

**10-YEAR GRAZING AUTHORIZATION RENEWAL
ENVIRONMENTAL ASSESSMENT
EA# OR-115-05-01**

Proposed Action : Bureau of Land Management, Medford District Office, Butte Falls Resource Area, proposes to re-issue 10-year grazing authorizations on the Flat Creek and Summit Prairie allotments.

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Abstract: There are several authorities¹ that mandate or allow BLM to authorize livestock grazing on public lands as part of multiple-use management of natural resources. As a consequence, all Land Use Plans (LUP's) for BLM have established grazing allotments and grazing allocation decisions, or reference those that do. Pertinent decisions guiding livestock grazing on the Butte Falls Resource Area and which guide livestock grazing on allotments described in this environmental assessment are listed in the *Medford District Resource Management Plan (RMP), 1994*. This LUP was supported by the *Medford Grazing Management Program Environmental Impact Statement (EIS), 1984*.

By the authority cited above, the BLM issues grazing authorizations and leases, hereinafter referred to as authorizations, for a term not to exceed 10 years unless 1) land is being considered for disposal, 2) the land will be devoted to a public purpose which precludes grazing prior to the end of 10 years; 3) the term of the base property lease is less than 10 years, in which case the term of the Federal authorization or lease shall coincide with the term of the base property lease; or 4) the authorized officer determines that an authorization or lease of less than 10 years is the best interest of sound land management.

¹ (a) The Taylor Grazing Act of June 28, 1934 as amended (43 U.S.C. 315, 315a through 315r); (b) The Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.) as amended by the Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901 et seq.); (c) Executive orders transfer land acquired under the Bankhead-Jones Farm Tenant Act of July 22, 1937, as amended (7 U.S.C. 1012), to the Secretary and authorize administration under the Taylor Grazing Act.; (d) The Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901 et seq.); and (e) Public land orders, Executive orders, and agreements authorize the Secretary to administer livestock grazing on specified lands under the Taylor Grazing Act or other authority as specified. [43 FR 29067, July 5, 1978, as amended at 49 FR 6449, Feb. 21, 1984; 49 FR 12704, Mar. 30, 1984; 50 FR 45827, Nov. 4, 1985; 61 FR 4227, Feb. 5, 1996]

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CHAPTER 1 PURPOSE OF AND NEED FOR ACTION

1.1 PURPOSE OF AND NEED FOR ACTION

The Medford District Grazing EIS was written in 1984. This, in concert with the existing land use plans, has been the primary NEPA documentation under which livestock grazing authorizations were initially, and are currently, issued.

In 1997, Washington D.C. Office Instruction Memorandum #98-91 required all offices administering grazing allotments to analyze all existing information to characterize the general health of the allotments. That information was to be illustrated in a Rangeland Health Standards Assessment and Determination of NEPA Adequacy (DNA). Following extensive scrutiny and discussion, it was determined that the DNA documents did not meet the intent of NEPA.

The issues not analyzed in previous documents in terms of livestock impacts were: 303(d) listed streams, coho salmon, T&E species and Bureau Sensitive Species. It was therefore determined that an EA was required to more thoroughly address these specific issues. It has been determined that other issues normally addressed in EAs (vegetation, soils, timber, cultural, wilderness, OHV, mining, recreation, etc) have been adequately addressed in other documents, and will therefore not be analyzed in this document.

1.2 NEED

Based on the mandates of the above-mentioned authorities and the impending expiration of the ten year grazing authorizations, the underlying need for action is to continue authorizing grazing on public lands in accordance with all applicable statutes and regulations and in conformance with the objectives and decisions of the applicable land use plan.

1.3 OBJECTIVES

Continue legal authority for livestock operators to graze their livestock on public lands in the Flat Creek and Summit Prairie allotments.

Ensure natural resources are protected from irreversible degradation or detrimental impact due to livestock grazing.

Protect and maintain salmon and steelhead habitat as listed in Aquatic Conservation Strategy.

Reduce or eliminate impacts to threatened and endangered plant species.

1.4 CONFORMANCE WITH EXISTING LAND USE PLAN

Reissuance of 10-year grazing authorizations in the Flat Creek and Summit Prairie allotments would be in conformance with the Medford District Resource Management Plan (1994) because their reissuance would not result in a change in the scope of resource uses, or a change in the terms, conditions and decisions of the approved plan.

Reissuance of 10-year grazing authorizations would not preclude changes being made to livestock numbers, season-of-use, or terms and conditions in subsequent years. Should inventory and/or monitoring efforts yield data that indicates other resources require protection and/or enhancement, modifications to the permit would be warranted.

CHAPTER 2 ALTERNATIVES INCLUDING PROPOSED ACTION

This chapter describes all alternatives, including the proposed action. In addition, it illustrates the differences between alternatives, and describes the impacts.

2.1 ALTERNATIVE A: NO ACTION

The term “No Action” means no change from present conditions or management at this time. Under a “No Action” alternative, management and use of the Summit Prairie and Flat Creek allotments would remain unchanged. Livestock numbers and season-of-use would continue under current authorizations. Annual authorizations would be issued without modification.

2.2 ALTERNATIVE B: PROPOSED ACTION – MODIFIED GRAZING LEASES

The BLM Area Manager would authorize continued grazing within the Flat Creek and Summit Prairie allotments through reissuance of 10 year grazing authorizations, with modifications. Several projects are being proposed, and while they will not alter the number of AUMs authorized, they may alter the movement of livestock, or historical livestock migration patterns. Individual term grazing authorizations would be re-issued at the same active preference (AUM)² levels, seasons-of-use, and with substantially the same terms and conditions as shown in Table 2.2-1. The following modification will be made:

Summit Prairie Allotment

Livestock, as illustrated in table 2.2-1 on page 5, are moved into spring pastures on or around April 15th. Not all operators have use of the spring pastures. When the McNeil and Perry School pastures are being used, the Rocky and Poverty Flat pastures are being rested. Whichever sequence is being used, livestock stay in these spring pastures until the end of May, following which they are moved to summer pasture. There are times when a few cows will migrate back to spring range, but the operators are quick to gather them and move them back where they belong.

Some summer pastures are used commonly by several operators, and some are used solely by one operator. There are few fences separating pastures. Most separation of livestock use is done by physical barriers, ridge-tops, etc. At the end of September, livestock are gathered and moved to private pastures for the winter. Gathering is, at times, made somewhat difficult by fall rains, early winter snows, and hunting season, but for the most part, all livestock are removed at the specified time.

Modifications - A riparian protection fence (4-strand barbed wire) will be constructed from near the corrals on Jackass Creek, upstream on Jackass Creek for approximately 1 mile in order to protect coho spawning habitat. Gaps in the fencing will allow livestock and wildlife access to water. Private lands along this stretch of creek will not be fenced.

² An AUM (Animal Unit Month) is the amount of forage necessary for the sustenance of one cow or its equivalent for 1 month.

Protection of this portion of stream is necessary to ensure coho salmon spawning habitat is not degraded. At such time as habitat conditions improve to the extent that normal livestock use would not harm the resources in question, the fence may be removed.

Six small (36' x 20') exclosures will be constructed along portions of Beaver Dam Creek in the Parsnip Creek pasture in order to provide protection to willows, alders, and other shade producing species. When these species have successfully become established, the fences will be removed. It may be that these small exclosures will simply be moved to another area in the pasture, or along the same creek, in order to provide protection to similar species.

Flat Creek Allotment

This allotment changed hands just prior to the Timbered Rock Fire, and the new operator only had 3 months of use by the time he was required to remove his cattle to escape the fire. Typically, livestock have been turned out April 15th. With fresh, lush vegetation, cattle scatter throughout the allotment. When temperatures rise later in the summer, some cattle move down to Elk Creek. Once they find the abundant forage, and plentiful water and shade, they are tough to move out. The operator is well aware of riparian concerns, as well as not having a permit to graze on USACE lands, and is quick to remove the cattle.

Modifications - Livestock turnout will be deferred until May 1, to eliminate the potential of livestock entering streams when coho salmon redds are present and occupied. (Coho salmon redds usually hatch out by the end of April.) The dates for removing livestock in the fall will remain unchanged at this time. Livestock numbers will be increased to meet AUM authorization.

Coho spawning habitat exists in Sugarpine Creek, from its confluence with Elk Creek upstream 1.25 miles, Jones Creek, Flat Creek, Middle Creek, Alco Creek, and the West Branch of Elk Creek. Livestock use has impacted stream-side brush, shrub, and tree species, which is habitat for insects and other fish prey. This vegetation also provides shade and habitat for other wildlife species.

The exclusion of livestock due to the Timbered Rock fire has made it impractical to determine the impacts of grazing on the riparian system. The results of this study following the reintroduction of livestock will help determine whether or not further protection is needed. If studies indicate further protection is needed, fences will be installed.

Table 2.2-1 Basic Information in Summit Prairie Allotment (present)

SUMMIT PRAIRIE PASTURES	CATTLE ³	SEASON OF USE	NUMBER OF USERS	ACRES			BLM AUMS	PVT. AUMS
				BLM	PVT	TOTAL		
McNeil	294	4/15 – 5/31	4	651	1,966	2,617	145	299
Perry School	294	4/15 – 5/31	4	698	5,318	6,016	145	299
Rocky Flat	221	4/15 – 5/31	3	2,417	1,009	3,426	85	249
Poverty Flat	221	4/15 – 5/31	3	1,585	1,470	3,055	85	249
Ginger Creek	117	6/1 – 7/31	1	1,879	3,919	5,798	40	195
Fredenburg	58	6/1 – 9/30	2	3,446	6,399	9,845	52	180
Round Mountain	184	6/1 – 9/30	1	9,044	14,944	23,988	293	445
Mule Creek	183	6/1 – 9/30	2	5,638	10,986	16,624	206	529
Parsnip Creek	208	6/1 – 9/30	3	3,657	8,102	11,759	293	542
Carney	135	6/1 – 9/30	1	0	8,293	8,293	20	521
Elk	8	As needed	1	7	0	7	8	0

McNeil/Perry and Rocky/Poverty Flat pastures are used alternately each year.

³ Includes livestock authorized to graze on intermingled private lands.

Table 2.2-2 Basic Information in Flat Creek Allotment (present)

	CATTLE ⁴	SEASON OF USE	NUMBER OF USERS	ACRES			BLM AUMS	PVT. AUMS
				BLM	PVT	TOTAL		
Spring Use	124	4/1 – 6/15	1	12,141	12,973	25,114	180	130
Summer Use	62	6/16 – 10/18	“	“			148	107

General Allotment Management

Should information be collected subsequent to any individual authorization renewal to indicate that changes in management are needed to ensure that these allotments are meeting or making significant progress towards standards and conforming to guidelines, the authorization may be modified before the expiration of its term. As authorizations are re-issued, minor modifications to the previous set of terms and conditions may occur when: a) the need for minor changes in terms and conditions arise due primarily to the passage of time, b) minor change(s) apply exclusively to an individual lessee in a common allotment, or c) when it is not environmentally critical or administratively expedient to simultaneously include that same term or condition(s) on all authorizations.

The authorizations being analyzed in association with the Flat Creek and Summit Prairie allotments contain several common T&C’s stated as follows,

“Turn-out will be based upon Range Readiness. Actual use reports are required 15 days after the off-date for post-season billed allotments. Maintenance of assigned range improvements is a requirement of the permit. A completed application is required prior to the grazing season each year. Billings are due upon receipt and must be paid prior to turn-out. Failure to pay the grazing bill within 15 days of the due date specified in the bill shall result in a late fee assessment of \$25.00 or 10% of the grazing bill, whichever is greater, but not to exceed \$250.00. Late payment may also result in unauthorized use and/or interest payment.

Salting of livestock is prohibited within one-quarter mile of water or BLM reforestation areas. No supplemental feeding is permitted on leased lands unless authorized. Installation or construction of short-term gathering or holding facilities on federal land requires prior approval by authorized officer.

Revised grazing regulations require an assessment of rangeland health for all grazing allotments. These assessments will be completed between the years 1999 and 2008, and you will be notified for your input into the process.”

These T&C’s would remain a part of each renewed authorization as appropriate.

⁴ Includes livestock authorized to graze on intermingled private lands.

It is proposed that several new T&C's, addressing Standards and Guides be included in individual authorizations as they are renewed.

The proposed T&C regarding implementation of Standards and Guides would be included in all renewed authorizations, and stated as follows:

“The allotment(s) shown on this authorization/lease shall meet the requirements as described in 43 CFR Subpart 4180 --Fundamentals of Rangeland Health and the Standards and Guidelines for Grazing Administration. Any changes in management will be based upon the resource evaluations and analysis as scheduled and completed by the Area Manager.”

Suitability for exchange/disposal of these allotments would be based on the ability to manage, public access, importance for public resource values, and in the public interest.

When cultural or historic properties, T&E or Bureau Sensitive Species, or coho salmon habitat whose ACS objectives have been impaired, and are identified as being impacted by livestock grazing, and the characteristics that make these sites unique are compromised, mitigation measures will be developed. 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 the resources being impacted. Any project proposed as mitigation would be fully analyzed in a separate EA.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM STUDY

During the formation phase of this Environmental Assessment process, several alternatives were identified and discussed. Following in-depth discussions, as well as reviewing legal limitations and requirements, it was determined that the ideas and concepts identified in one or more initial alternatives could, by regulation, already be implemented, or could be captured in a single, all-inclusive alternative, that being Alternative B. Ideas such as reducing the number of livestock in certain areas, reducing or shifting the season-of-use, or installing resource protection facilities such as fences and cattleguards are all examples of things we can do now, if monitoring data dictates.

In addition, due to the lack of compelling and conclusive data (as well as reviewing federal regulations), the initial “no grazing” alternative was excluded. To eliminate or reduce livestock grazing simply to get rid of them, or because they’re not native species, or because one doesn’t like them, are not adequate reasons. This does not mean that if future data and impacts justify reductions or even total closure, they cannot be made. It simply means modifications will be made on an allotment by allotment basis, based on the results of monitoring data, and does not warrant a specific alternative at this time.

CHAPTER 3 AFFECTED ENVIRONMENT

The Summit Prairie and Flat Creek allotments encompass approximately 91,500 and 25,114 acres respectively, of intermingled public and private land (see Table 2.2-1,2). This checkerboard land pattern maintains some high public values, but due to its fractured nature, is often difficult to manage. 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 a part of both allotments, but is not included in either allotment now. Grazing on this land requires a separate authorization from the U.S. Army Corps of Engineers, which at the time of this document, does not exist.

The uses of the public lands are as varied as the resources they contain. Public lands provide areas for timber production and harvest, livestock grazing, wildlife habitat, recreational uses (ORV, camping, hunting, fishing, skiing, etc.), sight-seeing, access to private lands, and other uses. For more detailed descriptions of physical attributes (soils, vegetation, recreation, etc.) of these allotments not specifically addressed in this document, see either appropriate Watershed Analyses, or the Medford District RMP.

The Flat Creek allotment was almost entirely consumed by the Timbered Rock fire in 2002. Because of this, livestock grazing was deferred for two years (2003-2004). Grazing will resume in 2005, barring any unforeseen circumstances that would impact other resources. For more details, see Timbered Rock Fire Salvage and Elk Creek Watershed Restoration EIS, 2003.

Grazing on public lands in the Medford District differs greatly from that typically occurring in other districts in the Bureau. Over 90% of the public lands in these allotments are in the timber base, which means the primary purpose or objective is timber production. Consequently, this means that less than 10% of the lands within these allotments have rangeland characteristics. As such, grazing in this resource area can be defined as opportunistic at best. Because much of the acreage is on steep slopes under a conifer canopy that offers little forage, livestock tend to utilize forage along roadsides, in openings created by public and private land logging, and in riparian areas. Riparian areas are of utmost concern in these allotments.

When lands are logged, they open the area to invasion by grasses, sedges, brush, and weeds. Eventually, when trees grow up, they shade out these species and reduce their abundance, but in the interim, they offer the vegetative basis for the grazing program. At the same time some areas are being shaded out, other areas are being harvested and opened up. This hop-scotching of tree harvest areas keeps livestock use patterns changing constantly, which eliminates grazing pressure on the same areas from year to year.

3.1 303(d) LISTED STREAMS

Department of Environmental Quality (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 DEQ's 2002 303(d) list on March 24, 2003.

Water bodies can be listed for a variety of reasons, the most common being temperature, dissolved oxygen, and E. coli. Waters placed on the 303(d) list require the preparation of Total Maximum Daily Loads (TMDL's), a key tool in the work to clean up polluted waters. TMDL's identify the maximum amount of a pollutant to be allowed to be released into a waterbody so as not to impair uses of the water, and allocate that amount among various sources. 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.

Table 3.1-1 List of streams and the parameter for which they are on the Oregon Department of Environmental Quality (ODEQ) 303(d) list. Use the Record ID number to enter into the ODEQ website (<http://www.deq.state.or.us/>) for more information.

Allotment	Waterbody	Record ID	Watershed (6 th field)	On 303(d) List
Summit Prairie	Big Butte Creek	<u>3892, 8044</u>	Big Butte Creek (Lwr. Big Butte Ck)	Temp., Dissolved Oxygen
	Clark Creek	<u>3901</u>	Big Butte Creek (Lwr. Big Butte Ck)	Temp.*
	Dog Creek	<u>3906</u>	Big Butte Creek (Big Butte Ck, Middle)	Temp.*
	Doubleday Creek	<u>3907</u>	Big Butte Creek (S. Fk. Big Butte, Lwr)	Temp.
	Ginger Creek	<u>3915</u>	Big Butte Creek (S. Fk. Big Butte, Lwr.)	Temp.
	Hukill Creek	<u>3917</u>	Big Butte Creek (S. Fk. Big Butte, Lwr.)	Temp.*
	Jackass Creek	<u>3921</u>	Big Butte Creek (N. Fk. Big Butte Ck.)	Temp.*
	North Fork Big Butte Cr.	<u>3893</u>	Big Butte Creek (N. Fk. Big Butte Ck.)	Temp.*
Flat Creek	Bitter Lick Creek	<u>3890</u>	Elk Creek / Rogue River (Elk Creek / Bitter Lick Ck)	Temp.
	Elk Creek	<u>3908, 8053</u>	Elk Creek / Rogue River	Temp., Dissolved Oxygen
	Hawk Creek	3916	Elk Creek / Rogue River (Sugarpine Ck)	Temp.*
	Sugarpine Creek	3929	Elk Creek / Rogue River (Sugarpine Ck)	Temp.*
	West Branch Elk Creek	3911	Elk Creek / Rogue River (Elk (Rogue), Lwr)	Temp.

Source: Oregon Department of Environmental Quality Final 2002 303(d) Database

* These parameters indicate that the waterbodies are of potential concern regarding the parameter according to the ODEQ 303(d) list. These streams are listed here because data shows they exceed ODEQ's maximum water temperature and therefore would be placed on the 303(d) list.

Water Quality

The magnitude of cattle grazing impacts to water quality are influenced by the terrain, preferred diet, other behavioral characteristics, and climate.

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 the problems caused to water quality (Hubert et al. 1992).

Potential impacts to riparian areas by livestock include accelerated run-off, erosion, and sediment deposition. Soil bulk density, infiltration rates, and ground cover are parameters that influence run-off. All of these factors can be affected by cattle grazing and trampling in and around riparian areas. Because of alteration of soil properties by cattle grazing, runoff levels and soil erosion are affected to varying degrees. Impacts to stream channels and streambanks can result from cattle grazing in the riparian zones (Hubert et al. 1992).

Cattle also impact riparian vegetation, reducing its effectiveness in maintaining water quality. Stream habitat characteristics including width, depth, and pools can be altered by cattle grazing. Levels of fecal inputs into streams from cattle grazing are generally high enough to affect water quality degradation. Levels of contamination are dependent on the intensity and duration of cattle grazing. Grazing at low to moderate levels 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 run-off (Hubert et al. 1992). It has been found that within rangelands where livestock grazing occurs, nutrients levels in streams are not increased significantly. Run-off 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 are not significantly 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).

Studies have shown that it is possible to manage livestock grazing in ways that enhance riparian vegetation and protect streambanks (Buckhouse, 2000). Studies show that unregulated grazing throughout the growing season can harm vegetation, and increase the chances for streambank degradation. Positive effects on streams and water quality can be achieved from the timing of grazing practices to support plant growth and physiology. Statistics (and common sense) show that if cattle are not allowed to congregation for long periods of time around streams, defecations are less likely to land in and around the stream. Further studies show that high sediment counts in stream bottoms can result in the collection of bacteria, which will then die off within a few months (Buckhouse, 2000).

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 more, since grasses and weeds tend to occupy the open areas. As use increases, so do impacts to riparian areas. Over this, we have little control, but the influences and impacts continue to occur.

3.1.1 Central Big Butte and Lower Big Butte Watershed

The average annual precipitation varies substantially depending upon location and elevation, but ranges from 35 to 50 inches. Most of the precipitation occurs during the fall, winter, and early spring months. High flows are associated with rain-on-snow events where high turbidity levels may occur. Low flows are associated with the summer months. It is during the summer months that water quality changes, and a number of streams within or adjacent to the allotments do not meet Oregon Water Quality Standards for stream temperature (Central Big Butte Watershed Analysis, 1995 and Lower Big Butte Watershed Analysis, 1999).

3.1.2 Lost Creek Watershed

Annual precipitation ranges from 35 to 50 inches with most precipitation occurring within late fall, winter, and early spring. Most high flows occur in late winter to early spring as a result of rain-on-snow events and the melting snowpack. One hundred twenty three miles of stream surveys were completed. Seventy five miles of stream were classified as intermittent or perennial. 14 of those miles of stream were rated as Proper Functioning Condition (PFC). Fifty five miles were rated as functioning at risk, with 12 short sections rated as Functioning at Risk in declining trend (FARD). Five miles of stream were rated as non-functioning (NF) (Lost Creek Watershed Analysis, 1998).

Flat Creek Allotment

The Flat Creek allotment is entirely within the Elk Creek 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. PFC assessment on streams is currently being completed for the Timbered Rock fire area, and later for the Elk Creek watershed. There have been a total of 430 streams surveyed as of September 22, 2003. One hundred ninety-two (192) streams have been classified as intermittent streams while 154 streams have been classified as perennial. The following table (3.1.2-1) lists the number of streams in each functioning condition category and the percent of the total amount of streams surveyed:

The Flat Creek allotment lies entirely within the Lost Creek WAU.

Table 3.1.2-1

FUNCTIONING CONDITION	NUMBER OF STREAMS	PERCENT OF TOTAL STREAMS SURVEYED
Proper Functioning Condition	126	29%
Functioning at Risk, upward	181	42%
Functioning at Risk, static	91	21%
Functioning at Risk, downward	35	7%
Non-Functional	4	1%
Unknown	2	0.50%

Source: Timbered Rock Stream Survey11182003 database

Streams (listed in table 3.1-1 for Flat Creek) are tributaries to Elk Creek and West Branch Elk Creek. Streams may flow into Elkhorn, Flat, Hawk, Sugarpine, and Timber Creeks which flow into Elk Creek. West Branch Elk Creek is listed on ODEQ's 303(d) for temperature. Elk Creek is listed on ODEQ's 303(d) for temperature and dissolved oxygen, and Bitter Lick Creek is listed for temperature (See Table 303(d)). Hawk and Sugarpine Creeks are of potential concern for temperature according to ODEQ. Current data shows that both of these creeks would meet the criteria for listing by ODEQ.

Numerous springs have turned up in the allotment, possibly as a result of the wildfire in the summer of 2002. These springs contribute water to many intermittent and perennial systems, and in some cases have been found to change the duration of some small stream reaches.

Due to the lack of stream bank vegetation and canopy cover, as a result of the fire, channel stability may have decreased and the average daily stream temperature may change. Monitoring for these factors is currently being performed.

3.1.3 Little Butte Creek Watershed

Average annual precipitation in the Little Butte Creek Watershed ranges from approximately 22 inches near the confluence with the Rogue River to 66 inches at Mount McLaughlin. Most precipitation occurs in the form of rain in the lower elevations from late fall to early spring. A mixture of rain and snow occurs in the transient snow zone where rain-on-snow events cause most of the higher flows in the winter and early spring (Little Butte Creek Watershed Analysis, 1997).

Summit Prairie Allotment

The Summit Prairie allotment covers approximately 55 percent of the Lost Creek WAU, 45 percent of the Central Big Butte WAU, and 59 percent of the Lower Big Butte WAU.

Approximately 340 stream reaches were surveyed in the Summit Prairie allotment. The following table (3.1.3-1) lists the number of streams in each functioning condition category and the percent of the total amount of streams surveyed:

Table 3.1.3-1

FUNCTIONING CONDITION	NUMBER OF STREAMS	PERCENT OF TOTAL STREAMS SURVEYED
Proper Functioning Condition	137	40
Functioning at Risk, upward	92	27
Functioning at Risk, static	89	26
Functioning at Risk, downward	7	2
Non-Functional	15	4

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

Streams (listed in table 3.1-1 for Summit Prairie) are tributaries to Lost Creek Reservoir to the north, Jackass and North Fork Big Butte Creeks to the southeast, Doubleday, Ginger, Hukill, and South Fork Big Butte Creeks to the South (near the town of Butte Falls), and Big Butte, Clark, and Dog Creeks to the West. These streams are all on the ODEQ 303(d) list or of potential concern (see Table 3.1-1).

Ginger Springs is within the Ginger Creek pasture and is the source of municipal water supply for the town of Butte Falls. Ginger and Hukill creeks are within the Ginger Creek pasture of the Summit Prairie allotment.

Two streams of concern are Jackass Creek flowing into North Fork Big Butte Creek, and Beaver Dam Creek flowing into the Middle Fork of the 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 incised along the lower portion of the stream. High sediment is observed in the channel bottom, possibly due in part to the lack of stabilizing vegetation.

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 anastomosing (branching out) 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 and habitat for birds and insect life. Channel widening affects 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 anastomosing, shifting, and widening than along the un-fenced parts of the land. More stream bank vegetation is present to capture and retain sediment within the exclosures as well.

3.2 SPECIAL STATUS PLANTS

Special Status plants include vascular plants, lichens, bryophytes, and fungi in the following categories: 1) Federal Threatened and Endangered (T&E), 2) State Threatened and Endangered, 3) Bureau Sensitive, Assessment, and Tracking. The Bureau of Land Management's policy is to conserve, manage, and protect T&E, Sensitive, and Assessment 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 (BLM Manual 6840.02). The Tracking category includes species for which more information is needed to determine their rarity. Protection of Tracking species is discretionary; however, Tracking species that occur in the Summit Prairie and Flat Creek Allotments are included in this report for information purposes.

Survey and Manage (S&M) was formerly a designation for rare and uncommon vascular and

non-vascular plants and fungi. However, the Record of Decision for the Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines (USDA and USDI, 2004), signed on March 22, 2004 and effective April 21, 2004, removed Survey and Manage as a management category for plants and animals. The former S&M species that were determined to still need management or protection were reassigned to the Special Status species program. They are analyzed in this EA under their new status. Species which were formerly S&M but were not moved to the Special Status list are not analyzed.

Summit Prairie Allotment has a total of 91,428 acres, of which 29,022 acres are BLM-administered. The allotment is located in the eastern half of the resource area on the western slopes of the Cascade Range. Flat Creek Allotment contains 25,114 acres with 12,141 of those on BLM-administered land. It lies in the Elk Creek drainage, entirely within the perimeter of the 2002 Timbered Rock Fire. Plant communities in both allotments include grasslands, oak savanna and woodlands, chaparral, and conifer stands in early, mid-, and late seral stages.

Over the last ten years, approximately 14,000 acres in the Summit Prairie Allotment and 5,600 acres in the Flat Creek Allotment have been surveyed for Special Status vascular plants. Surveys were conducted by professional botanists using an intuitively controlled methodology, which involves walking transects across units and concentrating searches in areas of potential habitat for species on the Special Status list. Vascular plant surveys were conducted between April and August, during the appropriate blooming times to detect target species in the habitats surveyed. Non-vascular and fungi surveys have been completed on some of the acres, during the course of clearances for other projects.

Non-forested habitats have only been surveyed in the last four years because most projects before that time were timber sales or silvicultural treatments. More recently, surveys in fuels reduction projects and grazing allotments have targeted oak woodland, savanna, grassland, and chaparral habitats. These habitats are more likely to be utilized by livestock than forested stands. Special Status plant species associated with non-forest habitats were likely under-reported in the past, but are now being discovered and documented.

3.2.1 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*. Both Summit Prairie and Flat Creek Allotments are completely outside the ranges of *Limnanthes floccosa* ssp *grandiflora* and *Lomatium cookii*. Flat Creek is outside the range of *Fritillaria gentneri*, but approximately one-third of Summit Prairie lies within it.

Fritillaria gentneri (Gentner's fritillary) 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 is often found growing underneath shrubs, where plants are protected from wind, sun, and possibly browsing by livestock or wildlife, but is not found 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. Its main reproduction is 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 (USFWS 2003, 10). One hundred eight sites have been documented so far in the Medford BLM District.

Surveys have been conducted in all suitable *Fritillaria gentneri* habitat within the Summit Prairie Allotment. Surveys were focused on meadows, oak woodlands and savannas, and chaparral, as well as adjacent mixed hardwood-conifer stands. Thirteen *Fritillaria gentneri* sites have been discovered in the allotment to date, eight in the Poverty Flat Pasture, and five in the Rocky Flat Pasture. Five of the thirteen sites were discovered in 2004 and the other eight were discovered prior to 2004. All sites have been monitored yearly since their discovery and will continue to be monitored to record changes in population numbers and detect threats from cattle grazing or other activities. There has been no evidence of impacts from cattle to the sites or the plants at any of the populations to date.

3.2.2 Special Status Plants

Twenty Special Status vascular plant sites (six species), one Special Status lichen site, and two Special Status bryophyte sites (two species) have been discovered to date on BLM-administered land in the Flat Creek Allotment. 199 Special Status vascular plant sites (fifteen species), two Special Status lichen sites (one specie), twenty-five Special Status bryophytes sites (six species), and thirty-six Special Status fungi sites (four species) have been discovered to date on BLM-administered land in the Summit Prairie Allotment. See Appendix A for a list of Special Status plants documented in the Flat Creek and Summit Prairie Allotments, their status, number of sites, and their habitat associations (Table A-1).

Vascular surveys have been completed on approximately 46% of BLM-administered land in the Flat Creek Allotment and 48% of BLM-administered land in the Summit Prairie Allotment. It is likely that additional populations of Special Status plants exist in some of the un-surveyed portions of these two allotments.

3.3 RIPARIAN RESERVES/FISHERIES/AQUATIC HABITAT

The Flat Creek Allotment lies in the Elk Creek 5th field watershed. Major streams within or bordering the Flat Creek Allotment include Elk Creek, Flat Creek, Hawk Creek, Sugarpine Creek, and West Branch Elk Creek. The Summit Prairie allotment lies within the Big Butte Creek, Lost Creek, and South Fork Rogue River 5th field watersheds. Major streams within the Summit Prairie Allotment include 80 Acre Creek, Beaver Dam Creek, Big Butte Creek, Box Creek, Dog Creek, Jackass Creek, North Fork Big Butte Creek, and South Fork Big Butte Creek.

3.3.1 Riparian Reserves

Riparian vegetation along streams consists of three dominant community types: conifer, mixed oak/conifer woodland, and oak savannah. Generally, streams occurring in conifer dominated forests naturally have large quantities of large wood in the channel that provides structure and cover for fish. Streams within mixed oak/conifer woodlands and oak savannah generally do not have high quantities of large wood, but rather have boulders, cobbles, and bedrock which provide the channel structure and cover for fish.

Past logging activities have removed much of the conifer canopy throughout the Riparian Reserves within both allotments. Riparian conifer planting, and exclusion from timber harvest base, have allowed recovery of some riparian functions to occur; however most Riparian Reserves are still in early seral conditions. Existing second-growth conifer stands are providing some shade and streambank stability.

Livestock grazing has occurred in these allotments for over 100 years. Livestock numbers have been significantly reduced over the years to existing levels. Most riparian areas have dense vegetation and/or steep terrain and receive little to no grazing pressure. The few riparian areas with low upland gradients and open terrain tend to receive heavy livestock use during late summer and early fall. In these “hot spot” areas, young hardwood trees, shrubs, grasses, and sedges are regularly browsed and prevented from providing shade and adequate bank stability.

Flat Creek Allotment

Riparian surveys were completed in the Elk Creek Watershed in 2003 to determine functioning condition. Proper Functioning Condition is a measure of physical and biological characteristics of a stream and associated riparian area. Streams are categorized as **properly functioning**, **functioning at risk** (have some problems but still has some functioning characteristics), or **non-functioning** (no functioning stream characteristics). The majority of streams surveyed in the Flat Creek allotment are functioning at risk (Table 3.1.2-1) with deficiencies in mature riparian conifers and a lack of vegetation with root masses capable of protecting stream banks. This is mostly due to past logging activities that occurred adjacent to streams, as well as the Timbered Rock Fire that occurred in 2002. As Riparian Reserves continue to improve, aquatic habitat conditions should improve as well.

Summit Prairie Allotment

Riparian surveys were completed in the Big Butte Creek Watershed in 1995 (one stream in 2004) to determine functioning condition. The majority of streams surveyed in the Summit Prairie allotment are functioning at risk (Table 3.1.2-2) with deficiencies in diverse age and size of riparian conifers and large diameter trees that provide long-term sources of in-stream large wood. This is mostly due to past logging activities that occurred adjacent to streams. As Riparian Reserves continue to improve, aquatic habitat conditions should improve as well.

Most of the North Fork Big Butte Creek and Beaver Dam Creek riparian areas, on both BLM and private, were heavily logged from 1940-1970, and are now dominated by shrubs and grasses (Central Big Butte WA 1995). Removing the conifer component in these high elevation areas has created frost pockets⁵. The cold air significantly reduces the rate of regeneration and growth of conifers, and results in the riparian zone overstory being dominated by shrubs rather than conifers. The existing shrub community does not provide sufficient shade, nor does it contain the adequate supply of large wood that a mature conifer stand contains.

3.3.2 Fisheries and Aquatic Habitat

⁵ Frost pockets are created when cold air settles down in swales or depressions where trees have been removed.

A variety of fish species are present within the Flat Creek and Summit Prairie allotments. Fish species that utilize streams within these two allotments include coho salmon (*Oncorhynchus kisutch*), chinook salmon (*O. tshawytscha*), summer and winter steelhead trout (*O. mykiss*), resident rainbow trout (*O. mykiss*), coastal cutthroat trout (*O. clarki*), Pacific lamprey (*Lampetra tridentata*), brook lamprey (*L. richardsoni*), speckled dace (*Rhinichthys osculus*), Klamath smallscale sucker (*Catostomus rimiculus*), and sculpin (*Cottus* spp.). Introduced species include brook trout (*Salvelinus fontinalis*), brown trout (*Salvelinus trutta*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), brown bullhead (*Ictalurus nebulosus*), bluegill (*Lepomis macrochirus*), and black crappie (*Pomoxis nigromaculatus*).

For the purposes of this environmental assessment, analysis will be limited to coho salmon, steelhead, rainbow trout, and cutthroat trout, because we have the most information about these species. Steelhead and rainbow trout will be treated as the same because they are the same species, just different life histories. Information on the other native species is very limited and will not be discussed further.

Cutthroat trout have the widest distribution within the Flat Creek Allotment of 25 miles, followed by steelhead with 14 miles, and then by coho salmon with 10 miles (Fig. 1, Appendix C). In addition to the confirmed distribution of coho salmon, another 4 miles are designated as coho critical habitat (CCH) because it is defined as all waters accessible by anadromous fish. Major coho salmon streams include Elk Creek, Flat Creek, Hawk Creek, Sugarpine Creek, and West Branch Elk Creek. These streams provide important spawning and rearing habitat for coho salmon.

The National Oceanographic and Atmospheric Administration (NOAA) Fisheries division listed the Southern/Oregon Northern California (SO/NC) Coho Salmon Evolutionary Significant Unit (ESU) as “threatened” under the Endangered Species Act (ESA) in May 1997. The ESU includes all naturally spawned populations of coho salmon in coastal streams between Cape Blanco, Oregon, and Punta Gorda, California. Species that are “threatened” are ones whose naturally spawning populations are so low that they are likely to become endangered. Endangered means fish are likely to become extinct. As directed under ESA and the Magnuson-Stevens Fisheries Act, NOAA Fisheries designates SO/NC Coho Salmon Critical Habitat (CH) and Essential Fish Habitat (EFH), which is defined as areas within the geographical area currently or historically occupied by the species that have the physical or biological features essential to the conservation of the species (NOAA Fisheries 2003) and requires special management and protection. Within the Rogue Basin, those areas that coho salmon currently occupy (or historically occupied) are designated as SO/NC coho salmon CH. These areas receive greater protection. For the purposes of this analysis, EFH is identical to coho Critical Habitat (CCH) and includes all streams in this project area which are currently or historically accessible to anadromous fish.

Other special status species include the Pacific lamprey, which is a State of Oregon designated sensitive species because there is evidence of their populations declining throughout the Pacific Northwest. There is little known information related to lamprey populations in the project area and it will not be discussed further in this document.

The SO/NC coho salmon population continues to be low. Locally, the upper Rogue Basin coho salmon population has been on a recent upward trend. Coho salmon counts over Gold Rey Dam

and Elk Creek Dam have been fluctuating, but overall have been increasing over the last 10 years. This is an improvement over the extremely low numbers that came over Gold Rey Dam during the 1980s (Fig. 2 and 3, Appendix C). Surveys completed in the Flat Creek Allotment indicate that spawning coho salmon have been increasing within the last couple of years (Fig. 4, Appendix C), which is consistent with the increasing number of returning adults over Elk Creek Dam. The coho smolt population within the Big Butte Creek basins has been increasing over the last couple of years (Fig. 5, Appendix C). Juvenile coho salmon densities have been monitored within the Flat Creek Allotment, and their numbers have also been increasing over the last couple of years (Fig. 6, Appendix C). Aquatic habitat conditions on federal lands are improving in some areas as a result of Riparian Reserves being protected, and completion of fish habitat restoration projects. With improving habitat conditions, coho salmon have better survival rates and ultimately will increase the population numbers.

Although the upper Rogue Basin coho population trend is increasing, the entire population continues to be low when compared to historic runs. The recent population trend is likely a response to good ocean conditions, which are considered the main factor in driving anadromous salmonid run sizes (Weitkamp et al. 1995). Population fluctuations are common for salmon due to their complex life histories. Coho salmon encounter several factors that influence their population numbers such as ocean conditions, commercial fishing, climate, dams, water withdrawals, habitat loss and degradation, natural predators, and fish hatcheries (Nelson et al 1991). The recovery of salmon populations takes time, and the recent trends have been observed for only a short period of time. It will take more time to determine if the recent increase in the coho salmon population is just a natural fluctuation, or if the population is in fact recovering.

Based on available data, chinook salmon, steelhead, rainbow trout, and coastal cutthroat trout populations are maintaining self-sustaining levels. Steelhead was a candidate species, but recently they were determined to not warrant being listed.

Aquatic Habitat

Fish-bearing streams within the allotments range in size from 1st order headwater streams to large 7th order streams such as Elk Creek. Streams are moderate to high gradient, and substrate is generally composed of gravels, cobbles, boulders, and bedrock. Generally, stream banks are densely vegetated with willows, alders, and other shrubs and well armored with rocks.

The Butte Falls Resource Area generally receives precipitation between November and March as rain and snow. Annual peak flows occur during the winter months and are generated from rain or rain-on-snow events.

Comprehensive fish habitat inventories have been completed by Oregon Department of Fish and Wildlife (ODFW) and BLM on most of the major streams within the project areas. Overall, aquatic habitat elements for these streams are in fair condition (Table 1, Appendix C). Habitat features commonly deficient are large wood, spawning gravels, stream shade, and riparian zone condition. Most of the fish-bearing streams have high summer temperatures, and exceed the Oregon State temperature standard of 64 degrees Fahrenheit (See list of streams listed for temperature in hydrology discussion). The major identified causes for existing poor habitat conditions are past logging practices, roads, irrigation withdrawals, and the fact that heavily-

impacted private timber lands are intermingled.

Several fish habitat restoration projects have been completed throughout the project area with the objective of creating spawning and rearing habitat for coho salmon, steelhead, and cutthroat trout. Projects included adding large woody debris and boulder weirs to streams in the Big Butte Creek, and Elk Creek watersheds. Several culverts have also been replaced to allow upstream migration to preferred habitat.

Livestock access to streams is generally limited by dense vegetation and steep terrain. Streams with flat upland slopes adjacent to them which do not have dense vegetation are the ones that livestock tend to use. Overall, most streams do not experience heavy livestock use.

Within the Summit Prairie Allotment, there are exclosures on 0.7 miles of Beaver Dam Creek and about 2.8 miles of CCH on North Fork Big Butte Creek. These were installed to allow previously heavily grazed areas to recover, and for monitoring purposes.

3.3.3 General Stream and Riparian Information

Fish-bearing streams within the allotments range in size from 1st order headwater streams to large 7th order streams such as Elk Creek. Streams are moderate to high gradient and substrate generally is composed of gravels, cobbles, boulders, and bedrock.

Riparian vegetation along fish-bearing streams consists of three dominant community types: conifer, mixed oak/conifer woodland, and oak savannah. Streams occurring in conifer dominated forests naturally have large quantities of large wood in the channel which provides channel structure and fish habitat. Streams within mixed oak/conifer woodlands and oak savannah generally do not have quantities of large wood, but rather have boulders, cobbles, and bedrock that provide the channel structure and cover for fish.

3.3.4 General Aquatic Fauna Information

A variety of fish species are present within the proposed grazing allotments in the Butte Falls Resource Area. Native fish species that utilize these streams and tributaries within the proposed project areas include coho salmon (*Oncorhynchus kisutch*), chinook salmon (*O. tshawytscha*), summer and winter steelhead trout (*O. mykiss*), resident rainbow trout (*O. mykiss*), coastal cutthroat trout (*O. clarki*), Pacific lamprey (*Lampetra tridentata*), brook lamprey (*L. richardsoni*), speckled dace (*Rhinichthys osculus*), Klamath smallscale sucker (*Catostomus rimiculus*), and sculpin (*Cottus* spp.). Introduced species include brook trout (*Salvelinus fontinalis*), brown trout (*Salvelinus trutta*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), brown bullhead (*Ictalurus nebulosus*), bluegill (*Lepomis macrochirus*), and black crappie (*Pomoxis nigromaculatus*).

The Cole Rivers and Butte Falls fish hatcheries are the primary fish propagation facilities in the Rogue basin. Hatchery-released fish have been identified as contributing to the decline of anadromous salmonids through competition with wild fish, genetic introgression, disease, and creating a mixed stock fishery. Conversely, hatchery released fish also make up an important component of sport and commercial fisheries.

Several species of aquatic macroinvertebrates are present throughout the proposed project area. Common orders of macroinvertebrates present in most streams include Ephemeroptera (mayflies), Tricoptera (stoneflies), and Plecoptera (caddis flies). The Pacific giant salamander is the most common aquatic amphibian present in streams within the project area.

3.3.5 Aquatic Habitat Status

Comprehensive fish habitat inventories have been completed by both Oregon Department of Fish and Wildlife and BLM, on most of the major streams within the project areas. Overall, aquatic habitat elements for these streams are in fair condition (Table 1, Appendix C). Habitat features commonly deficient are large wood, spawning gravels, rearing pools, stream shade, and riparian zone conditions, with large wood being the most deficient feature. Most of the fish-bearing streams have high summer temperatures, and exceed the Oregon State temperature standard of 64 degrees Fahrenheit (See list of streams listed for temperature in hydrology discussion). The major identified causes for existing habitat conditions are past logging practices, roads, irrigation withdrawals, grazing, and the fact that these waters run through miles of private lands, sometimes totally void of streamside vegetation.

Riparian surveys were completed in the Big Butte Creek, Elk Creek, Little Butte, and Trail Creek Watersheds to determine functioning condition (See Table 2, Appendix C for definitions of functioning condition). The majority of streams in the Big Butte Creek, Elk Creek, and Trail Creek Watersheds are functioning at risk, and are susceptible to further degradation. However, as Riparian Reserves continue to improve, aquatic habitat conditions should improve as well.

Fish passage barriers exist throughout the project area, both manmade and natural. Natural barriers include water falls, steep bedrock chutes and occasional natural barriers such as beaver dams and large woody debris jams. Manmade barriers include large dams, small irrigation dams, and culverts. Notable natural barriers in the project area include two large waterfalls on Clark Creek, and Butte Creek falls on South Fork Big Butte Creek. Several small irrigation dams and culverts exist throughout the project area that either completely or partially block fish migration, however most of these occur on private lands.

Several fish habitat restoration projects have been completed throughout the project area with the objective of creating spawning and rearing habitat for coho salmon, steelhead, and cutthroat trout. Projects included adding large woody debris and boulder weirs to streams in the Big Butte Creek, Elk Creek, Little Butte Creek, and Trail Creek watersheds. Several culverts have also been replaced to allow upstream migration to preferred habitat.

3.4 SPECIAL STATUS WILDLIFE SPECIES

A review of special status wildlife species has been completed. See Ten-Year Grazing Allotment Renewal/Sensitive Wildlife Species Analysis table (Appendix B). Only the species that could be impacted by grazing will be discussed. If a species is not discussed, it should be assumed that the wildlife biologist has considered effects and found the proposed action would have no effect.

3.4.1 Special Status Species

See Appendix B, for a review of Special Status Wildlife Species in the Butte Falls Resource Area.

Great gray owl (*Strix nebulosa*) – Bureau Tracking

Great gray owls were formerly Survey and Manage species. They have been removed from Survey and Manage status and are “Bureau Tracking” in the Medford BLM district (USDA USDI 2004).

Great gray owls nest in large conifer trees. They use abandoned raptor nests or broken top or hollow trees. Grazing does not affect nesting habitat. Great gray owls forage for small rodents in the open forest floor, meadows, and natural openings.

Foothill yellow-legged frog (*Rana Boylii*) – Bureau Assessment

Yellow-legged frogs 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. The banks are often covered vegetations, 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.

Foothill yellow-legged frogs are present in Elk Creek and suspected to be in Flat Creek, although there are no records. They are suspected to be present in some of the lower gradient streams in both allotments.

Cascades frog (*Rana cascadae*) -- Bureau Tracking

During surveys of pump chances in the two allotments, Cascades frogs were observed in the Summit Prairie Allotment in one pump chance (pond constructed for fire suppression). Past surveys have determined that they were present in six other pump chances in this allotment. Cascades frogs are also present in one pump chance in the Flat Creek allotment.

Cascades frogs move away from the pools in the summer and may not have been present or were hiding under cover within the pools when the surveys were done. It is unknown if the known sites are currently occupied, as the frogs are secretive and hard to detect. None of the known ponds are fenced to exclude cattle.

Water quality in these ponds is good and there is no evidence of negative impacts from cattle in

all sites except one. In 2002, there was evidence of cattle trampling around a tiny pool of water at the edge of a road. The pool is the size of a small bathtub located in a ditch. Cascade frogs were observed in this pool in 2004. There were no impacts from cattle in 2004. The pool will be monitored.

A fence has been constructed around one spring and associated bog in the Round Mountain pasture to keep cattle out of the spring and bog. The pump chance is monitored. Cascade frogs were observed in the pool in 2002, but not in 2003 or 2004.

Cascades frogs were formerly on the BLM Bureau Sensitive list, but have been removed from this list as the population is considered secure at this time.

Chace sideband (*Monadenia chaceana*) – Bureau Sensitive

Chace sideband snails occupy late-successional forest and open talus or rocky areas, especially the lower one third of a talus slope. They also utilize the surrounding forest areas during moist, cool conditions. There are no specific threats identified in the literature (Burke et al 1999).

Monadenia chaceana were found in the Round Mountain pasture. They were found within timbered stands in leaf litter and duff near coarse woody debris. Another site where they were found was in a rock quarry.

Oregon Shoulderband (*Helminthoglypta hertleini*) – Bureau Sensitive

Oregon shoulderband is 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 Flat Creek or Summit Prairie. They could be present outside the areas surveyed. They have been found in oak woodlands and dry conifer forests north of Lost Creek Lake.

Crater Lake Tightcoil

There are no known direct or indirect effects from grazing because they have not been found in the Butte Falls Resource Area during mollusk surveys. They have been removed from the sensitive species list as suspected to occur on the Medford District BLM land. They will not be discussed further in this document.

3.4.2 Other Wildlife Species (deer and elk)

Cattle, deer, and elk use the range differently. Cattle use the uplands less than elk and deer. Cattle may “camp out” in areas near water with abundant forage more than deer or elk. 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 and /or evening to drink and feed, then feed their way back upland for bedding.

Dietary preference overlap may occur. The degree and effects of this overlap of the ungulate population may depend on season, forage availability, quality and quantity of forage, rainfall, season of use, etc. Because of the many variables involved, the issue of cattle/wild ungulate competition is unclear. Most diet studies show overlap, but the significance or importance of the overlap is not always clear.

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 of forage than other harvest systems (Medford Grazing Management Program EIS, September 1983). Elk tend to winter at higher elevations on predominantly cut-over timberlands.

CHAPTER 4 IMPACTS OF THE ALTERNATIVES

4.1 303(d) LISTED STREAMS

4.1.1 ALTERNATIVE A – NO ACTION

4.1.1.1 Direct Effects

Flat Creek Allotment

Signs of cattle grazing have been observed within the Flat Creek allotment, however there are no reference conditions for water quality prior to the Timbered Rock fire in 2002. As a result, impacts on water quality can not be measured at this time. The signs of cattle that **have** been observed are minor and are not likely to have much, if any, effect on water quality.

Summit Prairie Allotment

There are signs of cattle congregation along Ginger and Hukill creeks in the Ginger Creek pasture. However, the impact appears to be minimal within the Ginger Springs watershed. There have not been any adverse effects from cattle reported or observed to water quality. Refer to the Ginger Springs Watershed Analysis and Management Plan and the Ginger Springs Geohydrologic Study and Water System and Source Master Plan for more information. Monitoring for stream temperature is currently being performed along Doubleday, Ginger, and Hukill creeks. It is unclear if cattle are the cause of any adverse effects to these streams.

There are signs of heavy cattle grazing as evidenced by the small sample exclosures that show the potential of the riparian vegetation growth along the lower portion of Jackass Creek near the confluence with North Fork Big Butte Creek. Signs of cattle are also present in the Parsnip Creek pasture along Beaver Dam Creek. Hoof prints and cow poop have been observed along most of the riparian zone and within the stream outside of the exclosures on both streams. Hoof prints are visible up to the fencing on Beaver Dam Creek where the stream channel abruptly widens and begins to branch out.

The only data available at this time on water quality is temperature data for Jackass Creek. There has been single point temperature data along Beaver Dam Creek, showing that the 7 day average water temperature may exceed ODEQ's maximum allowed temperature of 64 degrees Fahrenheit for listing. No long term monitoring of water quality has been performed. Due to the lack of canopy along Beaver Dam Creek providing shade cover, the temperature is expected to be above a 7 day average of 64 degrees. An important thing to keep in mind is that Beaver Dam Creek flows through a mile of open, privately-owned pasture before it gets to BLM-owned property. Because of this, temperatures would be expected to be higher.

Currently there is no evidence showing that cattle adversely affect water quality. If cattle are prevented from congregating in large numbers, and are removed promptly on schedule, current conditions are expected to continue and may improve slightly in the very long term. Studies have shown that it is possible to manage livestock grazing in ways that enhance riparian vegetation

while protecting streambanks (Buckhouse, 2000). Studies show that grazing throughout the growing season harms vegetation, and increased streambank sloughing can result. Positive effects on streams and water quality can be achieved from the timing of grazing practices to support plant growth and physiology. Adhering to the grazing lease terms and conditions can result in a lower probability of fecal coliform bacteria and other pathogens entering the stream system. Statistics show that if cattle are kept on the move, and congregation around streams is kept to a minimum, defecations are less likely to land in and around the stream. Further studies show that high sediment counts in stream bottoms can result in the collection of bacteria which will then die off within a few months (Buckhouse, 2000).

There are some signs of algae within Beaver Dam Creek. Algal blooms and eutrophication are results of excessive levels of nutrients. When fecal material enters a stream, phosphate and nitrate concentrations rise (Buckhouse, 2000).

Beaver Dam Creek has many of the same characteristics as a wetland system, and may therefore act to some degree as a filter or a nutrient sink for bacteria, phosphate, and nitrate.

Monitoring is needed to gather data on whether there are any impacts to water quality. No other data is available to suggest cattle grazing adversely affects water quality.

4.1.1.2 Indirect Effects

Same as Direct Effects

4.1.1.3 Cumulative Effects

Because of the Timbered Rock fire in 2002, and the salvage logging that has taken place, it is nearly impossible at this time to determine any cumulative impacts on the water quality from cattle grazing. Impacts to water quality may be attributed to road runoff, logging practices, loss of canopy, and high flows on bare soils causing channel degradation. Only after livestock have been reintroduced (2005) will the impacts on water quality be addressed.

Given the large size of the watersheds (Lost Creek WAU, and Central Big Butte WAU) compared to the relatively small size of the Beaver Dam and Jackass Creek areas, cumulative impacts are expected to be low if not indistinguishable. Further study is needed to determine if any impact is an adverse effect from cattle. Effects from other wildlife, such as beaver activity and elk may contribute to water quality problems. Roads pass near and through the stream systems, which may increase sedimentation and temperature. Various other land use activities such as logging may also impact water quality. Any impacts to water quality from the grazing of cattle are immeasurable when all factors are considered. No data is available to show that cattle grazing adversely impacts water quality.

4.1.2 ALTERNATIVE B – PROPOSED ACTION

4.1.2.1 Direct Effects

Same as Alternative A

4.1.2.2 Indirect Effects

Same as Alternative A

4.1.2.3 Cumulative Effects

Same as Alternative A

4.2 SPECIAL STATUS PLANTS

4.2.1 ALTERNATIVE A – NO ACTION

Under Alternative A, the 10 year grazing permits for the Flat Creek and Summit Prairie Allotments would be renewed under the status quo. Table A-1 in Appendix A gives a summary analysis of possible impacts from livestock to all the Special Status plants documented in the Flat and Summit Prairie Allotments. Fourteen Special Status species were identified as being the most vulnerable to potential impacts from livestock or grazing (Table 4.2-1).

Table 4.2-1. Special Status Species in the Flat Creek and Summit Prairie Grazing Allotments Potentially Impacted by Livestock or Grazing				
<i>SPECIES</i>	<i>STATUS</i>	<i># SITES - FLAT CREEK & SUMMIT PRAIRIE ALLOTMENTS</i>	<i># SITES IN MEDFORD DISTRICT</i>	<i>ANNUAL OR PERENNIAL</i>
<i>Carex interior</i>	Tracking	8	8	Perennial
<i>Carex leptalea</i> ssp <i>leptalea</i>	Tracking	1	1	Perennial
<i>Cimicifuga elata</i>	Sensitive	1	91	Perennial
<i>Fritillaria gentneri</i>	Endangered	13	108	Perennial
<i>Iliamna latibracteata</i>	Assessment	7	16	Perennial
<i>Limnanthes floccosa</i> ssp <i>bellingariana</i>	Sensitive	23	45	Annual
<i>Meesia uliginosa</i>	Assessment	2	2	Perennial
<i>Microseris lacinitata</i> ssp <i>detlingii</i>	Sensitive	8	90	Perennial
<i>Plagiobothrys glyptocarpus</i>	Assessment	14	54	Annual
<i>Plagiobothrys greenei</i>	Assessment	1	12	Annual
<i>Ranunculus austro-oreganus</i>	Sensitive	3	38	Annual
<i>Scribneria bolanderi</i>	Tracking	94	94	Annual
<i>Solanum parishii</i>	Assessment	7	29	Perennial
<i>Tayloria serrata</i>	Assessment	8	9	Perennial

4.2.1.1 Direct and Indirect Effects

Threatened and Endangered Plants

Because the Flat Creek and Summit Prairie Allotments are outside the ranges and do not contain suitable habitat for *Limnanthes floccosa* ssp *grandiflora* or *Lomatium cookii*, reissuing the 10 year grazing permits in these allotments would have “**no affect**” on them.

The Flat Creek Allotment is entirely outside the range of *Fritillaria gentneri*, so reissuing the 10-year grazing permits for that allotment would have “**no affect**” on this species.

All thirteen *Fritillaria gentneri* sites in the Summit Prairie Allotment occur in the Poverty Flat and Rocky Flat pastures. The season of use for both pastures is April 15-May 31, which is the same time that *Fritillaria gentneri* blooms. 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. Trampling plants could also 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.

Fritillaria gentneri could also be indirectly impacted by increased noxious weeds or non-native plants, if sites or areas adjacent to sites were heavily grazed. Over-grazing can open up areas to invasion by noxious weeds or non-native plants, which can threaten *Fritillaria gentneri* by out-competing it for water, light, or soil nutrients.

The 2003 programmatic consultation (Biological Opinion #1-14-03-F-511) includes mandatory project design criteria for grazing:

- Surveying suitable habitat prior to ten-year allotment renewals, identifying *Fritillaria gentneri* sites, and implementing protection measures if utilization is occurring.
- Monitoring known sites to determine if utilization is occurring and if protection is needed.

All thirteen *Fritillaria gentneri* sites in the Summit Prairie Allotment are monitored yearly for changes in population numbers and impacts to the plants. If additional sites are discovered in the allotment, they would also be monitored. None of the thirteen sites in these allotments currently show evidence of cattle utilization. If monitoring reveals that protection is needed at any of the sites, they would be fenced or turnout dates would be changed. Reissuing the 10-year permit in the Poverty Flat and Rocky Flat pastures of the Summit Prairie Allotment would be “**not likely to adversely affect**” *Fritillaria gentneri*. Reissuing the 10-year permit in the rest of the pastures of the Summit Prairie Allotment would be “**no affect**” to *Fritillaria gentneri* as no sites occur in those pastures.

Special Status Plants

The areas most utilized by livestock are meadows, oak woodlands, and riparian areas. Special Status plants associated with these habitats, or species with few sites, would be most at risk from grazing impacts. Impacts to Special Status plant species found in conifer forests from livestock would be negligible because cattle do not congregate there. 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. Because cattle are habitual in nature and travel the same paths and congregate in the same areas, they could potentially disturb some terrestrial vascular or non-vascular plants or fungi along those trails. However, the area affected by their trails is very small relative to the total number of acres in the allotments. The potential for Special Status species being present or impacted is small (see also the discussion about the bryophyte *Tayloria serrata* below).

No direct impacts to Special Status Sensitive fungi would occur because they fruit in late fall and early spring when cattle are not turned out in the allotments. In theory fungi could be indirectly negatively impacted if cattle disturb the duff where the fungi occur. The mycelial network could be broken or exposed, which could result in reduced fruiting capacity. However, none of the ten Sensitive fungi that are on the Medford District BLM list have been documented in the Flat Creek or Summit Prairie allotments. Grazing in these two allotments would not contribute to listing any Special Status fungi.

Special Status lichens, bryophytes, and vascular plants (such as ferns and stonecrops) that grow on rocks would not be impacted by livestock because cattle avoid rocky cliffs or outcrops where these species occur. Livestock would also not damage or disturb rare non-vascular species that grow in trees, except for the rare event of a cow rubbing against the trunk of a tree where a Special Status species grew. Because there are so few cattle spread across a large number of acres, it is unlikely that a tree with a Special Status lichen or bryophyte would be impacted.

Terrestrial Special Status plants that grow in habitats that livestock frequent could be directly impacted from browsing or trampling. Some species are protected from browsing because they are not palatable, are poisonous, have protective spines or thorns, or are small and would not be of interest to livestock for forage. Annuals - *Limnanthes floccosa* ssp *bellingeriana*, *Plagiobothrys glyptocarpus*, *Plagiobothrys greenei*, *Ranunculus austro-oreganus*, and *Scribneria bolanderi* - 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 - *Carex interior*, *Carex leptalea* ssp *leptalea*, *Cimicifuga elata*, *Iliamna latibracteata*, *Microseris laciniata* ssp *detlingii*, and *Solanum parishii* - and species that utilize asexual reproduction - *Fritillaria gentneri* - 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.

The bryophyte *Tayloria serrata* is a terrestrial moss that could also be negatively impacted by trampling from cattle. This species, which grows on dung, dung-enriched soil, or peat, was recently discovered in the Summit Prairie allotment at eight different sites in two sections. At all but two sites it grows on cow dung; the substrate at the other two sites is coyote dung. All sites

are in semi-shaded conifer stands that are adjacent to open grassy meadows. Spores are spread when flies visit soil or dung that contain mature bryophyte capsules then carry the spores 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.

Special Status plants that grow in riparian areas and wet meadows - *Carex interior*, *Carex leptalea* ssp *leptalea*, *Plagiobothrys greenei*, and *Meesia uliginosa* - are the most likely to be impacted from trampling because cattle tend to congregate there and soil is most disturbed and compacted when it is wet. Occasional trampling of plants would not likely adversely affect a population. But if persistent heavy trampling occurs at the Special Status plant sites, plants could be destroyed, flowers would not set seed, and the populations could potentially be destroyed.

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. However, the wet areas contain numerous cobbles which make walking difficult. Even when the grasses adjacent to the bryophyte sites have been grazed, cattle have avoided the wet areas. At this time, these two sites do not appear to be impacted by cattle. If monitoring reveals impacts in the future, the sites would be fenced.

Indirect effects are harder to detect and to determine their impacts on rare plants. The greatest potential negative indirect effect to Special Status plants from livestock is competition from non-native or noxious weeds that could result if an area is heavily grazed and a noxious weed source is nearby. Over-grazing may open up an area to invasion by non-native plants or noxious weeds which could crowd out rare plants by competing with them for water, light, and soil nutrients. Because noxious weeds and many non-native plants mature rapidly and produce many seeds that spread quickly, they will continue to increase whether or not grazing occurs. Through the Medford District noxious weed program, weed populations are reported and treated as funding allows. Priority is given to treating noxious weeds around Special Status plant sites.

Cattle's preference for native perennial bunchgrasses over non-native annual grasses could lead to a decrease in native species, an increase in non-natives, and overall reduced plant diversity in meadows and open woodlands. This change in species composition could result in degraded habitats that do not support Special Status plants due to altered environmental conditions, such as light, space, and moisture availability. Plants that grow in wet meadows or vernal pools are especially vulnerable to changes in soil or hydrology that could result from livestock trampling.

All impacts from grazing are not necessarily negative. Shade intolerant species may benefit from having competing vegetation removed. Although livestock hooves disturb soil and may leave some areas open to invasion by non-native species, these open areas may also be populated by early seral Special Status species. Some species, such as the *Navarettias*, *Iliamna latibracteata*, and *Cimicifuga elata*, appear to respond well to some disturbance.

Appendix A contains a description and an evaluation of current and potential future impacts from livestock for each Special Status plant species that was identified as vulnerable to impacts from livestock. It should be noted that the Flat Creek Allotment has not been grazed since 2002, so sites that were discovered in 2003 and 2004 showed no impacts from livestock. The allotment is generally steep and most of the plant sites are inaccessible. The sites most likely to be impacted are the ones along roads, where cows are most often seen in the allotment. These sites include a couple of *Solanum parishii* sites and one *Cypripedium montanum* site. These sites should be monitored for potential impacts from grazing.

As of 2004, the majority of Special Status plant sites in the Summit Prairie Allotment showed no evidence of current impacts from grazing. A couple of *Limnanthes floccosa* ssp. *bellingermana*, *Microseris laciniata* ssp. *detlingii*, and *Plagiobothrys glyptocarpus* sites had been grazed or showed evidence of some trampling or browsing. All three of these Special Status plants have sites within and outside the grazing allotments that are not impacted by livestock. It is not unusual for an area to be heavily grazed one year, but not visited at all by cows in other years. Other factors, such as annual fluctuations in rainfall or temperature or other elements that affect population numbers may also impact a plant population and make it hard to pinpoint grazing as the main problem. For this reason, making an assumption about impacts to a population generally requires visits for more than one year. Special Status plant sites where plants appear to be impacted by livestock should be monitored to determine if the populations are being negatively affected and what protection measures need to be applied at the specific sites.

At this time, there are no indications that livestock grazing is trending toward listing any of the Special Status plant species that have been documented in the Flat Creek or Summit Prairie Allotments.

4.2.1.2 Cumulative Effects

Numerous activities over the last 150 years have likely affected rare plants in the Butte Falls Resource Area. Euro-American settlement, agriculture, development, road building, grazing, logging, mining, high-severity fires that are outside the range of natural variability, fire suppression, and recreational activities have directly impacted plants and reduced the extent and quality of their habitats. Natural plant communities and species composition have been altered in many cases. Non-native and noxious weeds that have been introduced from other areas have out-competed native vegetation. Grasslands have been especially impacted where native perennial bunchgrasses have been replaced by annual non-native grasses. Non-native 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 utilize weed control measures, it is impossible to completely control and prevent infestations of non-native plants on BLM land.

These activities will likely continue in the future on private and public lands. 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 majority of rare plant sites in the allotments have been discovered during the last four years. 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.

However, it must be recognized that many sites of Special Status plants, including the Federal Endangered *Fritillaria gentneri*, have been discovered in the allotments where grazing has occurred. Very few populations show indications of impacts from livestock. There is no evidence that those impacts would jeopardize the persistence of the populations or the species or result in a need to list them. Some areas receive more intense use by livestock, but based on observations recorded during botanical surveys that have been completed so far, grazing pressure overall on the 41,163 acres of BLM-administered land in the two allotments has been moderate to light.

Grazing could contribute additional cumulative effects to Special Status plants if it is excessive. However, whether the grazing permits are renewed on a ten year basis or a yearly basis, they would be reviewed annually to determine if they continue to meet the Rangeland Health Standards and Guidelines. One of these guidelines stipulates that plant communities be maintained or restored to provide habitat for T&E, Special Status, and native plants (BLM Regulations 4180.1-4180.2). If it is determined during the annual renewal process that these standards are not being met, the permit can be changed to correct the problem(s). Mitigation measures may include changing livestock numbers, season-of-use, or turn-out locations. Additional protection measures could include fencing sites or treating noxious weeds around Special Status plant populations.

4.2.2 ALTERNATIVE B – PROPOSED ACTION

4.2.2.1 Direct and Indirect Effects

The potential direct and indirect effects to Special Status plants from livestock under Alternative B would be the same as those under Alternative A, with a couple of exceptions. Since the areas that would be fenced have never been surveyed, it is unknown at this time if any Special Status plants occur there. However, *Carex interior* has been observed along both Jackass and Beaver Dam Creeks near the proposed fencing projects. One *Carex leptalea* ssp. *leptalea* population grows along Beaver Dam Creek, also near the proposed fencing areas. If additional *Carex* populations are discovered during the surveys prior to fence construction, they would be included within the fence enclosures if logistically possible.

Deferring the turn-out date to May 1 in Flat Creek would not change the potential direct and indirect impacts to Special Status plants. They would remain the same as those described under Alternative B.

4.2.2.2 Cumulative Effects

The cumulative effects of grazing on Special Status plants would be the same under Alternative B as under Alternative A, with the exception of impacts to species that grow within the fenced enclosures. It is reasonable to expect that if Special Status plants occur within the areas that would be fenced, then the cumulative effects on them from grazing would be less under Alternative B than under Alternative A.

4.3 RIPARIAN RESERVES/FISHERIES/AQUATIC HABITAT

As directed under the Northwest Forest Plan, all BLM projects must meet the objectives of the Aquatic Conservation Strategy (ACS). This was developed to restore and maintain ecological health of watersheds and aquatic ecosystems on public lands. The strategy protects aquatic habitat and riparian areas on federal lands managed by the Forest Service and Bureau of Land Management within the range of the Northern Spotted Owl. Both Alternative A and B would meet the requirements of the Aquatic Conservation Strategy at the 5th field watershed scale. The ACS consistency is displayed in Appendix 3.

4.3.1 ALTERNATIVE A – NO ACTION

4.3.1.1 Direct Effects

Flat Creek Allotment

Under Alternative A, 73 cow/calf pairs would be grazed on the 12,000 acre allotment from April 15th to October 31st each season. 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 tend to congregate in riparian areas because uplands dry up. Riparian areas still have 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 (employee observations).

Direct adverse effects to Riparian Reserves that may occur in the proposed summer grazing pastures includes soil compaction, reductions in riparian vegetation, physical damage to vegetation by rubbing, trampling, and browsing, and reductions in riparian soil litter layer (Kauffman and Krueger 1984, Green Kauffman 1995). Soil compaction is minimal because livestock numbers are small and they are distributed over a large area, thus minimizing ground compaction in any one area. Soil litter layers have not been monitored but effects are expected to be minimal. Most riparian areas lie at the bottom of steep terrain and/or dense vegetation, which prevents livestock use. Areas that have flat terrain and are fairly open are expected to receive heavier livestock use. In these flatter areas, some reductions and physical damage to young hardwood trees, shrubs, grasses, and sedges are expected to occur. Most riparian areas have mature hardwood trees along streams that provide shade and bank stability, and are too tall for livestock to browse upon. Small trees, shrubs, grasses, and sedges in the more easily-accessed areas are likely to continue to be browsed by livestock, and have their growth impacted. More heavily utilized areas occur along Flat Creek, Hawk Creek, and Sugarpine Creek. There are few of these areas across the allotment, and the overall impacts are expected to be insignificant. It is expected that the same level of impacts would occur over the next 10 years.

Summit Prairie Allotment

Under Alternative A, 304 cow/calf pairs would be grazed on two spring pastures (5,351 acres), from April 15th to May 31st. 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 (USDI 2003). 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 couple of 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 six pastures (see table 2.2-1), with a total area of 23,664 acres, from June 1st to September 30th. 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 too much of their time in riparian areas (Kauffman and Krueger 1984). The BLM has observed this phenomenon for several years, and this is consistent with Kauffman and Krueger's (1984) observations.

There are livestock exclosures on about 0.7 miles of Beaver Dam Creek and on 2.8 miles of North Fork Big Butte Creek (which is designated as CCH). These were installed to allow previously heavily grazed riparian areas to recover, and for monitoring purposes. Direct adverse effects to Riparian Reserves that may occur in the proposed summer grazing pastures include soil compaction, reductions in riparian vegetation, physical damage to vegetation by rubbing, trampling, and browsing, and reductions in riparian soil litter layer (Kauffman and Krueger 1984, Green Kauffman 1995). Soil compaction is minimal because livestock numbers are small, and they are distributed over a large area, thus minimizing ground compaction in any one area. Soil litter layers have not been monitored, but effects are expected to be minimal. Most riparian areas are located in steep draws that tend to limit livestock access. In flatter riparian areas such as Beaver Dam Creek, Jackass Creek, and North Fork Big Butte Creek, physical damage to young hardwood trees, shrubs, grasses, and sedges is expected to occur. Most of Beaver Dam Creek and North Fork Big Butte Creek, and some of their associated riparian areas are fenced from livestock access, leaving about 0.5 mile of BLM controlled accessible stream and riparian habitat available. Jackass Creek has about 1.5 mile of accessible riparian habitat that is experiencing grazing pressure. This stream is designated as CCH, and therefore is important for protection under ESA. Past grazing on unprotected sections of this stream has resulted in young trees and shrubs being browsed and damaged.

Direct effects could also increase during drought years, when less forage is available in the uplands and relatively more forage is available along the streams. However, it is unlikely that drought alone will cause increased impacts since we have been experiencing drought recently, and impact levels have not increased.

4.3.1.2 Indirect Effects

Indirect effects would be the same for both allotments.

Potential long term indirect effects of livestock grazing in riparian areas include altering vegetation species composition such as reducing the production and density of shrubs, densities of mesic/hydric plant types (sedges, willows, etc), and increasing the amount of exotic plant species (Kauffman and Krueger 1984, Kauffman et al. 1983b). Both of these allotments have been grazed by livestock for over 100 years, and these effects have already occurred. Continued grazing with current livestock numbers would not increase these negative effects, but these conditions would likely continue. This effect would slow the rate of recovery to desired future conditions.

4.3.1.3 Cumulative Effects

Cumulative Effects will be the same for both allotments.

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

The greatest cumulative impact to riparian areas in both of these allotments, on both public and private lands, has been the removal of conifers. Riparian conifers were harvested right up to the waters' edge along streams before riparian buffers were established. Nearly all adjacent private timber lands, including riparian areas, have been harvested.

Livestock grazing has occurred on both of these allotments for over 100 years. Most of the lands in the Butte Falls Resource 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). Livestock grazing and timber harvest are the primary past, present, and future actions, and land uses that could cumulatively impact these resource values in the analysis area.

The cumulative effects of Alternative A on Riparian Reserves - when combined with past, ongoing and reasonably foreseeable activities – would be negative to a moderate degree for riparian vegetation, especially young hardwood trees, shrubs, and sedges along streams. Livestock would continue to graze in Riparian Reserves in late summer and fall, which would lead to removal of vegetation in sensitive 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). Most Riparian Reserves are in a state of recovery from past logging activities, and continued livestock grazing would slow the rate of recovery to climax forest conditions.

4.3.2 ALTERNATIVE B – PROPOSED ACTION

4.3.2.1 Direct Effects

Table 4 summarizes the expected level of direct effects of grazing on aquatic resources in Appendix C.

4.3.2.2 Indirect Effects

Flat Creek Allotment

Signs of cattle grazing have been observed within the Flat Creek allotment; however there are no reference conditions for water quality prior to the Timbered Rock fire in 2002. As a result, impacts on water quality can not be measured at this time. The signs of cattle that have been observed are minor, and are not likely to have much if any effect on water quality. After livestock are allowed back into the allotment, analysis will be able to be obtained.

Summit Prairie Allotment

There are signs of cattle congregation along Ginger and Hukill creeks in the Ginger Creek pasture. However, the impacts appear to be minimal within the Ginger Springs watershed. There have not been any adverse effects to water quality by livestock grazing. Refer to the Ginger Springs Watershed Analysis and Management Plan and the Ginger Springs Geohydrologic Study and Water System and Source Master Plan for more information. Monitoring for stream temperature is currently being performed along Doubleday, Ginger, and Hukill creeks. There are signs of moderate to heavy cattle grazing along the lower portion of Jackass Creek near the confluence with North Fork Big Butte Creek. This is due primarily to the fact that the remainder of the stream is heavily occupied with shrubs and trees, impeding access by cattle, and that the remainder of North Fork Big Butte Creek has been fenced, leaving cattle no other place to water.

The only data available for Jackass Creek at this time is temperature data. There has been single point temperature data along Beaver Dam Creek, showing that the 7 day average water temperature may exceed ODEQ's maximum allowed temperature of 64 degrees Fahrenheit for listing. No long term monitoring of water quality has been performed. Due to the lack of canopy along Beaver Dam Creek providing shade cover, the temperature is expected to be above a 7 day average of 64 degrees. It should be mentioned that Beaver Dam Creek flows through approximately one mile of private cattle pasture prior to entering BLM land, and the influence of that could not only be great, but there may be nothing we can do about it.

Currently there is no evidence showing that cattle adversely affect water quality. If cattle are prevented from congregating in mass numbers and are removed promptly on schedule, current conditions are expected to continue, and may improve slightly in the very long term. Studies have shown that it is possible to manage livestock grazing in ways that enhance riparian vegetation and protect streambanks (Buckhouse, 2000). Studies show that grazing throughout the growing season harms vegetation, and increased streambank sloughing can result. Positive effects on streams and water quality can be achieved from the timing of grazing practices to

support plant growth and physiology. Adhering to the grazing lease terms and conditions can result in a lower probability of fecal coliform bacteria and other pathogens entering the stream system. Statistics show that if cattle are kept on the move and congregation around streams is kept to a minimum, defecations are less likely to land in and around the stream. Further studies show that high sediment counts in stream bottoms can result in the collection of bacteria which will then die off within a few months (Buckhouse, 2000).

Beaver Dam Creek has many of the same characteristics as a wetland system and may therefore act to some degree as a filter or a nutrient sink for bacteria and phosphate and nitrate.

Monitoring is needed to gather data on whether there are any impacts to water quality. No other data is available to suggest that cattle grazing adversely affects water quality.

4.3.2.3 Cumulative Effects

Flat Creek Allotment

Because of the Timbered Rock fire in 2002, and the private land logging that immediately followed, it is nearly impossible to determine any cumulative impacts on the water quality from cattle grazing. Impacts to water quality may be attributed to road runoff, logging practices, loss of canopy, or high flows on bare soils causing channel degradation. After deferment of grazing, monitoring can be done to determine what impact cattle grazing may have on water quality.

Summit Prairie Allotment

Given the large size of the watersheds (Lost Creek WAU, and Central Big Butte WAU) compared to the relatively small size of the Beaver Dam and Jackass creek areas, cumulative impacts are expected to be low if not indistinguishable. Further study is needed to determine if any impact is an adverse effect from cattle. Effects from other wildlife, such as beaver activity and elk may contribute to water quality problems. Roads pass near and through the stream systems which may increase sedimentation and temperature. Various other land use activities such as logging may also impact water quality. Any impacts to water quality from the grazing of cattle are immeasurable when other factors are considered. No data is available to show that cattle grazing adversely impacts water quality.

Mitigating Measures

Annual riparian/aquatic surveys will be completed across the proposed project area to monitor impacts from livestock to aquatic resources. In the event of discovery of aquatic resource values that are impacted beyond acceptable levels, livestock grazing would be relocated or modified to such an extent that the impacts would be avoided or mitigated to an acceptable level.

Threatened and Endangered Aquatic Species

Below is a summary of the determination of effects of Alternative B on SO/NC Coho Salmon, CH, and EFH by allotment.

Flat Creek and Summit Prairie Allotment

May Affect, Likely to Adversely Affect

It would be expected that some degradation of aquatic habitat may occur due to potential short-term sediment delivery to streams resulting from the proposed grazing permit renewals in the Summit Prairie and Flat Creek allotments. However, impacts from the proposed action are not expected to result in “take” of listed SO/NC Coho Salmon, as the livestock are turned out after the time when eggs have hatched and emerged. Occasionally, localized baseline sediment levels may increase, and riparian vegetation that provides cover, prey source habitat, stream bank stability, and shade may get grazed, but it would not result in “take” of listed SO/NC Coho Salmon. The behavior of juvenile coho salmon is expected to be influenced to a minute degree when livestock are wading in streams. As a result, Alternative B is considered “not likely to adversely affect” SO/NC coho salmon (listed “threatened”), SO/NC CH, and EFH. See Table 10, in Appendix C, for summary of rationale for “Not Likely to Adversely Affect” determination for each allotment.

4.4 SPECIAL STATUS WILDLIFE SPECIES

There are no apparent differences in the impacts to wildlife of the two alternatives. Environmental impacts listed below apply to both alternatives. The “no action” alternative would continue current grazing practices. Alternative B would have minor changes that would not change impacts to wildlife. See Appendix B, for a review of Special Status Wildlife Species in the Butte Falls Resource Area.

4.4.1 ALTERNATIVE A – NO ACTION

4.4.1.1 Direct Effects

Special Status Species

Great Gray Owls

There are no direct effects to great gray owl from grazing.

Foothill yellow-legged Frog

There would be no direct effects from grazing.

Cascades Frog

There would be no direct effects from grazing.

Chace sideband (*Monadenia chaceana*)

One of the habitats where Chace sideband snails were found during mollusk surveys was in the conifer forest stands under the canopy where there is no evident cattle grazing. Cattle will occasionally congregate in shady areas near streams. Where Chase sidebands are present, there is the chance that cattle, elk, deer, and/or recreationists could step on one. The risk is minimal, and the viability of the species would not be affected if this occurred.

Oregon shoulderband (*Helminthoglypta hertleini*)

Oregon shoulderband snails are most often found under rocks and large woody debris. They may move away from refugia during the wet season for foraging. Cattle, elk, deer, and/or recreationists could step on them if they are in the area where the snails are present. The direct consequences would be the loss of an individual. The chances of this occurring are minimal, and it would not affect the viability of the species.

Other Wildlife Species (deer and elk)

Directly, there would be a reduction in the amount of forage available to ungulates. However, in the lands administered by Butte Falls Resource Area, this has not been identified as a problem in deer and elk survival by Oregon department of Fish and Wildlife (Mark Vargas, personal

communication). There could be some reduction of forage along riparian areas and wet meadows. 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).

4.4.1.2 Indirect Effects

Special Status Species

Great Gray Owls

Indirectly, there may be some loss of meadow grasses and lower seed production which support rodents that are hunted for food. Conversely, grazing may reduce the height of grasses, making prey more visible to hunting great gray owls. Grazing can lead to an increase in weeds such as star thistle and medusa head which also may reduce habitat for mice and voles that great gray owls prey on. The effect of grazing is expected to be minimal and would not lead to the need to list great gray owls as Bureau Sensitive or T&E. The proposed action would not affect the viability of great gray owl population.

Foothill yellow-legged frog

Indirect effects would be trampling vegetation and breaking 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. However, these areas are infrequent 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 T&E due to grazing in the Summit Prairie or Flat Creek allotments.

Cascades Frog

Indirect effects would be trampling vegetation and breaking down pond banks, increased nutrients and sediment in the water, trampling marshy areas around water source, and reduction in the grasses and forbs in the grassy areas adjacent to the pools. Known pools would be monitored. If it is determined that grazing is beginning to diminish the quality of the pool and adjacent grassy areas for frogs, cattle would be moved or the pool and/or grassy area would be fenced. Impacts are expected to be low and would not cause a loss of the viability of the species.

Chace sideband

Monadenia chaceana locations were in the Round Mountain pasture only. They were found in a rock quarry, in a hot dry open condition. They were also found in the forest stands under the canopy with leaf litter and coarse woody debris. There are no known indirect effects of cattle grazing on snails in the forest understory. Grazing generally has little impact in the conifer forest understory in the moister areas in southwestern Oregon.

Oregon shoulderband

Oregon shoulderband snails were not found during mollusk surveys. Indirectly, there could be some reduction in overhead canopy if grasses, forbs and shrubs are grazed near a site. However, stubble and some vegetation would still be present to provide cover for the snails. The chances of impacts to an area where Oregon Shoulderbands are present are extremely low. The impact to the species is negligible.

Other Wildlife Species (deer and elk)

Indirectly, 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 remains. 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 are forage for deer and elk. There is a reduction in the 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 fall and winter months for the ungulates.

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

4.4.1.3 Cumulative Effects

Special Status Wildlife Species

Great Gray Owls

There are no identifiable cumulative effects identified from grazing.

Foothill yellow-legged frogs

There could be some locations on creek banks where cattle access the stream to cross or get water. In these places, there would be loss of stream bank cover and an increase in sediment. However, the majority of the stream bank is not damaged and over all, there would not be a cumulative loss of habitat in the stream. Because of the higher rainfall in BFRA, these areas usually become vegetated after the cattle are removed from the area at the end of the grazing season.

Frogs are mobile and can move up and down the stream banks to suitable habitat. There could be an increase in sediment, which could reduce some habitat for the frogs with silt entering the streams. There is no information about the impact this has on the yellow-legged frog population.

Fish surveys by ODFW have determined aquatic habitat elements in the allotments are mostly in fair conditions. Livestock access to streams is limited by dense vegetation and steep terrain. Most streams do not have evidence of heavy livestock use. Due to the small amount 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 frog species due to cumulative grazing impacts.

Cascades frogs

There could be some degradation of pool habitat in areas where cattle “camp out” next to small pools and consume most of the grass near the pool and spring. Cascades frogs are found in shallow pools with a soft mud bottom. There is no evidence that Cascades frogs are disappearing because of cattle impacts to the pools, either on BLM or adjacent USFS administered land.

Chace sideband

There is no evidence that past or present livestock grazing has had a negative impact on the viability of the Chace sideband population, nor is there evidence that proposed livestock grazing will have a negative impact on the viability of the Chace sideband population. There are no identified cumulative impacts from grazing. The cumulative impact to the species from grazing is negligible.

Oregon shoulderband

There is no evidence that past or present livestock grazing has had a negative impact on the viability of the Oregon shoulderband snail population, nor is there evidence that proposed

livestock grazing will have a negative impact on the viability of the Oregon shoulderband snail. There are no identified cumulative impacts from grazing. The cumulative impact to the species from grazing is negligible.

Other Wildlife Species (deer and elk)

Cattle use in the Butte Falls Resource Area has not been shown to have a cumulative negative impact on deer and elk populations. Deer and elk browse in clearcuts and openings that are often not utilized 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, and 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 BFRA BLM lands.

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 are difficult to determine.

4.4.2 ALTERNATIVE B – PROPOSED ACTION

4.4.2.1 Direct Effects

Same as Alternative A

4.4.2.2 Indirect Effects

Same as Alternative A

4.4.2.3 Cumulative Effects

Same as Alternative A

CHAPTER 5 CONSULTATION AND COORDINATION

PERSONS OR AGENCIES CONSULTED

Oregon Department of Fish & Wildlife
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CHAPTER 6 APPENDICES

APPENDIX A - BOTANY

Table A-1. BUTTE FALLS RESOURCE AREA Flat Creek and Summit Prairie Ten-Year Grazing Allotment Renewals Special Status Plants Documented Habitat and Impacts Analysis January 2005		
<i>SPECIES</i>	<i>STATUS</i>	<i>HABITAT AND GRAZING IMPACTS ANALYSIS</i>
Vascular Plants		
<i>Carex interior</i> (inland sedge)	BT	<ul style="list-style-type: none"> ●8 sites in Summit Prairie ●Grows along streams or in wet meadows. ●Potential impacts from livestock trampling or grazing.
<i>Carex leptalea</i> ssp <i>leptalea</i> (flaccid sedge)	BT	<ul style="list-style-type: none"> ●1 site in Summit Prairie ●Grows along streams or in wet meadows. ●Potential impacts from livestock trampling or grazing.
<i>Cimicifuga elata</i> (tall bugbane)	BS	<ul style="list-style-type: none"> ●1 site - small portion lies on BLM in Flat Creek, the rest falls in the Umpqua National Forest ●Grows in moist coniferous forests ●Potential impacts from cattle browsing and trampling
<i>Cypripedium fasciculatum</i> (clustered lady slipper)	BS	<ul style="list-style-type: none"> ●5 sites in Summit Prairie ●Spring blooming specie that grows in forest habitat. ●Impacts from livestock unlikely; forage is scarce in forested areas and cattle do not congregate there.
<i>Cypripedium montanum</i> (mountain lady slipper)	BT	<ul style="list-style-type: none"> ●3 sites in Flat Creek ●Early summer blooming species that grows in forest habitat. ●Impacts from livestock unlikely; forage is scarce in forested areas and cattle do not congregate there.
<i>Fritillaria gentneri</i> (Gentner's fritillary)	FE	<ul style="list-style-type: none"> ●13 sites in Summit Prairie ●Occurs in edges or openings of dry, open 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 Biological Opinion #1-14-03-F-511.
<i>Liamna latibracteata</i> (California globemallow)	BA	<ul style="list-style-type: none"> ●7 sites in Flat Creek ●Grows in moist, shaded places, creek banks, and clearcuts. Responds well to fire and other disturbances that open up the canopy. ●Potential for browsing or trampling by livestock
<i>Lewisia cotyledon</i> var <i>howellii</i> (Howell's lewisia)	BT	<ul style="list-style-type: none"> ●1 site in Flat Creek, 3 in Summit Prairie ●Grows on rock outcrops ●No impacts from livestock, protected on steep rock walls.
<i>Limnanthes floccosa</i> ssp <i>bellingiana</i> (Bellinger's meadowfoam)	BS	<ul style="list-style-type: none"> ●23 sites in Summit Prairie ●Spring blooming annual that grows in vernal wet areas in oak savannas/grasslands. ●Plants or habitat could potentially be impacted from livestock trampling.

<i>Microseris laciniata</i> ssp <i>detlingii</i> (Detling's silverpuffs)	BS	<ul style="list-style-type: none"> •8 sites in Summit Prairie •Summer blooming species that grows in openings of chaparral and oak savannas. •Potential for impacts from browsing by cattle.
<i>Navarretia heterandra</i> (Tehama navarretia)	BA	<ul style="list-style-type: none"> •4 sites in Summit Prairie •Late summer blooming annual that grows in open areas with heavy clay soils, vernal pools or drying flats. Plants are very small with sharp-pointed bracts. •No impacts from livestock, tolerates some disturbance.
<i>Navarretia subuligera</i> (awl-leaf navarretia)	BT	<ul style="list-style-type: none"> •21 sites in Summit Prairie • Summer blooming annual that grows in open areas with heavy clay soils, vernal pools or drying flats. Plants are very small with sharp-pointed bracts. •No impacts from cattle, tolerates some disturbance.
<i>Navarretia tagetina</i> (marigold pincushion plant)	BT	<ul style="list-style-type: none"> •1 site in Summit Prairie • Summer blooming annual that grows in open areas with heavy clay soils, vernal pools or drying flats. Plants are very small with sharp-pointed bracts. •No impacts from livestock, tolerates some disturbance.
<i>Plagiobothrys glyptocarpus</i> (sculptured popcorn flower)	BA	<ul style="list-style-type: none"> •14 sites in Summit Prairie •Spring blooming annual that grows in moist places in grasslands and woodlands. •Potential for impacts from trampling or grazing by cattle.
<i>Plagiobothrys greenei</i> (Green's popcorn flower)	BA	<ul style="list-style-type: none"> •1 site in Summit Prairie •Spring blooming annual that grows in wet sites in grasslands and woodlands. •Potential for impacts from trampling or grazing by cattle.
<i>Ranunculus austro-oreganus</i> (southern Oregon buttercup)	BS	<ul style="list-style-type: none"> •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. •Potential for indirect impacts from increased noxious weeds as a result of overgrazing.
<i>Ribes inerme</i> var <i>klamathense</i> (Klamath gooseberry)	BT	<ul style="list-style-type: none"> •2 sites in Summit Prairie •Perennial vine with prickles that grows in riparian areas. •Impacts from livestock unlikely.
<i>Scribneria bolanderi</i> (Scribner's grass)	BT	<ul style="list-style-type: none"> •94 sites in Summit Prairie •Small annual grass that grows on clay soils in open, rocky scablands in chaparral. •Potential for impacts from trampling or grazing by cattle.
<i>Sedum spathulifolium</i> ssp <i>purdyi</i> (Purdy's stonecrop)	BT	<ul style="list-style-type: none"> •1 site in Flat Creek •Grows on rock walls and outcrops in conifer forests. •No impacts from cattle; protected from cattle on rock walls.
<i>Solanum parishii</i> Parish's nightshade	BA	<ul style="list-style-type: none"> •7 sites in Flat Creek •Perennial sub-shrub that grows in dry chaparral, oak/pine woodland, and pine forests. •Sites along roads could potentially be trampled by livestock.
Lichens		
<i>Lobaria linita</i>	BA	<ul style="list-style-type: none"> •1 site in Flat Creek - on Umpqua National Forest side •Grows on rock walls •No impacts from livestock, protected on steep rock walls.

<i>Leptogium rivale</i>	BT	<ul style="list-style-type: none"> •2 sites in Summit Prairie •Grows on rocks submerged in perennial streams •Unlikely to be impacted by livestock
Bryophytes		
<i>Crumia latifolia</i>	BA	<ul style="list-style-type: none"> •1 site in Summit Prairie •Grows on mid-size to large rocks in streams. •Impacts from livestock unlikely as cattle avoid rocks in streams.
<i>Fabronia pusilla</i>	BT	<ul style="list-style-type: none"> •4 sites in Summit Prairie •Grows on large rock outcrops. •No impacts from livestock; protected on rocks.
<i>Funaria muhlenbergii</i>	BA	<ul style="list-style-type: none"> •6 sites in Summit Prairie •Found on mineral soil in chaparral scabland habitat, usually under rocks. •No impacts from livestock, protected by rocks.
<i>Hedwigia detonsa</i>	MW	<ul style="list-style-type: none"> •1 site in Flat Creek •Grows on rock outcrops. •No impacts from livestock; protected on rocks.
<i>Meesia uliginosa</i>	BA	<ul style="list-style-type: none"> •2 sites in Summit Prairie •Occurs in wet meadows. •Potential for trampling by livestock.
<i>Tayloria serrata</i>	BA	<ul style="list-style-type: none"> •3 sites in Summit Prairie •Grows on dung, along edge of forest adjacent to meadows. •Potential for trampling by livestock.
<i>Tripterocladium leucocladulum</i>	BA	<ul style="list-style-type: none"> •1 site in Flat Creek, 9 sites in Summit Prairie •Grows on rock outcrops in shaded forest areas. •No impacts from livestock; protected on rocks.
Fungi		
<i>Clavariadelphus sachalinensis</i>	BT	<ul style="list-style-type: none"> •9 sites in Summit Prairie •Grows in organic duff under conifers in mature forests. •No impacts from livestock; forage is scarce and cattle do not congregate in forested areas.
<i>Gomphus kaufmannii</i>	BT	<ul style="list-style-type: none"> •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.
<i>Helvella maculata</i>	BT	<ul style="list-style-type: none"> •2 sites 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.
<i>Plectania milleri</i>	BT	<ul style="list-style-type: none"> •24 sites in Summit Prairie •Spring fruiting fungus that occurs on humus soil in mature conifer forests. •No impacts from cattle; forage scarce in forested habitats and cattle do not congregate there.
Status: FE – Federal Endangered, BS – Bureau Sensitive, BA – Bureau Assessment, BT – Bureau Tracking		

SPECIAL STATUS PLANTS DOCUMENTED IN THE GRAZING ALLOTMENTS THAT ARE MOST VULNERABLE TO IMPACTS FROM LIVESTOCK

Carex interior (inland sedge), Tracking - This perennial sedge is more delicate than larger, coarser sedges, which makes it potentially more palatable to livestock. It occurs in wet meadows and along streams, areas that cattle frequent. Eight sites have been discovered so far in the District, all in the Summit Prairie Allotment in the Butte Falls Resource Area. Four sites are protected within fence enclosures, one large site stretches about one mile along the inner banks of an irrigation ditch, and three are in wet meadows where grazing has been light. Populations are large, with an average of approximately 1,000 plants per population. Plants could be grazed or trampled, but because they are perennial, they would come back the following year. If all plants were grazed during their reproductive period, there would be no new regeneration that year. At this time none of the populations show impacts from livestock or grazing.

Carex leptalea ssp. *leptalea* (flaccid sedge), Tracking – One site of this perennial sedge was discovered in the Summit Prairie Allotment during an inventory of sedges in 2001 by the Carex (sedge) Working Group. This is the first documented site in the Medford District, although the species is found throughout Oregon, the western U.S. and Florida. The population of around 1,000 plants is located in a wet riparian meadow inside a fenced enclosure. Cattle have been seen inside the fenced area, but were removed when discovered. This population is protected, but the area should be monitored for livestock trespass.

Cimicifuga elata (tall bugbane), Sensitive – The major portion of the *Cimicifuga elata* site in the Flat Creek allotment falls in the Umpqua National Forest, with a very 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. *Cimicifuga elata* is 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. As of 2003, ninety-one sites have been found in the Medford District; only one of those is located in the Flat Creek Allotment. 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, 21).

Fritillaria gentneri (Gentner's fritillary), Federal Endangered – 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 is often found growing underneath shrubs, where plants are protected from wind, sun, and possibly browsing by livestock or wildlife, but it is generally not found 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. Its main reproduction is 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 (USFWS 2003, 10). As of 2003 one hundred eight sites have been documented in the Medford BLM District. Thirteen sites have been discovered in the Summit Prairie allotment; as of 2004, none of them showed impacts from livestock.

Iliamna latibracteata (California globe mallow), Assessment – *Iliamna latibracteata* is 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, 100), although several of the Butte Falls Resource Area sites are located in previously harvested units along old skid roads, in clearcuts, and on road banks. Sixteen sites have been discovered in the Medford District. Seven of those sites occur in the northwestern part of the Flat Creek allotment, along the Umpqua Divide. California globe mallow 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 showed impacts from grazing in 2004; however, cattle have not been turned out in this allotment since the Timbered Rock Fire in 2002. All seven sites on BLM-administered lands in the Flat Creek Allotment are located on steep slopes away from roads, which makes them inaccessible to livestock.

Limnanthes floccosa ssp. *bellingneriana* (Bellinger's meadowfoam), Sensitive - This spring-blooming annual has twenty-three documented sites in the Summit Prairie allotment. Forty-five have been discovered in the District. Bellinger's meadowfoam grows in open, vernal 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. Because cattle visit the meadows and small openings where it occurs, there is potential for impacts to the plants from grazing or trampling. Over-grazing 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 meadowfoam sites in Summit Prairie have been grazed, no evidence was found that the plants had been impacted.

Meesia uliginosa, Assessment – 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 boggy meadows in the McNeil Creek Pasture of the Summit Prairie Allotment. Their location in wet meadows makes them vulnerable to trampling by cattle which may be attracted to the green grass and flowing water in hot summer months. Since their discovery in 2001, the two *Meesia uliginosa* sites have been monitored yearly and have not shown any signs of impacts from livestock, even though the surrounding areas have been heavily grazed. This is probably because it is rocky and difficult to walk where the water runs across the meadow. Over time the water has eroded the soil and exposed the rocky cobbles.

Microseris laciniata ssp detlingii (Detling’s microseris), Sensitive - This dandelion-like perennial blooms in June and July in the Siskiyou pass area of Oregon and California and the eastern part of the Butte Falls Resource Area. Ninety sites have been documented in the Medford District, with eight in the Summit Prairie grazing allotment. New populations have been discovered each year since 1997. This species is most often found growing in openings of chaparral patches or in oak woodlands on heavy clay soils. In 2004, the plants at one of the large populations (thousands of plants) in Summit Prairie had been browsed and the surrounding area was heavily grazed. However, the plants and the population appeared to be withstanding the grazing. Overall, the populations in the Medford BLM District and the Butte Falls Resource Area appear to be stable.

Plagiobothrys glyptocarpus (sculptured allocarya), Assessment – Fifty-four sites of this popcorn flower have been documented in the Medford District; eleven occur in the Summit Prairie grazing allotment. *Plagiobothrys glyptocarpus* is an annual that blooms in April and May and grows along streams and in wetlands in oak woodlands and meadows. It is a small forb that may be inadvertently consumed by cattle when they are grazing associated grasses or could be trampled by herbivore hooves, including deer and elk. Only one of the eleven sites in the Summit Prairie Allotment has shown evidence of trampling. It is possible that cattle may increase or maintain *Plagiobothrys glyptocarpus* habitat by removing competing grasses.

Plagiobothrys greenii (Green’s popcorn flower), Assessment - This annual popcorn flower blooms in early spring and grows at the edges of vernal pools or vernal wet grasslands in Oregon and California. Its populations may fluctuate with rainfall. Twelve sites have been documented in the Medford BLM District, with one site occurring in the Summit Prairie grazing allotment. The plant itself is small and probably not of interest to cattle for forage, but the plants could be vulnerable to trampling because they occur in vernal wet areas. There is also the possibility that grazing may benefit this species when competing vegetation is removed. There has been no indication of livestock utilization at the site in the Summit Prairie allotment.

Ranunculus austro-oreganus (Southern Oregon buttercup) Sensitive – Southern Oregon buttercup is a perennial endemic of central Jackson County. It blooms in April and May and grows on dry, gravelly soils in oak woodland, savanna, and grassland communities. Thirty-eight sites have been documented in the Medford District; three of those sites are in the Summit Prairie Allotment. Most sites cover large areas and contain thousands of plants. Although the areas in Summit Prairie where *Ranunculus austro-oreganus* was found had been grazed, 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.

Scribneria bolanderi (Scribner’s grass), Tracking – This annual grass is only 2-11 cm. tall and grows on sandy soil in open rocky scablands of chaparral communities. Its range is the Cascade Mountains from Washington to California. This species occurs throughout the Butte Falls Resource Area and is more widespread than has been reported. It grows in thin soil around shallow rock outcrops where few other grasses or forbs occur. Because its habitat does not contain much forage for livestock, it is probably not directly impacted from grazing. The greatest potential threat could be from non-native species, although most sites contain a high percentage of medusahead. Ninety-four sites have been reported in the Summit Prairie allotment.

Solanum parishii (Parish's nightshade), Assessment – This perennial is a member of the nightshade family and grows in dry chaparral, oak/pine woodlands, and pine forests in California and southern Oregon. Twenty-nine sites have been documented in the Medford District, with seven of those in the Flat Creek Allotment. It was first discovered in 2004 in the Butte Falls Resource Area after the Timbered Rock Fire (2002). Most of the sites are along roads, which makes them vulnerable to trampling by livestock. However, since the plants are toxic, they would not likely be eaten by cattle. There was no evidence of impacts from livestock at any of the sites, but cattle have not been turned out in the Flat Creek allotment since 2002.

Tayloria serrata, Assessment – This moss was formerly an S&M species, but was moved to the Special Status species list in 2004. It is a dung moss that grows on old scat, especially of herbivores, or on soil enriched by dung, or in peatlands. It has a circumboreal distribution, but is rare throughout the Pacific Northwest. Nine sites have been documented in the Medford District; one in the Glendale Resource Area and the rest in the Summit Prairie Allotment in the Butte Falls Resource Area. At all but two of the Summit Prairie sites, the moss was growing on cow dung. The two other populations 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 rarer in the absence of cattle in this area.

APPENDIX B – SPECIAL STATUS WILDLIFE SPECIES

BUTTE FALLS RESOURCE AREA Ten-Year Grazing Allotment Renewal/Sensitive Wildlife Species Analysis Summit Prairie and Flat Creek Allotment October 2004					
	STATUS	Presence			HABITAT AND GRAZING IMPACT ANALYSIS
		MFR BLM	BFRA	Proj	
<i>Threatened and Endangered/Federal Candidate</i>					
Bald eagle	FT	P	P	P	<ul style="list-style-type: none"> Eagles nest in dominant and co-dominant trees at forest edges and ridges, in meadows and near rivers and lakes. One nest is present 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	FC	P	P	P	<ul style="list-style-type: none"> Fishers primarily 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	FC	P	A	A	<ul style="list-style-type: none"> N/A. BFRA is outside range. Nearest location is near Little Hyatt Lake.
Northern spotted owl	FT	P	P	P	<ul style="list-style-type: none"> Northern spotted owls use high canopy late successional old-growth forests. No impacts to spotted owls from grazing.
Oregon spotted frog	FC	P	A	A	<ul style="list-style-type: none"> N/A. Spotted frogs are not present in BFRA. Nearest location are in the Cascade-Siskiyou Monument and Klamath County.
Vernal pool fairy shrimp	FT	P	P	A	<ul style="list-style-type: none"> N/A. The only suitable vernal pools in BLM are on Table Rocks. There is no vernal pool fairy shrimp habitat in either Summit Prairie or Flat Creek allotment. Area is outside the range.
<i>Bureau Sensitive</i>					
Black-backed woodpecker	BS	P	A	A	<ul style="list-style-type: none"> N/A. Habitat is primarily lodgepole, ponderosa, and mixed conifer forests. Nearest confirmed location is near Crater Lake. No impacts to snags from grazing.
Burrowing owl	BS	P	P	A	<ul style="list-style-type: none"> N/A. No impacts to burrowing owls from livestock grazing.
Crater Lake tightcoil (<i>Pristiloma crateris arcticum</i>)	BS	A	A	A	<ul style="list-style-type: none"> N/A Surveys have occurred within Parsnip Ck, Round Mountain, Fredenberg, McNeil Ck. and Mule Ck pasture in Summit Prairie Allotment and in Flat Creek allotment with no detections. No <i>Pristiloma crateris arcticum</i> were found in over 15,000 acres of mollusk surveys in BFRA. Will be removed from BFRA mollusk special status species list.
Flammulated owl	BS	P	P	P	<ul style="list-style-type: none"> Nesting habitat for flammulated owl is large conifers, primarily ponderosa pine. Flammulated owls forage on insects and small rodents in openings. No impacts from to nesting or foraging habitat from grazing.

Lewis' woodpecker	BS	P	P	A	<ul style="list-style-type: none"> •N/A. •Present in low elevation lands in Sam's valley in spring/summer. May nest in cavities in oak woodlands on low elevation lands. •No impacts to habitat from grazing.
Chase sideband <i>Monadenia Chaceana</i>	BS	P	P	P	<ul style="list-style-type: none"> •Surveys have occurred within Parsnip Ck, Round Mountain, Fredenberg, McNeil Ck. and Mule Ck pasture in Summit Prairie and in Flat Creek allotments. <i>Monadenia chaceana</i> were found in Round Mountain pasture. Habitat is rocky areas and in or near CWD in conifer forests. •Grazing would have negligible impact. One site was in a rock quarry with no vegetation overhead.
Northern goshawk	BS	P	P	P	<ul style="list-style-type: none"> •Nesting habitat is large conifers. Goshawks forage on small birds and small mammals in forested stands. •No impacts from grazing.
Northwestern pond turtle	BS	P	P	P	<ul style="list-style-type: none"> •Northwestern pond turtles are present in one pond on private land in Flat Creek and one pond on private lands in Summit Prairie allotments. They may be present in Elk Creek. Grazing removes some vegetation along ponds. •No known impacts due to grazing.
Oregon shoulderband (snail) HEHE	BS	P	P	A	<ul style="list-style-type: none"> •Habitat is oak woodlands and open mixed conifer-hardwood stands. They are found in rocky areas in ditches along roads in some areas. Surveys have occurred within Parsnip Ck, Round Mountain, Fredenberg, McNeil Ck. and Mule Ck pasture in Summit Prairie and in Flat Creek allotment. •No detections. Impacts would be negligible if present.
Oregon vesper sparrow	BS	P	U	U	<ul style="list-style-type: none"> •Oregon vesper sparrows may be present in low elevation grasslands. There are no records of presence in BFRA lands. They were not found during bird surveys in the Flat Creek or Summit Prairie allotments. •No identified impacts from grazing.
Peregrine falcon	BS, NBC	P	P	P	<ul style="list-style-type: none"> •Nesting habitat is cliffs. Present in Flat Creek allotment. •No impacts from grazing.
Siskiyou short-horned grasshopper	BS	U	U	U	<ul style="list-style-type: none"> •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.
Streaked horned lark	BS	P	M	A	<ul style="list-style-type: none"> •Extirpated from Rogue Valley. Horned larks migrate through the area. It is not known if they are the streaked horned lark subspecies. •No identified impacts from grazing identified. Absent from BFRA.
Three-toed woodpecker	BS	P	A	A	<ul style="list-style-type: none"> •Outside range, but possibly could be drawn to fire killed snags. Range overlaps with range of spruce trees. No records on BFRA land. •No impacts on snags from grazing.
Townsend's big-eared bat	BS	P	P	P	<ul style="list-style-type: none"> •Townsend's big eared bats use large caves, mines and buildings for roosting and maternity colonies. Some may use large snags with holes & loose bark. •No impacts to the habitat from grazing.
Traveling sideband (snail)	BS	U	U	U	<ul style="list-style-type: none"> •Traveling sideband snails have not been found in over 15,000 acres of mollusk survey in BFRA. Surveys have occurred within Parsnip Ck, Round Mountain, Fredenberg, McNeil Ck. and Mule Ck pastures of Summit Prairie and in Flat Creek allotments with no detections. •No identified impacts from grazing.
White-headed woodpecker	BS, NBC	P	V	A	<ul style="list-style-type: none"> •White-headed woodpeckers are present on Ashland RA. They were not documented in bird surveys in Flat Creek or Summit Prairie Allotment or nearby. Grazing would not affect habitat. •No impacts from grazing.

<i>Bureau Assessment</i>					
Foothill yellow-legged frog	BA	P	P	P	<ul style="list-style-type: none"> Primarily found in cold, clear streams. They may be closely associated with streamside vegetation. In isolated areas some vegetation along the edge of streams is removed by grazing and trampling. Impacts from grazing would be negligible.
Fringed myotis	BA	P	P	P	<ul style="list-style-type: none"> Fringed myotis were captured in a mist net in Summit Prairie allotment. No known impacts to bats from grazing.
Pallid bat	BA	P	P	S	<ul style="list-style-type: none"> Pallid bats are suspected to be present in the Summit Prairie allotment, but have not been found there in limited mist-net surveys. No known impacts to bats from grazing.
Tri-colored blackbird	BA	P	A	A	<ul style="list-style-type: none"> N/A. Present at Denman and Sam's valley on private lands in the lower elevations along the river. Area is outside the range.
White-tailed kite	BA	P	P	A	<ul style="list-style-type: none"> N/A. White-tailed kites are present in the low elevation farm lands in the Rogue Valley. They are not present in the Flat Creek and Summit Prairie allotments. Area is outside range.

Status:

FT - USFW Threatened - likely to become endangered species within the foreseeable future

FC - USFW Candidate - proposed and being reviewed for listing as threatened or endangered

ST - State Threatened - listed as likely to become endangered by the state of Oregon

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.

BA - Bureau Assessment Species (BLM) - not presently eligible for official federal or state status, but of concern which may at a minimum need protection or mitigation in BLM activities.

BT - Bureau tracking (BLM) - not considered special status species for management purposes. Tracking will enable early warning for species which may become of concern in the future.

P/A

P – Present

A – Absent

S – Suspected

U – Unknown

V – Vagrant

M -- Migrant

APPENDIX C - SPECIAL STATUS FISH SPECIES

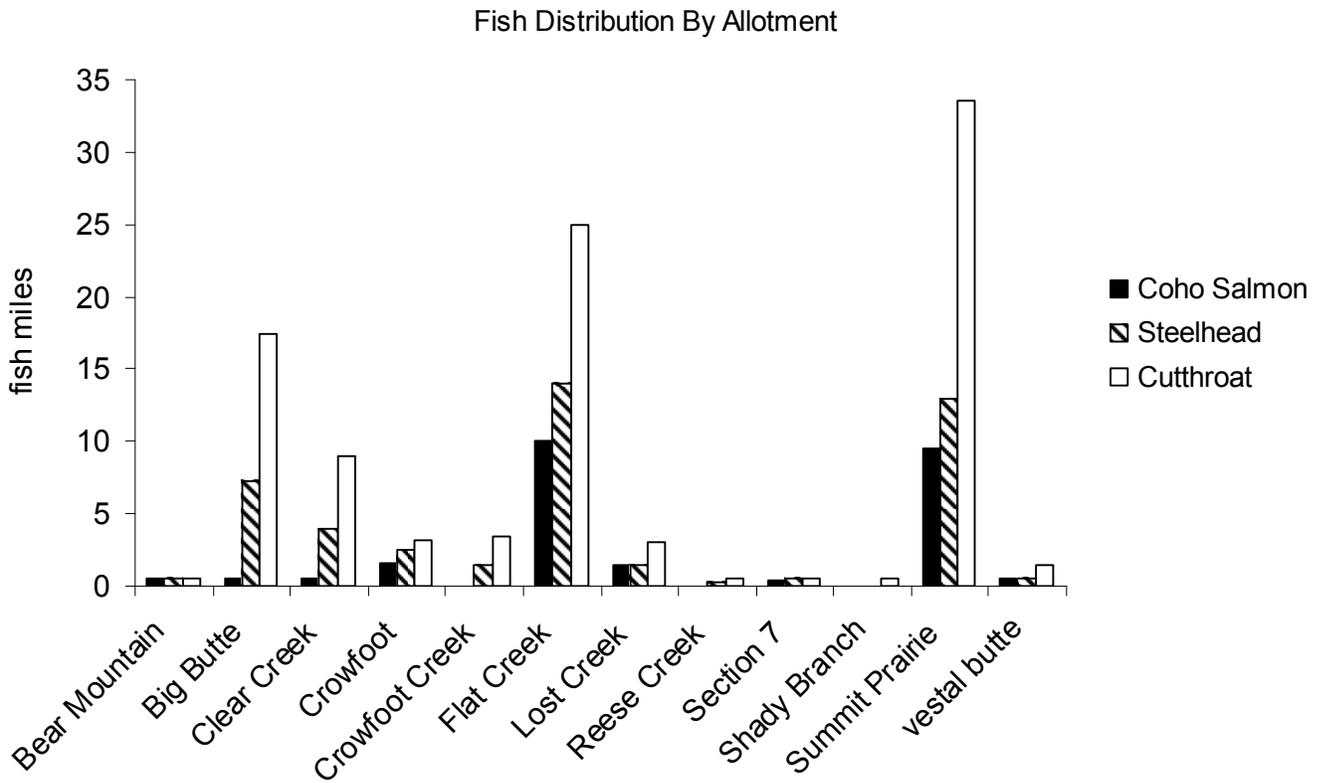


Figure 1. Miles of streams used by coho salmon, steelhead, and cutthroat trout in the different allotments.

Coho Salmon Over Gold Rey Dam

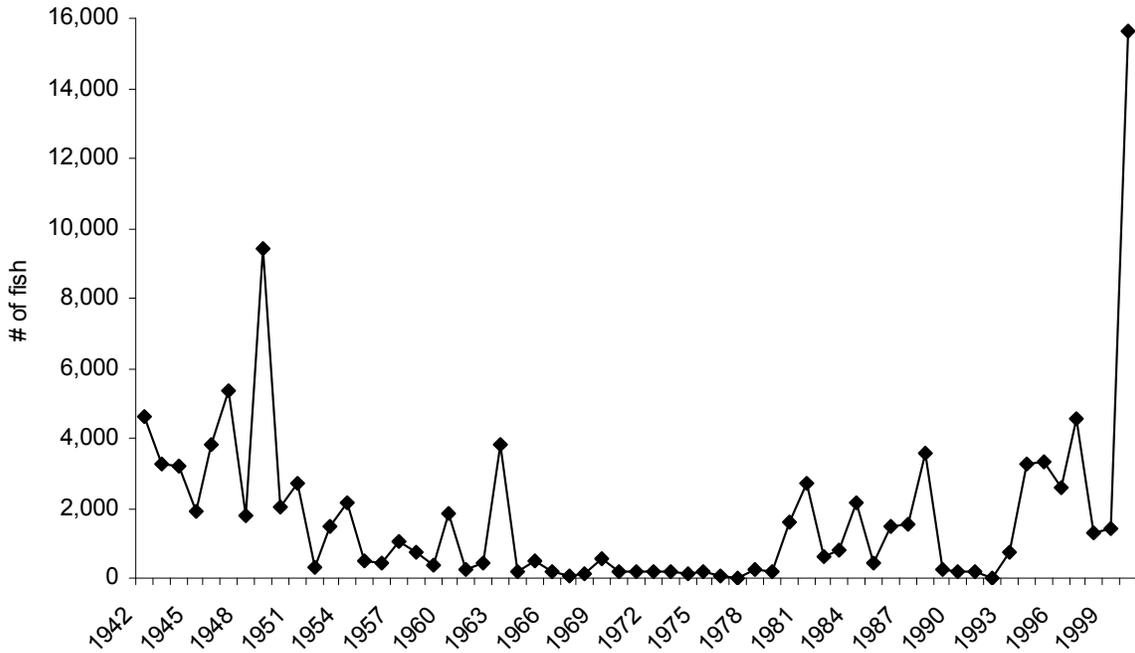


Figure 2. Upper Rogue River Basin adult coho salmon population since 1942.

Coho Salmon Smolts

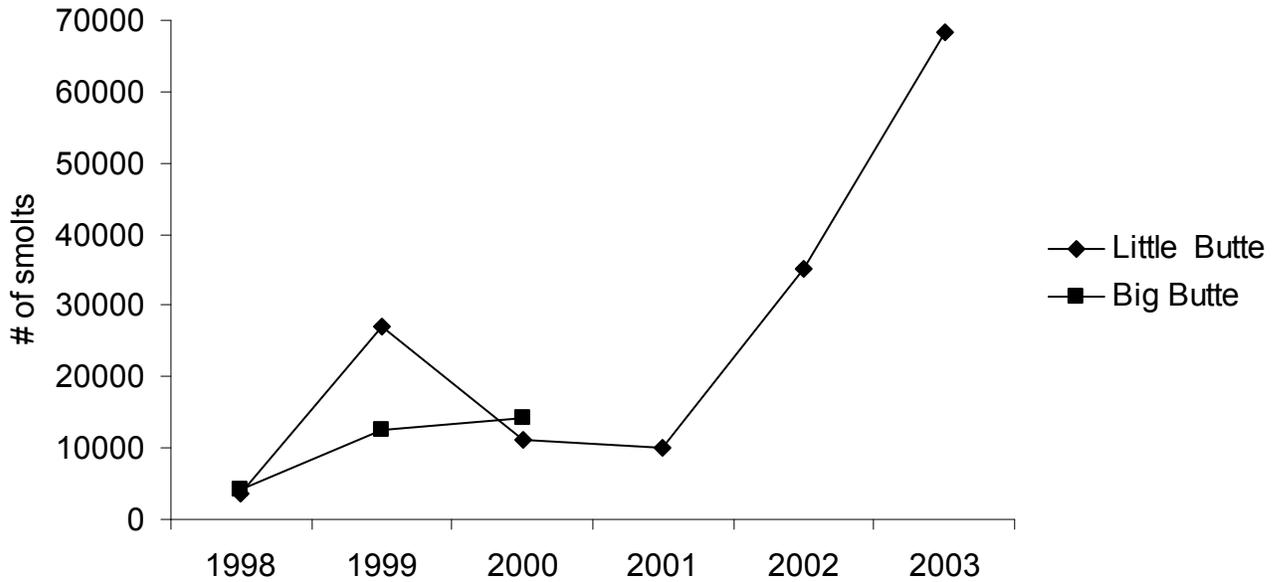


Figure 5. Recent estimated coho salmon smolt populations for the Little Butte Basin and Big Butte Basin.

Table 1. Fish habitat conditions throughout the proposed project area as interpreted from ODFW

Aquatic Habitat Inventories.

<u>Allotment</u>	<u>Stream</u>	<u>Pool Amount/ Quality</u>	<u>Gravel Amount/ Quality</u>	<u>Riparian Veg. Condition</u>	<u>Lg. Wood Mat'l Levels</u>	<u>Habitat Score</u>	<u>Surveys completed</u>
<u>Summit Prairie</u>	Clark Cr.	2	3	2	1	8	1999
	Beaver Dam Cr.	3	3	1	1	8	1997
	Box Cr.	3	3	3	2	11	1997
	Lost Cr. (south)	2	3	2	3	10	1997
	Dog Cr.	3	3	2	1	9	1996
	Jackass Cr.	2	2	1	1	8	1994
	McNeil Cr.	3	2	2	1	6	1995
	NF Big Butte Cr.	2	2	1	1	11	1996
	Parsnip Cr.	3	3	2	3	11	1997
	Round Mt. Cr.	3	3	2	3	9	1997
	Round Mt. Cr. 2	3	3	2	1	6	2002
	SF Big Butte Cr.	2	2	2	1	7	1997
	SF Clark Cr.	2	2	2	1	7	1999
	SF Vinemaple Cr.	3	3	2	3	11	1997
	Vinemaple Cr.	3	3	2	3	11	1997
<u>Flat Creek</u>							
					Avg	8.87	
Habitat Scores: 3 = Good, 2 = Fair, 1 = Poor, Condition Rating: good = 9 - 14, fair = 5 - 8, poor = 1 - 4							

Habitat conditions as interpreted from ODFW Aquatic Habitat Surveys and benchmarks (ODFW Aquatic Habitat Inventory 1991, 1992, 1994, 1995, 1996, 1997, 1999, 2000, 2002).

Stream Functioning Condition

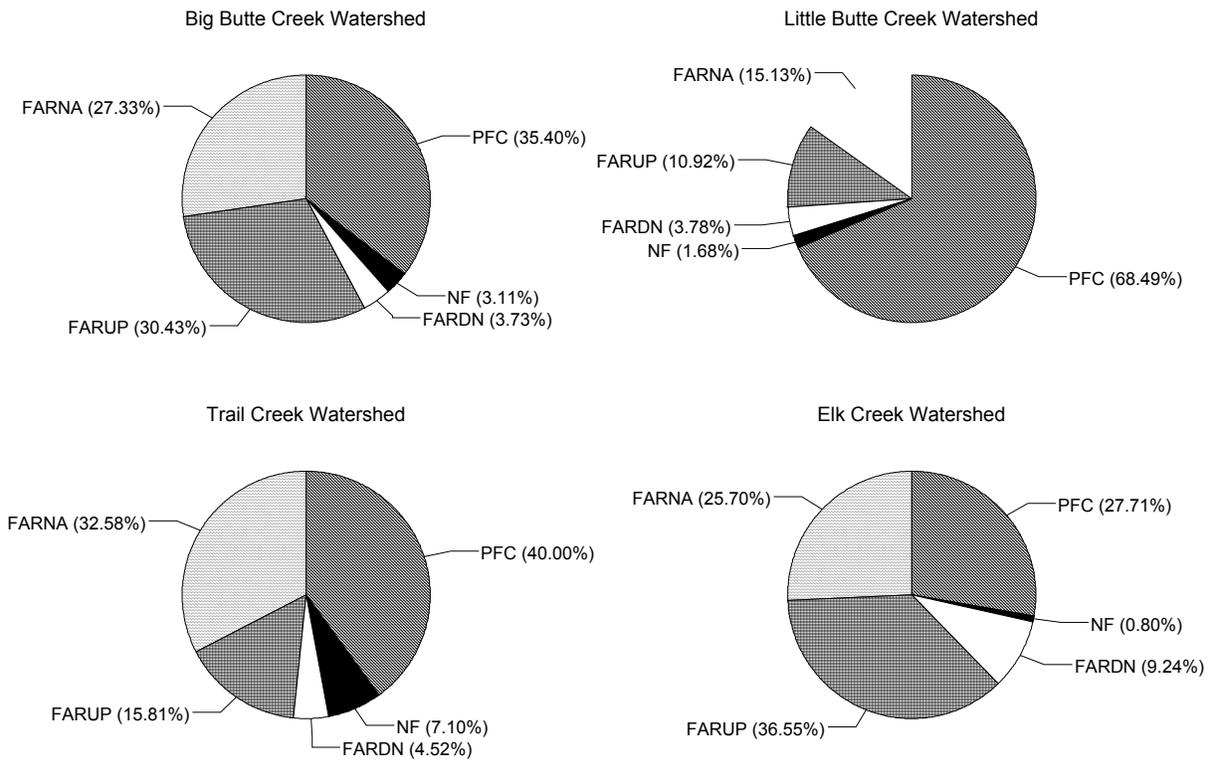


Figure 6. Stream functioning condition in the Big Butte Creek, Elk Creek, Little Butte Creek, and Trail Creek Watersheds, at the 5th field scale. Functioning condition information in the Little Butte Creek Watershed includes only the Butte Falls Resource Area portion, which is on the north side of Little Butte Creek. Information on the Elk Creek Watershed is incomplete because only a portion of the watershed riparian surveys have been completed. See table 2 for functioning condition definitions.

PFC – Proper Functioning Condition
 FARUP – Functioning at Risk, upward trend
 FARDN – Functioning at Risk, downward trend
 FARNA – Functioning at Risk, trend not apparent
 NF – Not Functioning

Table 2. Functioning condition definitions (BLM & US Forest Service 1998).

Functioning Condition		Habitat Characteristics
Properly Functioning (PFC)		When adequate vegetation, land form, or large woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity.
Functioning At Risk (FAR)	Functioning At Risk, Upward Trend (FARUP)	Riparian-wetland areas that are in functional condition but an existing soil, water, or vegetation attribute makes them susceptible to degradation. Conditions are improving.
	Functioning At Risk, No Apparent Trend (FARNA)	Riparian-wetland areas that are in functional condition but an existing soil, water, or vegetation attribute makes them susceptible to degradation. Not apparent if conditions are improving or declining.
	Functioning At Risk, Downward Trend (FARDN)	Riparian-wetland areas that are in functional condition, but an existing soil, water, or vegetation attribute makes them susceptible to degradation. Conditions are declining.
Non Functioning		Riparian-wetland areas that clearly are not providing adequate vegetation, land form, or large woody debris to dissipate stream energy associated with high flows and thus are not reducing erosion, improving water quality, etc., as listed above. The absence of certain physical attributes, such as a floodplain where one should be, are indicators of nonfunctioning conditions.

Table 3. ACS consistency analysis.

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.

Watershed Scale (HUC5): Some adverse effects would occur throughout watersheds within the proposed grazing allotments that could affect aquatic systems that organisms are adapted to; however the effects would be unnoticeable at the 5th field watershed scale. Additionally, any effects would be indistinguishable from the adverse impacts from many other past and present-day activities, especially on private land.

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.

There are no physical or chemical barriers to aquatic organisms that are associated with livestock grazing.

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. Beaver Dam Creek is experiencing heavy impacts along much of the channel (<1/4 mile), and the physical integrity of the channel is on a downward trend in areas where livestock have access. These hot spots are due, in part, to the riparian exclosures, which have forced livestock to seek water in other areas. This ACS objective is not being met along Beaver Dam Creek at the site scale. All other areas of grazing along the streams are a small percentage of the area overall (<15%) and the aquatic system is maintaining 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 have several hot spots with heavy grazing along streams and adjacent floodplains, with Beaver Dam Creek experiencing the heaviest impacts. These 7th field watersheds are experiencing moderate to heavy grazing during summer and early fall. Even with these impacts, at this scale aquatic habitat conditions are maintaining or improving across the proposed project areas.

Watershed Scale (HUC-5): The overall adverse effects of the proposed allotment permit renewals at the individual site or project scale would be minimal at the large spatial of the Big Butte Creek, Little Butte Creek, and Lost Creek, 5th 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: There is a small amount of fine sediment entering stream channels where livestock cross streams; 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; however it is outside the range of SO/NC Coho Salmon Critical Habitat. In grazing hot spots, over hanging vegetation is reduced, resulting in less shade being provided, which may adversely affect water temperature. Prior to entering BLM lands, Beaver Dam Creek crosses over a mile of open, private cattle pasture with no shade whatsoever, and this probably has more of an impact to water temperature than on-site shading.

Project Scale (HUC 6/7): There may be some cumulative effect on water temperature and turbidity; however it would be hard to detect or measure. The majority of shade would be maintained along all stream channels and sediment levels are within the range of normal levels. The likelihood of fine sediments produced from the upland grazing is very low because riparian vegetation and channel structure will prevent excessive sediment movement. There could be a minimal effect on water temperature, because shade producing vegetation would be removed along many streams within the proposed grazing allotments.

Watershed Scale (HUC-5): The adverse effects of the proposed 10-year permit renewals at the individual site or project scale would be unnoticeable at the large spatial of the Big Butte Creek, Little Butte Creek, and Lost Creek 5th field watersheds. The effects on water quality from grazing would be indistinguishable from effects of all the other activities which have occurred in these watersheds.

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): The proposed grazing permit renewals could impact peak

flows due to soil compaction from 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 amount of soil compacted is not enough to noticeably effect peak flows. Other activities such as timber harvest and road construction would have a much higher influence on peak flows.

Watershed Scale (HUC-5): Any effects on stream flow from this activity 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 main stem 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: There may be some slight decreases in water table elevation in meadows and wet areas adjacent to streams due to trampling and grazing of livestock; however this has not been measured yet.

Project Scale (HUC 6/7)/Watershed Scale (HUC 5): Any possible effects at individual sites are too insignificant to be noticeable at these larger spatial scales. In addition, the adverse impacts from over a century of timber harvest and road network development along the Big Butte Creek, and Little Butte Creek floodplains. The effects from grazing would be indistinguishable from effects of all the other activities which 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, or hot spots, to riparian plants. Areas along Beaver Dam Creek, Jackass Creek, North Fork Big Butte Creek, and Parsnip Creek have several areas of over-use by grazing. In these areas, livestock are grazing on grass, and forbs. Later in the season, when grasses and forbs dry up, they graze on shrub and hardwood species. Although these streams are temperature limited, impacts by livestock (on Beaver Dam Creek) may only be slight due to it being such a short section of stream, and the fact that immediately upstream, the creek crosses through more than a mile of open, cattle pasture with no shade whatsoever.

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 are moderate, and water temperatures are slightly higher than they should be (See Hydrology write-up for temperature limited streams). Factors that influence water temperature in small streams

are shade from streamside vegetation, cool water from sub-surface aquifers, and conditions in stream-side 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. Livestock spend a significant amount of time in riparian areas during late summer and early fall, grazing stream-side vegetation. It is presumable that they are slowing the rate of recovery in certain Riparian Reserves. Although current grazing practices in the Summit Prairie Allotment pastures along Beaver Dam Creek and the upper portion of North Fork Big Butte Creek could improve, they are not the reason this ACS objective is not being met. Beaver Dam Creek flowing through more than a mile of open, privately-owned pasture immediately upstream is the primary reason temperature parameters are not being met.

Watershed Scale (HUC 5): At this scale, the effects are considerably less in the Summit Prairie allotment. Overall, riparian plant communities are maintaining or improving across the landscape. In addition, the effects from grazing would be indistinguishable from effects of all the other activities which 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 slow the rate of recovery of riparian vegetation that provides some of these features, but not to the point where objectives would not be met.

Project Scale (HUC 6/7): At this scale, Riparian Reserves would maintain or improve habitat for riparian dependant species at the project scale.

Watershed Scale (HUC 5): Any possible 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 all the other activities which have occurred in these watersheds.

ACS Summary: Under the proposed grazing permit renewal alternative, two pastures in the Summit Prairie allotment would not meet objective #8. One is due to impacts to riparian vegetation, the other is due to impacts on adjacent private lands, outside BLM influence. These allotments meet all the other objectives.

Table 4. Summary of direct effects from livestock grazing on aquatic resources.

Allotments	Other Fish Species	Non-Fish Organisms	Stream	Coho	Critical Habitat
Flat Creek	Low	Low	Low	Low	Low
Summit Prairie	Low	Low	Low	Low	Low

Table 5. Summary of Cumulative Effects within project area.

Activity	Common type of habitat alteration or affects on aquatic species	Degree of impact in analysis area	Positive or Negative Effect
Grazing	Bank alteration, riparian vegetation removal, sediment introduction, fish habitat modification	None to high	Negative
Fire Suppression	Fire fighting that interrupts the natural ecological processes affected by wildland fire.	None to high	Positive/Negative
Prescribed Fire	Controlled burns designed to re-introduce natural fire processes into the environment	None to low	Positive
Water Diversion	Diversion of water from streams, lakes, ponds, and springs to irrigate crops and/or livestock	Low to high	Negative
System Roads	Sediment introduction, barriers to fish movement	None to high	Negative
Road Maintenance	Introduction of fine sediments where roads cross or parallel streams	None to high	Positive
Jeep Roads	Sediment introduction	None to moderate	Negative
Timber Harvesting	Increased run-off, sediment from access roads, removal of riparian trees (old practice), and forest thinning	Low to High	Positive/Negative
Recreation (non-fishing)	Introduction of sediment and non-biodegradable products into the water	Low	Negative
Aquatic Habitat Restoration	Increased coarse wood and boulders, riparian tree planting, culvert replacement, riparian road decommissioning	Low	Positive
Dams	Block fish passage	Low to high	Negative
Fish Hatcheries	Supplement wild stocks, domesticate wild stocks	Low to high	Positive/Negative
Non-native Fish	Competition for food and space, hybridization and predation by the non-native trout	High	Negative
Beaver Activity	Increase in pools and stream channel complexity, resulting in a higher number of fish. Dam causes water temperature to increase.	Low to high	Positive/Negative

Table 6. Effects Determination for SO/NC Coho Salmon, CH, and EFH for “May Affect, Not Likely to Adversely Affect” (NLAA = “Not Likely to Adversely Affect”).

ALLOTMENT NAME	Effects To Coho	miles from coho	Potential Impacts	Reason for Effects Determination
Flat Creek Summit Prairie	LAA	0	<p>Mortality: coho eggs and alevins being trampled in redds.</p> <p>Behavior Altered: juveniles being spooked by wading livestock, juveniles have to move to find better hiding cover because livestock remove veg., juveniles move to find area with more overhanging veg. that supports prey sources.</p> <p>CH & EFH Adversely Affected: decreasing water quality, reductions in riparian vegetation, stream banks trampled, increased fine sediment.</p>	<p>May Affect: expect some change in sediment levels, trampled stream banks, and reductions in riparian vegetation. Coho salmon present in streams that livestock could access. Potential for trampling of redds.</p> <p>LAA: negative effects to sediment levels would be negligible. Reductions in vegetation that provides cover and prey source habitat is low to moderate. Probability of livestock effecting juvenile coho salmon behavior when wading streams would be expected as would the reductions in cover vegetation and prey source habitat. Probability of redds being trampled is low. Biological effects on coho salmon are expected, however they are expected to be low.</p>

REFERENCES

- Belsky, J., and A. Matzke, and S. Uselman, "Survey of livestock Influences on Stream and Riparian Ecosystems in the Western United States", *Oregon Natural Desert Association. Journal of Soil and Water Conservation*, ,Vol.54, 1999, pp. 419-431.
- Blackburn, W.H., *Developing Strategies for Range Management.*, Westview Press Boulder, Colorado, 1984, "Impact of Grazing Intensity and Specialized Grazing Systems on Watershed Characteristics and Responses", p. 927-983
- Buckhouse, J. C., "Domestic Grazing. Drinking Water from Forests and Grasslands, A Synthesis of the Scientific Literature", *General Technical Report SRS-39*, Forest Service, United States Department of Agriculture, Southern Research Station, 2000
- Buckhouse, J. C., and G.F. Gifford, "Water Quality Implications of Cattle Grazing on a Semiarid Watershed in Southeastern Utah", *Journal of Range Management*, Vol. 29, No. 2, 1976, p.109-113.
- Burke, Thomas E., John S. Applegarth, Ted R. Weasma. 1999. *Management Recommendations for Survey and Manage Terrestrial Mollusks. USDI BLM and USDA USFS.*
- Center for Plant Conservation. March 12, 2003. CPC National Collection Plant Profile, *Iliamna corei*. 5 pp. http://ridgwaydb.mobot.org/cpcweb/CPC_ViewProfile.asp?CPCNum=2309.
- Crane, D.D., J.C. Mosley, T.D. Brewer, W. L. F. Torstenson, and M.W. Tess. "Influence of Cattle Grazing on Elk Habitat Selection", *Western Section American Society of Animal Science*, Vol. 52, 2001
- Everest, F.H., R.L. Beschta, J.C. Schrivener, K.V. Koski, J.R. Sedell, and C.J. Cederholm, "Fine Sediment and Salmonid Production: A paradox", in E.O. Salo, T.W. Cundy, (ed.), *Streamside Management. Forestry and Fishery Interactions*, University of Washington, Institute of Forest Resources, Contribution No. 57, 1987, p. 98-142.
- Hubert, W. A., et al. 1992. Chapter 1, Section III in Determining Methods to Evaluate Relations Between Livestock and Wildlife Grazing and Water Quality. Final Report, WWRC-92-02. U.S. For. Submitted to Wyoming Department of Environmental Quality Cheyenne, Wyoming.
- Kauffman, J.B., W.C. Krueger, and M. Vavra, "Impacts of Cattle on Streambanks in Northeastern Oregon" *Journal of Range Management*, 1983, Vol.36, p.683-685.
- Kauffman, J.B. and W.C. Krueger, "Livestock Impacts on Riparian Ecosystems and Streamside Management Implications - a Review", *Journal of Range Management*, 1984, Vol.37(5), p. 430-438.
- Kaye, TN. January 24, 2000. *Population Dynamics of tall bugbane and effects of forest management*. Cooperative Challenge Cost Share Project with Eugene, Roseburg, and

- Salem Districts; Willamette and Rogue River National Forests; and Oregon Department of Agriculture/Plant Conservation Biology Program. 29 pp.
- Knapp, R.A. and K.R. Mathews, "Livestock Grazing, Golden Trout, and Streams in the Golden Trout Wilderness, California: Impacts and Management Implications", *North American Journal of Fisheries Management*, 1996, Vol.16, p. 805-820.
- Knight, L. and J. Seevers. March 1992. *Special Status Plants of the Medford District BLM*. BLM-Medford District, 3040 Biddle Rd., Medford OR 97504.
- "Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats" in Meehan, W.R., (ed.) *American Fisheries Society*, special Publication 19, 1991, p. 389-424.
- Nehlsen, W., J.E. Williams, and J. A. Lichatowich, *Pacific Salmon at the Crossroads: Stocks a Risk from California, Oregon, Idaho, and Washington Fisheries*, Vol.16(2), 1991, p. 4-21.
- National Oceanographic and Atmospheric Administration Fisheries Division. 2003. NW Regional Website. Definitions of Endangered Species Act. Web address at http://www.nmfs.noaa.gov/prod_res/laws/ESA/esatext/ESASEC3.PDF.
- Oregon Department of Environmental Quality
<http://www.deq.state.or.us/wq/303dlist/303dpge.htm>
- Oregon Fish and Wildlife Office. Vernal Pool Fairy Shrimp *Branchinecta lynchi*. Endangered Species Fact Sheet. <http://oregonfwo.fws.gov/EndSpp/FactSheets/Inverts/FairyShrimp.dwt>
- Parsons, C.T., P.A. Momont, T. DelCurto, M. McInnis, M.L. Porath, "Cattle Distribution Patterns and Vegetation Use in Mountain Riparian Areas", *Journal of Range Management*. Vol.56, 2003, p.334 - 341.
- Platts, W.S., "Effects of Sheep Grazing on a Riparian-Stream Environment", U.S. Forest Service Research Note, 1981a. INT-307.
- Prichard, Don et. al., "Riparian Area Management. A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas" U.S. Department of the Interior, Bureau of Land Management, 1998, TR 1737-15.
- Roberts, B.C., and R.G. White, "Effects of Angler Wading on Survival of Trout Eggs and Pre-emergent Fry", *North American Journal of Fisheries Management*, 1992, Vol.12, p. 450-459.
- Trimble, S.W., and A.C. Mendel, "The Cow as a Geomorphic Agent—a Critical Review", *Geomorphology*. 1995, Vol.13 p. 233-253.
- USDA, Forest Service, and USDI, Bureau of Land Management. January 2004a. *Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and*

Manage Mitigation Measure Standards and Guidelines. Volume I—Summary, Chapters 1-4.

USDA, Forest Service and USDI Bureau of Land Management. 2004. *Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines*.

USDA, Forest Service, and USDI, Bureau of Land Management. January 2004b. *Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines*. Volume II --Appendices.

USDI, Bureau of Land Management, Medford District Office, 1999, *Elk Creek Watershed Analysis, Butte Falls Resource Area*.

USDI, Bureau of Land Management, Medford District Office, 1997, *Little Butte Creek Watershed Analysis, Ashland Resource Area*, Version 1.2.

USDI, Bureau of Land Management, Medford District Office, 1998, *Lost Creek Watershed Analysis, Butte Falls Resource Area*.

USDI, Bureau of Land Management, Medford District Office, 1998, *Lower Big Butte Butte Creek Watershed Analysis, Butte Falls Resource Area*.

USDI, Bureau of Land Management, Medford District Office, 1984, “Medford Grazing Management Program”, *Final Environmental Impact Statement*.

USDI, Bureau of Land Management, Medford District Office, 1999, *Trail Creek Watershed Analysis, Butte Falls Resource Area*.

USDI, U.S. Fish & Wildlife Service. April 8, 2004. *Endangered and Threatened Wildlife and Plants; 12-month Finding for a Petition To List the West Coast Distinct Population Segment of the Fisher (Martes pennant); Proposed Rule*. 50 CFR Part 17 18770-18792.

USDI, U.S. Fish & Wildlife Service, 2003, “Recovery Plan for *Fritillaria gentneri* (Gentner’s fritillary)”, Region 1, Portland, OR., viii + 89 pp.

USDI, US Fish and Wildlife Service. 2003 Biological Assessment 11 July 2008, Biological Opinion 1-14-03-F-511, FY 04-08 for Activities that may affect listed species in the Rogue River/South Coast Province for Medford District Bureau of Land Management, Rogue River and Siskiyou National Forest. 20 October 2003.

Weitkamp, L. A., T. C. Wainwright, G. J. Bryant, G. B. Milner, D. J. Teel, R. G. Kope, and R. S. Waples, “Status Review of Coho Salmon from Washington, Oregon, and California”, *NOAA Technical Memorandum*, NMFS-NWFSC-24. 1995.

GLOSSARY

ACS – Aquatic Conservation Strategy

AUM – Animal Unit Month

CH – Critical Habitat

DNA – Determination of NEPA Adequacy

EA – Environmental Assessment

EUTROPHICATION – Having waters rich in mineral and organic nutrients that promote a proliferation of plant life, especially algae, which reduces the dissolved oxygen content, and often causes the extinction of other organisms.

FARD – Functioning at Risk with a Downward Trend

FARN – Functioning at Risk – trend not apparent

FARU – Functioning at Risk with an Upward Trend

NF – Non-functional

PFC – Proper Functioning Condition

SO/NC coho – Southern Oregon / Northern California coho

T&E – Threatened and Endangered

TC – Term and Condition

TMDL – Total Maximum Daily Load

U – Unknown

WAU – Watershed Analysis Unit



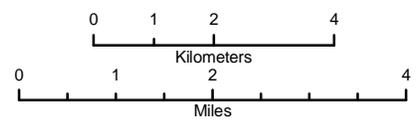
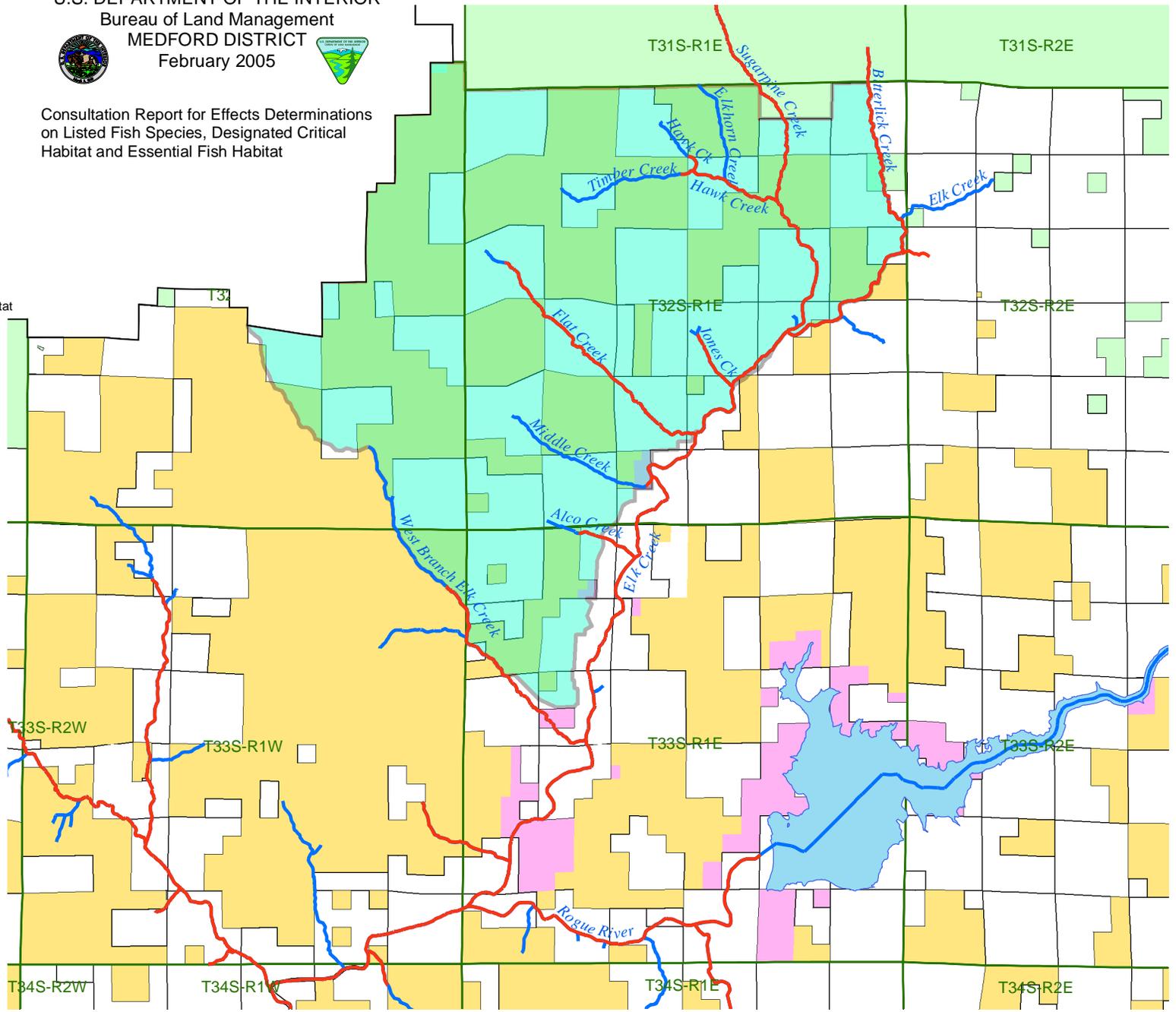
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 February 2005

Consultation Report for Effects Determinations
 on Listed Fish Species, Designated Critical
 Habitat and Essential Fish Habitat



Legend

- Occupied Critical Concern Habitat
- Unoccupied Critical Concern Habitat
- Land Jurisdiction
- BLM Administered Land
- Army Corps of Engineers
- Forest Service
- Private
- Grazing Season
- Spring, Summer, Fall



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Map 2: Flat Creek Allotment

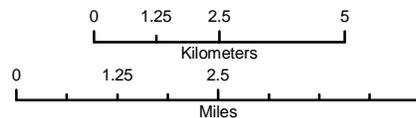
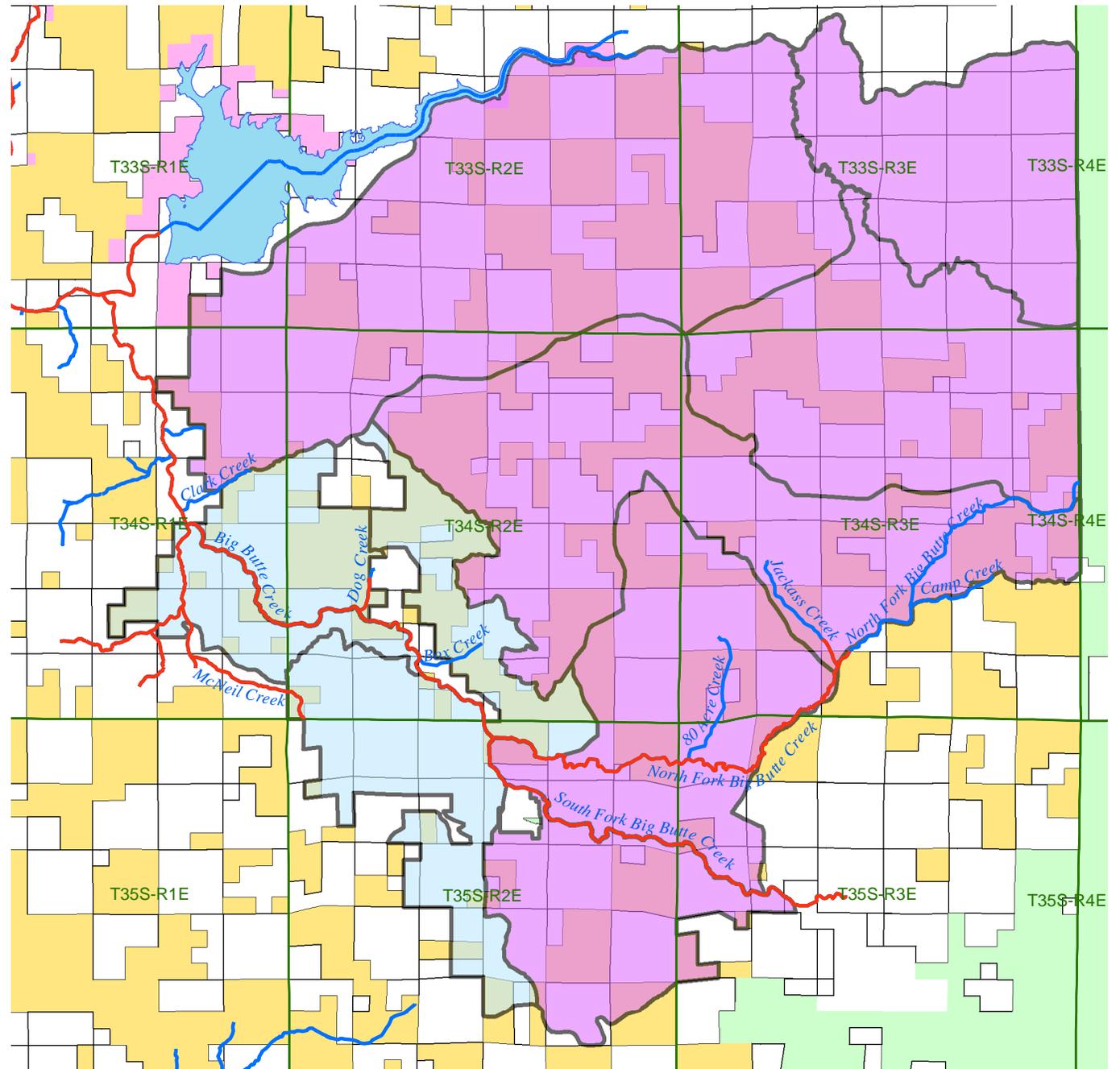


Legend

- Occupied Critical Concern Habitat
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Map 1: Summit Prairie Allotment