegetative, and erosional/depositional processes interact in supporting physical function, consistent with the potential or capability of the site, as evidenced by:

- frequency of floodplain/wetland inundation;
- plant composition, age class distribution, and community structure;
- root mass;
- point bars revegetating;
- streambank/shoreline stability;
- riparian area width;
- sediment deposition;
- active/stable beaver dams;
- coarse/large woody debris;
- upland watershed conditions;
- frequency/duration of soil saturation; and
- water table fluctuation.

Stream channel characteristics are appropriate for landscape position as evidenced by:

- channel width/depth ratio;
- channel sinuosity;
- gradient;
- rocks and coarse and/or large woody debris;
- overhanging banks;
- pool/riffle ratio;
- pool size and frequency; and
- stream embeddedness.

Standard 3 Ecological Processes

Healthy, productive and diverse plant and animal populations and communities appropriate to soil, climate and landform are supported by ecological processes of nutrient cycling, energy flow and the hydrologic cycle.

Rationale and Intent

This standard addresses the ecological processes of energy flow and nutrient cycling as influenced by existing and desired plant and animal communities without establishing the kinds, amounts or proportions of plant and animal community compositions. While emphasis may be on native species, an ecological site may be capable of supporting a number of different native and introduced plant and animal populations and communities while meeting this standard. This standard also addresses the hydrologic cycle which is essential for plant growth and appropriate levels of energy flow and nutrient cycling. Standards 1 and 2 address the watershed aspects of the hydrologic cycle.

With few exceptions, all life on earth is supported by the energy supplied by the sun and captured by plants in the process of photosynthesis. This energy enters the food chain when plants are consumed by insects and herbivores and passes upward through the food chain to the carnivores. Eventually, the energy reaches the decomposers and is released as the thermal output of decomposition or through oxidation.

The ability of plants to capture sunlight energy, to grow and develop, to play a role in soil development and watershed function, to provide habitat for wildlife and to support economic uses depends on the availability of nutrients and moisture. Nutrients necessary for plant growth are made available to plants through the decomposition and metabolization of organic matter by insects, bacteria and fungi, the weathering of rocks and extraction from the atmosphere. Nutrients are transported through the soil by plant uptake, leaching and by rodent, insect and microbial activity. They follow cyclical patterns as they are used and reused by living organisms.

The ability of rangelands to supply resources and satisfy social and economic needs depends on the buildup and cycling of nutrients over time. Interrupting or slowing nutrient cycling can lead to site degradation, as these lands become increasingly deficient in the nutrients plants require.

Some plant communities, because of past use, frequent fire or other histories of extreme or continued disturbance, are incapable of meeting this standard. For example, shallow-rooted winter-annual

grasses that completely dominate some sites do not fully occupy the potential rooting depth of some soils, thereby reducing nutrient cycling well below optimum levels. In addition, these plants have a relatively short growth period and thus capture less sunlight than more diverse plant communities. Plant communities like those cited in this example are considered to have crossed the threshold of recovery and often require great expense to be recovered. The cost of recovery must be weighed against the site's potential ecological/economic value in establishing treatment priorities.

The role of fire in natural ecosystems should be considered, whether it acts as a primary driver or only as one of many factors. It may play a significant role in both nutrient cycling and energy flows.

A set of indicators has been identified for which site-specific criteria will be used to determine if this standard is being met.

Potential Indicators

Photosynthesis is effectively occurring throughout the potential growing season, consistent with the potential/capability of the site, as evidenced by plant composition and community structure.

Nutrient cycling is occurring effectively, consistent with the potential/capability of the site, as evidenced by:

- plant composition and community structure;
- accumulation, distribution, incorporation of plant litter and organic matter into the soil;
- animal community structure and composition;
- root occupancy in the soil profile; and
- biological activity including plant growth, herbivory, and rodent, insect and microbial activity.

Standard 4 Water Quality

Surface water and groundwater quality, influenced by agency actions, complies with State water quality standards.

Rationale and Intent

The quality of the water yielded by a watershed is determined by the physical and chemical properties of the geology and soils unique to the watershed, the prevailing climate and weather patterns, current resource conditions, the uses to which the land is put and the quality of the management of those uses. Standards 1, 2 and 3 contribute to attaining this standard.

States are legally required to establish water quality standards and Federal land management agencies are to comply with those standards. In mixed ownership watersheds, agencies, like any other land owners, have limited influence on the quality of the water yielded by the watershed. The actions taken by the agency will contribute to meeting State water quality standards during the period that water crosses agency administered holdings.

Potential Indicators

Water quality meets applicable water quality standards as evidenced by:

- water temperature;
- dissolved oxygen;
- fecal coliform;
- turbidity;
- pH;
- populations of aquatic organisms; and
- effects on beneficial uses (i.e., effects of management activities on beneficial uses as defined under the Clean Water Act and State implementing regulations).

Standard 5 Native, T&E, and Locally Important Species

Habitats support healthy, productive and diverse populations and communities of native plants and animals (including special status species and species of local importance) appropriate to soil, climate and landform.

Rationale and Intent

Federal agencies are mandated to protect threatened and endangered species and will take appropriate action to avoid the listing of any species. This standard focuses on retaining and restoring native plant and animal (including fish) species, populations and communities (including threatened, endangered and other special status species and species of local importance). In meeting the standard, native plant communities and animal habitats would be spatially distributed across the landscape with a density and frequency of species suitable to ensure reproductive capability and sustainability. Plant populations and communities would exhibit a range of age classes necessary to sustain recruitment and mortality fluctuations.

Potential Indicators

- essential habitat elements for species, populations and communities are present and available, consistent with the potential/capability of the landscape, as evidenced by:
- plant community composition, age class distribution, productivity;
- animal community composition, productivity;
- habitat elements;
- spatial distribution of habitat;
- habitat connectivity; and
- population stability/resilience.

Guidelines for Livestock Grazing Management

Guidelines for livestock grazing management offer guidance in achieving plan goals, meeting standards for rangeland health and fulfilling the fundamentals of rangeland health. Guidelines are applied in accordance with the capabilities of the resource in consultation, cooperation, and coordination with lessees and the interested public. Guidelines enable managers to adjust grazing management on public lands to meet current and anticipated climatic and biological conditions.

General Guidelines

1. Involve diverse interests in rangeland assessment, planning and monitoring.
2. Assessment and monitoring are essential to the management of rangelands, especially in areas where resource problems exist or issues arise. Monitoring should proceed using a qualitative method of assessment to identify critical, site-specific problems or issues using interdisciplinary teams of specialists, managers, and knowledgeable land users.

Once identified, critical, site-specific problems or issues should be targeted for more intensive, quantitative monitoring or investigation. Priority for monitoring and treatment should be given to those areas that are ecologically at-risk where benefits can be maximized given existing budgets and other resources.

Livestock Grazing Management

1. The season, timing, frequency, duration and intensity of livestock grazing use should be based on the physical and biological characteristics of the site and the management unit in order to:
   a. provide adequate cover (live plants, plant litter and residue) to promote infiltration, conserve soil moisture and to maintain soil stability in upland areas;
   b. provide adequate cover and plant community structure to promote streambank stability, debris and sediment capture, and floodwater energy dissipation in riparian areas.
   c. promote soil surface conditions that support infiltration;
   d. avoid sub-surface soil compaction that retards the movement of water in the soil profile;
   e. help prevent the increase and spread of noxious weeds;
   f. maintain or restore diverse plant populations and communities that fully occupy the potential rooting volume of the soil;
   g. maintain or restore plant communities to promote photosynthesis throughout the potential growing season;
   h. promote soil and site conditions that provide the opportunity for the establishment of desirable plants;
   i. protect or restore water quality; and
   j. provide for the life cycle requirements, and maintain or restore the habitat elements of native (including T&E, special status, and locally important species) and desired plants and animals.
2. Grazing management plans should be tailored to site-specific conditions and plan objectives. Livestock grazing should be coordinated with the timing of precipitation, plant growth and plant form. Soil

moisture, plant growth stage and the timing of peak stream flows are key factors in determining when to graze. Response to different grazing strategies varies with differing ecological sites.

3. Grazing management systems should consider nutritional and herd health requirements of the livestock.

4. Integrate grazing management systems into the year-round management strategy and resources of the permittee(s) or lessee(s). Consider the use of collaborative approaches (e.g., Coordinated Resource Management, Working Groups) in this integration.

5. Consider competition for forage and browse among livestock, big game animals, and wild horses in designing and implementing a grazing plan.

6. Provide periodic rest from grazing for rangeland vegetation during critical growth periods to promote plant vigor, reproduction and productivity.

7. Range improvement practices should be prioritized to promote rehabilitation and resolve grazing concerns on transitory grazing land.

8. Consider the potential for conflict between grazing use on public land and adjoining land uses in the design and implementation of a grazing management plan.

Facilitating the Management of Livestock Grazing

1. The use of practices to facilitate the implementation of grazing systems should consider the kind and class of animals managed, indigenous wildlife, wild horses, the terrain and the availability of water. Practices such as fencing, herding, water development, and the placement of salt and supplements (where authorized) are used where appropriate to:

   a. promote livestock distribution;

   b. encourage a uniform level of proper grazing use throughout the grazing unit;

   c. avoid unwanted or damaging concentrations of livestock on streambanks, in riparian areas and other sensitive areas such as highly erodible soils, unique wildlife habitats and plant communities; and

   d. protect water quality.

2. Roads and trails used to facilitate livestock grazing are constructed and maintained in a manner that minimizes the effects on landscape hydrology; concentration of overland flow, erosion and sediment transport are prevented; and subsurface flows are retained.

Accelerating Rangeland Recovery

1. Upland treatments that alter the vegetative composition of a site, like prescribed burning, juniper management and seedings or plantings must be based on the potential of the site and should:

   a. retain or promote infiltration, permeability, and soil moisture storage;

   b. contribute to nutrient cycling and energy flow;

c. protect water quality;

d. help prevent the increase and spread of noxious weeds;

e. contribute to the diversity of plant communities, and plant community composition and structure;

f. support the conservation of T&E, other special status species and species of local importance; and

g. be followed up with grazing management and other treatments that extend the life of the treatment and address the cause of the original treatment need.

2. Seedings and plantings of non-native vegetation should only be used in those cases where native species are not available in sufficient quantities; where native species are incapable of maintaining or achieving the standards; or where non-native species are essential to the functional integrity of the site.

3. Structural and vegetative treatments and animal introductions in riparian and wetland areas must be compatible with the capability of the site, including the system's hydrologic regime, and contribute to the maintenance or restoration of properly functioning condition.

Glossary

Appropriate action–implementing actions pursuant to subparts 4110, 4120, 4130 and 4160 of the regulations that will result in significant progress toward fulfillment of the standards and significant progress toward conformance with the guidelines (see "significant progress" below).

Assessment–a form of evaluation based on the standards of rangeland health, conducted by an interdisciplinary team at the appropriate landscape scale (pasture, allotment, sub-watershed, watershed, etc.) to determine conditions relative to standards.

Compaction layer–a layer within the soil profile in which the soil particles have been rearranged to decrease void space, thereby increasing soil bulk density and often reducing permeability.

Crust, Abioti–(physical crust) a surface layer on soils, ranging in thickness from a few millimeters to a few centimeters, that is much more compact, hard and brittle, when dry, than the material immediately beneath it.

Crust, Bioti–(microbiotic or cryptogamic crust) a layer of living organisms (mosses, lichens, liverworts, algae, fungi, bacteria, and/or cyanobacteria) occurring on, or near the soil surface.

Degree of function–a level of physical function relative to properly functioning condition commonly expressed as: properly functioning, functioning-at-risk, or non-functional.

Diversity–the aggregate of species assemblages (communities), individual species, and the genetic variation within species and the processes by which these components interact within and among themselves. The elements of diversity are: 1. community diversity (habitat, ecosystem), 2. species diversity; and 3. genetic diversity within a species; all three of which change over time.

Energy flow–the processes in which solar energy is converted to chemical energy through photosynthesis and passed through the food chain until it is eventually dispersed through respiration and decomposition.

Groundwater–water in the ground that is in the zone of saturation; water in the ground that exists at, or below the water table.

Guideline–practices, methods, techniques and considerations used to ensure that progress is made in a way and at a rate that achieves the standard(s).

Gully–a channel resulting from erosion and caused by the concentrated but intermittent flow of water usually during and immediately following heavy rains.

Hydrologic cycle–the process in which water enters the atmosphere through evaporation, transpiration, or sublimation from the oceans, other surface water bodies, or from the land and vegetation, and through condensation and precipitation returns to the earth's surface. The precipitation then occurring as overland flow, stream flow, or percolating underground flow to the oceans or other surface water bodies or to other sites of evapo-transpiration and recirculation to the atmosphere.

Indicators–parameters of ecosystem function that are observed, assessed, measured, or monitored to directly or indirectly determine attainment of a standard(s).

Infiltration–the downward entry of water into the soil.

Infiltration rate–the rate at which water enters the soil.

Nutrient cycling–the movement of essential elements and inorganic compounds between the reservoir pool (soil, for example) and the cycling pool (organisms) in the rapid exchange (i.e., moving back and forth) between organisms and their immediate environment.

Organic matter–plant and animal residues accumulated or deposited at the soil surface; the organic fraction of the soil that includes plant and animal residues at various stages of decomposition; cells and tissues of soil organisms, and the substances synthesized by the soil population.

Permeability–the ease with which gases, liquids or plant roots penetrate or pass through a bulk mass of soil or a layer of soil.

Properly functioning condition–

> Riparian-wetland: adequate vegetation, landform, or large (coarse) woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid in flood plain development; improve flood-water retention and ground water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse channel and ponding characteristics to provide the habitat and water depth, duration and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The result of interaction among geology, soil, water, and vegetation.
>
> Uplands: soil and plant conditions support the physical processes of infiltration and moisture storage and promote soil stability (as appropriate to site potential); includes the production of plant cover and the accumulation of plant residue that protect the soil surface from raindrop impact, moderate soil temperature in minimizing frozen soil conditions (frequency, depth, and duration), and the loss of soil moisture to evaporation; root growth and development in the support of permeability and soil aeration. The result of interaction among geology, climate, landform, soil, and organisms.

Proper grazing use–grazing that, through the control of timing, frequency, intensity and duration of use, meets the physiological needs of the desirable vegetation, provides for the establishment of desirable plants and is in accord with the physical function and stability of soil and landform (properly functioning condition).

Reference area–sites that, because of their condition and degree of function, represent the ecological potential or capability of similar sites in an area or region (ecological province); serve as a benchmark in determining the ecological potential of sites with similar soil, climatic, and landscape characteristics.

Rill–a small, intermittent water course with steep sides; usually only a few inches deep.

Riparian area–a form of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and stream, glacial potholes, and shores of lakes and reservoirs with stable water levels area typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil. Includes, but is not limited to, jurisdictional wetlands.

Significant progress–when used in reference to achieving a standard: (actions), the necessary land treatments, practices and/or changes to management have been applied or are in effect; (rate), a rate of progress that is consistent with the anticipated recovery rate described in plan objectives, with due recognition of the effects of climatic extremes (drought, flooding, etc.), fire, and other unforeseen naturally occurring events or disturbances. Monitoring reference areas that are ungrazed and properly grazed may provide evidence of appropriate recovery rates. (See Proper Grazing Use)

Soil density–(bulk density)--the mass of dry soil per unit bulk volume.

Soil moisture–water contained in the soil; commonly used to describe water in the soil above the water table.

Special status species–species proposed for listing, officially listed (T/E), or candidates for listing as threatened or endangered by the Secretary of the Interior under the provisions of the Endangered Species Act; those listed or proposed for listing by the State in a category implying potential endangerment or extinction; those designated by each Bureau of Land Management State Director as sensitive.

Species of local importance–species of significant importance to Native American populations (e.g., medicinal and food plants).

Standard–an expression of the physical and biological condition or degree of function necessary to sustain healthy rangeland ecosystems.

Uplands–lands that exist above the riparian/wetland area, or active flood plains of rivers and streams; those lands not influenced by the water table or by free or unbound water; commonly represented by toe slopes, alluvial fans, and side slopes, shoulders and ridges of mountains and hills.

Watershed–an area of land that contributes to the surface flow of water past a given point. The watershed dimensions are determined by the point past, or through which, runoff flows.

Watershed function–the principal functions of a watershed include the capture of moisture contributed by precipitation; the storage of moisture within the soil profile, and the release of moisture through subsurface flow, deep percolation to groundwater, evaporation from the soil, and transpiration by live vegetation.

Wetland–areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and which under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

A.2 Fencing Standards

Fencing Standards are provided from BLM Manual Handbook H-1741-1. It identifies standards and provides information related specifically to construction of fences on BLM-administered lands.

Standards for fencing in areas inhabited by resident and migratory populations of deer and elk (adapted from Illustrations 1 and 2, BLM Manual H-1741-1).

Standards for Cattle Only

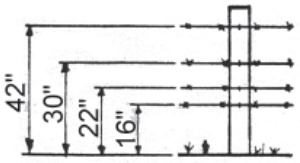
Number of Wires. 4

Maximum Fence Height . . . . . 42″

Wire Spacing (from ground up) . . . . . 16″, 6″, 8″, 12″

Wire Type . . . . . Barbed

# of Stays between Line Posts (16.5′ to 30′ spacing) . . 1 to 4



Cattle Only

Standard Modification for Combination of Cattle with Deer

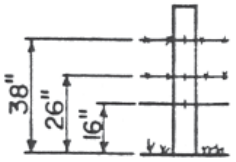
Number of Wires. 3

Maximum Fence Height . . . . . 38″

Wire Spacing (from ground up) . . . . . 16″, 10″, 12″

Wire Type . . . . . Bottom strand smooth; Others barbed

# of Stays between Line Posts (16.5′ to 30′ spacing) . . None (16.5′ spacing); 1 or 2 (30′ spacing)



Cattle with Deer

Standard Modification for Combination of Cattle with Deer and Elk (normal conditions)

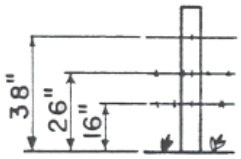
Number of Wires. 3

Maximum Fence Height . . . . . 38″

Wire Spacing (from ground up) . . . . . 16″, 10″, 12″

Wire Type . . . . . Top strand smoot Others barbed

# of Stays between Line Posts (16.5′ to 30′ spacing) . . . 1 to 4



Cattle with Deer and Elk (Under Normal Conditions)

Standard Modification for Combination of Cattle with Deer and Elk (requires extreme restriction of livestock movements)

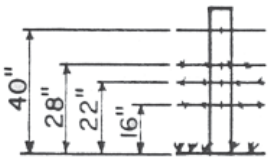
Number of Wires. 4

Maximum Fence Height . . . . . 40″

Wire Spacing (from ground up) . . . . . 16″, 6″, 6″, 12″

Wire Type . . . . . Top strand smo Others barbed

# of Stays between Line Posts (16.5′ to 30′ spacing) . . 1 to 4



Cattle with Deer and Elk (Requiring Extreme Restriction of Livestock Movements)

Appendix B - Botany

Table B-1. Flat Creek and Summit Prairie 10-Year Grazing Allotment Renewals

Special Status Plants Documented Habitat and Impacts Analysis – May 2009

Species	Status	Habitat and Grazing Impacts Analysis
Vascular Plants		
Carex serratodens (sawtooth sedge)	Sensitive	• 1 site in Flat Creek • Growing in ditch beside road • May be impacted from livestock trampling or grazing
Cimicifuga elata (tall bugbane)	Sensitive	• 1 site; small portion in Flat Creek, rest in Umpqua National Forest • Grows in moist coniferous forests • May be impacted from cattle browsing and trampling
Cypripedium fasciculatum (clustered ladyslipper)	Sensitive	• 8 sites in Summit Prairie • Spring-blooming species; grows in forest habitat • Impacts from livestock unlikely; forage is scarce in forested areas and cattle do not congregate there
Fritillaria gentneri (Gentner's fritillary)	Federal Endangered	• 13 sites in Summit Prairie • Occurs in edges or openings of Oregon oak woodlands, mixed hardwood-conifer woodlands, or chaparral; blooms in April and May; edible to livestock and wildlife • Grazing "May Affect, Not Likely to Adversely Affect" Consultation with USFWS completed in Letter of Concurrence (USDI FWS 2008)
Iliamna latibracteata (California globemallow)	Sensitive	• 10 sites in Flat Creek • Perennial shrub that grows to 6½ feet; grows in moist, shaded forest habitats, creek banks, clear-cuts, and roadsides; responds well to fire and other disturbances that open up the canopy • Could be browsed or trampled by livestock
Limnanthes floccosa ssp *bellingeriana* (Bellinger's meadowfoam)	Sensitive	• 18 sites in Summit Prairie • Spring blooming annual that grows in vernally wet areas in chaparral • Plants or habitat could be impacted from livestock trampling
Plagiobothrys greenei (Green's popcorn flower)	Sensitive	• 1 site in Summit Prairie • Spring blooming annual that grows in wet sites in grasslands and woodlands • Could be trampled or grazed by cattle

Table B-1. Flat Creek and Summit Prairie 10-Year Grazing Allotment Renewals

Special Status Plants Documented Habitat and Impacts Analysis – May 2009

Species	Status	Habitat and Grazing Impacts Analysis
Ranunculus austro-oreganus (southern Oregon buttercup)	Sensitive	• 3 sites in Summit Prairie • Spring blooming annual that grows in Jackson County in foothill oak woodlands and savanna/grasslands; populations are large and stable; plant poisonous to livestock • Could be indirectly impacted from increased noxious weeds as a result of overgrazing
Solanum parishii Parish's nightshade	Sensitive	• 10 sites in Flat Creek • Perennial sub-shrub that grows in dry chaparral, oak/pine woodland, and pine forests • Sites along roads could be trampled by livestock
Lichens		
Chaenotheca subroscida Needle lichen	Sensitive	• 1 site in Summit Prairie • Growing on bark of large Douglas-fir snag in a mature conifer stand • No impacts from livestock, protected on tree
Bryophytes		
Meesia uliginosa (Meesia moss)	Sensitive	• 2 sites in Summit Prairie • Occurs in wet meadows • Could be trampled by livestock
Tayloria serrata (Broad-leaved stink moss)	Sensitive	• 13 sites in Summit Prairie • Grows on dung, along edge of forest adjacent to meadows • Could be trampled by livestock
Fungi		
Gomphus kaufmannii (Kaufmann's chanterelle)	Sensitive	• 2 site in Summit Prairie • Grows on organic duff in mature conifer forests • No impacts from livestock; forage scarce in forested habitats and cattle do not congregate there
Ramaria thiersii (Thiersi's coral mushroom)	Sensitive	• 1 site in Summit Prairie • Grows on organic duff in mature conifer forests • No impacts from livestock; forage scarce in forested habitats and cattle do not congregate there
Sowerbyella rhenana (Aleuria rhenana) (Stalked orange peel mushroom)	Sensitive	• 4 sites in Summit Prairie; within 2 miles of each other in the Poverty Flat and Rocky Flat Pastures • Spring fruiting fungus; occurs on humus soil in drier mature Douglas-fir and mixed hardwood-conifer forests • No impacts from cattle; forage scarce in forested habitats and cattle do not congregate there

Special Status Plants Documented in the Grazing Allotments Most Vulnerable to Impacts from Livestock

Carex serratodens – This perennial sedge grows in moist meadows and rocky places near streams and seepages below 6,000 feet. Populations are usually small to medium in size. The range of this sedge in Oregon is Douglas, Jackson, and Josephine Counties. It also occurs in the Sierra Nevada and Coast Ranges of California. The Flat Creek site consists of 10 plants in a ditch next to a road with open canopy. Documented at 59 sites in the Medford District BLM.

Cimicifuga elata – A long-lived perennial and western North American endemic whose range extends from southern British Columbia to Jackson County, Oregon. It blooms in June and July. Approximately 120 sites have been found in the Medford District; 1 site is in the Flat Creek Allotment. Most of the *Cimicifuga elata* site in the Flat Creek Allotment falls in the Umpqua National Forest, with a small portion on BLM-administered land. The population is at the edge of the Timbered Rock Fire; only a few plants were impacted during fire suppression activities. There has been no evidence of cattle grazing at this site. A Conservation Strategy for managing tall bugbane was signed in 1996. After monitoring studies were conducted throughout Oregon in the 1990s, the species was assessed as stable across its range. It has been found to respond favorably to disturbance and canopy removal (Kaye 2000a, p. 21).

Fritillaria gentneri – Blooms in April and May in the foothills of the Rogue and Illinois River valleys, between 1,004 and 5,064 feet elevation. It is found within or at the edges of dry, open woodlands and has been documented in sixteen different habitat types. It often grows underneath shrubs, where plants are protected from wind, sun, and possibly browsing by livestock or wildlife, but it does not grow in fully exposed or extremely dry sites. *Fritillaria gentneri* is a lily that is often browsed by deer, elk, and possibly other small mammals and livestock. It reproduces mainly asexually via bulblets that develop on the mother bulb, break off and produce new plants. Sexual reproduction occurs irregularly and seed viability may be low (USDI FWS 2003, p. 10). Found at 13 sites in the Summit Prairie Allotment. Approximately 150 sites have been documented in the Medford BLM District.

Iliamna latibracteata – A summer-blooming endemic of southwestern Oregon and northwestern California. Sites have been documented in Coos, Douglas, Josephine, and Jackson Counties in Oregon and Humboldt and Del Norte Counties in California. Typical habitat is moist, often shady places (Knight and Seevers 1992, p. 100), although several of the Butte Falls Resource Area sites are located in previously harvested units along old skid roads, in clear-cuts, and on road banks. Found at 23 sites in the Medford BLM District; 10 of those sites occur in the northwestern part of the Flat Creek Allotment, along the Umpqua Divide. *Iliamna latibracteata* appears to respond to disturbances that open the canopy to more light, such as fire and timber harvesting. None of the sites in the Flat Creek Allotment have showed impacts from grazing. All 10 sites on BLM-administered lands in the Flat Creek Allotment are located on steep slopes or away from roads. Two plants were also observed on private land – one on Flat Creek Road and one on Sugar Pine Road.

Limnanthes floccosa ssp *bellingeriana* – This spring-blooming annual grows in open, vernally wet meadows on clay soils, often in areas that have been disturbed. Its range is restricted to two areas of Jackson County – the eastern part of the Butte Falls Resource Area and the eastern part of the Ashland Resource Area. Found at 72 sites in Medford BLM District; 18 documented sites in the Summit Prairie Allotment. Because cattle visit the meadows and small openings where it occurs, there is potential for impacts to the plants from grazing or trampling. Overgrazing could also open up areas to invasion by noxious weeds, which could compete with the meadowfoam. However, it is also possible that grazing

may reduce vegetation that competes with the meadowfoam. Although some of the sites in Summit Prairie have been grazed, no evidence was found that livestock had impacted the plants.

Meesia uliginosa – This tiny moss grows in wet bogs or rock fissures across North America. It is usually in alpine areas, but sometimes may be found in the lowlands. Only two sites have been documented in the Medford District, both in the McNeil Creek Pasture of the Summit Prairie Allotment in boggy meadows. Their location in wet meadows makes them vulnerable to trampling by cattle who may be attracted to the green grass and flowing water in hot summer months. Since their discovery in 2001, the two sites have not shown signs of impacts from livestock, even though the surrounding areas were grazed.

Plagiobothrys greenei – This popcorn flower is an annual that blooms in early spring and grows at the edges of vernal pools or vernally wet grasslands in Oregon and California. Because of its association with vernally wet areas, the number of plants blooming in a population in any year may fluctuate depending on that year's rainfall. Documented at 24 sites in the Medford BLM District, with 1 site occurring in the Summit Prairie Allotment. The plant is small and probably not of interest to cattle for forage, but the plants could be vulnerable to trampling because they occur in vernally wet areas. Grazing may benefit this species because competing vegetation is removed, the soil is broken up, and seeds may be spread on cows' hooves. On the other hand, trampling may also compact soil, bury seeds deeply, and open up the area to invasion by competing weeds and nonnative vegetation. At this time, there has been no indication of impacts from grazing at the site in Summit Prairie.

Ranunculus austro-oreganus – A perennial endemic of central Jackson County that blooms in April and May and grows on dry, gravelly soils in oak woodland-savanna and grassland communities. Documented at 65 sites in the Medford BLM District; 3 of those sites are in the Summit Prairie Allotment. Most sites cover large areas and contain thousands of plants. *Ranunuculus austro-oreganus* hybridizes with *Ranunculus occidentalis* where the two species co-exist. *Ranunculus occidentalis* has a broad range across western North America. The hybridization creates plants with some characteristics of Ranunuculus austro-oreganus, but clearly are not *Ranunuculus austro-oreganus*. All three Summit Prairie populations contain mostly hybrids. Although the areas in Summit Prairie where *Ranunculus austro-oreganus* was found had been grazed when they were detected, the populations did not appear to be negatively affected. Ranunculus species are toxic to cattle who generally avoid it unless no other forage is available.

Solanum parishii – This perennial member of the nightshade family grows in dry chaparral, oak/pine woodlands, and pine forests in California and southern Oregon. Documented at 96 sites in the Medford BLM District, with 3 of those in the Flat Creek Allotment. This plant was first discovered in 2004 in the Butte Falls Resource Area after the Timbered Rock Fire (2002). Some of the sites are along roads, which makes them vulnerable to trampling by livestock. Since the plants are toxic, cattle would not likely eat them.

Tayloria serrata – This dung moss grows on old scat of herbivores, or on soil enriched by dung, in peatlands, or sometimes uplands. It has a circumboreal (found around the world in the Northern Hemisphere) distribution, but is rare throughout the Pacific Northwest. Documented at 19 sites in the Medford BLM District; 1 in the Glendale Resource Area and the rest in the Summit Prairie Allotment in the Butte Falls Resource Area. At all of the Summit Prairie sites, the moss was growing on cow dung, with the exception of two populations which occurred on coyote dung. When the dung that this species grows on deteriorates, the population disappears. However, its spores are spread when a fly visits a cow

pie where it occurs, picks up spores on its body as it brushes against the mature sporophytes, and carries the spores to another unoccupied cow pie. Although it depends on dung for its substrate, it could also potentially be negatively impacted if livestock congregate in an area and trample and break up the cow pies. This species would likely be even rarer in the absence of cattle in this area.

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Appendix C - Noxious Weeds

Armenian (Himalayan) blackberry (*Rubus armeniacus*) – Perennial shrub with thorny canes up to 10 feet tall. Creates dense thickets along riparian areas or in other wet areas. Widespread in the Rogue Valley and foothills of the surrounding mountains. Although it displaces native vegetation, it provides forage and shelter for birds and animals. Because it is so widespread, the BLM treats this species only under special circumstances, such as when it is a threat to rare plants or special areas.

Canada thistle (*Cirsium arvense*) – Perennial herbaceous plant that establishes and develops best on open, moist, disturbed areas, including ditch banks, overgrazed pastures, meadows, tilled fields, open waste places, fence rows, roadsides, campgrounds; or in natural areas after logging, road building, fire or landslides (Romme et al. 1995). Canada thistle is an early seral species, susceptible to shading, and grows best when no competing vegetation is present (Donald 1994). It is a clonal species with vigorous growing rhizomes and long roots from which new stems sprout.

Meadow knapweed (*Centaurea pratensis*) – Perennial herbaceous plant that infests roadsides, fields, pastures, and waste areas. Grows long taproot that resprouts if pulled.

Spotted knapweed (*Centaurea stoebe, C. maculosa*) – Perennial knapweed with a deep taproot that becomes established in disturbed sites. Reproduces from seeds. One plant may produce 5,000 to 40,000 seeds/m^2 per year. Grows in the forest-grassland interface. Results in reduced biodiversity and wildlife and livestock forage and increased soil erosion (Sheley et al 1999, 350-359).

Rush skeletonweed (*Chrondrilla juncea*) – Perennial herbaceous plant that grows in rangeland, pastures, croplands, and roadsides. Areas where vegetation has been removed or disturbed are especially vulnerable to invasion. Roots can reach 8 feet and new plants can resprout from roots to a soil depth of 4 feet.

Houndstongue (*Cynoglossum officinale*) – Biennial that grows 1 to 4 feet tall and reproduces by seed. Fruit is a prickly nutlet that clings to clothing and animals. Toxic to livestock. Grows in pastures, along roadsides, and in disturbed areas (Whitson et al. 2004, p. 203).

Scotch broom (*Cytisus scoparius*) – Perennial shrub that displaces native vegetation and creates a severe fire hazard. Prefers open canopy in pastures, cultivated fields, roadsides, waterways, recently logged lands, or any open areas. Seeds remain viable in the soil for many years. Unpalatable and may be toxic to livestock.

Spanish broom (*Spartium junceum*) – Perennial shrub that displaces native vegetation and creates a severe fire hazard. Prefers open canopy in pastures, cultivated fields, roadsides, waterways, recently logged lands, or any open areas. Seeds remain viable in the soil for many years. Unpalatable and may be toxic to livestock.

Tansy ragwort (*Senecio jacobaea*) – Biennial or short-lived perennial herbaceous plant that grows up to 6 feet tall and is supported by a large taproot. Toxic to horses and cattle. Grows prolifically in pastures, clear-cuts, and disturbed roadsides.

Yellow star-thistle (*Centaurea solstitialis*) – Annual or biennial thistle that primarily infests grasslands, pastures, shrub steppe, open woodlands, and disturbed habitats such as hayfields, orchards, vineyards,

roadsides, and abandoned areas (Wilson et al. 2004, p. 5). The most susceptible rangelands in the Pacific Northwest are those with deep, loamy soils, south-facing slopes, and 12 to 25 inches of precipitation that peaks in winter or spring (Sheley et al. 1999, p. 409). Reproduces from seeds.

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Appendix D - Wildlife

Special Status Wildlife Species Considered, but not Impacted by Grazing in the Flat Creek and Summit Prairie Allotments

Table D-1. Sensitive Wildlife Species Analysis for Flat Creek and Summit Prairie Allotments 10-Year Grazing Authorization Renewal

Species	Status	Presence on BLM land			Habitat and Grazing Impacts Analysis
		Medford District	Butte Falls RA	Project Area	
Threatened and Endangered					
Northern spotted owl	FT	P	P	P	• Use high canopy, late-successional old-growth forests • No impacts to spotted owls from grazing
Vernal pool fairy shrimp	FT	P	P	A	• Found in vernal pools • No vernal pool fairy shrimp habitat in either Summit Prairie or Flat Creek allotment. Only suitable vernal pools in BLM are on Table Rocks. Project Area is outside the range.
Bureau Sensitive					
Bald eagle	BS	P	P	P	• Nest in dominant and codominant trees at forest edges and ridges, in meadows and near rivers and lakes. One nest is in Summit Prairie Allotment in Parsnip Creek area. Cattle graze beneath the nest with no obvious disturbance to the eagles. • No impacts from grazing
Fisher	BS	P	P	P	• Use late-successional forested areas with high canopy cover. Grazing does not remove key habitat elements such as CWD and snags and forest overstory canopy. • No impacts from grazing
Mardon skipper butterfly	BS	P	A	A	• BFRA is outside range. Nearest location is near Little Hyatt Lake.
Crater Lake tightcoil (*Pristiloma crateris arcticum*)	BS	A	A	A	• Surveys have occurred in Flat Creek Allotment and within Parsnip Creek, Round Mountain, Fredenburg, McNeil Creek, and Mule Creek Pastures in Summit Prairie Allotment with no detections. No *Pristiloma crateris arcticum* were found in over 15,000 acres of mollusk surveys in BFRA. Will be removed from BFRA mollusk special status species list.

Table D-1. Sensitive Wildlife Species Analysis for Flat Creek and Summit Prairie Allotments 10-Year Grazing Authorization Renewal

Species	Status	Presence on BLM land			Habitat and Grazing Impacts Analysis
		Medford District	Butte Falls RA	Project Area	
Flammulated owl	BCC	P	P	P	• Nesting habitat is large conifers, primarily ponderosa pine. Flammulated owls forage on insects and small rodents in openings. • No impacts to nesting or foraging habitat from grazing
Pallid bat	S	P	P	S	• Suspected to be present in the Summit Prairie Allotment, but have not been found in limited mist-net surveys. • No known impacts from grazing
Peregrine falcon	BS, BCC	P	P	P	• Nesting habitat is cliffs; present in Flat Creek Allotment • No impacts from grazing
Siskiyou short-horned grasshopper	BS	U	U	U	• No information is available. They have not been reported in BFRA. Other grasshopper species are found in grassy areas where cattle have grazed. • No known impacts
Tri-colored blackbird	BS	P	A	A	• Present at Denman and Sam's Valley on private lands in the lower elevations along the river. • Project Area is outside the range
White-headed woodpecker	BS	P	V	A	• Present in Ashland RA; not documented in bird surveys in Flat Creek or Summit Prairie Allotments or nearby. • No impacts from grazing
White-tailed kite	BS	P	P	A	• Present in the low elevation farm lands in the Rogue Valley; not present in the Flat Creek and Summit Prairie Allotments • Project Area is outside the range

Status:
FT - USFWS Threatened - likely to become endangered species within the foreseeable future
BS - Bureau Sensitive (BLM) - eligible for addition to Federal Notice of Review, and known in advance of official publication. Generally these species are restricted in range and have natural or human caused threats to their survival.
BCC - Bird of Conservation Concern

Presence:
P – Present S – Suspected V – Vagrant
A – Absent U – Unknown

Appendix E - Aquatic Conservation Strategy

The Record of Decision for the Northwest Forest Plan contains Standards and Guidelines for the management of the land use allocations designated in the NWFP and incorporated into the 1995 Medford District ROD/RMP. The Aquatic Conservation Strategy (ACS) provides clarification of the intent of the Standards and Guidelines "in order to provide guidance for situations not specifically covered by the standards and guidelines" (USDI and USDI 1994, B-1).

E.1. Components of the Aquatic Conservation Strategy

The following are four main components of the ACS: Riparian Reserves, Key Watersheds, Watershed Analysis (WA), and Watershed Restoration.

E.1.1 Riparian Reserves

The 1995 Medford District ROD/RMP states, "As a general rule, management actions/direction for riparian reserves prohibits or regulates activities that retard or prevent attainment of Aquatic Conservation Strategy and riparian reserve objectives" (1995 ROD/RMP, 27).

E.1.1.1 Management Actions/Directions – Grazing Management (ROD/RMP, p. 28-29)

- Through a planning and environmental analysis process appropriate to the action, adjust or eliminate grazing practices that retard or prevent attainment of Aquatic Conservation Strategy and riparian reserves objectives.
- Locate new livestock handling and/or management facilities outside of riparian reserves. For existing livestock handling facilities inside riparian reserves, ensure that Aquatic Conservation Strategy and riparian reserve objectives are met. Where these objectives cannot be met, require relocation or removal of such facilities
- Limit livestock trailing, bedding, watering, loading and other handling efforts to those areas and times that will ensure Aquatic Conservation Strategy and riparian reserve objectives are met.

E.1.2 Key Watersheds

Elk Creek is a Tier 1 Key Watersheds. Tier 1Key Watersheds contribute directly to conservation of at-risk salmonids, bull trout, and resident fish species. These watersheds also have a high potential for being restored as part of a watershed restoration program (ROD/RMP, p. 22). The Flat Creek Allotment is located entirely within the Elk Creek key watershed.

E.1.3 Watershed Analysis

The relevant watershed analyses (WA) for this project are

- Lost Creek WA (USDI 1998)
- Lower Big Butte Creek WA (USDI 1999)
- Upper Big Butte Creek WA (USDI 1995)

- Central Big Butte WA (USDI 1995)
- Little Butte Creek WA (USDI 1997)
- Elk Creek WA (USDA and USDI 1995)

Watershed Analysis is intended to enable the planning of watershed or landscape scale projects which achieve ACS objectives. Watershed Analysis will serve as the basis for the design of Best Management Practices during project-specific planning (ROD/RMP, p. 152).

E.1.4 Watershed Restoration

The Northwest Forest Plan Record of Decision (p. B-31) listed the most important components of a watershed restoration program as "control and prevention of road-related runoff and sediment production, restoration of the condition of riparian vegetation, and restoration of in-stream habitat complexity."

E.2 Project Summary

The BLM proposes to authorize continued grazing within the Flat Creek and Summit Prairie allotments through reissuance of 10-year grazing authorizations, with modifications. Two projects are proposed and while they will not alter the number of AUMs authorized, they may alter the movement of livestock (due to a new exclosure) and seasons-of-use. Individual term grazing authorizations would be reissued at the same active preference (AUM) levels and with substantially the same terms and conditions. The proposed activities include a new cattle exclosure and a new turn-out date for spring use pastures. Grazing would occur on up to 42,645 acres of BLM-administered land located in the Elk Creek, Big Butte Creek, Rogue River/Lost Creek, South Fork Rogue River, and Little Butte Creek fifth field watersheds.

E.2.1 Project Design Features (PDFs) that would Maintain or Restore ACS Objectives

1. Limit brushing and tree limb removal to only that necessary for surveying, placement, and construction of a fence.
2. Manually clear brush or trees that have fallen across the fence line only to the extent needed to complete the fencing project.
3. During fence construction, use only hand tools to minimize ground disturbance and damage to adjacent trees.
4. Allow mechanized vehicles only in designated areas as determined by the authorized officer.
5. Conduct all fence construction activities between May 15 and October 15, or when soil moisture content is less than 35 percent by weight in the upper 6 inches of the soil to prevent soil compaction and erosion.
6. Observe all fire precautions as specified in contract and ensure proper fire prevention equipment is on-site.
7. Seasonally restrict activities that cause disturbance (including people working) from January 1-August 31within 0.25 miles of any eagle nest, or until the young have fledged and are no longer at the nest site.

8. Treat noxious weeds on BLM-administered land by control techniques including chemical, mechanical, manual, and biological methods, as funding is available.
9. Seed areas disturbed during range improvement projects with native plants after projects are completed.
10. If future monitoring discovers heavily grazed areas that may be at risk of invasion by noxious weed populations, implement mitigation measures to reduce those risks. Mitigation measures may include, but are not limited to fence construction, changing season-of-use, modifying livestock numbers, modifying turn-out locations, or moving livestock to distribute them throughout the allotment and prevent overuse of specific areas.

E.3 ACS Consistency Analysis

The following discussion is based on the proposed project activities combined with specific PDFs that will maintain or restore each ACS objective. ACS objectives are analyzed based on short- (10 years or less) and long- (over 10 years) term effects of the project, and are analyzed at a watershed-scale due to the large areas that make up each allotment. However, for some ACS objectives, the site-scale will be used when appropriate

1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.

Short-Term: Minor effects (i.e., inconsequential inputs of sediment and increase in solar radiation) would occur throughout the fifth field watersheds within the grazing allotments that could affect aquatic systems that organisms are adapted to; however, these minor effects would be unnoticeable at the fifth field watershed scale. Additionally, any effects would be indistinguishable from the impacts from many other past and present activities.

Long-Term: Minor effects are expected to occur throughout all watersheds, but would not affect the distribution, diversity, and complexity of watershed and landscape-scale features.

2. Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.

No physical or chemical barriers associated with livestock grazing are expected to occur either in the short-term or long-term. Construction of fences across Beaver Dam Creek would not restrict movement of aquatic organisms.

3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.

Individual Site Scale: In riparian areas where heavy livestock grazing occurs, there will be some trampling of stream banks and stream channels. Areas of heavy grazing occur along Beaver Dam Creek,

Jackass Creek, North Fork Big Butte Creek, and Parsnip Creek, within the Summit Prairie Allotment, and at the Sugar Pine and Hawk Creek confluence within the Flat Creek Allotment. Impacts are occurring along about 0.25 miles of Beaver Dam Creek and the physical integrity of the channel is on a downward trend in this area where livestock have access. Construction of an exclosure along Beaver Dam Creek would allow this area to recover. All other areas (not being grazed heavily) of grazing along the streams are a small percentage of the overall Project Area and the aquatic system is being maintained or improving.

Project Scale (HUC 6/7): Riparian reserves in the Jackass Creek, North Fork Big Butte Creek, South Fork Big Butte Creek, Beaver Dam Creek, and Parsnip Creek watersheds and the Sugar Pine/Hawk Creek confluence have several hot spots with heavy grazing along streams and adjacent floodplains, with Beaver Dam Creek experiencing the heaviest impacts. These small areas are experiencing moderate to heavy grazing during summer and early fall. Even with these impacts, aquatic habitat conditions are maintaining or improving across the Project Area.

Watershed Scale (HUC-5): The overall effects of the proposed allotment permit renewals at the individual site or project scale would be minimal at the larger spatial scale of the Big Butte Creek, Little Butte Creek, South Fork Big Butte Creek, Elk Creek and Lost Creek fifth field watersheds.

4. Maintain and restore water quality necessary to support healthy riparian, aquatic and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.

Individual Site Scale: A small amount of fine sediment enters stream channels where livestock cross streams. In most cases, however, the small amount of fine sediment is not above normal turbidity levels. The only exception is Beaver Dam Creek, which has some areas with high fine sediment levels due to heavy livestock use. A proposed fence exclosure would allow this area to recover from past grazing impacts and reduce sediment inputs. Grazing hot spots such as those on Beaver Dam Creek contain reduced amounts of overhanging vegetation. These areas provide less stream shade which allows more solar radiation to reach the stream and has the potential to increase water temperatures. The proposed fence exclosure would allow vegetation to recover and maintain stream temperatures. Beaver Dam Creek is not water quality limited on the 303(d) list (see section 3.7, Water Resources for a list of temperature limited streams).

Project Scale (HUC 6/7): It would be very difficult to measure or detect any cumulative effect from grazing on water temperature and turbidity. The majority of shade would be maintained along stream channels and sediment levels are within the range of variability. The likelihood upland grazing producing fine sediments is very low because the riparian vegetation and channel structure will prevent excessive sediment movement. Grazing could have a minimal effect on water temperature because shade-producing vegetation would not be removed along most streams within the proposed grazing allotments. The small increase in direct solar radiation resulting from grazing impacts on riparian vegetation is unlikely to increase stream temperatures at any specific site.

Watershed Scale (HUC-5): The effects of the proposed 10-year permit renewals at the individual site or project scale would be unnoticeable at the larger spatial of the Elk Creek, Big Butte Creek, Little Butte Creek, and Lost Creek fifth field watersheds. The effects on water quality from grazing would be indistinguishable from the effects of the other activities that have occurred in these watersheds.

Long Term: Grazing impacts at the site- and watershed-scale would be difficult to measure or detect; therefore, long-term impacts to water quality are not likely.

5. Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.

See ACS Objective #4.

6. Maintain and restore instream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.

Individual Site Level: Impacts to instream flows from livestock would be unnoticeable at this very small spatial scale.

Project Scale (HUC 6/7): Grazing could impact peak flows due to soil compaction by livestock (Belsky et al. 1999). Livestock tend to congregate in open areas along streams, and minor soil compaction could occur. However, it is expected that the small amount of soil compacted would not be enough to effect peak flows at such a small "micro-site" scale.

Watershed Scale (HUC-5): Any effects on stream flow from grazing would be too insignificant to be noticeable at this large spatial scale. Water withdrawals for agriculture and residential use have the most significant impacts to river flows at this spatial scale.

7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.

Individual Site Level: Trampling and grazing by livestock may cause some slight decreases in the elevation of the water table in the wet meadows and wet areas adjacent to streams in the Beaver Dam Creek area. However, the proposed fence exclosure would minimize the potential for this impact to occur.

Project Scale (HUC 6/7)/Watershed Scale (HUC 5): Any possible effects at individual sites would be too insignificant to be noticeable at these larger spatial scales. In addition, there are existing impacts from over a century of timber harvest and road network development along the Big Butte Creek, Beaver Dam Creek, and Elk Creek floodplains. The effects from grazing would be indistinguishable from the effects of the other activities that have occurred in these watersheds.

8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.

Individual Site Scale: In riparian areas where livestock grazing occurs, there are localized impacts to riparian vegetation. Areas along Beaver Dam Creek, Jackass Creek, North Fork Big Butte Creek, and Parsnip Creek contain several grazing hot spots. In these areas, livestock graze on grass and forbs. Later

in the season, when grasses and forbs dry up, the cattle graze on shrub and hardwood species. Although Jackass Creek and North Fork Big Butte Creek are listed as water quality limited for stream temperature, impacts from livestock would be insignificant due to the short reaches of stream being grazed. In addition, immediately upstream and downstream of the BLM lands, the streams flow through open cattle pasture or privately managed timber lands with little or no stream shade.

Project Scale (HUC 6/7): At this scale, some portions of riparian areas are in poor condition, caused primarily by past timber harvest activities. All are in various stages of recovery from those past management activities. Average shade levels along many streams in the upper elevations of the Summit Prairie allotment are moderate, and water temperatures are slightly higher than they should be (see section 3.7, Water Resources for a list of temperature limited streams).

Factors that influence water temperature in small streams are shade from streamside vegetation, cool water from subsurface aquifers, and conditions in streamside vegetation immediately upstream. Past timber harvest activities removed much of the conifer overstory and are the main cause for poor riparian conditions. Because of this, increasing shade is extremely important in order to help reduce water temperatures. The Timbered Rock Fire burned a large amount of riparian forest within the Flat Creek Allotment in 2003. These areas that were affected are still recovering from the fire. In 2008, a windstorm knocked down trees in riparian areas scattered throughout much of the Summit Prairie Allotment. In 2009, a small fire occurred (Doubleday Fire) within the Summit Prairie Allotment, which also burned riparian areas. These fires and blowdown events have reduced areas of riparian shade, but are recovering. Since the inception of the Northwest Forest Plan, riparian areas on Federal land have been recovering and are developing Livestock graze streamside vegetation in the late summer and early fall but this minor effect on streamside vegetation at “microsites” would not prevent attainment of this ACS objective.

Watershed Scale (HUC 5): At this scale, grazing effects on riparian areas are inconsequential. Overall, riparian plant communities are maintaining or improving across the landscape. In addition, the effects from grazing would be indistinguishable from the effects of the other activities that have occurred in these watersheds.

9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

Individual Site Scale: At the individual site scale, livestock grazing would slightly degrade some habitat for aquatic and terrestrial riparian species where heavy grazing occurs. Aquatic habitat across the landscape is in fair condition with deficiencies in coarse wood, spawning gravels, pools, and shade-producing trees; however, these habitat deficiencies are improving. Livestock grazing is expected to have insignificant impacts on the recovery of riparian vegetation that provides some of these features and riparian areas would continue to recover from past management activities.

Project Scale (HUC 6/7): The use of riparian reserves during management activities would maintain or improve habitat for riparian-dependent species at the project scale.

Watershed Scale (HUC 5): Effects at individual sites are too insignificant to be noticeable at this larger spatial scale. The effects from grazing would be indistinguishable from effects of other management activities that have occurred in these watersheds.

ACS Summary:

Under the proposed grazing permit renewal, both allotments would meet ACS objectives due to the vast number of acres in the Project Area and limited AUMs proposed. Although cattle tend to congregate around riparian areas and use that vegetation more during the hot and late seasons, active management by the BLM and lessees would continue to keep impacts to riparian reserves and area streams to small, confined areas. That would result in inconsequential or insignificant effects to the riparian reserves and aquatic habitat.

BLM/OR/WA/AE-09/064+1792