Environmental Assessment for Multiple Grazing Permit and Lease Renewals
DOI-BLM-OR-P000-2013-0006-EA

U.S. Department of the Interior
Bureau of Land Management, Prineville District
3050 NE Third Street, Prineville OR 97754

This Environmental Assessment (EA) considers the environmental consequences of different actions (described in detail in Chapter 2) to determine whether the actions would significantly affect the quality of the human environment. Potentially significant effects would preclude the Bureau of Land Management (BLM) from issuing a Finding of No Significant Impact (FONSI) and would require the BLM to prepare an environmental impact statement. "Significance" is defined by 40 CFR 1508.27 as used in the National Environmental Policy Act, 42 U.S.C. §§ 4321 et seq, (NEPA). If a FONSI can be signed after this EA, it will be followed by a decision record (with a public appeal period) and implementation of the project. While the BLM has identified groups of actions in separate alternatives in the EA, the final decision on this project may include parts of different alternatives.

The BLM will accept written comments postmarked or received at the BLM office by March 30th, 2015. Deliver comments by hand, postal service, Email or FAX to Chip Faver, Field Manager, Prineville District BLM, 3050 NE Third Street, Prineville, Oregon, 97754, FAX 541-416-6798, email BLM_OR_PR_Mail@blm.gov, attention "Grazing Permit Renewal EA." Direct questions to the project lead, Matt Shaffer 541-416-6743.

To be most helpful, comments should be as specific as possible. A substantive comment provides new information about the actions or the analysis; identifies a different way to meet the purpose and need; points out a specific flaw in the analysis; suggests alternate methodologies and the reason(s) why they should be used; makes factual corrections; or identifies a different source of credible research which, if used in the analysis, could result in different effects.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

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Chapter 1 Introduction

Proposed action

The proposed actions include a mix of proposals for 29 grazing allotments (Map 1) and 29 permits or leases for those allotments that include:

- Fully processing grazing permits renewed under Section 411 of Public Law 113-76 and

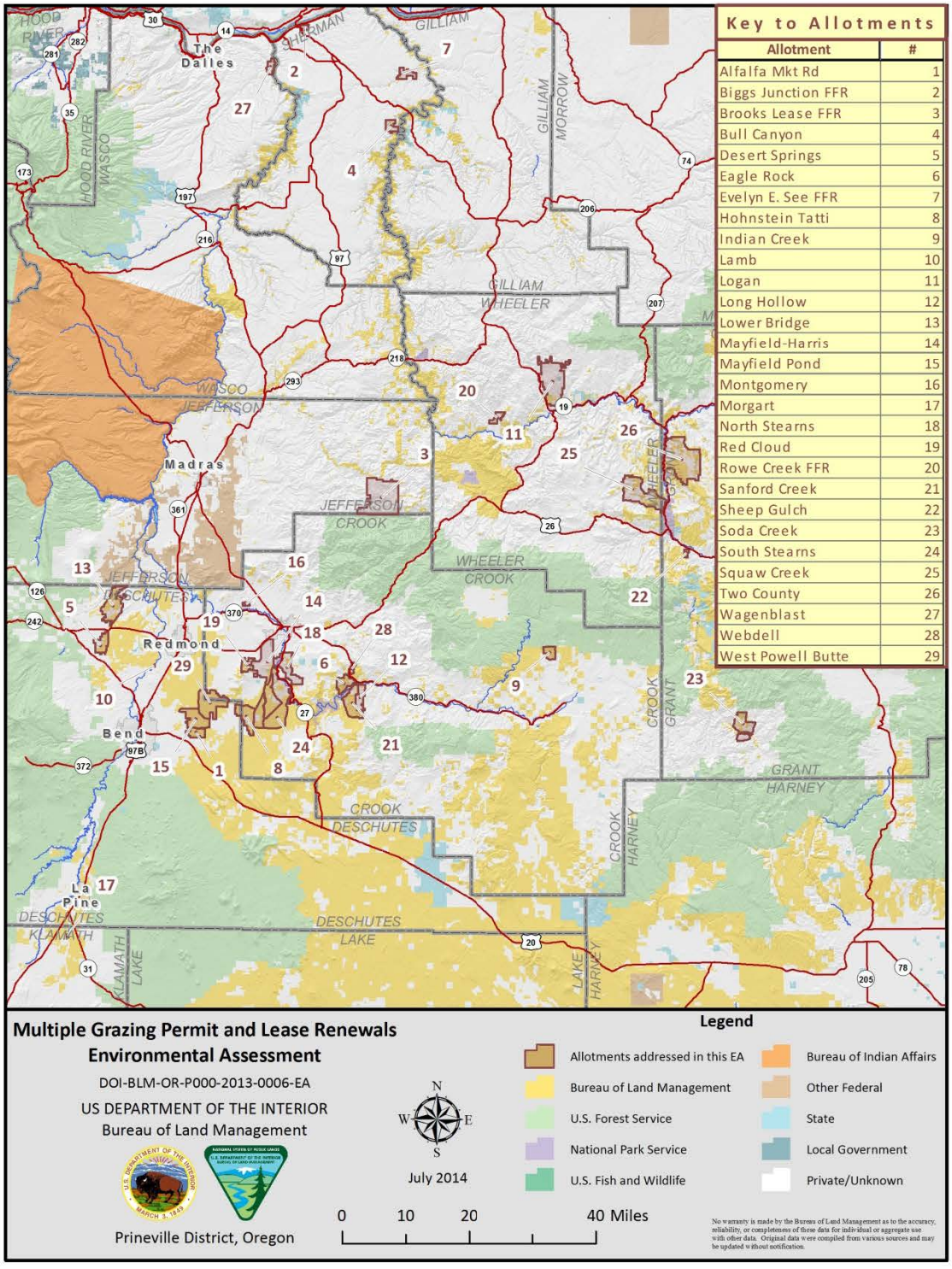
- Installing new range developments and maintaining some existing range developments.

Need

The needs for these actions are established by the Taylor Grazing Act (TGA), the Federal Land Policy and Management Act (FLPMA), the Brothers/La Pine Resource Management Plan (RMP) (1989), the Upper Deschutes RMP (2005), the John Day RMP (1985), and the Two Rivers RMP (1986), which require that the BLM prioritize the full processing of grazing permits and leases renewed under PL 113-76, construction of range developments, and maintenance of range developments because:

- The permits and leases were renewed for a period of ten years under Section 411 of Public Law 113-76 and have been prioritized for full processing and
- BLM Washington and Oregon adopted the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington (S&Gs) (USDI, BLM. 1997). The rangelands are in, or are making significant progress toward meeting the standards and must provide for proper nutrient cycling, hydrologic cycling, and energy flow. Guidelines direct the selection of grazing management practices and, where appropriate, livestock facilities, to promote significant progress toward, or the attainment and maintenance of, the standards.

Map 1. Location of allotments with permits or leases being considered for re-issuance.



Purpose

The **purposes** of the actions are:

- To fulfill BLM's requirement to prioritize full processing of grazing permits renewed under Section 411 of Public Law 113-76. When issued, grazing permits must also address appropriate terms and conditions designed to "achieve management and resource condition objectives for the public lands… and to ensure conformance with part 4180" (43 CFR Part 4130.3).

- To provide for livestock grazing in a manner that is consistent with each allotment's applicable RMP objectives (Table 1 - The allotments and the RMPs they fall under).

- To improve the conditions of allotments failing S&Gs due to livestock grazing and to maintain or improve conditions of allotments not failing S&Gs due to livestock grazing through allotment and pasture boundary relocations, changing seasons of use, implementing range development projects, and/or maintaining existing range developments.

Table 1 - The allotments and the RMPs they fall under.

Allotments	**RMPs**
Alfalfa Market Road	Upper Deschutes
Biggs Junction	Two Rivers
Brooks Lease	Two Rivers
Bull Canyon	Two Rivers
Desert Springs	Upper Deschutes
Eagle Rock	Upper Deschutes
Evelyn E. See	Two Rivers
Hohnstein Tatti	Upper Deschutes
Indian Creek	Brothers/La Pine
Lamb	Upper Deschutes
Logan	Two Rivers
Long Hollow	Upper Deschutes
Lower Bridge	Upper Deschutes
Mayfield Pond	Upper Deschutes
Mayfield Harris	Upper Deschutes
Montgomery	Upper Deschutes
Morgart	Upper Deschutes
North Stearns	Upper Deschutes
Red Cloud	Upper Deschutes
Rowe Creek	Two Rivers
Sanford Creek	Upper Deschutes
Sheep Gulch	John Day
Soda Creek	John Day
South Stearns	Upper Deschutes
Squaw Creek	Two Rivers
Two County	John Day
Wagenblast	Two Rivers

Webdell	Upper Deschutes
West Powell Butte	Upper Deschutes

The objectives for each of the allotments, and the permits and leases associated with the allotments being considered in this EA are:

Brothers/La Pine RMP ROD 1989

- "Grazing management in the Brothers portion will continue so as to maintain or improve ecological status on all grazing allotments ..." (pg. 75)

- "… non-game species habitat management will be accomplished by maintenance or enhancement of vegetative structure and diversity." (pg. 97)

- "Management actions within riparian areas will include measures to protect or restore natural functions…" (pg. 98)

- "Whenever possible livestock grazing management will be used instead of projects to improve fish habitat conditions." (pg. 98)

Upper Deschutes RMP ROD 2005

- "Maintain and restore healthy, diverse and productive native plant communities appropriate to local site conditions." (pg. 27)

- "Maintain or improve current good to excellent stream bank stability and riparian vegetative condition." (pg. 34)

- "Where the capability exists, restore, maintain and improve upland and hydrologic function through the reduction of overland flow, increased infiltration, and improved floodplain function similar to historic levels." (pg. 40)

- "Maintain or improve habitats to support healthy, productive and diverse populations and communities of native plants and animals (including species of local importance) appropriate to soil, climate and landform." (pg. 51)

- "Promote healthy sustainable rangelands ..." (Upper Deschutes RMP ROD pg. 76)

Two Rivers RMP ROD 1986

- "Livestock use … will be managed to be compatible with, or improve, wildlife habitat values." (Two Rivers RMP ROD pg. 11)

- "Management actions within riparian areas will include measures to protect or restore natural functions …" (Two Rivers RMP ROD pg. 17)

John Day RMP ROD 1985

- "Continue present management … to benefit livestock and wildlife by maintaining and improving ecological condition." (John Day RMP ROD pg. 15)

- "Implement grazing treatments and range improvements to resolve wildlife concerns." (John Day RMP ROD pg. 18)

Decision factors

After considering public input on this EA, the BLM will decide whether or not to install range developments, allow the maintenance of certain range developments, renew grazing permits and leases, and/or change grazing on the allotments associated with the permits or leases being considered for renewal in the EA. BLM's decision may be to pick one alternative in its entirety, combine aspects of several alternatives, select a level of an action in the alternatives (e.g. numbers of AUMs[1]), or select the "no action" alternative.

The BLM's decision will be based on how well the selected alternative addresses the purpose, need, and issues.

Issues for analysis

The BLM asked for input on issues to be considered for this project. The issues are listed below, and addressed in Chapter 3. In many cases, public input on issues led to the incorporation of project design features (PDFs) into the action alternatives.

The following issues were raised by the public, by federal, state or local government agencies, by tribes, or by BLM staff, and are considered in detail in this EA. Each issue has an abbreviated identifier before it that corresponds to those listed in Table 2 - The allotments the issues apply to. Due to the broad geographic scope of the different allotments and the different physiological characteristics of the allotments, not every issue applies to every allotment, although some issues do apply to all of the allotments.

Issues

- (V1) How would livestock grazing affect upland vegetation?
- (V2) How would livestock grazing affect *Thelypodium eucosmum* (arrowleaf thelypody), a BLM Sensitive plant species, in Logan allotment?
- (V3) How would livestock grazing affect populations of *Calochortus longebarbatus var. peckii* (Peck's longbeard mariposa lily), a BLM Sensitive plant species, in Indian Creek allotment?
- (S1) How would the reduction in permitted grazing use economically affect the grazing permittee and the local community?
- (H1) How would livestock grazing affect stream water quality?
- (H2) How would livestock grazing affect the ecological status and physical function of riparian-wetland areas?
- (F1) What would be the effects to fish habitat from livestock grazing?
- (W1) How would changing the season of livestock grazing affect forage available for native ungulates during the winter?
- (W2) How would changing the season of livestock grazing affect ground nesting neotropical migrant birds?
- (W3) How would changing the season of livestock grazing affect the Western bumblebee?

[1] An AUM is an animal unit month, the amount of forage one cow with calf eat in one month. A grazing permit/lease specifies active preference AUMs, which is the maximum amount available to the permittee each year.

- (W4) Would the season or intensity of livestock grazing use affect the quantity or quality of sage-grouse habitat or the likelihood of sage-grouse using those habitats?

Table 2 - The allotments the issues apply to.

Issues			Allotments																												
			ALFALFA MKT RD	BIGGS JUNCTION	BROOKS LEASE	BULL CANYON	DESERT SPRINGS	EAGLE ROCK	EVELYN E. SEE	HOHNSTEIN TATTI	INDIAN CREEK	LAMB	LOGAN	LONG HOLLOW	LOWER BRIDGE	MAYFIELD POND	MAYFIELD-HARRIS	MONTGOMERY	MORGART	NORTH STEARNS	RED CLOUD	ROWE CREEK	SANFORD CREEK	SHEEP GULCH	SODA CREEK	SOUTH STEARNS	SQUAW CREEK	TWO COUNTY	WAGENBLAST	WEBDELL	WEST POWELL BUTTE
	Vegetation	V1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		V2											X																		
		V3									X																				
	Socio Econ	S1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Hydrology	H1							X														X					X			
		H2				X		X	X	X	X		X	X					X				X	X			X	X		X	
	Fisheries	F1																					X								
	Wildlife	W1	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		W2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
		W3			X	X	X	X			X		X		X		X		X		X	X		X	X		X	X	X	X	
		W4									X																				

Issues considered but eliminated

While a number of other issues were raised during the scoping period, not all of them warranted detailed analysis to make a reasoned choice between alternatives or to determine the significance of impacts. Appendix A describes issues not analyzed in detail or considered further in this EA.

Chapter 2 Alternatives

This chapter describes a no action alternative that would continue existing management, and three action alternatives. All alternatives would meet, to varying degrees, the purpose and need described in Chapter 1. While the alternatives are separate for analysis purposes, the BLM's decision on this project may include parts of several of the alternatives. A number of actions would continue in the area regardless of the alternative selected, including grazing at current levels on allotments and pastures not being considered for renewal in this EA and already approved and on-going noxious and invasive weed treatments.

The alternatives are summarized in Table 3 - Summary of alternatives and displayed on the attached maps (Appendix D: Existing Condition Maps, Appendix E: Maps that are similar for Alternatives 3 and 4, Appendix F: Maps that are specific to Alternative 3, and Appendix G: Maps that are specific to Alternative 4). The specific dates associated with each allotment's grazing system are in each alternative's description in Chapter 2. New proposed fence, pipeline, and springs shown on the maps are approximate. Range developments would be installed in the general location, but may be moved slightly from locations shown on maps to minimize effects on wildlife, visual, cultural and other resources. BLM would adjust locations so the effects would not exceed those analyzed in this EA.

Table 3 - Summary of alternatives.

ACTION	**UNITS**		**Alt 1**	**Alt 2**	**Alt 3**	**Alt 4**
Fences	Perm. exclosures	Number of Exclosures built	0	0	1	6
		Acres not grazed	0	0	1	33
	Miles of fence removed		0	0	6	6
	Miles of fence maintained		0	0	13	13
	Miles of new permanent fence		0	0	16	18
Gates	Numbers of new gates		0	0	9	9
Cattle Guards	Numbers of new cattle guards		0	0	9	9
Springs	Numbers of new springs		0	0	1	1
	Number of springs maintained		0	0	5	5
Water Troughs	Number of new water troughs		0	0	1	1
Pipelines	Miles of new pipeline		0	0	3	3
Corrals	Numbers of corrals maintained		0	0	1	1
Off Highway Vehicle (OHV) Trails	Miles of trail decommissioned		0	0	1	1
Livestock grazing permits	Active AUMs	Alfalfa Market Road	138	0	138	Same as Alt. 3
		Biggs Junction	14	0	14	Same as Alt. 3
		Brooks Lease	2	0	2	Same as Alt. 3
		Bull Canyon	3	0	3	Same as Alt. 3

ACTION	UNITS		Alt 1	Alt 2	Alt 3	Alt 4
		Desert Springs	112	0	112	Same as Alt. 3
		Eagle Rock	162	0	162	Same as Alt. 3
		Evelyn E. See	3	0	3	Same as Alt. 3
		Hohnstein Tatti	262	0	231	Same as Alt. 3
		Indian Creek	81	0	81	Same as Alt. 3
		Lamb	6	0	6	Same as Alt. 3
		Logan	111	0	111	Same as Alt. 3
		Long Hollow	12	0	12	Same as Alt. 3
		Lower Bridge	120	0	120	Same as Alt. 3
		Mayfield Pond	305	0	305	Same as Alt. 3
		Mayfield Harris	68	0	23	Same as Alt. 3
		Montgomery	16	0	16	Same as Alt. 3
		Morgart	12	0	12	Same as Alt. 3
		North Stearns	403	0	403	Same as Alt. 3
		Red Cloud	33	0	33	Same as Alt. 3
		Rowe Creek	16	0	16	Same as Alt. 3
		Sanford Creek	375	0	375	Same as Alt. 3
		Sheep Gulch	30	0	32	Same as Alt. 3
		Soda Creek	405	0	405	Same as Alt. 3
		South Stearns	583	0	583	Same as Alt. 3
		Squaw Creek	301	0	301	Same as Alt. 3
		Two County	1,105	0	1,105	Same as Alt. 3
		Wagenblast	10	0	10	Same as

ACTION	UNITS		Alt 1	Alt 2	Alt 3	Alt 4
						Alt. 3
		Webdell	13	0	13	Same as Alt. 3
		West Powell Butte	388	0	388	Same as Alt. 3

Alternative 1, No action

In accordance with the BLM NEPA Handbook (H-1790-1), the No Action Alternative for externally generated proposals or applications is generally to reject the proposal or deny the application. The sole exception to this is for renewal or re-issuance of grazing permits or leases, for which the No Action alternative is to issue a new permit or lease with the same terms and conditions as the expiring permit or lease. The No Action Alternative, defined as the actions that have led to current conditions and which have occurred under authorization provided by the current grazing permit or lease, provides a useful baseline for comparison of environmental effects and, in instances where allotments are not meeting S&Gs, demonstrates the consequences of not meeting the need for the action. For this analysis, the existing permitted grazing schedules (Table 4 - Grazing schedule proposed in the No Action Alternative) define the No Action alternative.

The terms and conditions currently associated with the allotments are found in Appendix B.

Permittees and lessees would continue to be responsible for maintaining fences for which they have maintenance responsibilities.

Table 4 - Grazing schedule proposed in the No Action Alternative.

Allotments	Pastures	Acres[2]	AUMs	Current Grazing Dates									
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
ALFALFA MKT RD	N/A	2406	138	5/15 - 10/1	5/15 - 10/1	5/15 - 10/1	5/15 - 10/1	5/15 - 10/1	5/15 - 10/1	5/15 - 10/1	5/15 - 10/1	5/15 - 10/1	5/15 - 10/1
BIGGS JUNCTION	N/A	114	14	4/1 - 7/15	4/1 - 7/15	4/1 - 7/15	4/1 - 7/15	4/1 - 7/15	4/1 - 7/15	4/1 - 7/15	4/1 - 7/15	4/1 - 7/15	4/1 - 7/15
BROOKS LEASE	N/A	37	2	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31
BULL CANYON	N/A	278	3	5/20 - 8/19	5/20 - 8/19	5/20 - 8/19	5/20 - 8/19	5/20 - 8/19	5/20 - 8/19	5/20 - 8/19	5/20 - 8/19	5/20 - 8/19	5/20 - 8/19
DESERT SPRINGS	N/A	2209	112	3/1 - 2/13	3/1 - 2/13	3/1 - 2/13	3/1 - 2/13	3/1 - 2/13	3/1 - 2/13	3/1 - 2/13	3/1 - 2/13	3/1 - 2/13	3/1 - 2/13
EAGLE ROCK	North Bailey Bathtub Hollaway Eagle Rock Killer Hill Upper Owl*	2246	162	3/1- 2/28	3/1- 2/28	3/1- 2/28	3/1- 2/28	3/1- 2/28	3/1- 2/28	3/1- 2/28	3/1- 2/28	3/1- 2/28	3/1- 2/28
EVELYN E. SEE	N/A	176	3	4/16 – 7/15	4/16 – 7/15	4/16 – 7/15	4/16 – 7/15	4/16 – 7/15	4/16 – 7/15	4/16 – 7/15	4/16 – 7/15	4/16 – 7/15	4/16 – 7/15
HOHNSTEIN TATTI	N/A	4922	262	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28
INDIAN CREEK	N/A	1949	81	4/16 - 5/31	5/31 - 6/15	6/15 - 8/15	4/16 - 5/31	5/31 - 6/15	6/15 - 8/15	4/16 - 5/31	5/31 - 6/15	6/15 - 8/15	4/16 - 5/31
LAMB	N/A	37	6	5/16 - 5/30	5/16 - 5/30	5/16 - 5/30	5/16 - 5/30	5/16 - 5/30	5/16 - 5/30	5/16 - 5/30	5/16 - 5/30	5/16 - 5/30	5/16 - 5/30

[2] Acres are BLM managed public land only.

Allotments	Pastures	Acres[2]	AUMs	Current Grazing Dates									
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
LOGAN	Hawks Ridge	1417	111	9/15 - 12/31	9/15 - 12/31	9/15 - 12/31	9/15 - 12/31	9/15 - 12/31	9/15 - 12/31	9/15 - 12/31	9/15 - 12/31	9/15 - 12/31	9/15 - 12/31
LONG HOLLOW	N/A	497	12	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28
LOWER BRIDGE	N/A	5717	120	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31	4/1 - 5/31
MAYFIELD POND	N/A	5669	305	11/1 - 5/1	11/1 - 5/1	11/1 - 5/1	11/1 - 5/1	11/1 - 5/1	11/1 - 5/1	11/1 - 5/1	11/1 - 5/1	11/1 - 5/1	11/1 - 5/1
MAYFIELD-HARRIS	N/A	1017	68	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28
MONTGOMERY	N/A	158	16	7/15 - 2/28	7/15 - 2/28	7/15 - 2/28	7/15 - 2/28	7/15 - 2/28	7/15 - 2/28	7/15 - 2/28	7/15 - 2/28	7/15 - 2/28	7/15 - 2/28
MORGART	N/A	79	12	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28
NORTH STEARNS	Sleepy Hollow North West Antelope Guzzler *	9129	403	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28
RED CLOUD	N/A	618	33	4/15 - 6/14	4/15 - 6/14	4/15 - 6/14	4/15 - 6/14	4/15 - 6/14	4/15 - 6/14	4/15 - 6/14	4/15 - 6/14	4/15 - 6/14	4/15 - 6/14
ROWE CREEK	N/A	340	16	4/1 - 12/15	4/1 - 12/15	4/1 - 12/15	4/1 - 12/15	4/1 - 12/15	4/1 - 12/15	4/1 - 12/15	4/1 - 12/15	4/1 - 12/15	4/1 - 12/15

Allotments	Pastures	Acres[2]	AUMs	Current Grazing Dates									
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
SANFORD CREEK	Long Hollow South Bailey Sand Canyon Square House Mamie Hining Upper Sanford Middle Sanford Lower Sanford *	4757	375	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28
SHEEP GULCH	N/A	484	32	3/1 - 7/15	3/1 - 7/15	3/1 - 7/15	3/1 - 7/15	3/1 - 7/15	3/1 - 7/15	3/1 - 7/15	3/1 - 7/15	3/1 - 7/15	3/1 - 7/15
SODA CREEK	Snake Den	422	405	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	Rest	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30
	School House	40	405	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	Rest	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30
	Poison Creek	445	405	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	Rest	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30
	Wildcat	582	405	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	Rest	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30
	Mahogany	316	405	4/1 - 11/30	4/1 - 11/30	Rest	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	Rest
	Upper Poison Creek Rip.	21	405	4/1 - 11/30	Rest	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	Rest	4/1 - 11/30

Allotments	Pastures	Acres[2]	AUMs	Current Grazing Dates									
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Soda Creek	159	405	Rest	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	4/1 - 11/30	Rest	4/1 - 11/30	4/1 - 11/30
SOUTH STEARNS	Crested Poker Flat Vigilante Powerline Draw Erickson Flat Cotton Butte Holding Corral *	9114	583	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28	3/1-2/28
SQUAW CREEK	Squaw Creek	2,095	125	4/1 - 6/14	4/1 - 6/14	4/1 - 6/14	4/1 - 6/14	4/1 - 6/14	4/1 - 6/14	4/1 - 6/14	4/1 - 6/14	4/1 - 6/14	4/1 - 6/14
	South Buckhorn	1,168	25	6/15 - 7/14)	6/15 - 7/14)	6/15 - 7/14)	6/15 - 7/14)	6/15 - 7/14)	6/15 - 7/14)	6/15 - 7/14)	6/15 - 7/14)	6/15 - 7/14)	6/15 - 7/14)
	North Buckhorn	1,461	76	7/15 - 9/15	7/15 - 9/15	7/15 - 9/15	7/15 - 9/15	7/15 - 9/15	7/15 - 9/15	7/15 - 9/15	7/15 - 9/15	7/15 - 9/15	7/15 - 9/15
	South Buckhorn	1,168	25	9/16 - 10/23	9/16 - 10/23	9/16 - 10/23	9/16 - 10/23	9/16 - 10/23	9/16 - 10/23	9/16 - 10/23	9/16 - 10/23	9/16 - 10/23	9/16 - 10/23
	Squaw Creek	2,095	50	10/24–11/30	10/24 –11/30	10/24–11/30	10/24–11/30	10/24–11/30	10/24–11/30	10/24–11/30	10/24–11/30	10/24–11/30	10/24–11/30

Allotments	Pastures	Acres[2]	AUMs	Current Grazing Dates									
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
TWO COUNTY	Holmes	1,879	221	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30
	Round-up Flat	441	52	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30
	Branson	4,454	524	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30
	Lost Fawn	998	117	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30
	Burnt Corral/Sandy Creek	1,615	190	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30	4/1 – 11/30
WAGENBLAST	N/A	79	10	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28
WEBDELL	N/A	240	13	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28	3/1 - 2/28
WEST POWELL BUTTE	N/A	8859	388	11/15 - 4/30	11/15 - 4/30	11/15 - 4/30	11/15 - 4/30	11/15 - 4/30	11/15 - 4/30	11/15 - 4/30	11/15 - 4/30	11/15 - 4/30	11/15 - 4/30

*Livestock rotated through the pastures in an undefined rotation within the authorized season of use and permitted AUMs

Alternative 2

In this alternative, livestock grazing permits would remain as-is but only temporarily while BLM completes plan amendments that would potentially make the entire project area unavailable for livestock grazing. After that, if the area is unavailable for grazing, the 29 permits and leases would not be renewed. This would result in 8,151 AUMs not being re-issued.

The BLM would not consider removing any interior pasture fences or range developments until plan amendments are completed. The allotment boundary fences would remain in place because the area would continue to be temporarily grazed until RMP amendments are completed. Adjacent permittees with active AUMs would continue to maintain the boundary fences between the active allotments and those with denied permit or lease applications. Fences associated with private land would also remain in place. If the areas are made unavailable for grazing, the permittees would no longer be responsible for the maintenance of range developments in the allotments.

The issues that are driving the creation of Alternative 2 are livestock grazing's affects to: upland vegetation; forage availability for native ungulates during the winter; and ground nesting neotropical migrant birds.

Alternative 3

Alternative 3 addresses livestock grazing's affects to vegetation, hydrology, fisheries, and wildlife while having less of an economic effect than Alternative 2 by installing new range developments (Table 5 – Alternative 3's proposed new range developments), re-issuing grazing permits and leases with defined grazing schedules and AUMs per pasture for the life of each permit or lease (Table 6 - Grazing schedules proposed in Alternative 3), and maintaining certain existing range developments.

Table 5 – Alternative 3's proposed new range developments.

Allotment Name	Proposed new range developments
ALFALFA MKT RD	BLM would install one mile of pasture fence.
DESERT SPRINGS	BLM would install six cattleguards and gates.
EVELYN E. SEE	BLM would construct a pasture fence to separate public from private riparian areas.
HOHNSTEIN TATTI	BLM would re-construct the southern boundary of the allotment resulting in one mile of new fence and the reduction of 31 AUMs.
INDIAN CREEK	BLM would re-construct .5 miles of fence to create an exclosure on Paulina creek.
LOGAN	BLM would construct two miles of allotment boundary fence and five miles of pasture boundary fence.
LOWER BRIDGE	BLM would install seven miles of new pasture fence.
MAYFIELD POND	BLM would install water gaps[3] at Mayfield Pond in North, Butler, and South pastures.
NORTH STEARNS	BLM would remove two miles of fence and install 500 feet of pipeline and a trough in the Guzzler pasture.
SANFORD CREEK	The pasture fence between the Mamie Hining and Upper Sanford Creek pastures would be re-aligned by the BLM.

[3] These are short pieces of fence that usually run perpendicular to the flow of the stream, and only allow animals to access a very short section of the stream while excluding the animals from the rest of the riparian area.

Allotment Name	Proposed new range developments
SHEEP GULCH	In the Cemetery pasture BLM would develop a spring and install a tenth of a mile of new fence.
SOUTH STEARNS	BLM would install: 500 feet of pipeline and a trough in the Holding pasture; three cattleguards and gates in the allotment; construct three miles of new pasture fence; and remove three miles of existing fence.

Table 6 - Grazing schedules proposed in Alternative 3.

Allotments	Pastures	Acres[4]	Alternative 3 Proposed Grazing Dates and AUMs									
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
ALFALFA MKT RD	East	899	7/16 - 10/1 77 AUMs	Rest	5/15 - 7/15 61 AUMs	Rest	7/16 - 10/1 77 AUMs	Rest	5/15 - 7/15 61 AUMs	Rest	7/16 - 10/1 77 AUMs	Rest
	West	1507	5/15 - 7/15 61 AUMs	Rest	7/16 - 10/1 77 AUMs	Rest	5/15 - 7/15 61 AUMs	Rest	7/16 - 10/1 77 AUMs	Rest	5/15 - 7/15 61 AUMs	Rest
BIGGS JUNCTION	N/A	114	4/1 - 7/15 14 AUMs	4/1 - 7/15 14 AUMs	4/1 - 7/15 14 AUMs	4/1 - 7/15 14 AUMs	4/1 - 7/15 14 AUMs	4/1 - 7/15 14 AUMs	4/1 - 7/15 14 AUMs	4/1 - 7/15 14 AUMs	4/1 - 7/15 14 AUMs	4/1 - 7/15 14 AUMs
BROOKS LEASE	N/A	37	4/1 - 5/31 2 AUMs	4/1 - 5/31 2 AUMs	4/1 - 5/31 2 AUMs	4/1 - 5/31 2 AUMs	4/1 - 5/31 2 AUMs	4/1 - 5/31 2 AUMs	4/1 - 5/31 2 AUMs	4/1 - 5/31 2 AUMs	4/1 - 5/31 2 AUMs	4/1 - 5/31 2 AUMs
BULL CANYON	N/A	278	3/1 – 6/1 3 AUMs	3/1 – 6/1 3 AUMs	3/1 – 6/1 3 AUMs	3/1 – 6/1 3 AUMs	3/1 – 6/1 3 AUMs	3/1 – 6/1 3 AUMs	3/1 – 6/1 3 AUMs	3/1 – 6/1 3 AUMs	3/1 – 6/1 3 AUMs	3/1 – 6/1 3 AUMs
DESERT SPRINGS	N/A	2190	3/1 - 6/30 112 AUMs	Rest	3/1 - 6/30 112 AUMs	Rest	3/1 - 6/30 112 AUMs	Rest	3/1 - 6/30 112 AUMs	Rest	3/1 - 6/30 112 AUMs	Rest

[4] Acres are BLM managed public land only.

Allotments	Pastures	Acres[4]	Alternative 3 Proposed Grazing Dates and AUMs									
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
EAGLE ROCK	North Bailey	465	3/1 - 3/28 46 AUMs	4/26 - 5/16 35 AUMs	Rest	3/1 - 3/28 46 AUMs	4/26 - 5/16 35 AUMs	Rest	3/1 - 3/28 46 AUMs	4/26 - 5/16 35 AUMs	Rest	3/1 - 3/28 46 AUMs
	Bathtub	109	3/29 - 4/24 51 AUMs	5/17 – 6/10 48 AUMs	Rest	3/29 - 4/24 51 AUMs	5/17 – 6/10 48 AUMs	Rest	3/29 - 4/24 51 AUMs	5/17 – 6/10 48 AUMs	Rest	3/29 - 4/24 51 AUMs
	Hollaway	414	4/25 - 5/16 24 AUMs	Rest	3/1 - 3/28 30 AUMs	4/25 - 5/16 24 AUMs	Rest	3/1 - 3/28 30 AUMs	4/25 - 5/16 24 AUMs	Rest	3/1 - 3/28 30 AUMs	4/25 - 5/16 24 AUMs
	Eagle Rock	431	5/17 - 6/8 40 AUMs	Rest	3/29 - 4/25 49 AUMs	5/17 - 6/8 40 AUMs	Rest	3/29 - 4/25 49 AUMs	5/17 - 6/8 40 AUMs	Rest	3/29 - 4/25 49 AUMs	5/17 - 6/8 40 AUMs
	Killer Hill	423	Rest	3/1 – 3/28 44 AUMs	4/26 - 5/16 33 AUMs	Rest	3/1 – 3/28 44 AUMs	4/26 - 5/16 33 AUMs	Rest	3/1 – 3/28 44 AUMs	4/26 - 5/16 33 AUMs	Rest
	Upper Owl	369	Rest	3/29 - 4/25 29 AUMs	5/17 – 6/16 32 AUMs	Rest	3/29 - 4/25 29 AUMs	5/17 – 6/16 32 AUMs	Rest	3/29 - 4/25 29 AUMs	5/17 – 6/16 32 AUMs	Rest
EVELYN E. SEE	Big	54	3/1- 8/31 1 AUM	3/1- 8/31 1 AUM	3/1- 8/31 1 AUM	3/1- 8/31 1 AUM	3/1- 8/31 1 AUM	3/1- 8/31 1 AUM	3/1- 8/31 1 AUM	3/1- 8/31 1 AUM	3/1- 8/31 1 AUM	3/1- 8/31 1 AUM

Allotments	Pastures	Acres[4]	Alternative 3 Proposed Grazing Dates and AUMs									
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Little	122	3/1 – 5/1 2 AUMs	3/1 – 5/1 2 AUMs	3/1 – 5/1 2 AUMs	3/1 – 5/1 2 AUMs	3/1 – 5/1 2 AUMs	3/1 – 5/1 2 AUMs	3/1 – 5/1 2 AUMs	3/1 – 5/1 2 AUMs	3/1 – 5/1 2 AUMs	3/1 – 5/1 2 AUMs
HOHNSTEIN TATTI	N/A	4922	3/1 - 2/28 262 AUMs	3/1 - 2/28 262 AUMs	3/1 - 2/28 262 AUMs	3/1 - 2/28 262 AUMs	3/1 - 2/28 262 AUMs	3/1 - 2/28 262 AUMs	3/1 - 2/28 262 AUMs	3/1 - 2/28 262 AUMs	3/1 - 2/28 262 AUMs	3/1 - 2/28 262 AUMs
INDIAN CREEK	N/A	1949	4/16 - 5/15 81 AUMs	5/15 - 7/1 81 AUMs	7/1 - 7/30 81 AUMs	Rest	4/16 - 5/15 81 AUMs	5/15 - 7/1 81 AUMs	7/1 - 7/30 81 AUMs	Rest	4/16 - 5/15 81 AUMs	5/15 - 7/1 81 AUMs
LAMB	N/A	37	5/16 - 5/30 6 AUMs	Rest	5/16 - 5/30 6 AUMs	Rest	5/16 - 5/30 6 AUMs	Rest	5/16 - 5/30 6 AUMs	Rest	5/16 - 5/30 6 AUMs	Rest
LOGAN	Hawk's Ridge	1014	2/1- 4/20 83 AUMs	4/21- 5/15 26 AUMs	2/1- 4/20 83 AUMs	4/21- 5/15 26 AUMs	2/1- 4/20 83 AUMs	4/21- 5/15 26 AUMs	2/1- 4/20 83 AUMs	4/21- 5/15 26 AUMs	2/1- 4/20 83 AUMs	4/21- 5/15 26 AUMs
	Alder Mtn	329	4/21- 5/15 26 AUMs	2/1- 4/20 83 AUMs	4/21- 5/15 26 AUMs	2/1- 4/20 83 AUMs	4/21- 5/15 26 AUMs	2/1- 4/20 83 AUMs	4/21- 5/15 26 AUMs	2/1- 4/20 83 AUMs	4/21- 5/15 26 AUMs	2/1- 4/20 83 AUMs

Allotments	Pastures	Acres[4]	Alternative 3 Proposed Grazing Dates and AUMs									
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
LONG HOLLOW	N/A	497	3/1 - 2/28 12 AUMs	3/1 - 2/28 12 AUMs	3/1 - 2/28 12 AUMs	3/1 - 2/28 12 AUMs	3/1 - 2/28 12 AUMs	3/1 - 2/28 12 AUMs	3/1 - 2/28 12 AUMs	3/1 - 2/28 12 AUMs	3/1 - 2/28 12 AUMs	3/1 - 2/28 12 AUMs
LOWER BRIDGE	N/A	5683	4/15 - 6/30 120 AUMs	Rest	4/15 - 6/30 120 AUMs	Rest	4/15 - 6/30 120 AUMs	Rest	4/15 - 6/30 120 AUMs	Rest	4/15 - 6/30 120 AUMs	Rest
MAYFIELD POND	N/A	5669	11/1 - 1/31 154 AUMs	2/1 – 4/30 149 AUMs	11/1 - 1/31 154 AUMs	2/1 – 4/30 149 AUMs	11/1 - 1/31 154 AUMs	2/1 – 4/30 149 AUMs	11/1 - 1/31 154 AUMs	2/1 – 4/30 149 AUMs	11/1 - 1/31 154 AUMs	2/1 – 4/30 149 AUMs
MAYFIELD-HARRIS	N/A	345	11/1 - 7/15 23 AUMs	11/1 - 7/15 23 AUMs	11/1 - 7/15 23 AUMs	11/1 - 7/15 23 AUMs	11/1 - 7/15 23 AUMs	11/1 - 7/15 23 AUMs	11/1 - 7/15 23 AUMs	11/1 - 7/15 23 AUMs	11/1 - 7/15 23 AUMs	11/1 - 7/15 23 AUMs
MONTGOMERY	N/A	158	6/15 - 9/15 16 AUMs	6/15 - 9/15 16 AUMs	6/15 - 9/15 16 AUMs	6/15 - 9/15 16 AUMs	6/15 - 9/15 16 AUMs	6/15 - 9/15 16 AUMs	6/15 - 9/15 16 AUMs	6/15 - 9/15 16 AUMs	6/15 - 9/15 16 AUMs	6/15 - 9/15 16 AUMs
MORGART	N/A	79	5/1 - 7/15 12 AUMs	7/15 - 9/30 12 AUMs	5/1 - 7/15 12 AUMs	7/15 - 9/30 12 AUMs	5/1 - 7/15 12 AUMs	7/15 - 9/30 12 AUMs	5/1 - 7/15 12 AUMs	7/15 - 9/30 12 AUMs	5/1 - 7/15 12 AUMs	7/15 - 9/30 12 AUMs
NORTH STEARNS	Sleepy Hollow	2713	6/11 - 6/30 104 AUMs	7/23 - 8/12 109 AUMs	Rest	8/17 - 9/5 104 AUMs	6/11 - 6/30 104 AUMs	7/23 - 8/12 109 AUMs	Rest	8/17 - 9/5 104 AUMs	6/11 - 6/30 104 AUMs	7/23 - 8/12 109 AUMs

Allotments	Pastures	Acres[4]	Alternative 3 Proposed Grazing Dates and AUMs									
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	North West	984	5/1 - 5/20 100 AUMs	Rest	5/20 - 6/8 100 AUMs	Rest	5/1 - 5/20 100 AUMs	Rest	5/20 - 6/8 100 AUMs	Rest	5/1 - 5/20 100 AUMs	Rest
	Antelope Flat	1642	5/21 - 6/10 108 AUMs	Rest	5/1 - 5/19 98 AUMs	Rest	5/21 - 6/10 108 AUMs	Rest	5/1 - 5/19 98 AUMs	Rest	5/21 - 6/10 108 AUMs	Rest
	Guzzler	2385	7/1 - 7/17 89 AUMs	Rest	6/9 - 6/28 105 AUMs	Rest	7/1 - 7/17 89 AUMs	Rest	6/9 - 6/28 105 AUMs	Rest	7/1 - 7/17 89 AUMs	Rest
RED CLOUD	N/A	618	5/1 - 7/1 33 AUMs	Rest	5/1 - 7/1 33 AUMs	Rest	5/1 - 7/1 33 AUMs	Rest	5/1 - 7/1 33 AUMs	Rest	5/1 - 7/1 33 AUMs	Rest
ROWE CREEK	N/A	340	4/1 - 12/15 16 AUMs	4/1 - 12/15 16 AUMs	4/1 - 12/15 16 AUMs	4/1 - 12/15 16 AUMs	4/1 - 12/15 16 AUMs	4/1 - 12/15 16 AUMs	4/1 - 12/15 16 AUMs	4/1 - 12/15 16 AUMs	4/1 - 12/15 16 AUMs	4/1 - 12/15 16 AUMs
SANFORD CREEK	Long Hollow	346	6/2- 7/1 64 AUMs	Rest	9/1 - 10/1 64 AUMs	8/2 - 9/1 66 AUMs	7/2 - 8/1 66 AUMs	6/2- 7/1 64 AUMs	Rest	9/1 - 10/1 64 AUMs	8/2 - 9/1 66 AUMs	7/2 - 8/1 66 AUMs
	South Bailey	101	7/2 - 8/1 9 AUMs	6/1 - 7/1 9 AUMs	Rest	9/2 - 10/1 8 AUMs	8/1 - 9/1 9 AUMs	7/2 - 8/1 9 AUMs	6/1 - 7/1 9 AUMs	Rest	9/2 - 10/1 8 AUMs	8/1 - 9/1 9 AUMs

Allotments	Pastures	Acres[4]	Alternative 3 Proposed Grazing Dates and AUMs									
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Sand Canyon	1327	8/2 - 9/1 58 AUMs	7/2 - 8/1 58 AUMs	6/2 - 7/1 56 AUMs	Rest	9/1 - 10/1 56 AUMs	8/2 - 9/1 58 AUMs	7/2 - 8/1 58 AUMs	6/2 - 7/1 56 AUMs	Rest	9/1 - 10/1 56 AUMs
	Square House	664	9/2 - 10/1 66 AUMs	8/2 - 9/1 66 AUMs	7/2 - 8/1 66 AUMs	6/1 - 7/1 66 AUMs	Rest	9/2 - 10/1 66 AUMs	8/2 - 9/1 66 AUMs	7/2 - 8/1 66 AUMs	6/1 - 7/1 66 AUMs	Rest
	Mamie Hining	685	Rest	9/2 - 10/1 64 AUMs	8/1 - 9/1 66 AUMs	7/1 - 8/1 66 AUMs	6/1 - 7/1 64 AUMs	Rest	9/2 - 10/1 64 AUMs	8/1 - 9/1 66 AUMs	7/1 - 8/1 66 AUMs	6/1 - 7/1 64 AUMs
	Upper Sanford	556	4/15 - 5/1 36 AUMs	Rest	5/2 - 5/16 32 AUMs	Rest	5/17 - 6/1 34 AUMs	4/15 - 5/1 36 AUMs	Rest	5/2 - 5/16 32 AUMs	Rest	5/17 - 6/1 34 AUMs
	Middle Sanford	903	5/1 - 5/15 30 AUMs	Rest	5/17 - 6/1 34 AUMs	Rest	4/15 - 5/1 36 AUMs	5/1 - 5/15 30 AUMs	Rest	5/17 - 6/1 34 AUMs	Rest	4/15 - 5/1 36 AUMs
	Lower Sanford	124	5/15 - 6/1 36 AUMs	Rest	4/15 - 5/1 36 AUMs	Rest	5/2 - 5/16 32 AUMs	5/15 - 6/1 36 AUMs	Rest	4/15 - 5/1 36 AUMs	Rest	5/2 - 5/16 32 AUMs
SHEEP GULCH	N/A	484	4/15 - 6/15 32 AUMs	4/15 - 6/15 32 AUMs	4/15 - 6/15 32 AUMs	4/15 - 6/15 32 AUMs	4/15 - 6/15 32 AUMs	4/15 - 6/15 32 AUMs	4/15 - 6/15 32 AUMs	4/15 - 6/15 32 AUMs	4/15 - 6/15 32 AUMs	4/15 - 6/15 32 AUMs

Allotments	Pastures	Acres[4]	Alternative 3 Proposed Grazing Dates and AUMs									
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
SODA CREEK	Snake Den	422	4/1 – 12/31 86 AUMs	4/1 – 12/31 86 AUMs	4/1 – 12/31 86 AUMs	4/1 – 12/31 86 AUMs	4/1 – 12/31 86 AUMs	4/1 – 12/31 86 AUMs	Rest	4/1 – 12/31 86 AUMs	4/1 – 12/31 86 AUMs	4/1 – 12/31 86 AUMs
	School House	40	4/1 – 12/31 8 AUMs	4/1 – 12/31 8 AUMs	4/1 – 12/31 8 AUMs	4/1 – 12/31 8 AUMs	4/1 – 12/31 8 AUMs	Rest	4/1 – 12/31 8 AUMs	4/1 – 12/31 8 AUMs	4/1 – 12/31 8 AUMs	4/1 – 12/31 8 AUMs
	Poison Creek	445	4/1 – 12/31 91 AUMs	4/1 – 12/31 91 AUMs	4/1 – 12/31 405 AUMs	4/1 – 12/31 91 AUMs	Rest	4/1 – 12/31 91 AUMs	4/1 – 12/31 91 AUMs	4/1 – 12/31 91 AUMs	4/1 – 12/31 91 AUMs	4/1 – 12/31 405 AUMs
	Wildcat	582	4/1 – 12/31 119 AUMs	4/1 – 12/31 119 AUMs	4/1 – 12/31 119 AUMs	Rest	4/1 – 12/31 119 AUMs	4/1 – 12/31 119 AUMs	4/1 – 12/31 119 AUMs	4/1 – 12/31 119 AUMs	4/1 – 12/31 119 AUMs	4/1 – 12/31 119 AUMs
	Mahogany	316	4/1 – 12/31 64 AUMs	4/1 – 12/31 64 AUMs	Rest	4/1 – 12/31 64 AUMs	4/1 – 12/31 64 AUMs	4/1 – 12/31 64 AUMs	4/1 – 12/31 64 AUMs	4/1 – 12/31 64 AUMs	4/1 – 12/31 64 AUMs	Rest
	Upper Poison Creek Rip.	21	4/1 – 12/31 4 AUMs	Rest	4/1 – 12/31 4 AUMs	4/1 – 12/31 4 AUMs	4/1 – 12/31 4 AUMs	4/1 – 12/31 4 AUMs	4/1 – 12/31 4 AUMs	4/1 – 12/31 4 AUMs	Rest	4/1 – 12/31 4 AUMs

Allotments	Pastures	Acres[4]	Alternative 3 Proposed Grazing Dates and AUMs									
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Soda Creek	159	Rest	4/1 – 12/31 32 AUMs	4/1 – 12/31 32 AUMs	4/1 – 12/31 32 AUMs	4/1 – 12/31 32 AUMs	4/1 – 12/31 32 AUMs	4/1 – 12/31 32 AUMs	Rest	4/1 – 12/31 32 AUMs	4/1 – 12/31 32 AUMs
SOUTH STEARNS	Crested	1594	Rest	5/22 – 6/11 110 AUMs	7/18 - 8/10 126 AUMs	7/3 - 7/25 121 AUMs	Rest	5/22 – 6/11 110 AUMs	7/18 - 8/10 126 AUMs	7/3 - 7/25 121 AUMs	Rest	5/22 – 6/11 110 AUMs
	Poker Flat	2093	9/6 - 9/28 121 AUMs	7/2 - 7/22 110 AUMs	Rest	5/23 - 6/12 110 AUMs	9/6 - 9/28 121 AUMs	7/2 - 7/22 110 AUMs	Rest	5/23 - 6/12 110 AUMs	9/6 - 9/28 121 AUMs	7/2 - 7/22 110 AUMs
	Vigilante	609	Rest	5/1 - 5/21 110 AUMs	8/11 - 8/31 110 AUMs	6/13 - 7/2 105 AUMs	Rest	5/1 - 5/21 110 AUMs	8/11 - 8/31 110 AUMs	6/13 - 7/2 105 AUMs	Rest	5/1 - 5/21 110 AUMs
	Powerline	2672	8/13 – 9/5 126 AUMs	7/2 - 7/22 105 AUMs	Rest	7/26 - 8/16 116 AUMs	8/13 – 9/5 126 AUMs	7/2 - 7/22 105 AUMs	Rest	7/26 - 8/16 116 AUMs	8/13 – 9/5 126 AUMs	7/2 - 7/22 105 AUMs
	Draw	28	Rest	10/11 - 11/1 34 AUMs	9/23 - 10/31 59 AUMs	9/26 - 10/31 55 AUMs	Rest	10/11 - 11/1 34 AUMs	9/23 - 10/31 59 AUMs	9/26 - 10/31 55 AUMs	Rest	10/11 - 11/1 34 AUMs
	Erickson Flat	990	9/29 – 10/20 56 AUMs	8/13 - 8/31 48 AUMs	9/1 - 9/22 56 AUMs	Rest	9/29 – 10/20 56 AUMs	8/13 - 8/31 48 AUMs	9/1 - 9/22 56 AUMs	Rest	9/29 – 10/20 56 AUMs	8/13 - 8/31 48 AUMs

Allotments	Pastures	Acres[4]	Alternative 3 Proposed Grazing Dates and AUMs									
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Cotton Butte	494	10/21 – 11/1 37 AUMs	9/21 - 10/10 61 AUMs	Rest	9/6 - 9/25 61 AUMs	10/21 – 11/1 37 AUMs	9/21 - 10/10 61 AUMs	Rest	9/6 - 9/25 61 AUMs	10/21 – 11/1 37 AUMs	9/21 - 10/10 61 AUMs
	Holding	1086	7/18 - 8/12 137 AUMs	Rest	6/29 - 7/17 100 AUMs	Rest	7/18 - 8/12 137 AUMs	Rest	6/29 - 7/17 100 AUMs	Rest	7/18 - 8/12 137 AUMs	Rest
	Corral	317	Rest	9/1 - 9/20 47 AUMs	Rest	5/1 – 5/22 52 AUMs	Rest	9/1 - 9/20 47 AUMs	Rest	5/1 – 5/22 52 AUMs	Rest	9/1 - 9/20 47 AUMs
SQUAW CREEK	Squaw Creek	2,095	4/1 - 6/14 125 AUMs	4/1 - 6/14 125 AUMs	4/1 - 6/14 125 AUMs	4/1 - 6/14 125 AUMs	4/1 - 6/14 125 AUMs	4/1 - 6/14 125 AUMs	4/1 - 6/14 125 AUMs	4/1 - 6/14 125 AUMs	4/1 - 6/14 125 AUMs	4/1 - 6/14 125 AUMs
	South Buckhorn	1,168	6/15 - 7/14 25 AUMs	6/15 - 7/14 25 AUMs	6/15 - 7/14 25 AUMs	6/15 - 7/14 25 AUMs	6/15 - 7/14 25 AUMs	6/15 - 7/14 25 AUMs	6/15 - 7/14 25 AUMs	6/15 - 7/14 25 AUMs	6/15 - 7/14 25 AUMs	6/15 - 7/14 25 AUMs
	North Buckhorn	1,461	7/15 - 9/15 76 AUMs	7/15 - 9/15 76 AUMs	7/15 - 9/15 76 AUMs	7/15 - 9/15 76 AUMs	7/15 - 9/15 76 AUMs	7/15 - 9/15 76 AUMs	7/15 - 9/15 76 AUMs	7/15 - 9/15 76 AUMs	7/15 - 9/15 76 AUMs	7/15 - 9/15 76 AUMs
	South Buckhorn	1,168	9/16 - 10/23 25 AUMs	9/16 - 10/23 25 AUMs	9/16 - 10/23 25 AUMs	9/16 - 10/23 25 AUMs	9/16 - 10/23 25 AUMs	9/16 - 10/23 25 AUMs	9/16 - 10/23 25 AUMs	9/16 - 10/23 25 AUMs	9/16 - 10/23 25 AUMs	9/16 - 10/23 25 AUMs
	Squaw Creek	2,095	10/24 – 11/30 50	10/24 – 11/30	10/24 – 11/30	10/24 – 11/30	10/24 – 11/30	10/24 – 11/30	10/24 – 11/30	10/24 – 11/30	10/24 – 11/30	10/24 – 11/30

Allotments	Pastures	Acres[4]	Alternative 3 Proposed Grazing Dates and AUMs									
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
			AUMs	50 AUMs	50 AUMs	50 AUMs	50 AUMs	50 AUMs	50 AUMs	50 AUMs	50 AUMs	50 AUMs
TWO COUNTY	Branson Creek	4454	4/1-5/1 153 AUMs	10/16 - 11/30 222 AUMs	4/1-5/1 153 AUMs	10/16 - 11/30 222 AUMs	4/1-5/1 153 AUMs	10/16 - 11/30 222 AUMs	4/1-5/1 153 AUMs	10/16 - 11/30 222 AUMs	4/1-5/1 153 AUMs	10/16 - 11/30 222 AUMs
	Lost Fawn	998	5/2 - 6/2 121 AUMs	7/2 - 9/15 172 AUMs	5/2 - 6/2 121 AUMs	7/2 - 9/15 172 AUMs	5/2 - 6/2 121 AUMs	7/2 - 9/15 172 AUMs	5/2 - 6/2 121 AUMs	7/2 - 9/15 172 AUMs	5/2 - 6/2 121 AUMs	7/2 - 9/15 172 AUMs
	Burnt Corral	550	6/3 - 10/1 197 AUMs	9/16 - 10/15 38 AUMs	6/3 - 10/1 197 AUMs	9/16 - 10/15 38 AUMs	6/3 - 10/1 197 AUMs	9/16 - 10/15 38 AUMs	6/3 - 10/1 197 AUMs	9/16 - 10/15 38 AUMs	6/3 - 10/1 197 AUMs	9/16 - 10/15 38 AUMs
	Sandy Creek	1,065	6/3 – 6/30 77 AUMs	9/16 - 10/15 67 AUMs	6/3 – 6/30 77 AUMs	9/16 - 10/15 67 AUMs	6/3 – 6/30 77 AUMs	9/16 - 10/15 67 AUMs	6/3 – 6/30 77 AUMs	9/16 - 10/15 67 AUMs	6/3 – 6/30 77 AUMs	9/16 - 10/15 67 AUMs
	Holmes Creek	1879	10/2 - 11/30 207 AUMs	4/1 - 7/1 254 AUMs	10/2 - 11/30 207 AUMs	4/1 - 7/1 254 AUMs	10/2 - 11/30 207 AUMs	4/1 - 7/1 254 AUMs	10/2 - 11/30 207 AUMs	4/1 - 7/1 254 AUMs	10/2 - 11/30 207 AUMs	4/1 - 7/1 254 AUMs
	Round-up flat	441	12/1 - 2/1 157 AUMs	12/1 - 2/1 157 AUMs	12/1 - 2/1 157 AUMs	12/1 - 2/1 157 AUMs	12/1 - 2/1 157 AUMs	12/1 - 2/1 157 AUMs	12/1 - 2/1 157 AUMs	12/1 - 2/1 157 AUMs	12/1 - 2/1 157 AUMs	12/1 - 2/1 157 AUMs
	Branson Creek	4454	2/2 - 3/31 192 AUMs	2/2 - 3/31 194 AUMs	2/2 - 3/31 192 AUMs	2/2 - 3/31 194 AUMs	2/2 - 3/31 192 AUMs	2/2 - 3/31 194 AUMs	2/2 - 3/31 192 AUMs	2/2 - 3/31 194 AUMs	2/2 - 3/31 192 AUMs	2/2 - 3/31 194 AUMs

Allotments	Pastures	Acres[4]	Alternative 3 Proposed Grazing Dates and AUMs									
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
WAGENBLAST	N/A	79	5/1 - 7/31 10 AUMs	5/1 - 7/31 10 AUMs	5/1 - 7/31 10 AUMs	5/1 - 7/31 10 AUMs	5/1 - 7/31 10 AUMs	5/1 - 7/31 10 AUMs	5/1 - 7/31 10 AUMs	5/1 - 7/31 10 AUMs	5/1 - 7/31 10 AUMs	5/1 - 7/31 10 AUMs
WEBDELL	N/A	240	3/1 - 2/28 13 AUMs	3/1 - 2/28 13 AUMs	3/1 - 2/28 13 AUMs	3/1 - 2/28 13 AUMs	3/1 - 2/28 13 AUMs	3/1 - 2/28 13 AUMs	3/1 - 2/28 13 AUMs	3/1 - 2/28 13 AUMs	3/1 - 2/28 13 AUMs	3/1 - 2/28 13 AUMs
WEST POWELL BUTTE	N/A	8859	2/1 - 4/30 190 AUMs	11/1 - 1/31 197 AUMs	2/1 - 4/30 190 AUMs	11/1 - 1/31 197 AUMs	2/1 - 4/30 190 AUMs	11/1 - 1/31 197 AUMs	2/1 - 4/30 190 AUMs	11/1 - 1/31 197 AUMs	2/1 - 4/30 190 AUMs	11/1 - 1/31 197 AUMs

Proposed repair of existing range developments for Alternative 3 is summarized in Table 7 – Range developments proposed for maintenance and includes: thirteen miles of reservoir and allotment boundary fence maintenance in the Two County allotment; spring maintenance in the Soda Creek allotment; pipeline maintenance in North and South Stearns allotments; water development maintenance in the North Stearns allotment; corral maintenance in North and South Stearns allotments; and spring maintenance in Eagle Rock and Sanford Creek allotments.

Maintenance would occur within and adjacent to the existing disturbance footprint of the range development.

BLM would ensure the range developments proposed for maintenance are repaired and to a functional condition, after which time the responsible party or parties would maintain them.

Reservoir maintenance would involve periodic inspections, repairing minor spillway headcutting or channeling, removing trash from the spillway, and sealing minor seeps with bentonite. Slumps, major headcutting, unusual leaks, or other problems would be reported to the BLM. Pipelines and troughs associated with the reservoir, that provide livestock water, would normally be maintained by the livestock operator. Heavy equipment would likely be used to perform maintenance actions.
Water catchments, springs, pipelines, and trough maintenance would involve periodic inspection, repair of replacement of worn or damaged parts, repair of leaks, removing trash or silt, re-painting tanks (if they were originally painted), repair of associated fences, winterizing the facility, maintaining water flows during agreed-upon times, and maintaining wildlife escape ramps. These actions may require use of heavy equipment to dig up and/or reinstall pipeline, headbox, etc.

Table 7 – Range developments proposed for maintenance.

Development name	**Allotment**	**Location**
Fawn Cr. Reservoirs	Two County	T.11 S., R.26 E. Sec. 34; T.11 S., R.26 E. Sec. 3
Allotment Boundary Fence	Two County	T.10 S., R.26 E. Sec. 3, 6,7,10,11,14,18,19,30,31,32,33; T.11 S., R.26 E. Sec. 3,4,10
St. Clair Spring	Soda Creek	T. 17 S., R. 28 E.NE1/4NW1/4 Sec. 20,
St. Clair Spring	Soda Creek	T. 17 S., R. 28 E.NE1/4SW1/4 Sec. 19,
St. Clair Spring	Soda Creek	T. 17 S., R. 28 E.NE1/4NW1/4 Sec. 18,
S. Stearns Steel Pipeline	South Stearns and North Stearns	T.16 S., R.16 E. Sec 18,19,30,31 T.17 S., R.16 E. 6,7,18 T.17 S., R.15E. Sec 13, 24
N. Stearns Water Development	North Stearns	T.16S., R.15E. Sec 35
Stearns Corrals	South Stearns and North Stearns	T.17S., R.15E. Sec 15
North Bailey Spring	Eagle Rock	T.16S., R. 7E. Sec 15
Squarehouse Spring	Sanford Creek	T.17S., R17E. Sec 1

Alternative 4

As with Alternative 3, Alternative 4 addresses livestock grazing's affects to vegetation, hydrology, fisheries, and wildlife while having less of an economic effect than Alternative 2; however Alternative 4 addresses the hydrology related effects that remain unaddressed in Alternative 3 but creates additional maintenance requirements for the BLM.

Alternative 4 is the same as Alternative 3, except that in the Sheep Gulch, Soda Creek and Webdell allotments, BLM would: install approximately one mile of fence around existing water developments; install automatic shut-off valves instead of return flows on existing and proposed new livestock watering locations; and re-locate four existing watering troughs (two in the Soda Creek allotment, one in the Sheep Gulch allotment, and one in the Webdell allotment) outside of fenced areas and away from wetland and riparian areas a minimum of 50 feet from springs and 100 feet from streams. Additionally, in the Sanford Creek allotment BLM would install automatic shut-off valves instead of return flows and re-locate one existing watering trough outside of the fenced area and away from wetland and riparian areas a minimum of 50 feet from springs and 100 feet from streams.

Project Design Features and Terms and Conditions Common to Alternatives 3 and 4

The following PDFs apply to both Alternative 3 and 4:

Wildlife

- BLM would perform a wildlife evaluation within the area proposed for maintenance of existing spring developments prior to maintenance taking place.
- When BLM or permittees perform maintenance on existing range developments, only ground disturbance necessary to complete the maintenance would be permitted.
- New range development installation and maintenance of existing range developments would not occur during the neotropical migrant bird breeding season from April 15 to July 31, unless BLM determines which species would likely nest in the habitat and sets an appropriate range of implementation dates.
- New range development installation and maintenance of existing range developments would not occur during the raptor breeding season from January 1 to August 31, unless BLM determines which species would likely nest in the habitat and sets an appropriate range of implementation dates.
- All new fences would be located at least 0.6 miles from active sage-grouse leks (Hagen 2011a).
- Fence construction would not occur within .6 miles from leks during the sage-grouse breeding season (February 15 - May 1) and summer/winter (July 1 - February 14).
- If permittees turn-out or trail livestock during sage-grouse lekking period (February 15 to May 1), it must be .6 miles or more from sage-grouse.
- Pipeline would not be built during the sage-grouse breeding/nesting season (March 1 - July 1).
- Pipeline would not be constructed in sage-grouse nesting habitat.

Soils

- To reduce effects from soil compaction, BLM would operate equipment when soils are dry or frozen. Soils are wet when they are at or above field capacity in the top three inches of the soil surface. BLM would cease operations when equipment tracks are creating ruts three inches deep with one pass or when equipment is slipping or sliding.
- When using equipment off of a road, BLM would limit equipment passes to four or fewer trips over a single piece of ground to prevent detrimental soil impacts.

Botany

- Where possible, when BLM or permittees install and maintain range developments, vehicles would not be parked in or driven through patches of noxious weeds and people would not walk through patches of noxious weeds.
- Any person (permittee or BLM employee) performing work in an allotment would immediately report noxious weed locations to the BLM.
- Where possible, range developments would not be placed within ¼ mile of known noxious weed infestations.
- New range developments and congregation areas (i.e. salt/mineral licks, fences, water improvements) would not be placed within ¼ mile of mapped sensitive plant populations or in places that would encourage trailing through sensitive species populations and habitat.
- Existing salt and mineral licks currently within ¼ mile of a sensitive plant species population or in a location that encourages trailing though a sensitive plant species population would be moved by the permittees at least ¼ mile from the sensitive species population and/or be placed in an area that does not encourage trailing through sensitive plant species populations.

Recreation

- Vegetation would not be cleared during new fence construction in the Alfalfa Market allotment.
- The BLM would paint the outside of troughs that are located in Visual Resource Management classes 1 and 2 with a color that blends with the surrounding vegetation.
- In the Hohnstein Tatti allotment, vegetation would not be bladed or cleared during the installation of the new fence.

Cultural

- Prior to implementation of any ground disturbing activity, field inventory and reporting would be completed by BLM in consultation with the Oregon State Historic Preservation Office to meet Section 106 of the National Historic Preservation Act. Through project design, ground disturbing actions would avoid cultural resources and paleontological localities thus removing any impact or effect to these resources.

Hydrology

- BLM would acquire water rights for any new or existing water development which the BLM does not already have water rights to.
- New watering troughs would be located at least 50 feet from springs and 100 feet from streams.
- On Holmes and Squaw Creeks, if woody browse attributed to livestock grazing is greater than 50 percent of this year's leader growth then the next scheduled fall use would be prescribed rest.

Range

- Any proposed range development and all existing range developments would be maintained by the BLM until, or unless, an agreement is made, or has been made, for the permittee to perform maintenance.
- The proposed terms and conditions for the allotments found in Appendix C would be attached to the permits or leases.

Alternatives considered but eliminated

During the scoping process for the proposal to renew 29 grazing permits and leases the public suggested many different actions that the BLM should consider. A number of the suggestions have been incorporated into alternatives and analyzed in Chapter 2; however not all of the suggested alternatives were analyzed, or if they were, they may have been stated differently than they were originally proposed.

There were a number of proposals that were made that were considered but eliminated because they would not respond to the purpose and need of the proposed action. The proposals that were considered but eliminated based on this criterion include:

- Use controlled burns, pulling, and piling to remove juniper;
- Impose recreational fees for use of BLM managed land;
- Institute a travel management plan to reduce or eliminate the spread of noxious weeds,
- Acquire private land or require the owner of the private land, as part of the private land owner's permit renewal, to allow the public to access the public land surrounding Branson Creek, and Centralize livestock grazing to certain areas to centralize impacts of grazing;
- Eliminate grazing on existing vacant or inactive allotments;
- Include the Johnson Creek and Rudio Mountain allotments in this EA since the permit holder uses all three allotments for a given number of cattle.
- Make allotments unavailable for grazing and/or attach requirements to permits and leases in ecologically functional populations of threatened wolves' habitat.

Other proposals were considered but eliminated from detailed analysis because they were substantially similar in design or would have substantially similar effects to an alternative that is analyzed. The alternatives that were considered but eliminated because of these criteria include:

- Reduce stocking-rates and/or modify allotment boundaries to close grazing on conservation areas, areas with cultural resources, and areas with sensitive or listed species.

Finally, a proposal was considered but eliminated from detailed analysis because its implementation is remote or speculative. The alternative that was considered but eliminated because of this criterion was:

- Require the Two County allotment Permit holder to have their private land examined for range carrying capacity, and then make grazing on the public land contingent on there being a signed agreement by the private land owner that sets a total stocking density for the whole allotment (i.e. private and public land).

Conformance

Alternative 2 would not conform to the Brothers/La Pine RMP (USDI BLM 1989), Upper Deschutes RMP (USDI BLM 2005), Two Rivers RMP (USDI BLM 1986), or the John Day RMP (USDI BLM 1985) because it would remove grazing from areas that are available for grazing (pages 76 – 79, USDI BLM 1989, pages 76 – 87, USDI BLM 2005, pages 14 – 16, USDI BLM 1986, and pages 15 – 18, USDI BLM 1985). Therefore if alternative 2 is selected, the BLM would need to amend these four RMPs, which would involve additional public involvement and environmental analysis.

All other actions proposed in the alternatives, including grazing permit modifications and range developments, would follow direction from each allotment's applicable RMP. This direction includes:

Brothers/La Pine RMP (USDI BLM 1989):

- "Range developments will be designed to achieve both wildlife and livestock grazing management objectives," (page 97)
- "In crucial wildlife habitat...work will be scheduled during the appropriate season to avoid or minimize disturbances," (page 97)
- "Soils will be managed to maintain productivity and to minimize erosion." (page 121)

Upper Deschutes RMP (USDI BLM 2005):

- "Promote healthy sustainable rangelands, provide for continued livestock grazing, and limit conflicts between livestock grazing and other uses and values of public land and adjacent private land," (page 76)
- "Manage … rangelands to provide for social and economic values … consistent with ecosystem sustainability and other resource management objectives." (page 93)

Two Rivers RMP (USDI BLM 1986):

- "Management techniques will be used to minimize degradation of stream banks and the loss of riparian vegetation," (page 17)
- "Soils will be managed to maintain productivity and to minimize erosion." (page 30)

John Day RMP (USDI BLM 1985):

- "Maintain and improve the current level of habitat diversity," (page 18)
- "Soils will be managed to maintain productivity and to minimize erosion." (page 24)

Chapter 3 Affected Environment and Environmental Effects

Introduction

The affected environment describes the present condition and trend of issue-related elements of the human environment that may be affected by implementing any of the alternatives. It includes the effects from past and ongoing actions that contribute to present conditions, and provides a baseline for analyzing environmental effects of the alternatives and cumulative effects of actions that are on-going and reasonably foreseeable future actions.

The effects are the known and predicted effects from implementation of the actions, limited to the identified issues. Direct effects are those caused by the action and occurring at the same time and place. Indirect effects are those caused by the action but occurring later or in a different location. For the analyses of the alternatives, direct and indirect effects are not separated out, but displayed together.

Cumulative effects result from the incremental impact of the action when added to other on-going and reasonably foreseeable future actions. The cumulative effects analysis includes other BLM actions, other Federal actions, and non-Federal (including private) actions. Reasonably foreseeable future actions are those for which there are existing decisions, funding, formal proposals, or which are highly probable, based on known opportunities or trends.

The Oregon Washington S&Gs, approved on August 12, 1997 (USDI, BLM. 1997) are to be used as the Bureau of Land Management's management goals for protection of natural and cultural resources and to promote healthy productive sustainable rangelands.

Vegetation

How would livestock grazing affect upland vegetation?

Affected Environment

The allotments corresponding to the permits and leases that are being considered to be re-issued have varying amounts of upland vegetation in them that is in various conditions (Table 8). Additional detail on the types of monitoring methods that were used to determine the amount of upland vegetation in each allotment is found in the Range Report, which is incorporated by reference and is located at the Prineville BLM District office. In summary, the Range Report states that upland vegetation acreage in

each allotment varies from 37 acres in the Brooks Lease and Lamb allotments to 11,107 acres in the Two County allotment and is in varying conditions from poor to excellent.

The condition of upland vegetation in each allotment is based on monitoring data and wildlife habitat ratings for ungulates.

Past and present actions that have led to the current condition of upland vegetation include: irrigation ditch maintenance in the Morgart allotment; military training exercises in the West Powell Butte, North and South Stearns and Mayfield Pond allotments; OHV use in all allotments except Wagonblast; firewood cutting and juniper thinning in North and South Stearns, Mayfield Pond, West Powell Butte, Indian Creek, Lamb, Morgart, Mayfield Harris, Hohnstein-Tatti, Sanford Creek, Eagle Rock, Long Hollow, Webdell, Desert Springs and Lower Bridge allotments; transmission line maintenance on Desert Springs, Hohnstein-Tatti, North and South Stearns, Lamb, Mayfield Harris, Montgomery, Red Cloud, Webdell and West Powell Butte. Past and present actions including noxious weed spread, juniper encroachment, livestock grazing, wildfire and rehabilitation, and range development installation and/or maintenance have occurred on all allotments listed in this EA and have contributed to the current condition of upland vegetation in all of the allotments.

Table 8 - Upland vegetation on BLM managed land acres and condition.

Allotments	**Upland Vegetation on BLM managed land (Acres)**	**Upland Vegetation Condition**
Alfalfa Market Road	2,406	2,181 acres are in fair condition and 225 acres are in poor condition.
Biggs Junction	114	114 acres are in poor condition.
Brooks Lease	37	37 acres are in excellent condition.
Bull Canyon	277	277 acres are in excellent condition.
Desert Springs	1, 684	1,338 acres in poor condition and 346 acres are in fair condition
Eagle Rock	2,224	156 acres are in good condition, 1,166 acres are in fair condition, 399 acres are in poor condition, and 503 acres are in fair/good condition.
Evelyn E. See	170	170 acres are in good condition.
Hohnstein Tatti	4,316	2,046 acres are in poor condition and 2,270 acres are in fair condition.
Indian Creek	1,930	116 acres are in poor condition, 1,351 acres

		are in fair condition, and 463 acres are in poor/fair condition.
Lamb	37	37 acres are in poor condition.
Logan	1,413	1,357 acres are in fair/good condition and 56 acres are in good condition.
Long Hollow	496	405 acres are in fair condition and 91 acres are in good condition.
Lower Bridge	5,683	506 acres are in poor condition, 3,204 acres are in fair condition, 1,374 acres in good condition, and 599 acres are in good/excellent condition.
Mayfield Pond	5,640	3,342 acres are in fair condition and 2,298 acres in poor condition.
Mayfield Harris	990	872 acres are in fair condition and 93 acres are in poor condition, 25 acres are in poor/fair condition.
Montgomery	158	158 acres in fair condition
Morgart	75	75 acres are in fair condition.
North Stearns	9,129	6,175 acres are in poor condition, 1,830 acres are in fair condition, and 1,124 acres in poor/fair condition.
Red Cloud	618	618 acres in good condition.
Rowe Creek	340	340 acres are in good/excellent condition.
Sanford Creek	4,743	3,508 acres are in fair condition, 12 acres are in poor condition, and 1,223 acres are in good/excellent condition.
Sheep Gulch	484	285 acres are in fair

		condition, 83 acres are in good condition, 48 acres are in poor condition, and 68 acres are in poor/fair condition.
Soda Creek	1,984	1,012 acres are in fair condition, 615 acres are in good condition, and 357 acres are in poor condition.
South Stearns	9,113	4,901 acres are in poor condition, 2,495 acres are in fair condition, 508 acres are in good condition and 1209 acres are in fair/good condition.
Squaw Creek	4724	745 acres are in poor condition, 2,134 acres are in fair condition, 2,134 acres are in good condition and 45 acres are in excellent condition.
Two County	11,107	11,107 acres are in good/excellent condition.
Wagenblast	79	79 acres are in fair condition.
Webdell	227	110 acres are in fair condition and 117 acres are in poor condition.
West Powell Butte	8,859	4,709 acres are in fair condition and 4,150 acres are in poor condition.

Environmental Effects

If a pasture is grazed too hard both plant and animal production will be reduced and if the grazing pressure is too light forage use will be low, forage quality may decrease, and animal production per acre will be low (Roselle et al., 2001). Grazing systems that are properly applied are powerful tools that can help rangeland and livestock managers achieve management objectives related to rangeland and livestock production, as well as those related to ecosystem structure and function (Howery, Sprinkle, Bowns, 2000). See the Range Report, previously incorporated by reference, for a more detailed description of the general effects of grazing on rangelands.

Indicator

Relative comparisons of the different grazing scenarios effects to the upland vegetation on each allotment are estimated using the Allotment Critical Growing Season Indicator (ACGSI). The ACGSI is an analysis tool, created solely for this analysis, which simplifies the anticipated effect from each alternative's grazing rotation to a single number across the life span of the permit or lease. While it is not conclusive, evidence supports the conclusion that a reduced exposure to repeated spring grazing should lead toward an upward trend in an allotment's upland vegetation. This means that a lower ACGSI equates to an increased likelihood of an allotment's upland vegetation condition improving (e.g. going from poor to fair, fair to good, or good to excellent).

Methodology
The formula used to calculate ACGSI is:

ACGSI = Sum of each pasture's yearly CGSI over the course of one full pasture rotation

The yearly CGSI = Number of days grazing is authorized in the pasture during CGS x Number of acres of public land in the pasture / Number of acres of public land in the allotment

The dates of critical growing seasons were determined through studies of periodic plant life cycle events and how these are influenced by seasonal and interannual variations in climate (i.e. phonological studies), as well as habitat factors, conducted in the lower John Day River and the upper Crooked River basins.

An example of how the ACGSI is calculated for Alternative 3 and 4 for the Logan allotment in Table 9 is as follows.

- Hawk's Ridge Pasture = Year 1 (0 days x 1014 acres / 1343 acres) + Year 2 (5 days x 1014 acres / 1343 acres) + Year 3 (0 days x 1014 acres / 1343 acres) etc to Year 10 = 18.8756
- Alder Mountain Pasture = Year 1 (5 days x 329 acres / 1343 acres) + Year 2 (0 days x 329 acres / 1343 acres) + Year 3 (5 days x 329 acres / 1343 acres) etc to Year 10 = 6.1243

Thus, the Logan allotment's ACGSI = Hawk's Ridge Pasture + Alder Mountain Pasture = 25.

Assumptions
While the actual dates of the critical growing season change every year and vary with species and across the landscape according to topography, for this exercise, the critical growing season was assumed to be constant for given regions. The critical growing season was assumed to last 45 days and to begin May 1 in the lower John Day and Deschutes river basins, May 10 for the upper John Day river basin, and May 20 for the upper Deschutes and Crooked river basins.

Effects
The ACGSI values vary from 0 to 450. The amount of exposure of public lands to the possible effects of grazing is directly proportional to the ACGSI value. The ACGSI for each allotment for each alternative is in Table 9. The average ACGSI for Alternative 1 is 350, for Alternative 2 it is 0, and for Alternatives 3 and 4 it is 225. Except for the following allotments, the ACGSI either remains constant or decreases from Alternative 1 to Alternative 3:

Lower Bridge – The ACGSI for the Lower Bridge allotment increases from 110 under the No Action to 225 under Alternative 3 because the proposed season of use from 4/15 to 6/30 overlaps more of the critical growing period; however, Alternative 3 would also implement a rest rotation, which provides a full year of rest following spring use every other year.

Montgomery – The ACGSI for the Montgomery allotment increases from 0 under the No Action to 200 under Alternative 3 because the proposed season of use from 6/15 to 9/15 overlaps a portion of the critical growing period in order to provide more flexibility with changes in climatic factors from year to year. In addition, the proposed season of use reduces the use period from 7.5 months to three months.

Logan - The ACGSI for the Logan allotment increases from 0 under the No Action to 25 under Alternative 3 because the proposed season of use in Alternative 3 from 2/1 to 5/15 is in the beginning period of the critical growing period; however, Alternative 3 includes a new pasture and would implement a deferred rotation between two pastures. The change in timing of grazing would likely maintain or improve the health of the upland vegetation. Under the No Action (current authorized grazing) there is no deferment due to the fact there is only one pasture.

Table 9 - Grazing System and CGSI by alternative.

Allotment	**Acres of upland vegetation affected**	**Alt 1 (No Action) ACGSI**	**Alt 2 (No Graze) ACGSI**	**Alt 3 and 4 ACGSI**
ALFALFA MKT RD	2,406	450	0	120
BIGGS JUNCTION	114	450	0	450
BROOKS LEASE	37	310	0	310
BULL CANYON	277	260	0	320
DESERT SPRINGS	1, 684	450	0	205
EAGLE ROCK	2,224	450	0	32.4
EVELYN E. SEE	170	450	0	138
HOHNSTEIN TATTI	4,316	450	0	450
INDIAN CREEK	1,930	149	0	78
LAMB	37	100	0	50
LOGAN	1,413	0	0	25
LONG HOLLOW	496	450	0	450
LOWER BRIDGE	5,683	110	0	225
MAYFIELD POND	5,640	0	0	0

Allotment	Acres of upland vegetation affected	Alt 1 (No Action) ACGSI	Alt 2 (No Graze) ACGSI	Alt 3 and 4 ACGSI
MAYFIELD-HARRIS	990	450	0	450
MONTGOMERY	158	0	0	200
MORGART	75	450	0	225
NORTH STEARNS	9,129	450	0	54
RED CLOUD	618	440	0	205
ROWE CREEK	340	450	0	450
SANFORD CREEK	4,743	450	0	53
SHEEP GULCH	484	450	0	350
SODA CREEK	1,984	405	0	405
SOUTH STEARNS	9,113	450	0	30
SQUAW CREEK	4724	180	0	180
TWO COUNTY	11,107	450	0	51
WAGENBLAST	79	450	0	450
WEBDELL	227	450	0	450
WEST POWELL BUTTE	8,859	0	0	0

Cumulative Effects

Reasonably foreseeable future actions that would have cumulative effects to upland vegetation are:

Soda Creek and Two County Allotments

BLM has authorized the livestock grazing permittee to develop additional off site water sources in these allotments to help improve livestock distribution. The water developments and improved distribution would likely lead to an improvement in the condition of the upland vegetation in these allotments. EA #OR-054-06-064 and EA #OR-054-97-039 were completed for the range development projects for the

Soda Creek allotment. CX #DOI-BLM-OR-P040-2010-0033 was completed for the range development projects on the Two County allotment.

North and South Stearns Allotments
Juniper thinning projects in these allotments would improve the condition of upland vegetation on approximately 1,000 acres of upland vegetation. The reduction of juniper cover would increase the availability of water and increase cover of perennial bunchgrasses and other desirable native species. CX #DOI-BLM-OR-060-2010-0047 was completed for the juniper thinning projects.

How would livestock grazing affect *Thelypodium eucosmum* (arrowleaf thelypody), a BLM Sensitive plant species, in the Logan allotment?

Affected Environment
Thelypodium eucosmum (arrowleaf thelypody) is a Bureau Sensitive and Oregon State Threatened species. The worldwide distribution of arrowleaf thelypody is limited to the John Day River from near Monument to Service Creek and several locations around the Sutton Mountain/Twickenham, Dayville and John Day areas in central Oregon. Approximately 95 percent of documented populations occur on lands managed by the Prineville District BLM.

Current opinion is that arrowleaf thelypody no longer occupies most of its historically occupied habitats as the result of grazing use, particularly when the use occurs during arrowleaf thelypody's critical growing season, and the establishment and spread of invasive/noxious weed species and juniper encroachment (Meinke et al., 2011).

Of the 25 arrowleaf thelypody populations visited in 2009, plants were found in 15 populations and 19 populations had fewer plants than recorded in previous site visits (Meinke et al., 2011).

Two mapped arrowleaf thelypody populations occur in the allotments with permits or leases considered for renewal. Both of the mapped arrowleaf thelypody populations are in the Logan allotment and were surveyed in 2009. "Grazing" and/or "heavy grazing" were listed as apparent threats at both sites (Meinke et al., 2011). Arrowleaf thelypody plants were only found in one of the two populations. However, the population where plants were found appeared to be doing well and is important for the conservation and recovery of the species due to its location between two large clusters of arrowleaf thelypody populations, giving it the potential to act as a 'genetic bridge' between clusters, and the persistence of reproducing individuals.

Past and present actions that have led to the current condition of arrowleaf thelypody (Thelypodium eucosmum) populations and habitat include: current and historic grazing during arrowleaf thelypody's critical growing season; noxious weed and invasive species establishment and spread; and juniper encroachment.

Environmental Effects
Indicator
The indicator to be used in this analysis is the Estimated Livestock Use (ELU). ELU seeks to characterize the effects of livestock use on identified arrowleaf thelypody sensitive plant areas, with respect to timing and accessibility, under different alternatives.

Methodology

The critical growing season of arrowleaf thelypody is defined here, for the purposes of this analysis, as the period between April 15 and July 30. According to NatureServ and BLM records, arrowleaf thelypody flowers between May and July. Meinke et al. (2011) observed arrowleaf thelypody flowering and fruiting between June 2 and June 26 in their 2009 study. The critical growing season, as defined, is the time required for arrowleaf thelypody to grow vegetatively, flower, produce fruit and distribute mature fruit.

ELU was selected as the indicator for the effects analysis because it represents the anticipated level of threat to arrowleaf thelypody populations under different alternatives. Since arrowleaf thelypody would be negatively impacted by grazing use during the critical growing season (Meinke et al, 2011; Prineville BLM records), higher ELU values will be associated with a higher level of threat to arrowleaf thelypody populations. ELU is calculated as follows:

Estimated Livestock Use (ELU) = **Number of Days** X **Percent Accessible**

Number of Days = Number of days where arrowleaf thelypody's critical growing season overlaps with proposed grazing use

Percent Accessible = Percent of Sensitive Plant Area Accessible to Livestock

If the arrowleaf thelypody sensitive plant area is in a location less accessible to livestock, due to topography, fencing or some other factor, a lower percentage of livestock are expected to utilize that area and 'Percent Accessible' decreases.

Assumptions

1. Fewer cows would access arrowleaf thelypody populations occurring in steep, basalt drainages than those occurring in vernally moist, alkaline flats and hillside seeps (Meinke et al, 2011).

2. Cattle are known to consume all thelypody species, including arrowleaf thelypody, when they encounter it (Meinke et al., 2011).

3. Cattle grazing intensity decreases as slope percent increases (George et al., 2007).

4. Cattle grazing intensity decreases as distance from water increases (George et al., 2007).

5. If an alternative includes a PDF that would result in no livestock use of the identified sensitive plant area during the critical growing season, the ELU would be 0. Ninety percent of the sensitive plant area in the Logan allotment's west pasture would be fenced with a botanical exclosure under Alternatives 3 and 4. Therefore, ELU for the West Pasture was reported as 10 percent of the total calculated ELU for the West Pasture. There would be no botanical exclosures in the East Pasture, leaving 100 percent of the arrowleaf thelypody sensitive plant area accessible to livestock. As such, ELU was calculated at 100 percent for the East Pasture.

6. Due to the range of percent slope seen on sites occupied by arrowleaf thelypody in the Logan allotment's east pasture, a value of 45 percent grazing reduction was chosen for Percent AUM to represent the mid-point between the 11-30 percent and 31-60 percent slope ranges.

Effects

The effects that the actions in each of the alternatives would have on the two arrowleaf thelypody sensitive plant areas found in the Logan allotment are displayed in Table 10. Alternatives 3 and 4 would have the highest Estimated Livestock Use for the arrowleaf thelypody sensitive plant area in the East

Pasture. The sensitive plant areas in the West Pasture would be at least 90 percent fenced under a PDF that applies to both Alternatives 3 and 4, thus the West Pasture's ELU, while higher than Alternative 1 and 2's ELUs is less than East Pasture's ELU for Alternatives 3 and 4. The highest ELUs for Alternatives 3 and 4 for the East Pasture means that Alternatives 3 and 4 have the highest potential to deteriorate and/or eliminate the population in only the East Pasture while Alternatives 1 and 2 would not have any Estimated Livestock Use to arrowleaf thelypody sensitive plant areas in either pasture, as grazing would not occur during the critical growing season.

Table 10 - Effects to arrowleaf thelypody sensitive plant areas in the Logan allotment.

	Alternative 1		**Alternative 2**		**Alternatives 3 and 4**	
	West Pasture	East Pasture	West Pasture	East Pasture	West Pasture	East Pasture
Estimated livestock use (ELU)	**0**	**0**	**0**	**0**	**1,550**	**8,525**

Cumulative Effects

There are no reasonably foreseeable future actions that would have an effect on arrowleaf thelypody populations and habitat.

How would livestock grazing affect populations of *Calochortus longebarbatus var. peckii* (Peck's longbeard mariposa lily), a BLM Sensitive plant species, in the Indian Creek allotment?

Affected Environment

Peck's longbeard mariposa lily is a Bureau Sensitive species. It is documented on the Prineville District in Big Summit Prairie, the Ochoco Mountains in Crook, Wheeler and Harney counties and in some of the drainages south of the Ochoco National Forest, including the Maury Mountains. On federal land, geographic information systems (GIS) records at agency field units indicate that 215 sites occupy approximately 3400 acres and are found in 37 subwatersheds (6th field hydrologic units) (Dewey, 1996). Prineville BLM District is home to 9 percent of sites and 4 percent of occupied acres (Dewey, 1996).

The number of flowering individuals in a given population fluctuates widely from year to year in response to timing and duration of spring precipitation events. These fluctuations frustrate efforts to determine long-term population trends.

Available evidence suggests that with the appropriate grazing system (ie. not grazing in the spring) herbivory can benefit Peck's longbeard mariposa lily by limiting competition and by providing disturbance which opens up establishment sites.

There is one mapped population of Peck's longbeard mariposa lily in the Indian Creek allotment. The record of the population appears to be based on a one-time observation of a single plant. While there are several existing riparian exclosure fences along Indian Creek, the enclosed area does not overlap with the Peck's longbeard mariposa lily sensitive plant area or mapped potential habitat in the Indian Creek allotment. There are at least .25 acres of occupied Peck's longbeard mariposa lily habitat and five acres of potential Peck's longbeard mariposa lily habitat in the Indian Creek allotment that are not excluded from grazing.

Past and present actions that have led to the current condition of Peck's longbeard mariposa lily populations and habitat include current and historic grazing during Peck's longbeard mariposa lily's critical growing season and reservoir construction.

Environmental Effects

Indicator

The indicator to be used in this analysis is Estimated Livestock Use (ELU). ELU seeks to characterize the effects of livestock use on identified Peck's longbeard mariposa lily sensitive plant areas, with respect to timing and intensity, under different alternatives.

Methodology

The critical growing season of Peck's longbeard mariposa lily is defined, for the purposes of this analysis, as the period between March 15th and August 30th. The critical growing season, as defined, includes the period of time when Peck's longbeard mariposa lily's habitat is most vulnerable to impacts from grazing use (late March through May).

ELU was selected as the indicator for the effects analysis because it represents the anticipated level of threat to Peck's longbeard mariposa lily populations. Other than a different critical growing season, the methodology used to assess effects to Peck's longbeard mariposa lily is the same methodology that was used to assess effects to arrowleaf thelypody.

Assumptions

1. GIS analysis indicates that across its range, 57 percent of all Peck's longbeard mariposa lily's sites occur within 10 meters of a perennial or intermittent stream, while 69 percent of all sites occur within 50 meters of a perennial or intermittent stream. This distribution pattern suggests that: 1) stream courses provide moisture and disturbance conditions that favor establishment of Peck's longbeard mariposa lily and; 2) moving water is an important dispersal vector for this taxon, presumably through the transport of its bulblets.

2. Cattle grazing intensity decreases as slope percent increases (George et al., 2007).

3. Cattle grazing intensity decreases as distance from water increases (George et al., 2007).

4. One hundred percent of Peck's longbeard mariposa lily's sensitive plant areas will be accessible to livestock as the species occurs within 1 mile of water and on slopes that range between 0-10 percent.

5. If an alternative includes a PDF that would result in no livestock use of the identified sensitive plant area during the critical growing season, the ELU will be 0. One-hundred percent of the occupied habitat (.25 acres) in Indian Creek allotment would be fenced with a botanical exclosure under Alternatives 3 and 4, therefore ELU for Alternatives 3 and 4 was calculated using zero percent accessibility. ELU for potential habitat was calculated based on one-hundred percent accessibility for all alternatives, as none of the potential habitat (5 acres) would be excluded from grazing under any alternative.

Effects

The effects that the actions in each of the alternatives would have on the five acres of potential and 0.25 acres of occupied Peck's longbeard mariposa lily habitat are displayed in Table 11. In conclusion, Alternative 1 would have the highest Estimated Livestock Use to Peck's longbeard mariposa lily occupied

and potential habitat in the Indian Creek allotment, Alternative 2 would not have any Estimated Livestock Use to occupied and potential Peck's longbeard mariposa lily habitat in the Indian Creek allotment, and Alternatives 3 and 4 would have a moderate impact on potential Peck's longbeard mariposa lily habitat in Indian Creek allotment. Thus Alternative 1 has the highest potential to decrease, or eliminate, 0.25 acres of occupied habitat and five acres of potential habitat for Peck's longbeard mariposa lily.

Table 11 - Effects to Peck's longbeard mariposa lily populations in the Indian Creek allotment.

	Alternative 1	**Alternative 2**	**Alternatives 3 and 4**
Estimated Livestock Use (ELU) on Occupied Habitat (.25 acres)	**41,500**	**0**	**0**
Estimated Livestock Use (ELU) on Potential Habitat (5 acres)	**41,500**	**0**	**24,500**

Cumulative Effects

There are no reasonably foreseeable future actions that would have an effect on Peck's longbeard mariposa lily populations and habitat.

Economics

How would the reduction in permitted grazing use economically affect the grazing permittee and the local community?

Affected Environment

The allotments analyzed under this EA are located in eight different counties within the state of Oregon including Crook, Deschutes, Grant, Jefferson, Klamath, Sherman, Wheeler and Wasco County (Table 12- Allotments by County).

Table 12 - Allotments by County.

Allotment	County	Allotment	County
Alfalfa Market	Deschutes	Mayfield Harris	Crook
Biggs Junction	Sherman	Montgomery	Crook
Brooks Lease	Jefferson	Morgart	Klamath
Bull Canyon	Sherman	North Stearns	Crook
Desert Springs	Deschutes	Red Cloud	Crook
Eagle Rock	Crook		
Evelyn E. See	Sherman	Rowe Creek	Wheeler
Hohnstein Tatti	81 percent Deschutes 19 percent Crook	Sheep Gulch	Grant
Indian Creek	Crook	Soda Creek	Grant
Lamb	Deschutes	South Sterns	Crook
Logan	Wheeler	Squaw Creek	95 percent Wheeler 5 percent Grant

Long Hollow	Crook	Two County	Grant
Lower Bridge	Deschutes	Wagenblast	Wasco
Mayfield Pond	Deschutes	Webdell	Crook
		West Powell Butte	75 percent Deschutes 25 percent Crook

Cattle are Oregon's leading agricultural commodity bringing in $832,530,000 which represents 15 percent of total agricultural commodity sales in Oregon in 2012 (OAIN 2013). Livestock grazing is an important part of the local economy in the eight counties listed above and comprises 28 percent of the total cattle sales in Oregon (OAIN 2013).

The contribution from BLM grazing permits/leases to the Oregon gross farm and ranch sale for cattle and calves in 2007 is less than one percent for Crook, Grant, Jefferson, Klamath, Sherman, Wasco, and Wheeler Counties and is 2.6 percent for Deschutes county.

For this analysis it is assumed that the livestock operations associated with these allotments are solely contained within the county where the allotment is located.

Past and present actions that have led to the current condition of socioeconomics are land exchanges in the Soda Creek and Two County allotments. Past changes to authorized livestock grazing use are actions that have had positive and negative effects to permittees of all of the allotments.

Environmental Effects

Indicator

The indicator used in this analysis is the annual net revenue to the permittee and annual net revenue to the affected counties. The annual net revenue is used to show the economic effect to the individual permittee and the net revenue by county portrays the economic effect at the county level.

Methodology

The model used in calculating the ranch-level economic effects of changes in permitted use implements a partial budgeting, marginal analysis approach to economic analysis of an agricultural enterprise. Total expected annual net revenue in the model equals expected annual revenue minus expected annual costs. Expected annual revenue includes proceeds from calf sales and sale of excess cattle. Expected annual costs include herd maintenance costs, herd moving costs, grazing permit costs, and any costs resulting from the purchase of additional cattle. The model does not include ranch operations' fixed costs, costs or returns on land investments, or depreciation.

Grazing permits include a number of mandatory terms and conditions, including a requirement to maintain assigned range developments. Currently the permittees are responsible for fence maintenance, except for fences around areas excluded from grazing, which the BLM maintains. The permittees also maintain wells, pipelines and troughs in the allotments. The BLM maintains the roads. The permittees cover all operational costs, such as checking and starting up pumps at wells. The formula used to calculate the effects in this analysis accounts for maintenance costs, so those costs are not analyzed separately.

For some of the allotments there is an increase in annual net revenue due to changes in season of use even though the total number of AUMs remains the same. This is attributed to a shortened period of time spent on public lands and therefore it is assumed that operational costs associated with livestock management and care would be reduced. This formula assumes the livestock are sold after removal

from public lands and does not account for private feeding or operational costs associated with private land.

Assumptions (source: Julie A. Suhr Pierce, PhD., Great Basin Socioeconomic Specialist, BLM)

- The maximum AUMs permitted in any given month on the allotment serve as the limiting factor in determining the maximum size of the herd from which annual production can be obtained.
- The total supported number of animal units (AUs) is set by the number of range AUMs divided by the number of months on the allotment. The size of the herd is assumed to be constant throughout the year, regardless of how many months the herd grazes on the allotment being evaluated.
- Each AU is assumed to equal to one cow-calf pair.
- If the total number of AUs decreases it is assumed that the rancher would sell the excess cattle at a sale weight of 900 pounds and a sale price of $1.10.
- The rancher would invest or save the proceeds from the sale at a rate of return or interest rate of 1 percent. Although under current financial market conditions a rancher might be able to realize a much higher rate of return, 1 percent is a reasonable rate to use under the assumption that ranchers would prefer to put revenue into relatively safe, conservative investments.
- The proceeds from selling excess cattle are annualized as a stream of revenue over ten years.
- If the total number of AUs increases it is assumed that the rancher would purchase additional cattle under the same conditions outlined above.
- The cost of additional cattle is annualized over ten years as a stream of costs, added to overall operating costs for the allotment.
- Ranchers would realize a 92 percent success rate in taking calves to market.
- Average calf sale weight of 500 pounds at $1.45 per pound.
- On public land, the standard cost of herd maintenance is estimated at $18.54 per AUM.
- On public land, the standard cost of herd moving is estimated at $14.69 per AUM.
- The cost of public land grazing is $1.35 per AUM.
- It is assumed that livestock are sold when they come off public land.

Effects

The annual net revenues shown in Table 13- Annual and 10 year net revenue to the permittee/lessee represent the estimated income to individual permittees as a result of their ranching operations on public land. Every dollar in net revenue to permittees amounts to almost twice that in benefits to the local economy from additional spending by suppliers and employees (IMPLAN SAM and Census of Ag SAM Multiplier and Revised BLM Grazing Impacts Methodology) as shown in Table 14- Benefit to Local County Economies (Annual Net Revenue).

Table 13 - Annual and 10 year net revenue to the permittee/lessee.

	Revenue to Permittee/Lessee					
	Alternative 1		Alternative 2		Alternative 3 or 4	
Allotment Name	Annual	10 Year Net	Annual	10 Year Net	Annual	10 Year Net
ALFALFA MKT RD	$14,791	$140,093	$0	$0	$14,791	$140,093
BIGGS JUNCTION	$2,137	$20,242	$0	$0	$2,137	$20,242

Allotment Name	Revenue to Permittee/Lessee					
	Alternative 1		Alternative 2		Alternative 3 or 4	
	Annual	10 Year Net	Annual	10 Year Net	Annual	10 Year Net
BROOKS LEASE	$582	$5,508	$0	$0	$582	$5,508
BULL CANYON	$543	$5,147	$0	$0	$242	$2,296
DESERT SPRINGS	$2,478	$23,470	$0	$0	$14,347	$135,886
EAGLE ROCK	$3,207	$30,372	$0	$0	$20,752	$196,549
EVELYN E. SEE	$551	$5,214	$0	$0	$220	$2,082
HOHNSTEIN TATTI	$5,186	$49,121	$0	$0	$4,573	$43,309
INDIAN CREEK	$4,711	$44,621	$0	$0	$4,711	$44,621
LAMB	$7,731	$73,225	$0	$0	$7,731	$73,225
LOGAN	$16,560	$156,843	$0	$0	$17,344	$164,274
LONG HOLLOW	$238	$2,250	$0	$0	$238	$2,250
LOWER BRIDGE	$34,893	$330,486	$0	$0	$26,781	$253,647
MAYFIELD POND	$22,713	$215,121	$0	$0	$22,897	$216,862
MAYFIELD-HARRIS	$1,346	$12,749	$0	$0	$981	$9,290
MONTGO-MERY	$833	$7,893	$0	$0	$2,861	$27,100
MORGART	$238	$2,250	$0	$0	$1,142	$10,813
NORTH STEARNS	$7,977	$75,556	$0	$0	$25,857	$244,897
RED CLOUD	$9,596	$90,884	$0	$0	$9,423	$89,244
ROWE CREEK	$673	$6,372	$0	$0	$673	$6,372
SANFORD CREEK	$7,423	$70,307	$0	$0	$21,649	$205,046

Allotment Name	Revenue to Permittee/Lessee					
	Alternative 1		Alternative 2		Alternative 3 or 4	
	Annual	10 Year Net	Annual	10 Year Net	Annual	10 Year Net
SHEEP GULCH	$3,803	$36,022	$0	$0	$9,137	$86,539
SODA CREEK	$18,938	$179,364	$0	$0	$15,224	$144,192
SOUTH STEARNS	$11,540	$109,303	$0	$0	$37,406	$354,280
SQUAW CREEK	$14,075	$133,305	$0	$0	$14,075	$133,305
TWO COUNTY	$51,669	$489,377	$0	$0	$21,873	$207,170
WAGENBLAST	$198	$1,875	$0	$0	$1,811	$17,157
WEBDELL	$257	$2,437	$0	$0	$257	$2,437
WEST POWELL BUTTE	$32,694	$309,657	$0	$0	$29,128	$275,877
TOTAL	$334,427	$3,167,462	$0	$0	$385,689	$3,652,961

Table 14 - Benefit to Local County Economies (Annual Net Revenue).

County	Alt. 1(No Action)	Alt. 2 (No Grazing)	Alt. 3	Alt. 4
Crook	$112,573.68	$0	$264,571.74	SAME AS ALT. 3
Deschutes	$222,654.32	$0	$224,194.26	
Grant	$150,227.50	$0	$93,875.50	
Jefferson	$1,164.00	$0	$1,164.00	
Klamath	$476.00	$0	$2,284.00	
Sherman	$6,462.00	$0	$5,198.00	
Wasco	$396.00	$0	$3,622.00	
Wheeler	$61,208.00	$0	$62,776.50	
TOTAL	$555,162.00	$0	$657,686.00	

Source: Oregon Agricultural Information Network (OAIN), Extension Economic Information Office, Oregon State University and Julie A. Suhr Pierce, PhD., Great Basin Socioeconomic Specialist, BLM.

Summary

Overall there is not a major difference between Alternatives 1, 3, or 4. There would be an increase in annual net revenue between the Alternative 1 and Alternatives 3 and 4 from $277,581 to $328,843. The benefit to the local economy under Alternative 1 would be $555,162 and under Alternatives 3 and 4 would be $657,686. Alternative 3 and 4's net revenue and benefit to the local economy is higher than Alternative 1's because Alternative 3 and 4 would change the season of use that livestock would be grazing on public land. Most often times the season of use was reduced in Alternatives 3 and 4 and this reduces the cost to an operator of grazing on public land. The estimations of revenue do not incorporate

private land costs. Additionally, it is assumed that livestock are sold once the livestock leave public land so this also would result in potential increases in revenue to the operator under Alternatives 3 and 4.

Alternative 2, the No Grazing Alternative, would have the largest impact to the permittee and local economies due to the loss of grazing in these areas. The No Grazing Alternative would result in a total annual loss (compared to Alternative 1) of $277,581 to the permittees and $555,162 to the eight local county economies. Over 10 years this would result in a loss of $2,629,064 to the permittees and $5,551,620 to the county economies. For some permittees whose operations are largely dependent upon public land grazing, the No Grazing Alternative would likely have a much larger impact on their individual operation and ranch income.

Cumulative Effects

There are no reasonably foreseeable future actions that would have a measurable effect on the local economy when combined with the above direct and indirect effects. The BLM is currently preparing an EIS that analyzes a number of actions to protect and enhance sage-grouse habitat, which includes the Indian Creek allotment; however, the outcome of that EIS is still unknown so the effects of those actions are not analyzed here.

Hydrology

How would livestock grazing affect stream water quality?

While livestock grazing may not affect water quality, grazing is not a simple "yes or no" proposition (Allen-Diaz, et al. 1999). Livestock grazing can degrade water quality by removing streamside vegetation, accelerating stream bank erosion, and widening stream channels. Grazing intensely (high AUMs/acre), continuously, and with poor distribution across the landscape, can remove enough stream-shading vegetation to increase water temperatures (Briske, 2011). Intense, season long and poorly distributed livestock grazing can also result in the loss of streamside vegetation with strong roots; eventually destabilizing stream banks and widening stream channels. (Dalldorf et al., 2013; Miller, 2010; Elzinga, Salzar, and Willoughby, 1998; and Elmore and Beschta, 1987). Wide, shallow streams with flattened banks result in warmer water temperatures and poor quality habitat for aquatic species.

Riparian-wetland areas are a product of the soils, topography, climate and natural disturbances, especially water (Boltz and Peakcock, 2002 and Stringham and Repp, 2010). Within the project area, there are three broad types of riparian-wetland areas that support different assemblages of aquatic species and respond differently to livestock management practices (Hawkins et al., 1993, Bruno et al., 2014 and Jones, Lile, and Tate, 2011) those dominated by woody riparian-wetland vegetation, those dominated by herbaceous riparian-wetland vegetation, or those with a mixture of herbaceous and woody riparian wetland vegetation.

It can be difficult to discern the effects of current grazing practice from the legacy effects of uncontrolled grazing 50 to 100 years ago. Back then, approximately twice as many livestock grazed the landscape and poor distribution often resulted in nearly continuous grazing of riparian-wetland areas. (Elmore, 1994; Svejcar, 2014; and Beschta, 2014). As a result of these poor conditions, the Oregon Department of Environmental Quality (ODEQ) has identified many streams with poor water quality as "water quality limited" because they do not support beneficial uses, especially use by fish and other aquatic species. Within the project area, ODEQ has identified three water quality limited streams may be affected by the alternatives (Table 15).

Table 15 - Miles of Water Quality Limited Streams and streams regulated by a TMDL Crossing BLM Lands.

Stream Name **ALLOTMENT - PASTURE NAME**	**Water Quality Limitation**	**Total Impaired Stream Miles**	**Stream Miles in BLM**	**Miles in a grazing allotment**
Grass Valley Canyon EVELYN E. SEE FFR - EVELYN E. SEE	Shade and channel form	39.8	0.4	8.7
Sanford Creek SANFORD CREEK - LOWER SANFORD	Water temperature, habitat modification and flow modification	7.4	0.5	5.0
SANFORD CREEK - MIDDLE SANFORD			1.7	5.0
SANFORD CREEK - UPPER SANFORD			1.5	5.0
SANFORD CREEK – MAMIE HINING			0.1	5.0
SANFORD CREEK - UPPER SANFORD EXCLOSURE			0.2	5.0
Holmes Creek TWO COUNTY - HOLMES CREEK		5.2	1.0	4.7
Totals		52.4	5.4	18.4

How does livestock grazing affect stream-shade and channel form (width) targets in Grass Valley Canyon?

Affected Environment

Where streams are water quality limited because the water is too warm, the ODEQ creates targets for stream shade and channel form necessary to provide for beneficial uses. Within the Evelyn E See allotment, the BLM manages 0.4 stream miles of Grass Valley Canyon. In this herbaceous riparian-wetland area, the shade target is based on 2 feet tall streamside vegetation and the channel form target is a "natural" form. The BLM's 2013 monitoring indicates that Grass Valley Canyon does not currently meet the target for channel form because the channel is wider than "natural" and does not meet the target for shade because the end of summer vegetation height was less than 2 feet. In addition, the species of vegetation lining the stream banks are not stable enough to enable development of a narrow the stream channel.

Attaining targets for shade and channel form may require adjustments in grazing practices and time for the stream reach to recover. In order to comply with water quality regulations during the recovery period, the BLM wrote a plan describing the management actions necessary to attain the targets within a reasonable timeframe (John Day Basin Water Quality Restoration Plan BLM, 2012). In the plan and in Rangeland Health Standards, the BLM uses assessments of stream condition as an early indicator of water quality degradation for targeting pollution control measures. The BLM often uses assessment of stream condition because traditional in-stream water quality monitoring lags in response to the deterioration in ecological functions (Hall et al., 2014). Depending on the stream condition, the plan prescribed different management actions to meet the targets for shade and channel form. Despite a 2011 condition assessment that rated the stream condition as "At-Risk Trend Not Apparent," the BLM has not implemented these management actions in the Evelyn E See Allotment. Specifically, grazing management in Evelyn E See allotment has not been changed by limiting the season, duration, frequency, and intensity.

Environmental Effects

For the Evelyn E See Allotment, Alternative 2, 3, and 4 include actions from the BLM's plan to attain shade and channel form targets within a reasonable timeframe. The summary in Table 16 lists the management actions proposed to move toward attaining targets for shade and channel form.

Table 16 - Use of management actions within Evelyn E. See allotment designed to meet John Day Basin TMDLs in Grass Valley Canyon, by alternative.

Alternative Number	**Management Actions from Water Quality Management Plan Applied? (Y/N – management action)**
1	N - Current permit for grazing does not include management actions prescribed for stream channels assessed as being "As-Risk with no apparent trend"
2	Y - Consider complete rest from activity for a time specified by an interdisciplinary team. Allow complete recovery of stabilizing vegetation before fall rains begin to increase stream flow (approx. October 1).
3&4	Y – Limit livestock use and implement management that maintains an upward trend in stream bank and channel characteristics change management by limiting season, duration, frequency, and intensity of resource use (e.g., livestock grazing, recreation, etc.).

Grazing proposed in Alternatives 2, 3, and 4 would result in minimal yet measurable effects to shade and channel form through changes in the livestock season of use or exclusion for Grass Valley Canyon in the Evelyn E. See allotment. In riparian-wetland areas like Grass Valley Canyon, herbaceous vegetation would naturally dominate stream banks. As the stream narrows, streamside vegetation casts a shadow across a greater proportion of the channel. As a result, attaining the natural channel form target also contributes to attainment of the shade targets changes (ODEQ, 2010). Based on the response of comparable Eastern Oregon streams to changes in livestock management, the BLM expects Alternatives 2, 3, and 4 to result in attaining shade and channel form targets (see Table 17). Alternative 2 (no grazing) would provide 2 feet tall vegetation and would meet the shade and channel form targets within 10 years. Compared to Alternative 2, Alternative 3 is slightly less likely to meet or exceed the shade targets because spring grazed vegetation would re-grow to approximately 1 foot tall, half the potential (2 feet), by August. Alternative 1 would be least likely to meet the TMDL regulations.

Table 17 - Grass Valley Effective Shade in Evelyn E See allotment at the end of the 10 year permit on August 1.

	Alternative 1	**Alternative 2**	**Alternative 3 & 4**
Targets	**Continue grazing under existing terms and conditions**	**No grazing**	**Spring Grazing**
Streamside Vegetation Height*, Effective Shade***, and Bankfull Width**	6 inches tall, 20 or less percent shade, and 12.3 ft wide	24 inches tall, 35 percent shade, and 6 ft wide	12 inches, 35 percent or less, and 6 ft wide
Water Quality Targets	*Target not met*	*Target met*	*Targets met*

*Alternative 1 is based on recent stubble height measurements of 6.2 inches, Alternative 2 is based on potential plant height of key species, alternatives 3 and 4 are based on a regrowth of 50 percent of potential (Boyd and Svejcar, 2004).
**Based on an expected improvement in width to depth ratios of approximately 75 percent. EPA's Watershed Assessment of River Stability & Sediment Supply application calculated channel form.
***Estimated from John Day Basin TMDL shade curve A (DEQ, 2010) for bankfull widths listed.

How would livestock grazing affect water temperature and habitat modification in Sanford Creek and Holmes Creek ?

Affected Environment

Where waters are currently not sufficient to support the project area beneficial uses of fish and aquatic life, actions taken by the BLM must contribute to meeting state water quality standards. Within the project area, the ODEQ identified two streams as water quality limited because of water temperature and habitat modification: Holmes Creek in the Two County allotment and Sanford Creek in the Sanford Creek Allotment (OAR 340-041-0007). These streams lack cool or cold-water aquatic communities due to modifications of the physical habitat, hydrology, or water quality. These modifications preclude cold-water habitat or the species composition expected in a stream with natural conditions.

Livestock grazing can modify cold-water aquatic habitat by removing woody riparian vegetation from stream margins and, in herbaceous systems, livestock grazing can remove streamside vegetation, accelerate stream bank erosion, and widen stream channels. Removal of both woody and herbaceous riparian vegetation can result in more energy for bank erosion and a reduction in aquatic habitat (Dunaway, Swanson, Wendel, and Clary, 1994). Literature reviews consistently conclude that as grazing intensity increases (especially during hot seasons and the fall), so does the probability that aquatic habitat will become degraded (Dalldorf et al., 2013; Booth, Cox, Simonds, and Sant, 2012; and Manoukian and Marlow, 2002). Therefore, the BLM assumes that as grazing intensities increase (especially during hot seasons and the fall), so does the probability that aquatic habitat will be degraded. The preponderance of evidence indicates that all systems of grazing are similarly constrained by stocking rate and weather (Briske, 2011).

More than half of the water quality limited reach of Sanford Creek runs across BLM managed public land in Sanford Creek Allotment. The riparian vegetation on Sanford Creek is a combination of both woody and herbaceous species. Current and historic hot season livestock grazing and fire in the Sanford Creek watershed influence the condition of Sanford Creek. Historic grazing of herbaceous riparian vegetation during the hot season and woody vegetation in the fall has reduced the current density and extent of riparian vegetation. Although recent seasons of grazing rest on Sanford creek allowed enough recovery to attain proper functioning condition, the amount and extent of riparian vegetation remain less than potential.

About 20 percent of the water quality limited reach of Holmes Creek runs across BLM managed public land in Two County Allotment. Most of the riparian vegetation on Holmes Creek consists of woody species. Current and historic fall livestock grazing and fire in the Holmes Creek watershed influence the condition of Holmes creek. Historic grazing of woody vegetation in the fall has reduced the current density and extent of woody vegetation and aquatic habitat in Holmes Creek. Although Holmes Creek does not have an upward trend and exhibits light to moderate browse, the amount and extent of woody riparian species remain less than potential.

Environmental Effects

The BLM used riparian grazing pressure to indicate effects of alternatives on riparian-wetland areas with herbaceous vegetation and the BLM used days of fall grazing to indicate effects of the alternatives on riparian-wetland areas with woody vegetation.

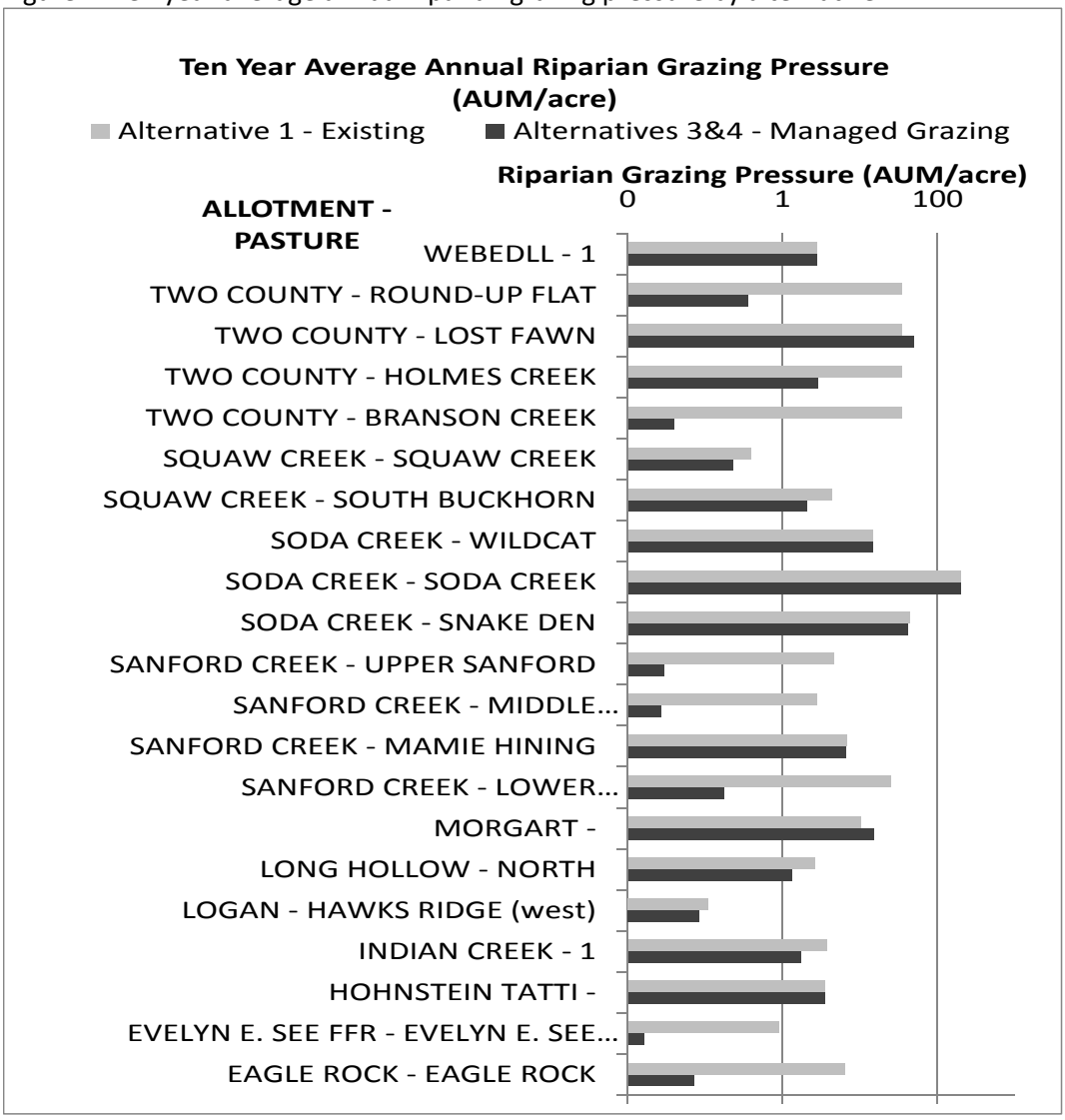
Riparian grazing pressure (RGP) indicates the differences between alternatives in effects on water temperature and habitat modification. Riparian grazing pressure is expressed in AUMs/acre and is calculated from the daily air temperatures, stocking rate, acres of riparian-wetland vegetation, and

water availability. Riparian grazing pressure is not an absolute measure of aquatic habitat and is only an indicator of effects (Isaak, 2001). A higher riparian grazing pressure indicates a higher likelihood and intensity of livestock generated habitat modification and changes in water temperature (Dalldorf et al., 2013).

The magnitude to which alternatives could affect habitat modification on Sanford Creek is displayed in Figure 1 as the 10-year average riparian grazing pressure. Alternatives 3 and 4 would result in the same or decreased amount of riparian grazing pressure than in Alternative 1. Compared to Alternative 3, Alternatives 3 and 4 would result in a slight increase in the maximum riparian grazing pressure in Lower Sanford pasture, but the average remains constant due to the inclusion of rest in the rotation system. Mamie Hining pasture would exhibit an increase in pressure, but none of Sanford Creek would remain in Mamie Hining because of a pasture fence realignment in Alternatives 3 and 4.

Alternative 2 would result in no riparian grazing pressure and no effect on riparian areas, springs, and wetlands. Most of these areas would begin to exhibit increases in the amount of native riparian-wetland herbaceous species within two to three years (Ranganath, Hession, and Wynn 2010; Herbst et al. 2012; and Kauffman, Thorpe, and Brookshire, 2004).

Figure 1. Ten year average annual riparian grazing pressure by alternative.



Days of fall grazing indicates the differences between Alternatives in effects on habitat modification and water temperature. Days of fall grazing is calculated from the scheduled use under the alternatives and anecdotal information about recent pasture use (for current condition) (see Figure 2). A higher number of days of fall grazing indicates a higher likelihood that livestock grazing would modify aquatic habitat and alter water temperatures. Alterations would include heavy browse of woody species, reduced abundance of woody riparian species (like willow), reduced stream shade, decreased aquatic invertebrate richness, altered channel form, and reduced amounts of stream bank vegetation composed of deep-rooted species capable of withstanding high stream flow events.

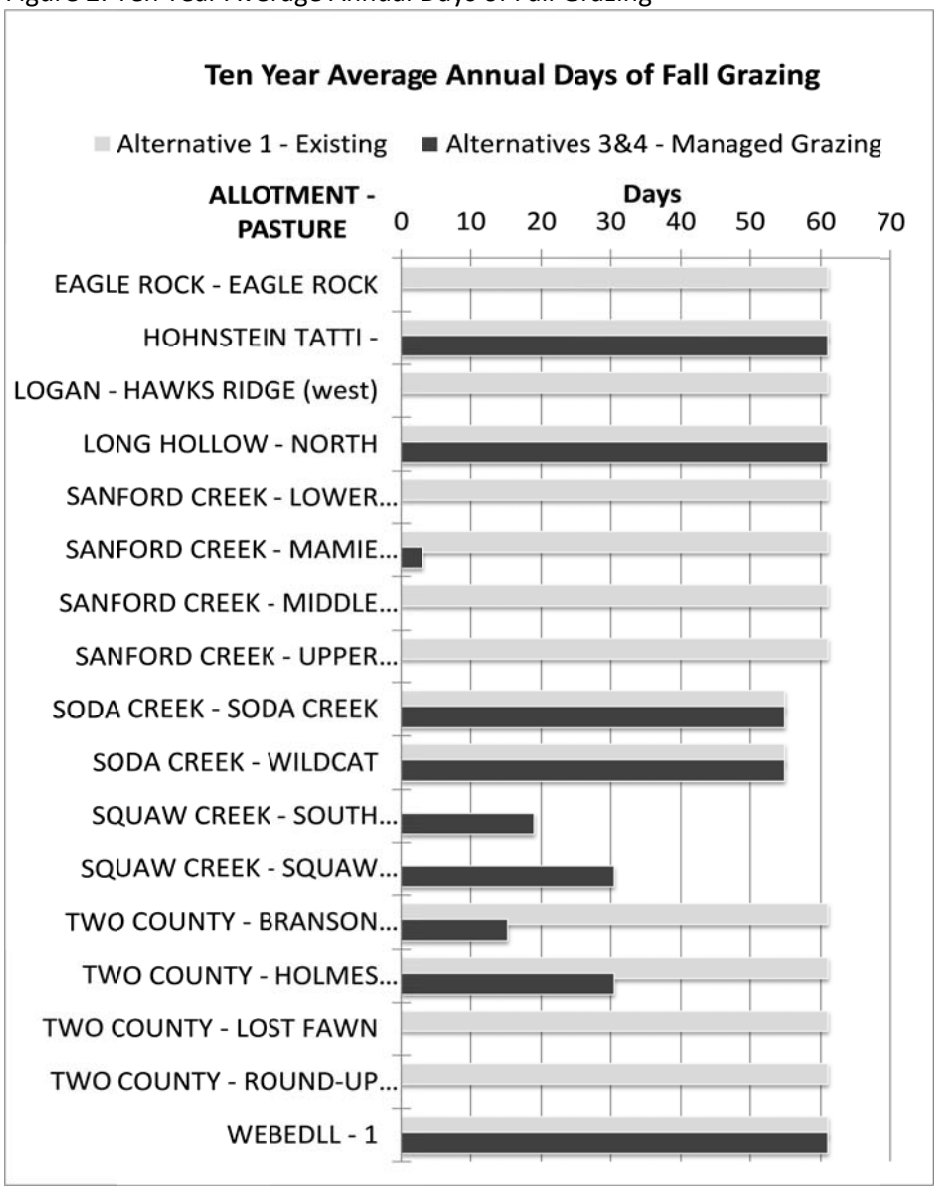
The livestock grazing permitted under Alternative 1 would have the highest likelihood of habitat modification because it has the highest number of days of fall grazing. Livestock grazing permitted under Alternatives 3 and 4 would be unlikely to impact habitat in Sanford Creek because no fall grazing would occur. In the Two County allotment Holmes Creek pasture, Alternatives 3 and 4 would have half the impact of Alternative 1. Under Alternatives 3 and 4, the Holmes Creek pasture contains the PDF "if woody browse attributed to livestock is greater than 50 percent on this year's leader growth then the

next scheduled fall use would instead be prescribed rest." This PDF ensures rest from fall grazing if fall browse on woody riparian species exceeds 50 percent.

Even if fall browse exceeded this standard at every opportunity, effects to habitat modification under Alternatives 3 and 4 would be less than Alternative 1. Alternative 2 would result in no effects to water temperature or habitat modification in Sanford and Holmes Creek because there would be no grazing. Most of these riparian areas would begin to exhibit increases in the amount of native woody species within ten years (Hosten and Whitridge, 2007).

Overall, levels of riparian grazing pressure and days of fall grazing would be less or equal under Alternatives 2, 3 and 4 than Alternative 1. Therefore, effects on water temperature and habitat modification would be equal or less under Alternatives 2, 3, and 4 than Alternative 1.

Figure 2. Ten Year Average Annual Days of Fall Grazing



How well would the alternatives meet water quality standards for flow modification in Holmes Creek and Sanford Creek?

Affected Environment

The ODEQ identified Holmes Creek and Sanford Creek as water quality impaired due to flow modification (OAR 340-041-0007). In these streams, cool or cold-water aquatic communities are absent, limited or substantially degraded due to modifications of the stream flow. These flow modifications preclude or limit the attainment of cool or cold water habitat or the species composition that would be expected based on a natural reference stream.

Holmes Creek and Sanford Creek have dry reaches during most summers. This is likely the result of reduced floodplain connectivity, watershed conditions, and other human caused modifications such as diversion of water for irrigation or livestock watering.

Environmental Effects

To examine differences between the alternatives in effects on flow modification, the proportion of natural low flows consumed by livestock is compared to the modeled ten-year low flow in August, when stream flows are the lowest and livestock drink the most water (15 gallons per day per AUM) (USGS, 2009). Under Alternatives 1, 3 and 4, livestock water consumption would be less than one percent of the natural low flows. Under Alternative 2, no livestock would be present and stream flow would not be modified.

Cumulative Effects

There are no reasonably foreseeable future actions that would affect water quality, thus water quality would improve under Alternatives 2, 3, and 4, and remain approximately the same under Alternative 1.

How would livestock grazing affect the ecological status and physical function of riparian-wetland areas?

Affected Environment

Many livestock grazing strategies are capable of recovering or maintaining the ecological status and physical function of riparian areas, springs and wetlands (USDI, BLM, 2006). In contrast, other grazing strategies, like the uncontrolled grazing of the homestead era, affect the amount of riparian-wetland vegetation, change the composition of stream bank plant species, accelerate bank erosion, widen and/or incise channels (Svejcar et al., 2014, and Beschta, 2014). This issue examines how much and how likely it is that each alternative's grazing prescription would affect the ecological status and physical function of riparian-wetland areas, regardless of whether or not the ODEQ identifies the areas as water quality limited and analyzed in this EA under the water quality issue.

Past and present actions that have led to the current condition of riparian-wetland vegetation of streams, springs and wetlands are grazing, fire, and row cropping. Considered individually, the pasture specific effects of BLM livestock management on riparian areas, springs, and wetlands is minimal; with each pasture's riparian-wetland vegetation accounting for less than seven percent of any watershed. The majority of the riparian-wetland vegetation in these watersheds either is zoned for agricultural uses like grazing or is contained in a grazing allotment administered by the BLM or US Forest Service. Considered cumulatively, lands within federal managed grazing allotments, account for an average of 61 percent of each watershed's area. The amount of riparian-wetland vegetation found in each allotment and pasture is summarized in Table 18.

Table 18 - Acres and watershed percentage of riparian-wetland vegetation found in allotments with permits or leases being renewed.

Existing allotment and pasture (over 1/2 acre of BLM with livestock access)	Riparian-Wetland Vegetation (acres) In: Water-shed	Federal grazing allotments	Project area grazed**	Project area ungrazed*
BULL CANYON - BULL CANYON	301	179	0.6	0.00
EAGLE ROCK - EAGLE ROCK	963	80	2.7	0.00
EVELYN E. SEE FFR - EVELYN E. SEE	135	79	6.3	0.00
HOHNSTEIN TATTI -	480	59	2.5	0.00
INDIAN CREEK - 1	193	185	4.8	0.06
INDIAN CREEK - INDIAN CREEK EXC	193	185	0.0	4.31
LOGAN - HAWKS RIDGE	516	348	3.5	0.6
LONG HOLLOW - NORTH	963	80	0.7	0.0
MORGART -	492	226	3.8	0.0
SANFORD CREEK - LOWER SANFORD	963	80	2.0	0.0
SANFORD CREEK - MAMIE HINING	963	80	1.2	0.0
SANFORD CREEK - MIDDLE SANFORD	963	80	4.3	0.0
SANFORD CREEK - SQUAREHOUSE EXC	963	80	0.0	0.6
SANFORD CREEK - UPPER SANFORD	963	80	3.5	0.0
SANFORD CREEK - UPPER SANFORDEXC	963	80	0.0	1.0
SODA CREEK - SNAKE DEN	705	591	0.6	0.
SODA CREEK - SODA CREEK	705	591	2.3	0.00
SODA CREEK - WILDCAT	705	591	0.4	4.1
SQUAW CREEK - SOUTH BUCKHORN	296	174	3.9	0.1
SQUAW CREEK - SQUAW CREEK	296	174	6.6	0.0
TWO COUNTY - BRANSON CREEK	296	174	5.3	0.2
TWO COUNTY - HOLMES CREEK	296	174	4.2	0.8
TWO COUNTY - LOST FAWN	451	204	4.4	0.0
TWO COUNTY - NO GRAZE	296	174	0.0	15.7
TWO COUNTY - ROUND-UP FLAT	296	174	1.2	0.1
WEBDELL - 1	963	80	0.5	0.0
Grand Total	**14354**	**4922**	**61**	**27**

*Ungrazed areas have limited access from livestock due to a combination of steep slopes, rocky soils, or fencing.

** The project area is the portions of the allotments that have permits or leases being considered for renewal that are managed by the BLM.

Environmental Effects

As discussed under the water quality issue, different types of riparian-wetland areas support different assemblages of aquatic species (woody vs herbaceous) and respond differently to livestock management practices. Effects to the ecological status and physical function of riparian-wetland areas near streams and springs differ by type of riparian-wetland area. The effects of alternatives on areas with herbaceous riparian vegetation is indicated by the riparian grazing pressure, and the effects of alternatives on areas with woody riparian vegetation is indicated by the days of fall grazing.

Figure 1 highlights the differences between alternatives in riparian grazing pressure for areas dominated by herbaceous vegetation. In the Two County allotment, the Lost Fawn Creek pasture the riparian grazing pressure would be 45 percent higher in Alternatives 3 and 4 than Alternative 1. However, this adjustment would allow 92 percent lower riparian grazing pressure on the steelhead habitat in the Holmes Creek pasture in Alternatives 3 and 4 than Alternative 1.

Across the project area, Alternative 1 would result in the highest riparian grazing pressure, Alternatives 3 and 4 would result in approximately 25 percent less riparian grazing pressure than Alternative 1, and Alternative 2 would result in no riparian grazing pressure.

Figure 2 highlights the differences between alternatives in days of fall grazing for areas dominated by woody vegetation. Compared to Alternative 1, Riparian/wetland areas in the South Buckhorn and Squaw Creek pastures of the Squaw Creek allotment would experience up to 30 more days of fall grazing under Alternatives 3 and 4 than Alternative 1. However, a project design feature limits the amount of fall grazing that can occur if livestock browse of woody riparian-wetland vegetation reaches a detrimental level. (See Figure 2)

Across the project area, Alternatives 3 and 4 result in equal or reduced days of fall grazing, compared to Alternative 1. Alternative 2 would result in no days of fall grazing.

Only Alternative 4 includes fences around livestock water developments that would exclude 1.6 acres of riparian wetland areas (see Table 19). The fences around livestock water developments would exclude these riparian- wetland areas from riparian grazing pressure and fall grazing. Lack of riparian-wetland vegetation around springs can cause fluctuations in the downstream water temperature (Whitledge et al. 2006). Spring ecology can be very sensitive to fluctuations in water levels (Patten, 2007). Compared to Alternatives 1 and 3, Alternatives 2 and 4 exclude livestock grazing and minimize water through automatic shutoff values, an additional 1.6 acres of riparian wetland vegetation and physical function of springs would be expected to recover to potential natural condition within 10 to 15 years. However, biological structure and biogeochemical function often remain 25 percent lower than reference sites for many years (Moreno-Mateos, Power, Comin, and Yockteng, 2012).

Overall, levels of riparian grazing pressure, days of fall grazing and protection of spring areas would be greater or equal under Alternatives 2, 3 and 4 than Alternative 1. Therefore, ecological status and physical function of riparian wetland areas would be equal or greater under Alternatives 2, 3, and 4 than Alternative 1.

Table 19 - Acres of riparian-wetland vegetation excluded from livestock grazing in Alternative 4 due to one acre exclosures around water developments.

PASTURE NAME * Hydrologic Feature	**Herbaceous (acres)**	**Woody & Herbaceous (acres)**	**Total (acres)**
INDIAN CREEK - 1		**0.4**	**0.4**
Paulina Creek - a perennial stream		0.4	0.4
SODA CREEK - SNAKE DEN	**0.6**		**0.6**
Spring and Springbrook in an ephemeral stream	0.4		0.4
Spring and Springbrook in an intermittent stream	0.2		0.2
SODA CREEK – WILDCAT		**0.1**	**0.1**
Spring and Springbrook in an intermittent stream		0.1	0.1

WEBDELL – 1	**0.5**	**0.5**
Spring and Springbrook in an intermittent stream	0.5	0.5

Cumulative Effects

There are no reasonably foreseeable future actions that would affect the ecological status and physical function of riparian-wetland areas.

Fisheries

What would be the effects to fish habitat from livestock grazing?

Affected Environment

The allotments that have permits or leases that are being considered for renewal that have fish habitat on BLM managed lands are the Two County, Squaw Creek, Indian Creek, and Sanford Creek allotments. While these four allotments have fish habitat, Sanford Creek is the only allotment that would have differences in effects to fish habitat from the alternatives because: in Two County, Holmes Creek's stream banks support minimal herbaceous riparian vegetation and limited woody riparian; in Squaw Creek livestock only have access in a few locations to the stream with fish habitat; and in Indian Creek, Paulina Creek on BLM managed lands has an armored channel and has stream banks that support minimal herbaceous riparian vegetation, woody riparian vegetation and a conifer over story.

Sanford Creek

In the Sanford Creek allotment, lower Sanford Creek pasture is the only fish bearing section of Sanford Creek. This fish bearing section of Sanford Creek is 2,850 feet long. It contains herbaceous and woody vegetation (Water Birch, Willow ssp.) and is a low gradient Rosgen E channel. In 2010 a PFC assessment was completed by a team of professional natural resource specialists and determined that this reach was at PFC. There is a reach above this section that dewaters and is preventing fish from reoccupying the upper reaches. Currently Sanford Creek is inhabited by redband trout (Oncorhynchus mykiss gairdneri), a Bureau sensitive species that is utilizing the limited pool habitat within lower Sanford Creek pasture.

Environmental Effects

Sanford Creek

When analyzing effects from grazing on fish habitat in small streams, vegetation is a key component. Vegetation provides shade and cover, holds the stream banks together and captures sediment to build banks. Livestock grazing removes vegetation and can alter or retard the natural process of how a stream process functions. When rating a grazing strategy's effects on fish habitat, the amount of vegetation that would be expected to be left after the grazing period was used to determine the trend of the condition of the fish habitat that would follow. Alternatives 2, 3, and 4 would result in an upward trend in the condition of the 2,850 feet of fish habitat on BLM managed land in Sanford Creek, while Alternative 1 would result in a downward trend (see Table 20).

Table 20 – Trend direction of fish habitat in Sanford Creek.

Alternative	Alt 1	Alt 2	Alt 3	Alt 4
Trend direction of fish habitat in Sanford Creek	Downward trend	Upward trend	Upward trend	Upward trend

Cumulative Effects

There are no reasonably foreseeable future actions that would affect fish habitat.

Wildlife

Introduction

The wildlife affected environment and issues analysis is divided into two main sections: Introduction, and Assessment of Issues. The introduction includes the organization of this section, methods, description of the wildlife species of concern, assumptions and general description of the main habitat types and some associated species (for reference) found in the project area (allotments). The Assessment of Issues section provides the issue statement, description of the species of concern and their habitat needs and effects analysis. The species and their habitat descriptions are purposefully brief and focused on the conditions at issue.

Methodology

This section focuses on priority wildlife species. Priority wildlife species, called "Species of Concern" (SOC), are listed in Table 21. Species of Concern are wildlife species for which there is ongoing concern, or local public interest in a population or habitat status. Species were included if they met one of the three following criteria and were of management concern associated to the proposed project:

• Species that are included in the Special Status Species Policy (6840) which includes: federally listed threatened, endangered or proposed species;

• Bureau Sensitive species.

• Species of local interest, such as mule deer (Odocoileus hemionus hemionus), and Rocky Mountain elk (Cervus elaphus nelsoni).

Table 21 – Species of concern included in the analysis.

Species of Concern	Reason for concern
Mule Deer Bighorn Sheep Pronghorn Rocky Mountain elk	These species forage on the same plants as livestock, the existing habitat condition is compromised and some of the action alternatives would contribute to a continued decline in habitat condition.
Ground nesting birds: California quail Mountain quail Chukar Killdeer Willet Long-billed curlew Wilson's snipe Burrowing owl Common nighthawk Horned lark Rock wren Hermit thrush Spotted towhee Vesper sparrow Lark sparrow Grasshopper sparrow Dark-eyed junco Western meadowlark Brewer's blackbird	These species depend on grass and shrub cover for concealing nests, and providing escape cover and thermal protection. Cattle can also trample nests during the nesting season (mid-May to mid-July). The existing habitat condition is compromised and some of the action alternatives would contribute to a continued decline in habitat condition.
Oregon spotted frog	While Oregon spotted frogs and their habitats can withstand some grazing outside of the early part of the nesting season, heavy or early grazing can result in damage to egg masses, tadpoles, juvenile frogs and overwintering habitat.
Sage-grouse	Sage-grouse are a concern because their habitat has decreased by 47percent. They're a candidate species for listing under the Endangered Species Act due to a number of factors such as power line corridors, juniper expansion, and human disturbance.

While a species of concern, effects to Oregon spotted frog is not analyzed in detail and is an issue considered but eliminated because there would not be any differences in effects to Oregon spotted frog habitat from any of the alternatives.

Sage-grouse are analyzed differently than the other wildlife species because the BLM has specific policy focused solely on sage-grouse habitat management (BLM Instruction Memorandum No. 2012-043) which recommends certain habitat attributes be considered.

Assumptions

A variety of quantitative and qualitative data and field observations were used in determining habitat conditions. When available, existing data (e.g., range monitoring data, ESI, riparian PFC, SVIM, etc.) was used, and older data was tempered with recent field observations, satellite imagery and remote sensing.

Based on the existing data and field observations the existing habitat condition for each allotment was rated from poor (P) to excellent (E) (see Table 22).

The effects of each alternative were determined using the existing habitat condition, proposed grazing system and habitat needs for each species or species group, and extended over a ten year period. The effects of the alternatives are described under each issue statement and rated using the same scale used for the existing the condition.

The habitat condition rating ranges from poor to excellent based on the expected native plant community, wildlife diversity, disturbance and ecological processes (Table 22). Ratings were adjusted for differences in habitat needs for the species analyzed in the issues. For example the ratings for ungulates in the vegetation composition category focused more on the availability of forage species and ratings for the western bumblebee focused on flowering forbs. Therefore what might be excellent habitat for ungulates because there was ample forage might become only good for bumblebees because there would be fewer flowering forbs available to achieve an excellent rating for that species.

Table 22 - Description of the wildlife habitat ratings.

Habitat Condition Rating	Definition
Poor (P)	Habitat condition exhibits an extreme departure (>75 percent) from the expected characteristics of vegetation composition/structure, wildlife diversity, disturbance regimes and/or ecological process.
Poor/Fair (F/G)	Habitat condition exhibits a moderate to extreme (>60 percent<75percent) departure in the expected characteristics of vegetation composition/structure, wildlife diversity, disturbance regimes and ecological process.
Fair (F)	Habitat condition exhibits a moderate departure (>50 percent<60 percent) in the expected characteristics of vegetation composition/structure, wildlife diversity, disturbance regimes and ecological process.
Fair/Good (F/G)	Habitat condition exhibits slight to moderate (>40 percent, <50 percent) departure in the expected characteristics of vegetation composition/structure, wildlife diversity, disturbance regimes and ecological process.
Good (G)	Habitat condition exhibits an slight departure (>30 percent,<40 percent) in the expected characteristics of vegetation composition/structure, wildlife diversity, disturbance regimes and ecological process.
Good/Excellent (G/E)	Habitat condition exhibits little to slight departure (>25 percent,<30 percent) in the expected characteristics of vegetation composition/structure, wildlife diversity, disturbance regimes and ecological process.
Excellent (E)	Habitat condition exhibits little departure (<25 percent) in the expected characteristics of vegetation composition/structure, wildlife diversity, disturbance regimes and ecological process.

Wildlife Species and Habitats

Because of the wide geographic range and variety of habitats across the project area there is a large number of wildlife species that may occur in the project area. Of these species, 10 species are designated as BLM Sensitive (Table 23). Most of these species, such as the peregrine falcon, bald eagle and white-headed woodpecker, nest in locations little affected by cattle grazing. There are no federally listed species known to occur in the allotments with permits or leases being considered for renewal. The Oregon spotted frog is the only species that is proposed for listing on the allotments with permits or

leases being considered for renewal. The western bumblebee is a Bureau Sensitive species whose numbers are declining throughout the western US (Cameron et al 2011). This species has been documented to occur on the Prineville District and there is potential habitat on BLM managed lands in the allotments with permits or leases being considered for renewal; however, there are no documented observations of western bumblebees on BLM managed land in the project area. There are two groups of species of local interest included in the analysis; these are the ungulates and resident and migratory ground nesting birds. The analyses of these were grouped because the effects to these species would be similar and involve repeating a lot of the same information for each species.

There are many species of wildlife within the allotments that have not been analyzed in detail, including small mammals, reptiles, amphibians and migratory birds that are not ground nesters. These species would have slightly different effects from the alternatives; however these differences were not enough to warrant an in-depth discussion. In summary, for these species, Alternatives 1, 3, and 4 would not have differences in effects while Alternative 2 would have beneficial effects.

Table 23 - Sensitive species considered for analysis with this project.

Species	Observed in project area	Likely to be in project area	Further consideration	Reason for inclusion or elimination for further analysis
Grasshopper sparrow	N	N	N	There is very little and poor quality habitat within the project area. Not a ground nester.
Greater sage-grouse	Y	Y	Y	This ground nesting species is a candidate species affected by livestock grazing.
American peregrine falcon	N	Y	N	Differences in livestock grazing, proposed range developments, or proposed range development maintenance would have very minor differences in impacts to this species.
Bald eagle	N	N	N	Differences in livestock grazing, proposed range developments, or proposed range development maintenance would have very minor differences in impacts to this species.
Lewis' woodpecker	N	Y	N	Differences in livestock grazing, proposed range developments, or proposed range development maintenance would have very minor differences in impacts to this species.
White-headed woodpecker	Y	Y	N	Differences in livestock grazing, proposed range developments, or proposed range development maintenance would have very minor differences in impacts to this species.
Oregon spotted frog	Y	Y	N	Differences in livestock grazing, proposed range developments, or proposed range development maintenance would have very minor differences in impacts to this species.
Pallid bat	N	Y	N	Livestock grazing, proposed range developments, or proposed range development maintenance would have no effect on roosts and proposed livestock grazing is not heavy enough to effect foraging habitat.
Townsend's big-eared bat	N	Y	N	Livestock grazing, proposed range developments, or proposed range development maintenance would have no effect on roosts and proposed livestock grazing is not heavy enough to effect foraging habitat.
Western bumblebee	N	Y	Y	This species is rare and in decline. It depends on forbs during their flowering seasons. These forbs may be lost to livestock grazing.

The acres of wildlife species ranges within the Prineville District are shown in Table 24.

Table 24 – Acres of ranges of wildlife species included in the wildlife analysis.

Species or group	Acres in allotments		Acres in Prineville BLM District	
	Total	BLM Managed	Total	BLM Managed
Winter ungulate habitat	167,436	80,925	9,564,110	1,639,640
Ground nesting birds	161,302	78,657	8,678,725	1,534,026
Western bumblebee	89,483	30,629	9,897,720	748,360

How would changing the season of livestock grazing affect forage available for native ungulates during winter?

Affected Environment

Mule deer, rocky mountain elk, pronghorn and big-horn sheep are species of local importance and make up the native ungulate species of concern group. There are 28 allotments (Table 25) which contain habitat used by ungulates in the winter; of these 15 have a F/G to P rating and contain low plant diversity, abundance and productivity to support populations of native ungulates and livestock grazing. Weeds, erosion and a high percentage of bare ground are conditions that contributed to these 28 allotments F/G to P rating.

Past and present actions that have led to the current condition of wild ungulate populations and habitat include: current and historic grazing; noxious weed and invasive species establishment and spread; and, juniper encroachment.

Table 25 - Affected environment wildlife habitat rating for ungulates.

Allotment	Rating	Allotment	Rating	Allotment	Rating
Alfalfa Market	G/E	Long Hollow	G	Sheep Gulch	P/F
Biggs Junction	P	Lower Bridge	G/E	Soda Creek	F
Brooks Lease	E	Mayfield-Harris	P/F	South Stearns	F/G
Bull Canyon	E	Mayfield Pond	P/F	Squaw Creek	G/E
Desert Springs	P/F	Montgomery	G/E	Two County	G/E
Eagle Rock	F/G	Morgart	F	Wagenblast	P
Evelyn E. See	G	North Stearns	P/F	Webdell	P/F
Hohnstein-Tatti	F	Red Cloud	E	West Powell Butte	F
Indian Creek	P/F	Rowe Creek	G/E		
Logan	G	Sanford Creek	G/E		

Environmental Effects

Wild ungulates have evolved with each other for millennia, competing, facilitating forage production for others to exploit and/or co-existing. The most direct competition between livestock and wild ungulates focuses on food.

Competition for food between large herbivores involves several factors, including diet similarity, consumption equivalence, range overlap, timing of forage use, forage height, quantity and quality and density of competing species (Toweill and Thomas, 2002). Overlapping ranges (livestock with any other wild ungulate), habitat condition ratings based on native plant abundance, productivity and diversity were focused on for the analysis of this issue. Habitats in good condition provide abundant, productive and diverse plant communities to support native ungulates because native ungulates have evolved with native plants. If these areas are grazed by livestock at a sustainable level, the plant communities are able to provide suitable conditions for both wild ungulates and livestock with only minor negative effects to wild ungulates and their habitats.

While competition between elk and cattle is more intense than with any other large herbivore in the western United States (both species are dietary opportunists, using a variety of grasses, forbs and shrubs (Toweill and Thomas, 2002)), cattle also feed on the same plants as deer, pronghorn and bighorn sheep.

Alternative 1 would still lead to changes in some allotment's ungulate habitat because the permittee may not have been grazing the entire length or at the maximum amount of AUMs allowed under the permit. The allotment's ungulate habitat most negatively affected by Alternative 1 would be the habitat with poor/fair to good ratings. Winter forage availability would decrease on those allotments with ungulate habitat that is negatively affected leading to a commensurate reduction in ungulate herd sizes in 10 years.

Alternative 2 would manage for the most positive change in winter ungulate habitat by eliminating the competition between livestock and wild ungulates which would allow for the greatest vegetative recovery and thus provide more winter forage.

Alternative 3 would increase winter forage availability in multiple allotments, but especially in allotments with ratings between poor/fair to good. Those allotments with ratings of poor would likely be slightly improved but would also not show a quantifiable change since in poor condition there is often little remaining native grass so even a doubling of the few native grasses might not be noticeable.

Alternative 4 would affect only the Soda Creek and Sheep Gulch allotments. The fencing of springs from cattle in these allotments would allow increases in riparian species, increase winter forage, and help to preserve the water source for native ungulates.

Table 26 shows the differences in effects to wild ungulate habitat conditions from the different alternatives for the allotments show in Table 25.

Table 26 - Effects to wild ungulate habitat by alternative.

Allotment	Alt 1 (No Action)	Alt 2 (No Graze)	Alternative 3	Alternative 4
ALFALFA MKT RD	G/E	G/E	G/E	G/E
BIGGS JUNCTION	P	P/F	P	P
BROOKS LEASE	E	E	E	E
BULL CANYON	E	E	E	E
DESERT SPRINGS	P/F	F/G	F	F
EAGLE ROCK	F/G	G	G	G
EVELYN E. SEE	G	G	G	G
HOHNSTEIN TATTI	F	F	F	F
INDIAN CREEK	P/F	F	F	F
LOGAN	G	G	G	G
LONG HOLLOW	G	G	G	G
LOWER BRIDGE	G/E	E	E	E
MAYFIELD POND	P/F	P/F	P/F	P/F
MAYFIELD-HARRIS	P/F	F	F	F
MONTGOMERY	G/E	E	E	E
MORGART	F	F/G	F/G	F/G
NORTH STEARNS	P/F	F	F	F
RED CLOUD	E	E	E	E
ROWE CREEK	G/E	G/E	G/E	G/E
SANFORD CREEK	G/E	E	E	E
SHEEP GULCH	P/F	P/F	P/F	F
SODA CREEK	F	F	F	F
SOUTH STEARNS	F/G	F/G	F/G	F/G
SQUAW CREEK	G/E	G/E	G/E	G/E
TWO COUNTY	G/E	G/E	G/E	G/E
WAGENBLAST	P	P	P	P
WEBDELL	P/F	P/F	P/F	P/F
WEST POWELL BUTTE	F	F/G	F/G	F/G

[Rating scale: Poor (P), Poor/Fair (P/F), Fair (F), Fair/Good (F/G), Good (G), Good/Excellent (G/E), and Excellent (E)]

Cumulative Effects

There are no reasonably foreseeable future actions that would have an effect on ungulate populations and habitat within the allotments with permits or leases being considered for renewal.

How would changing the season of livestock grazing affect ground nesting resident neotropical migrant birds?

Affected Environment

The condition of resident and neotropical migrant ground nesting bird habitat acres was estimated using a wide variety of sources including those described in the introduction and the Oregon Breeding Bird Atlas and Oregon GAP. Using this variety of information, the ground nesting resident neotropical migrant bird habitat for each allotment was given an overall rating from P to excellent E (Table 27). Sixteen of the 29 allotments have an F/G to P. Allotments with F/G to P ratings have ground nesting resident neotropical migrant bird habitat that does not provide the ground cover necessary for these species to nest successfully and the habitat in some allotments lacks some, or all, of the parts necessary for these birds to forage for seeds or insects.

Past and present actions that have led to the current condition of populations and habitat of resident and migratory ground nesting birds include: current and historic grazing; noxious weed and invasive species establishment and spread; and, juniper encroachment.

Table 27 - Affected environment wildlife habitat rating for resident and neotropical migrant ground nesting birds.

Allotment	Rating	Allotment	Rating	Allotment	Rating
Alfalfa Market	E	Logan	G/E	Sanford Creek	G/E
Biggs Junction	P/F	Long Hollow	G	Sheep Gulch	P/F
Brooks Lease	E	Lower Bridge	G/E	Soda Creek	F/G
Bull Canyon	E	Mayfield-Harris	F	South Stearns	F/G
Desert Springs	F	Mayfield Pond	F	Squaw Creek	G
Eagle Rock	F/G	Montgomery	G/E	Two County	G/E
Evelyn E. See	G	Morgart	F	Wagenblast	P
Hohnstein-Tatti	F/G	North Stearns	P/F	Webdell	P/F
Indian Creek	F	Red Cloud	E	West Powell Butte	F/G
Lamb	P/F	Rowe Creek	E		

[Rating scale: Poor (P), Poor/Fair (P/F), Fair (F), Fair/Good (F/G), Good (G), Good/Excellent (G/E), and Excellent (E)]

Environmental Effects

The predicted condition of resident and migratory ground nesting bird habitat in 10 years was estimated by building on the estimates of those of the initial conditions (affected environment). These estimates were estimated based on the effects expected from based on the actions in each alternative.

Ground nesting birds occur on all of the allotments. Grazing cattle affect these species by reducing ground vegetation (Walsberg, 2005; Ryder, 1980). This results in fewer potential nest sites (Fondell and Ball, 2004). Nests can also be trampled by cattle reducing nest success (Holmes et al. 2003; Fondell and Ball, 2004). With the reduction of ground cover the risk of predation is increased (Fondell and Ball, 2004; Keyser et al, 1998; Ryder, 1980).

Alternative 1 would result in no measurable change to resident and migratory ground nesting bird habitat in most allotments but could reduce resident and migratory ground nesting bird habitat in some allotments with current habitat ratings between poor/fair and good. Allotments with migratory ground nesting bird habitat ratings that are currently in a good/excellent to excellent state would remain in that condition. Resident and migratory ground nesting bird habitat in poor condition also would not change.

Alternative 2 would result in the greatest positive change. Removing grazing would result in: increases in native grasses thus increase nesting sites for ground nesting birds; provide concealment to reduce predation; and reduce the incidence of nest trampling.

Alternative 3 would make changes that would result in more nesting habitat for resident and migratory birds and reduced trampling and predation of resident and migratory birds than the no action alternative. These changes would be most evident in the allotments with current resident and migratory ground nesting bird habitat ratings between poor/fair and good. These allotments are the ones which have the intermediate resident and migratory bird habitat conditions that would improve due to increases in native vegetation in a 10 year period. Those allotments with good/excellent to excellent resident and migratory bird habitat would remain in that condition and although some positive changes would likely occur, these would likely not be discernable. Those allotments with poor ratings might also

have improved habitat for resident and migratory birds under alternative 3; however those improvements would not be discernable in a 10 year period.

Alternative 4's exclosures would have a positive effect on resident and migratory bird habitat in Sheep Gulch, Soda Creek and Webdell allotments by providing more ground nesting sites for birds such as the Wilson's snipe and vesper sparrow which nest in low riparian vegetation.

Table 28 shows the differences in effects to resident and migratory bird habitat conditions from the different alternatives.

Table 28 - Nesting habitat condition for resident and migratory ground nesting birds for allotments of concern.

Allotment	Alt 1 (No Action)	Alt 2 (No Graze)	Alternative 3	Alternative 4
ALFALFA MKT RD	E	E	G/E	G/E
BIGGS JUNCTION	P/F	P/F	P/F	P/F
BROOKS LEASE	E	E	E	E
BULL CANYON	E	E	E	E
DESERT SPRINGS	F	F	F	F
EAGLE ROCK	F/G	G	G	G
EVELYN E. SEE	G	G/E	G	G
HOHNSTEIN TATTI	F/G	F/G	F/G	F/G
INDIAN CREEK	F	F/G	F/G	F/G
LAMB	P/F	P/F	P/F	P/F
LOGAN	G/E	G/E	G/E	G/E
LONG HOLLOW	G	G	G	G
LOWER BRIDGE	G/E	E	E	E
MAYFIELD POND	F	F	F	F
MAYFIELD-HARRIS	P	P/F	P/F	P/F
MONTGOMERY	G/E	E	E	E
MORGART	F	F/G	F/G	F/G
NORTH STEARNS	P/F	F	F	F
RED CLOUD	E	E	E	E
ROWE CREEK	E	E	E	E
SHEEP GULCH	P/F	P/F	P/F	F
SANFORD CREEK	G/E	E	E	E
SODA CREEK	F/G	F/G	F/G	F/G
SOUTH STEARNS	F/G	G	G	G
SQUAW CREEK	G	G	G	G
TWO COUNTY	G/E	G/E	G/E	G/E
WAGENBLAST	P	P	P	P
WEBDELL	P/F	P/F	P/F	F
WEST POWELL BUTTE	F/G	F/G	F/G	F/G

[Rating scale: Poor (P), Poor/Fair (P/F), Fair (F), Fair/Good (F/G), Good (G), Good/Excellent (G/E), and Excellent (E)]

Cumulative Effects

There are no reasonably foreseeable future actions that would have an effect on ground nesting bird populations and habitat in the allotments with permits or leases being considered for renewal.

How would changing the season of livestock grazing affect the Western bumblebee habitat?

Affected Environment

Historically the range of the western bumblebee extended across most of western North America, however it began disappearing and only 10 individuals have been recorded from Oregon since 2000 (Rao et al. 2011). The analysis of western bumblebee habitat is based on the records for the east side of Oregon, where they have been found at elevations starting at 700 feet and precipitation zones of 13 inches or more.

Potential western bumblebee habitat occurs on 19 allotments (Table 29). The condition of the habitat was estimated using the information described in the introduction and climate features. Using this information the bumble bee habitat for each allotment was given an overall rating of from poor (P) to excellent (E). Eight of the allotments with potential habitat are between poor and fair/good condition.

Table 29 - Habitat rating for western bumblebees.

Allotment	Rating	Allotment	Rating	Allotment	Rating
Brooks Lease	E	Lower Bridge	G/E	Soda Creek	F/G
Bull Canyon	G	Mayfield-Harris	P	Squaw Creek	G
Desert Springs	P/F	Morgart	G	Two County	G/E
Eagle Rock	F/G	Red Cloud	E	Wagenblast	P
Indian Creek	F	Rowe Creek	G/E	Webdell	P/F
Logan	G	Sheep Gulch	P/F		

[Rating scale: Poor (P), Poor/Fair (P/F), Fair (F), Fair/Good (F/G), Good (G), Good/Excellent (G/E), and Excellent (E)]

Environmental Effects

Alternative 1 would result in western bumblebee habitat declines over the next 10 years. This is especially true in allotments with ratings between poor/fair and good. In these allotments continued grazing in the current manner could eliminate forbs important to the western bumblebee.

Alternative 2 would likely improve all of the bumblebee habitat by allowing forbs and the habitat to recover. This is especially true of the allotments between poor/fair to good in rating. These allotments are likely to have populations of the necessary forbs present and these populations would be expected to increase over a 10 year period. Allotments with western bumble habitat with good/excellent to excellent ratings might also improve as forb species would increase. Allotments with western bumblebee habitats with poor ratings are extremely depleted in forb species and thus would not be expected to have a discernable increase in western bumblebee habitat conditions.

Alternative 3 would result in the likely improvement of potential western bumblebee habitat in all of the allotments. The most improvement would occur in the allotments with western bumblebee habitat currently rated as poor/fair to good.

Alternative 4 would result in improvements in western bumblebee habitat for the Sheep Gulch, Soda Creek and Webdell allotments. The springs that would be fenced under this alternative would result in habitat improvements around the springs for western bumblebees.

The western bumblebee habitat condition ratings for allotments with leases or permits being considered for renewal are displayed in Table 30.

Table 30 - Habitat condition with ratings for the western bumblebee by alternative.

Allotment	Alt 1 (No Action)	Alt 2 (No Graze)	Alternative 3	Alternative 4

Allotment	Alt 1 (No Action)	Alt 2 (No Graze)	Alternative 3	Alternative 4
DESERT SPRINGS	P/F	F	F	F
EAGLE ROCK	F/G	F/G	F/G	F/G
INDIAN CREEK	F	F/G	F/G	F/G
MAYFIELD POND	P	P/F	P	P
SHEEP GULCH	P/F	P/F	P/F	F
SODA CREEK	F/G	F/G	F/G	F/G
WAGENBLAST	P	P	P	P
WEBDELL	P/F	P/F	P/F	F
BROOKS LEASE	E	E	E	E
BULL CANYON	G	G	G	G
LOGAN	G	G	G	G
LOWER BRIDGE	G/E	E	E	E
MORGART	G	G	G	G
RED CLOUD	E	E	E	E
ROWE CREEK	G/E	G/E	G/E	G/E
SQUAW CREEK	G	G	G	G
TWO COUNTY	G/E	G/E	G/E	G/E

[Rating scale: Poor (P), Poor/Fair (P/F), Fair (F), Fair/Good (F/G), Good (G), Good/Excellent (G/E), and Excellent (E)]

Cumulative Effects

There are no reasonably foreseeable future actions that would affect western bumblebees.

Would the season or intensity of livestock grazing use affect the quantity or quality of sage-grouse habitat or the likelihood of sage-grouse using those habitats?

Affected Environment

Sage-grouse habitat has decreased by 47 percent, most of which occurred in the Columbia Basin and was largely private land converted to agriculture. BLM managed lands (41 percent) and private land ownership (48 percent) are nearly equal in this region.

The only allotment with permits or leases being considered for renewal that contains sage-grouse habitat is the Indian Creek allotment. In the Indian Creek allotment, the Southeast corner is identified as sage-grouse Preliminary Priority Habitat (PPH) with isolated blocks throughout the allotment identified as Preliminary General Habitat. The closest lek complex to the allotment is the Minife complex which is approximately five miles from the allotment. This complex experienced declining numbers in 2011 and 2012. Lek attendance in 2012 was almost half of the numbers recorded during the peak year of 2007.

Currently the allotment is not rated as suitable for any sage-grouse habitat component. There are less than 300 acres that rate as marginal brood rearing habitat, approximately half of these being mapped as sage-grouse Preliminary General Habitat (PGH).

Past and present actions that have led to the current condition of sage-grouse habitat in the Indian Creek allotment include current and historic grazing.

Environmental Effects

Indicator: Acres of existing suitable habitat (by category: nesting, early brood, late brood, winter with an additional subset of PPH and PGH) grazed at an intensity or season of use that would alter suitability.

Alternative 1
Two out of the three years there would be grazing use during the critical growing season. One out of every three years the allotment would be utilized during the brood rearing period and the other years it would be utilized right before the brood rearing period. Utilization prior to the brood rearing period would reduce forb availability for grouse during the brood rearing period two out of three years.

Alternative 1 would not provide marginal or satisfactory nesting or brood rearing habitat at any time during the term of the grazing permit, thus no habitat improvement would occur.

Alternative 2
Eliminating grazing would allow the forb component to increase such that the approximately 300 acres of marginal brood rearing habitat would likely become suitable and the remaining acres would move toward marginal. Competition with annual grasses may preclude annual and perennial forb and native bunchgrass recovery such that it could be decades before these sites would provide suitable brood rearing habitat. Non-native invasive grasses would continue to dominate these sites in the near future even with the elimination of grazing. It would be years, if ever, before the native bunch grass communities would return to expected levels.

Since there would be no cattle grazing, the forbs would not be removed prior to or during the brood rearing period thus increasing the potential for use as brood rearing habitat even in the currently degraded state.

Alternatives 3 and 4
These alternatives would provide three years where the allotment would not be grazed during the critical growing season. This would allow native plants to produce seed and increase root mass. This alternative follows the 2007 S&G's recommendation with the exception that it is a four year rotation rather than a three year rotation. By adding a year to the rotation, the total amount of rest would be 25 percent instead of the recommended 33 percent. The three years where the allotment would be grazed under these alternatives have similar seasons to the existing condition (Alternative 1). The potential and expected timeframe for recovery is better than Alternative 1.

Alternatives 3 and 4 would have a higher potential for adequate forb cover availability during the brood rearing season than Alternative 1 in two of the four years but less than Alternative 2 in two of the four years.

Non-native invasive grasses would continue to dominate these sites in the near future even with the added year of rest. It could be decades before these sites would provide suitable brood rearing habitat. It would be years if ever before the native bunch grass communities would return to expected levels, thus it is unlikely that during the life of the permit the allotment would provide suitable brood rearing habitat. In conclusion Alternatives 3 and 4 have the potential to have marginal brood rearing habitats that are in an upward trend.

Cumulative Effects
There are no reasonably foreseeable future actions that would have an effect on sage-grouse habitat in the Indian Creek allotment habitat.

Chapter 4 Public and other involvement

Tribes, individuals, organizations, or agencies consulted

The BLM first requested input on this project in January 2013 when it mailed scoping letters to 123 individuals and groups including the permittees, Oregon Department of Fish and Wildlife (ODFW), Oregon Natural Desert Association (ONDA), Western Watersheds Project, and the US Fish and Wildlife Service (USFWS). Additionally the BLM requested input from the Tribes in January of 2013 when it mailed Consultation letters to the Confederated Tribes of the Warm Springs Reservation of Oregon, Confederated Tribes of the Umatilla Indian Reservation, Burns Paiute Tribe, and The Klamath Tribes. Furthermore, in February 2013 the BLM released a press release announcing the start of the comment period. Comments from this scoping period were considered in the design of alternatives. In many cases the comments led to the development of issues (see Chapter 1) and the incorporation of PDFs into the action alternative (as described in Chapter 2 Alternatives).

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Appendix A: Issues Considered but Eliminated

The following Issues were raised by the public or BLM during scoping and internal reviews for the Projects. The reasons that they have been considered but eliminated from detailed analysis are discussed following each Issue.

How would changing the season of livestock grazing affect Oregon spotted frogs?

The Oregon spotted frog is a species listed as threatened. Only one allotment, the Morgart allotment, contains a small amount of suitable habitat. The Oregon spotted frog habitat in the Morgart allotment is a dense stand of sedges and rushes. There are few weedy species in the allotment, but the water is not dependable because of irrigation practices. This issue is considered but eliminated because current grazing of this allotment is light and does not impact Oregon spotted frogs, and none of the actions included in any of the alternative would result in changes to the Oregon spotted frog habitat in this allotment.

How would the number of AUMs affect the amount of Green House Gasses (GHGs) in the atmosphere and global climate?

Livestock grazing results in methane emissions as a result of the cattle's digestion process. Methane emission rates from cattle vary widely and depend on many variables (Johnson and Johnson 1995; DeRamus et al. 2003). Estimates for grazing cattle typically range from 80 to 101 kilograms of methane per year per animal (Environmental Protection Agency (EPA), 2009) or 6.7-9.2 kilograms of methane per month. Assuming that methane has a global warming potential 21 times that of carbon dioxide (EPA 2009, p. ES-3), each AUM results in 0.168 metric tons of carbon dioxide equivalent.

Current U.S. emissions of methane from livestock production total approximately 139 million metric tons of carbon dioxide equivalent per year (EPA 2009, p. 6-2); current U.S. emissions of all greenhouse gases total approximately 7 billion metric tons of carbon dioxide equivalent (EPA 2009, p. 2-4); current global emissions of all greenhouse gases total about 25 billion metric tons of carbon dioxide equivalent (Denman et al. 2007, p. 513).

The alternatives would permit grazing use between 0 and 5,272 AUMs per year which would result in methane emissions estimated between 0 and 885.7 metric tons of carbon dioxide equivalent per year, assuming a methane emission rate of 8 kilograms of methane or .168 metric tons of carbon dioxide equivalent per AUM. This emission represents less than 0.0000064 percent of the estimated annual U.S. methane emissions from livestock production, 0.0000002 percent of the annual U.S. emissions of all greenhouse gases, and 0.0000003 percent of the global emissions of all greenhouse gases.

The amount of greenhouse gas emissions estimated from the alternatives would represent an extremely small incremental contribution to total national and global emissions. In addition, the level of emissions would be so small that it would not even merit reporting under current EPA rules related to mandatory annual reporting of greenhouse gases from industrial and agricultural sectors (reporting threshold is 25,000 metric tons of carbon dioxide equivalent; 40 CFR 98.2).

Livestock grazing can affect rangeland carbon levels, through changes in plant community and changes in ecosystem processes, but the effects have been variable and inconsistent among the ecosystems studied (Schuman et al. 2009). Some studies have found that grazing can result in increased carbon

storage compared to no grazing, because of increased plant turnover and changes in plant species composition (Follett et al. 2001). Many changes in rangeland carbon from different grazing practices do not result in substantial changes in total ecosystem carbon, but rather simply redistribute carbon, for example, from aboveground vegetation to root biomass (Derner and Schuman 2007).

Overall, the changes in rangeland carbon storage that are likely to result from the minor changes in grazing practices described in the alternatives would be small and difficult to predict, especially where a Rangeland Health Assessment has determined that the S&Gs are being met. Therefore, this analysis assumes that the minor changes in proposed grazing practices on these allotments would not result in any measurable change in total carbon storage under any of the alternatives analyzed.

What would be the effects of loss of soil productivity due to soil loss, displacement, puddling, or compaction caused by the use of heavy equipment to develop springs in the project area?
There would be no loss of soil productivity due to soil loss, displacement, puddling, or compaction by heavy equipment developing springs because in the alternatives that contain proposals for spring developments, equipment would only be operated when soils are dry (i.e. when soils are not above field capacity in the top three inches of the soil surface). Additionally, even if soils appear dry, equipment operations would be ceased if equipment tracks are creating ruts three inches deep with one pass or when equipment is slipping or sliding. Finally, when equipment is used off road, it would be limited to four or fewer trips over a single piece of ground to prevent detrimental soil impacts. In conclusion, since there would not be an effect to soils from the proposal, this Issue has been considered but eliminated.

How would project activities affect cultural and paleontological resources?
Cultural and Paleontological resources would be managed in accordance with current laws, policy and direction. A PDF has been developed to meet Section 106 of the National Historic Preservation Act (NHPA). Known cultural resource properties and paleontological localities would be avoided from all proposed ground disturbing activities. Stock grazing has been ongoing for over 75 years and would have no adverse effect to cultural and paleontological resources. This issue was considered and eliminated from further analysis due to the PDF:

- Prior to implementation of any ground disturbing activity, field inventory and reporting would be completed in consultation with the Oregon State Historic Preservation Office to meet Section 106 of the National Historic Preservation Act. Through project design, ground disturbing actions would avoid cultural resources and paleontological localities thus removing any impact or effect to these resources.

How would the season of use, AUMs, and range developments affect recreation uses and recreation areas including but not limited to sensitive visual resources and river recreation sites?
Recreation uses would not be affected because of the inclusion of recreation focused PDFs and recreation related proposed actions. By either building fences 1/8 mile away from developed recreation areas or including gates in the fence, fences would not affect developed recreation areas and known dispersed recreation sites. Additionally, installing gates and cattle guards where new fence would cross trails or roads would eliminate effects from fencing to recreators using trails or roads.

There would be no effect to recreation areas and visual resources because proposed range developments that fall within recreation areas or sensitive visual resource areas would be constructed

of material, and in such a way (e.g. through placement and vegetation removal limitations), so that they would not be noticeable to the casual observer.

In conclusion, because of the recreation orientated PDFs and proposed actions, there would be no effect to recreation uses and recreation areas from the alternatives, so the Issue has been considered but eliminated.

How would the placement of new range developments, the season of use, and AUMs affect the establishment and spread of noxious weeds?
This issue has been considered but eliminated based on the rationale that noxious weeds on the Prineville District are treated on all allotments, regardless of renewal status, as part of the Prineville District Integrated Pest Management strategy. Additionally, PDFs to reduce invasive and noxious weed establishment and spread would be applied under all proposed action alternatives. Under the no action alternative, the Prineville District BLM would continue to practice early detection and rapid eradication anywhere invasive and noxious weed species are found or are known to occur.

How would the placement of new range developments and maintenance of existing range developments affect the *Astragalus peckii*, a BLM Sensitive plant species, population in Desert Springs allotment?
This issue has been considered but eliminated following a survey of aerial imagery and Prineville District GIS layers which revealed no existing range developments within the *Astragalus peckii* sensitive plant area. PDFs common to all action alternatives would prevent new developments from being placed inside the sensitive plant area or in places that would encourage trailing through it. The *Astragalus peckii* habitat in the Desert Spring allotment's Peck's Milkvetch Area of Critical Environmental Concern (ACEC) would not have measurable differences in effects from the alternatives because the majority of the *Astragalus peckii*'s habitat associated with the ACEC is found outside of the Desert Springs allotment, thus, differing seasons of use or levels of grazing for the Desert Springs allotment would not measurably affect the habitat for *Astragalus peckii*.

How would the placement of new range developments and maintenance of existing range developments affect *Thelypodium eucosmum*, a BLM Sensitive plant species, populations in Logan allotment?
This issue has been considered but eliminated following a survey of aerial imagery and Prineville District GIS layers which revealed no existing range developments within the *Thelypodium eucosmum* sensitive plant area. PDFs common to all action alternatives would prevent new developments from being placed inside the sensitive plant area or in places that would encourage trailing through it.

How would the placement of new range developments and maintenance of existing range developments affect *Thelypodium eucosmum*, a BLM Sensitive plant species, populations in Sheep Gulch allotment?
This issue was considered but eliminated because the *Thelypodium eucosmum* population and associated habitat adjacent to Sheep Gulch allotment do not extend into Sheep Gulch allotment. Additionally, the adjacent population is excluded from livestock use by a botanical exclosure.

How would the placement of new range developments and maintenance of existing range developments affect *Calochortus longebarbatus var. peckii*, a BLM Sensitive plant species, populations in Indian Creek allotment?
This issue has been considered but eliminated following a survey of Prineville District GIS layers. There are no existing range developments within the sensitive plant area of the known populations and PDFs common to all action alternatives would prevent new developments from being placed inside the sensitive plant area or in places that would encourage trailing through the sensitive plant area.

How would the season of use and AUMs affect *Astragalus peckii*, a BLM Sensitive plant species, populations in Desert Springs allotment?
This issue has been considered but eliminated based on the low number of AUMs that would be issued under alternatives 1, 3 and 4. Due to the low numbers of AUMs proposed in any alternative containing AUMs, there would be no impacts to *Astragalus peckii* from any alternative.

How would the season of use and AUMs affect *Thelypodium eucosmum*, a BLM Sensitive plant species, populations in Sheep Gulch allotment?
This issue was considered but eliminated because the *Thelypodium eucosmum* population and associated habitat adjacent to Sheep Gulch allotment do not extend into Sheep Gulch allotment. Additionally, the adjacent population is excluded from livestock use by a botanical exclosure.

How would the amount and location of livestock fencing in the Indian Creek allotment affect sage-grouse mortality due to fence strikes?
There are no existing or proposed fences within high or moderate sage-grouse strike potential areas in the Indian Creek allotment thus the proposed fences would not substantially impact sage-grouse populations or habitats. The proposed exclosure fence in Alternatives 3 and 4 would be constructed in forested habitat and thus would not increase sage-grouse strike potential.

How would the installation of new, and the maintenance of existing, range developments affect raptor nesting?
The project area would be surveyed for raptor nest sites prior the implementation of any proposed actions. If nest sites are discovered during project clearances, seasonal mitigations would keep disturbances from occurring during the sensitive period thus the effects of the proposed actions would not measurably affect individuals or populations of raptors.

Would any of the proposed actions described in the action alternatives affect bald or golden eagles?
Bald eagle: Bald eagles are usually associated with large bodies of water, but can occur in any habitat with available prey, and they nest primarily in forested areas near the ocean, along rivers, and at estuaries, lakes and reservoirs (Marshall et al., 2003). They nest in large older trees that provide suitable structure to support their large nests. Isaacs and Anthony (1989) found 84 percent of Oregon nests were within one mile of water however, a nest in the Ft. Rock Valley was the most distant from water at 18 miles from the nearest shoreline.

The project area provides atypical foraging opportunities for bald eagles and very limited amounts of nesting habitat due to distance from significant water sources. There are no known bald eagle nests or roost sites in the project area or important habitat features within the project area. Bald eagles are

regularly seen outside but adjacent to the project area, along rivers, reservoirs, soaring or perched on irrigation wheels in the some agricultural fields.

In all action alternatives, the project area would be surveyed prior to project implementation to ensure no nest or roost sites are present. If nest/roost sites are discovered, seasonal restrictions (as detailed in Chapter 2) would keep disturbances from occurring during sensitive periods, and limits on tree cutting would protect nesting and roosting areas. The proposed actions described in this EA are not expected to measurably affect individuals or populations of bald eagles and the effects are therefore not considered in further detail.

Golden eagle: According to Marshall et al. (2003), "the golden eagle inhabits shrub-steppe, grassland, juniper, open ponderosa pine, and mixed conifer/deciduous habitats. It forages in a variety of habitat types and successional stages, preferring areas with an open shrub component that provides food and cover for prey." Golden eagles usually require ledges on cliffs for nesting (Csuti et al., 2001), but also nest in large mature trees.

The entire project area provides suitable foraging habitat for golden eagles, scattered nesting habitat (cliffs and large old trees) and supports several active nesting territories. In general, eastern Oregon, the Willamette Valley of northwestern Oregon, and portions of southwestern Oregon are typical golden eagle habitat with large open areas for hunting and abundant cliffs, rock outcrops, or trees for nesting (Isaacs 2013, unpublished report). According to Isaacs (2013), there were approximately 551 breeding pairs and 517 young in Oregon during the 2012 breeding season. There are no known active golden eagles nests within the project area.

The effects of the proposed actions of livestock grazing, is expected to be similar to the effects analysis for ground nesting birds because that analysis considers a variety of habitat conditions (e.g., healthy, productive plant communities) which would support both avian and mammalian prey. Therefore we are not repeating that information here. In general, the allotments with existing poor to fair habitat conditions likely support a low abundance of prey species and alternatives that would maintain these conditions, or decrease the condition of good or better condition habitats would negatively affect golden eagles because these habitats would not support an abundant prey base.

The alternatives that would maintain or improve good or better habitat that supports prey would also support healthy populations of golden eagles. Because of the small amount of habitat changes between good to excellent habitat conditions, relative to prey abundance, that would be affected from livestock grazing actions, and the abundant supply of habitat in the project area and in eastern Oregon the positive and negative effects would be minor.

As individual actions that would be implemented from the decision in this EA, the project area would be surveyed to ensure no nest or roost sites are present. If nest/roost sites are discovered during project clearances, seasonal mitigations would keep disturbances from occurring during the sensitive period and tree diameter limits would protect nesting and roosting substrates. The effects of the proposed actions described in this EA are not expected to measurably affect individuals or populations of golden eagles and are not considered in further detail.

Would any of the proposed actions described in the action alternatives affect migratory birds and birds of conservation concern (BOCC)?

Migratory and Resident Birds of Conservation Concern

Executive Order 13186 (66 Fed. Reg. 3853, January 17, 2001) "Responsibilities of Federal Agencies to Protect Migratory Birds" directs federal agencies to avoid or minimize the negative impact of their actions on migratory birds, and to take active steps to protect birds and their habitat. This Executive Order also requires federal agencies to develop Memorandum of Understandings (MOU) with the FWS to conserve birds including taking steps to restore and enhance habitat, and incorporating migratory bird conservation into agency planning processes. The BLM has completed a MOU and is currently implementing provisions included in the MOU with the USFWS such as:

- At the project level, evaluate the effects of the BLM's actions on migratory birds during the NEPA process, if any, and focusing first on species of concern, priority habitats, and key risk factors.
- Integrate migratory bird conservation measures, as applicable, into future Activity Management Planning. This will address habitat loss and minimize negative impacts.

The appropriate Bird Conservation Plan (Altman and Holmes, 2000) and Birds of Conservation Concern (BOCC) species list, developed by the U.S. Fish and Wildlife Service (USFWS), for the project area was reviewed. Those species and habitats that are within the project area are incorporated and effects briefly disclosed in this analysis in Chapter 3. As described in Chapter 3, the wildlife analysis uses a species of concern approach which allows us to display effects on groups of wildlife species where effects would be similar, rather than repeating similar information for a large number of individual species.

While many issues may arise during scoping, not all warrant analysis in an EA. The NEPA directs us to analyze issues if the analysis is necessary to make a reasoned choice between alternatives or if the significant issues are those related to significant or potentially significant effects. Therefore the potential effects to BOCC are briefly displayed.

Table 31 displays a list of the BOCC that are known or likely to be present in the Planning Area and their habitats that could be affected by the proposed actions. Bird Conservations Regions (BCRs) were developed based on similar geographic parameters. One BCR encompasses the project area, BCR 9 (Great Basin.), and is displayed in the map below (Figure 3).

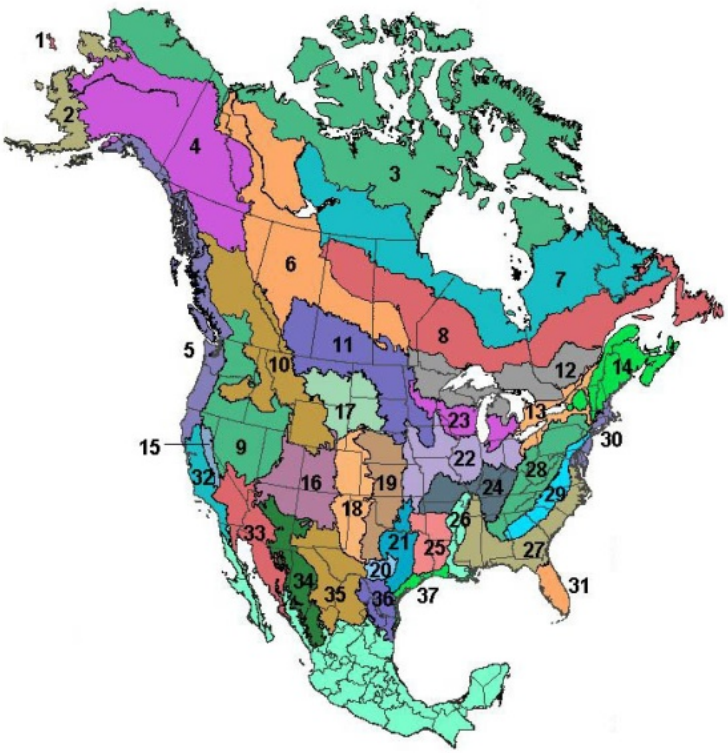


Figure 3: Bird Conservation Regions (BCRs) and are ecologically distinct regions in North America with similar bird communities, habitats, and resource management issues.

Table 31 - Birds of conservation Concern for BCR 9 and 10.

Species	BCR	Preferred Habitat	General effects to habitat
Greater Sage-Grouse	9	Shrub Steppe	(See analysis in the alternatives)
Bald Eagle	9 and 10	Forest or woodland near water. Usually nests or roosts in large trees.	(See bald and golden eagle section)
Swainson's Hawk	10	Large meadows, grasslands and sagebrush steppe. Usually nests in trees on edges or solitary trees in the interior.	Little or no effect. Proposed grazing changes would improve foraging habitat.
Ferruginous Hawk	9 and 10	Grassland, sagebrush steppe with few scattered trees. Nest in trees.	Little or no effect. Proposed grazing changes would improve foraging habitat.
Golden Eagle	9	Open prairies, sagebrush steppe and canyon lands. Usually nests on cliffs. (See bald and golden eagle section)	(See bald and golden eagle section)
Peregrine Falcon	9 and 10	Canyon lands. Nests on cliffs.	Little or no effect. Proposed grazing changes would improve foraging habitat.
Long-billed Curlew	9 and 10	Open grasslands and sagebrush steppe. Nests on ground.	(See analysis of ground nesting birds in the alternatives)
Flammulated Owl	9 and 10	Pine forests with shrubby	Little or no effect.

Species	BCR	Preferred Habitat	General effects to habitat
		understory.	
Calliope Hummingbird	9 and 10	Shrub thickets in canyons or riparian areas.	Little or no effect.
Lewis's Woodpecker	9 and 10	Nests in medium to large dead pines or other trees often along rivers.	Little or no effect.
Williamson's Sapsucker	9 and 10	Found in pine forests. Nests in tree snags.	Little or no effect.
White-headed Woodpecker	9 and 10	Usually nests in open stands of large pines with several large snags.	Little or no effect.
Olive-sided Flycatcher	10	In woodlands along riparian areas.	Little or no effect.
Willow Flycatcher	10	Woody riparian vegetation at mid-elevations.	Little or no effect.
Loggerhead Shrike	9 and 10	Prefers open woodlands or savannah like conditions. Nests in low shrubby trees or tall sagebrush.	Little or no effect.
Pinyon Jay	9	A colonial nester. In eastern Oregon usually nests in old growth juniper woodlands	Little or no effect.
Sage Thrasher	9	Sagebrush steppe. Nests mostly in big sagebrush.	Little or no effect. Proposed grazing changes would improve foraging habitat.
Green-tailed Towhee	9	Shrubby thickets in forests woodlands or canyons.	Little or no effect.
Brewer's Sparrow	9	Sagebrush steppe and grasslands with shrubs. Usually nests in sagebrush.	Little or no effect.
Sage Sparrow	9	Sagebrush steppe and grasslands with shrubs. Usually nests in sagebrush.	Little or no effect.

Appendix B: Permit or Lease Existing Terms and Conditions

The permits and leases existing terms and conditions are listed below. The **Standard Terms and Conditions** common to all permits and leases are:

- Grazing permit or lease terms and conditions and the fees charged for grazing use are established in accordance with the provisions of the grazing regulations now or hereafter approved by the Secretary of the Interior.
- They are subject to cancellation, in whole or in part, at any time because of: A. Noncompliance by the permittee/lessee with rules and regulations. B. Loss of control by the permittee/lessee of all or a part of the property up which it is based. C. A transfer of grazing preference by the permittee/lessee to another party. D. A decrease in the lands administered by the Bureau of

Land Management within the allotment(s) described. Repeated willful unauthorized grazing use. F. Loss of qualifications to hold a permit or lease.

- They are subject to the terms and conditions of allotment management plans if such plans have been prepared. Allotment management plans MUST be incorporated in permits and leases when completed.
- Those holding permits or leases MUST own or control and be responsible for the management of livestock authorized to graze.
- The authorized officer may require counting and/or additional or special marking or tagging of the livestock authorized to graze.
- The permittee's/lessee's grazing case file is available for public information under the Freedom of Information Act.
- Grazing permit or leases are subject to the nondiscrimination clauses set forth in Executive Order 11246 of September 24, 1964, as amended. A copy of this order may be obtained from the authorized officer.
- Livestock grazing use that is different from that authorized by a permit or lease MUST be applied for prior to the grazing period and MUST be filed with and approved by the authorized officer before grazing use can be made.
- Billing notices are issued which specify fees due. Billing notices, when paid, become a part of the grazing permit or lease. Grazing use cannot be authorized during any period of delinquency in payment of amounts due, including settlement for unauthorized use.
- The holder of this authorization must notify the authorized offer immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (cultural items), stop the activity in the area of the discovery and make a reasonable effort to protect the remains and/or cultural items.
- Grazing fee payments are due on the date specified on the billing notice and MUST be paid in full within 15 days of the due date, except as otherwise provided in the grazing permit or lease. If payment is not made within that time frame, a late fee (the greater of $25 or 10 percent of the amount owed but not more than $250) will be assessed.
- No member of, or Delegate to, Congress or Resident Commissioner, after his/her election of appointment, or either before or after he/she has qualified, and during his/her continuance in office, and no officer, agent, or employee of the Department of the Interior, other than members of Advisory committees appointed in accordance with the Federal Advisory Committee Act (5 U.S.C. App.1) and Sections 309 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq) shall be admitted to any share or part in a permit or lease, or derive any benefit to arise therefrom; and the provision of Section 3741 Revised Statute (41 U.S.C. 22), 18 U.S.C. Sections 431-433, and 43 CFR Part 7, enter into and form a part of a grazing permit or lease, so far as the same may applicable.
- This grazing permit conveys no right, title or interest held by the United States in any lands or resources.
- This grazing permit is subject to (A) modification, suspension or cancellation as required by land plans and applicable law; (B) annual review and modification of terms and conditions as appropriate; (C) The Taylor Grazing Act, as amended, the Federal Land Policy and Management Act, as amended, the Public Rangelands Improvement Act, and the rule and regulations now or hereafter promulgated thereunder by the Secretary of the Interior.

The **Allotment Specific Terms and Conditions** that apply only to specific allotments are listed below. The Term and Condition is the main bullet and the allotments that the term and condition apply to are the sub-bullets.

- This permit or lease is issued under the authority of section 415, public law 112-74 and contains the same terms and conditions as the previous permit or lease.
    - Indian Creek, Alfalfa Market Road, Morgart, Mayfield Pond, West Powell Butte, Bull Canyon
- This permit or lease may be cancelled, suspended or modified, in whole or in party, to meet the requirements of applicable laws and regulations.
    - Indian Creek, Alfalfa Market Road, Morgart, Mayfield Pond, West Powell Butte, Bull Canyon
- Lessees are required to submit actual use grazing records within 15 days of completion of the year's grazing use.
    - Indian Cree, North Stearns, Webdell, South Stearns, Hohnstein-Tatti, Alfalfa Market Road, Desert Springs, Lamb, Lower Bridge, Mayfield Harris, Morgart, Mayfield Pond, Montgomery, Red Cloud, Wagen Blast, West Powell Butte, Bull Canyon, Soda Creek, Two County, Squaw Creek, Logan, Rowe Creek, Brooks Lease, Biggs Junction, Evelyn E. See
- Salting of livestock within one-quarter mile of water is prohibited. Supplemental feeding of livestock on public lands is prohibited without prior authorization from the BLM.
    - Indian Creek, North Stearns, Webdell, South Stearns, Hohnstein-Tatti, Alfalfa Market Road, Desert Springs, Lamb, Lower Bridge, Mayfield Harris, Morgart, Mayfield Pond, Montgomery, Red Cloud, Wagen Blast, West Powell Butte, Bull Canyon, Soda Creek, Two County, Squaw Creek, Logan, Rowe Creek, Brooks Lease, Biggs Junction, Evelyn E. See
- Lessees are required to maintain all range developments for which they have maintenance responsibilities.
    - Indian Creek, North Stearns, South Stearns, Webdell, Sanford Creek, Eagle Rock, Long Hollow, Hohnstein-Tatti, Alfalfa Market Road, Desert Springs, Lamb, Lower Bridge, Mayfield Harris, Morgart, Mayfield Pond, Montgomery, Red Cloud, Wagen Blast, West Powell Butte, Bull Canyon, Soda Creek, Two County, Squaw Creek, Logan, Rowe Creek, Brooks Lease, Biggs Junction, Evelyn E. See
- Lessees/permittees are to provide reasonable access across private and leases lands to the BLM for the orderly management and protection of the public lands as allowed in 43 CFR 4130.3-2 (H).
    - Indian Creek, North Stearns, Hohnstein-Tatti, Alfalfa Market Road, Desert Springs, Lamb, Morgart, Mayfield Pond, Montgomery, Wagen Blast, West Powell Butte, Bull Canyon, Soda Creek, Two County, Squaw Creek, Logan, Rowe Creek, Brooks Lease, Biggs Junction, Evelyn E. See
- Livestock grazing use and related management shall be consistent with that specified in the Brothers/La Pine RMP (Pages 74-92). The amount of total annual forage production consumed by livestock shall continue to be at moderate levels or lower.
    - South Stearns
- Public land access necessary for land management purposes will be afforded to BLM personnel.
    - South Stearns, North Stearns
- This allotment is located near sage grouse habitat areas. Public land management will be adjusted if required by future direction and/or other requirements identified through monitoring.
    - South Stearns
- Due to vehicle management needs and requirements in the area, it is imperative that on public lands, the permitee use existing vehicle routes, not create new ones and avoid vehicle use on muddy or wet surfaces.
    - South Stearns, North Stearns

- Livestock grazing use and related management shall be consistent with that specified in the Brothers/La Pine RMP (Pages 74-92). The amount of total annual forage production consumed by livestock shall continue to be at moderate levels or lower.
    - South Stearns
- Livestock grazing use shall be consistent with that specified in the Brothers/La Pine RMP.
    - Webdell
- The permittee shall not create new vehicle trails on public lands in this allotment and avoid rutting roads during saturated soil moisture conditions. Public motorized vehicle travel restrictions may be enacted in the future as a result of future planning and decision making activities.
    - Webdell, Sanford Creek, Eagle Rock, Long Hollow
- The BLM is in the process of implementing the standards for rangeland health and guidelines for grazing management. This lease is subject to future modification as necessary to achieve compliance with the standards and guidelines (43 CFR 4180).
    - Webdell, South Stearns, North Stearns, Hohnstein-Tatti, Alfalfa Market Road, Desert Springs, Lamb, Lower Bridge, Mayfield Harris, Montgomery, Morgart, Red Cloud, Wagenblast, Rowe Creek, Brooks Lease
- Grazing and related use shall be consistent with that specified in the UPR and the Brothers/La Pine Resource Management Plan.
    - Sanford Creek, Eagle Rock, Long Hollow
- Your permitted use for public lands in the long hollow allotment is contingent upon your control (for grazing purposes) of associated private lands. Should such control cease this permitted use will be terminated.
    - Sanford Creek, Eagle Rock, Long Hollow
- Due to computer rounding, the AUMs shown above may not correspond with your grazing preference. Your actual grazing preference is shown below.
    - Sanford Creek, Eagle Rock, Long Hollow
- The permittee shall not create new permanent/obvious vehicle trails on public lands in this allotment, and avoid rutting roads during saturated soil moisture conditions. Public motorized travel restrictions may be enacted in the future as a result of future planning and decision making activities.
    - Sanford Creek, Eagle Rock, Long Hollow
- All grazing within the allotment shall be within the guidelines of the Leslie Ranches AMP.
    - Mayfield Pond, West Powell Butte
- The Alfalfa Market Road allotment failed certain standards for rangeland health and guidelines for grazing management due to livestock grazing. As a result, a modification of the existing grazing practices is required (43 CFR 4180).
    - Alfalfa Market Road
- Use may occur for any one 2-3 week period during the use dates specified.
    - Montgomery
- This allotment will be managed under a deferred rotation/rest rotation grazing system
    - Morgart
- To protect California Big horn Sheep, no sheep or goat (domestic or non-native) grazing will be allowed on public land in this allotment.
    - Bull Canyon, Rowe Creek
- The BLM is in the process of developing a river management plan for the John Day River System. There is a focus on riparian areas to achieve proper functioning conditions, including maintenance or shade during summer months to help maintain water temperature.
    - Soda Creek

- Within BLM Wilderness Study Areas certain land use restrictions apply: motorized vehicle use is limited to designated routes including 4x4s, ATVs, motorcyles, and aircraft. Cross country vehicle travel is not permitted. Land uses involving surface disturbance require prior written approval by the BLM.
    - Bull Canyon
- The Fish & Wildlife Service and the National Marine Fisheries Service are evaluating species for listing that are present within the Central Oregon Resource Area Boundary. If these species are listed as threatened and endangered, and are found on federal lands located within this allotment boundary, this lease is subject to future modification to achieve compliance with the listing.
    - Rowe Creek, Brooks Lease, Soda Creek
- Proper management may require that a grazing management plan be developed and implemented at any time during the lease period. Grazing is authorized south of the highway only.
    - Biggs Junction
- Greenline in the riparian area will be not less than 4 inches stubble height, 10 percent bank damage and 10 percent utilization on hard woods at the end of the use period.
    - Squaw Creek, Soda Creek, Two County

Appendix C: Permit or Lease Proposed Terms and Conditions

The permits and leases proposed terms and conditions are listed below. The standard terms and conditions common to all permits and leases are:

- Grazing permit or lease terms and conditions and the fees charged for grazing use are established in accordance with the provisions of the grazing regulations now or hereafter approved by the Secretary of the Interior.
- They are subject to cancellation, in whole or in part, at any time because of: A. Noncompliance by the permittee/lessee with rules and regulations. B. Loss of control by the permittee/lessee of all or a part of the property up which it is based. C. A transfer of grazing preference by the permittee/lessee to another party. D. A decrease in the lands administered by the Bureau of Land Management within the allotment(s) described. Repeated willful unauthorized grazing use. F. Loss of qualifications to hold a permit or lease.
- They are subject to the terms and conditions of allotment management plans if such plans have been prepared. Allotment management plans MUST be incorporated in permits and leases when completed.
- Those holding permits or leases MUST own or control and be responsible for the management of livestock authorized to graze.
- The authorized officer may require counting and/or additional or special marking or tagging of the livestock authorized to graze.
- The permittee's/lessee's grazing case file is available for public information under the Freedom of Information Act.
- Grazing permit or leases are subject to the nondiscrimination clauses set forth in Executive Order 11246 of September 24, 1964, as amended. A copy of this order may be obtained from the authorized officer.
- Livestock grazing use that is different from that authorized by a permit or lease MUST be applied for prior to the grazing period and MUST be filed with and approved by the authorized officer before grazing use can be made.
- Billing notices are issued which specify fees due. Billing notices, when paid, become a part of the grazing permit or lease. Grazing use cannot be authorized during any period of delinquency in payment of amounts due, including settlement for unauthorized use.
- The holder of this authorization must notify the authorized offer immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (cultural items), stop the activity in the area of the discovery and make a reasonable effort to protect the remains and/or cultural items.
- Grazing fee payments are due on the date specified on the billing notice and MUST be paid in full within 15 days of the due date, except as otherwise provided in the grazing permit or lease. If payment is not made within that time frame, a late fee (the greater of $25 or 10 percent of the amount owed but not more than $250) will be assessed.
- No member of, or Delegate to, Congress or Resident Commissioner, after his/her election of appointment, or either before or after he/she has qualified, and during his/her continuance in office, and no officer, agent, or employee of the Department of the Interior, other than members of Advisory committees appointed in accoradance with the Federal Advisory Committee Act (5 U.S.C. App.1) and Sections 309 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq) shall be admitted to any share or part in a permit or lease, or derive any benefit to arise therefrom; and the provision of Section 3741 Revised Statute (41 U.S.C. 22), 18 U.S.C. Sections 431-433, and 43 CFR Part 7, enter into and form a part of a grazing permit or lease, so far as the same may applicable.

- This grazing permit conveys no right, title or interest held by the United States in any lands or resources.
- This grazing permit is subject to (A) modification, suspension or cancellation as required by land plans and applicable law; (B) annual review and modification of terms and conditions as appropriate; (C) The Taylor Grazing Act, as amended, the Federal Land Policy and Management Act, as amended, the Public Rangelands Improvement Act, and the rule and regulations now or hereafter promulgated thereunder by the Secretary of the Interior.

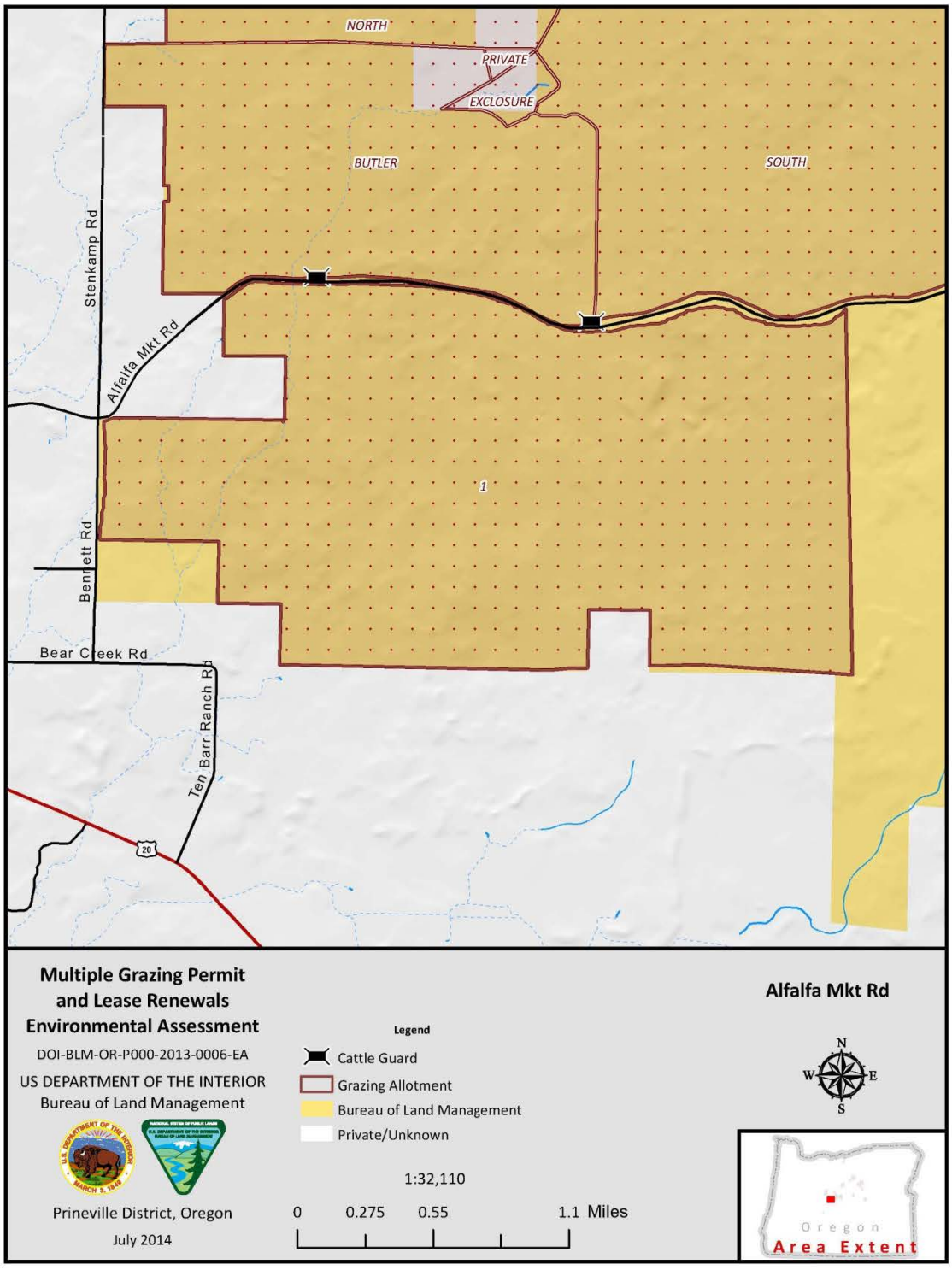
The other terms and conditions common to all permits and leases are:

- Grazing use will be in accordance with the Grazing Permit Renewal Decision for the X allotment approved on (month/day/year).
- All riparian exclosures, including spring development exclosures, are closed to livestock use unless specifically authorized in writing.
- Lessees/permittees are required to submit actual use grazing records within 15 days of completion of the year's grazing use.
- Supplemental feeding is limited to salt,mineral,and/or protein supplements in block,granular,or liquid form. Such supplements must be placed at least one quarter mile from live waters (springs,streams), troughs, wet or dry meadows, and aspen stands.
- Lessees/permittees are required to maintain all range developments for which they have maintenance responsibilities prior to livestock turnout.
- Lessees/permittees are to provide reasonable access across private and leased lands to the BLM for the orderly management and protection of the public lands as allowed in 43 CFR 4130.3-2 (H).
- The terms and conditions of your permit may be modified if additional information indicates that revision is necessary to conform with 43 CFR 4180.

The allotment specific terms and conditions that apply only to specific allotments are listed below. The Term and Condition is the main bullet and the allotments that the term and condition would apply to are the sub-bullets.

- Grazing on the X allotment has the potential to affect Middle Columbia Steelhead habitat. The season of use (SOU) will conform to the management plan and the Biological Opinion (Biop) dated (month/day/year).
    - Squaw Creek
- Movement to the next scheduled pasture would occur on the specified dates, when allowable utilization on key species is attained, or when unusual climatic conditions dictate a move. Move dates would be adjusted as needed to balance utilization between areas on each pasture when monitoring indicates the need. Authorized use would be adjusted, as needed, based on annual climatic conditions, forage production and plant vigor. A total of 3-5 days would be allowed to move from one pasture to another.
    - North Stearns, South Stearns, Eagle Rock, Sanford Creek,
- The permittee would be allowed 3-5 days flexibility following the scheduled use dates to move livestock.
    - North Stearns, South Stearns, Eagle Rock, Sanford Creek, Two County, Soda Creek

Appendix D: Existing Condition Maps


NORTH
PRIVATE
EXCLOSURE
BUTLER
SOUTH
Stenkamp Rd
Alfalfa Mkt Rd
Bennett Rd
Bear Creek Rd
Ten Barr Ranch Rd
20
1
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Cattle Guard
Grazing Allotment
Bureau of Land Management
Private/Unknown
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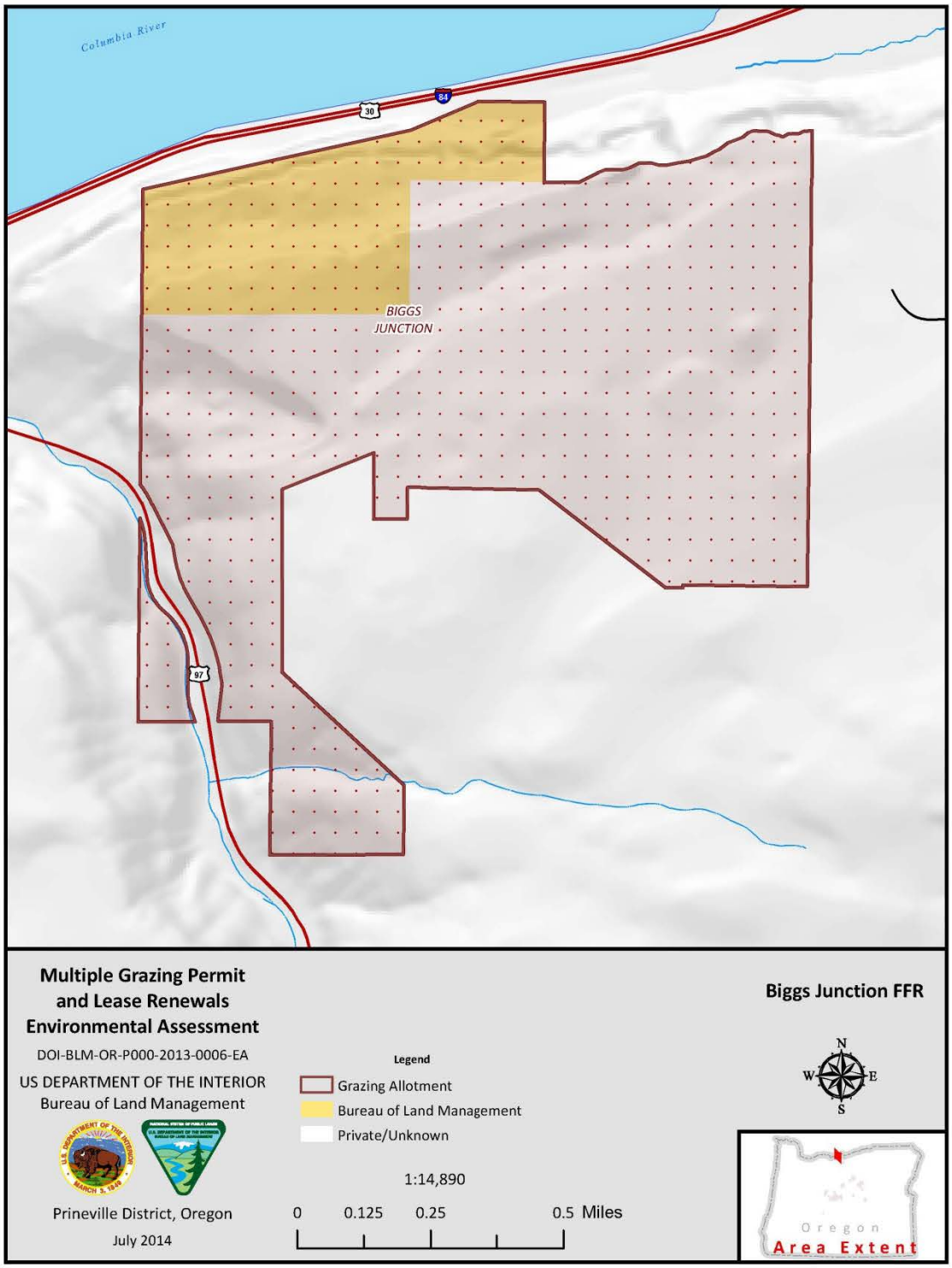
Alfalfa Mkt Rd
N
W
E
S
Oregon
Area Extent


Columbia River
30
84
BIGGS
JUNCTION
97
Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Grazing Allotment
Bureau of Land Management
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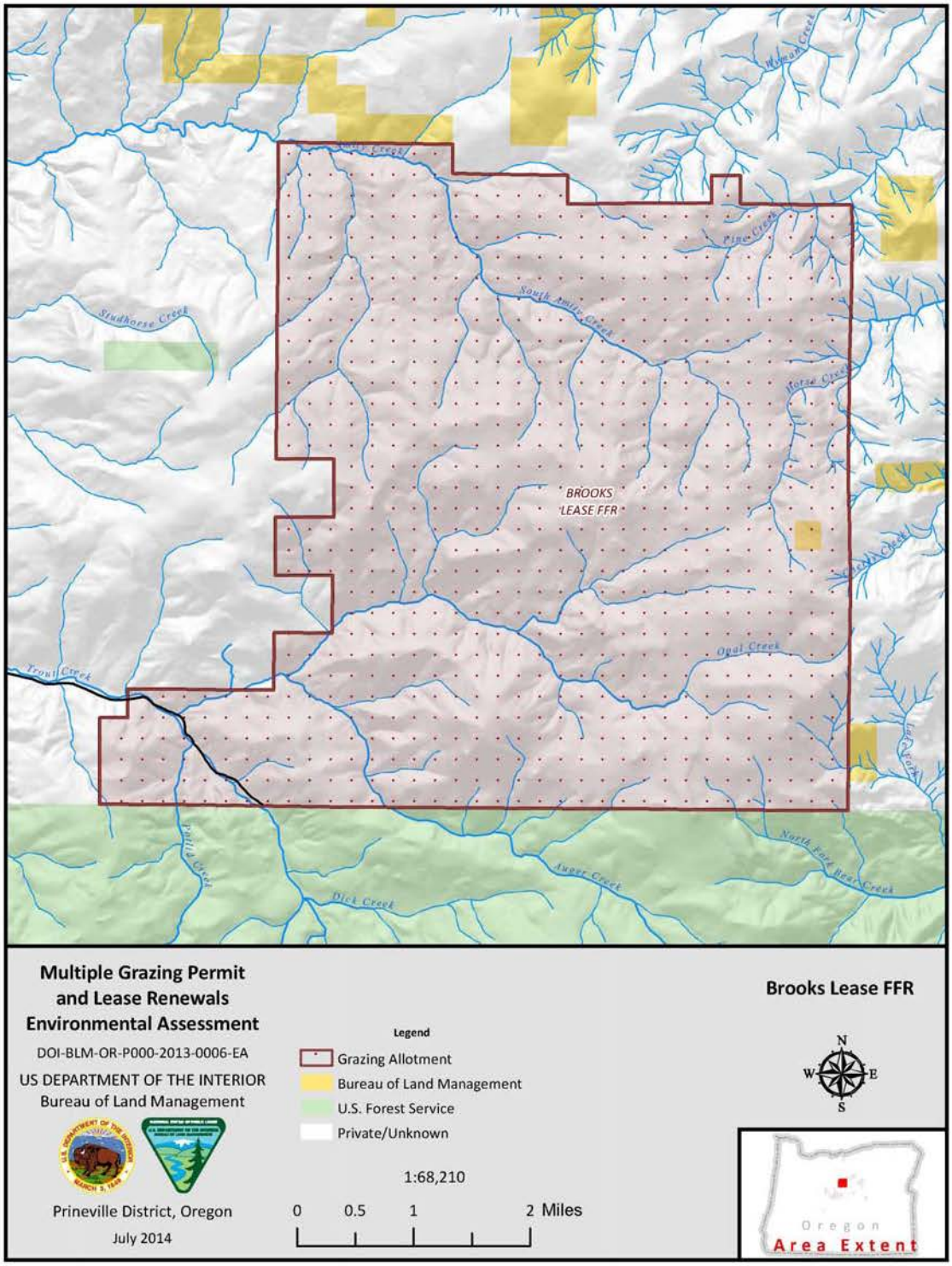
Biggs Junction FFR
N
W
E
S
Oregon
Area Extent


Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Grazing Allotment
Bureau of Land Management
U.S. Forest Service
Private/Unknown
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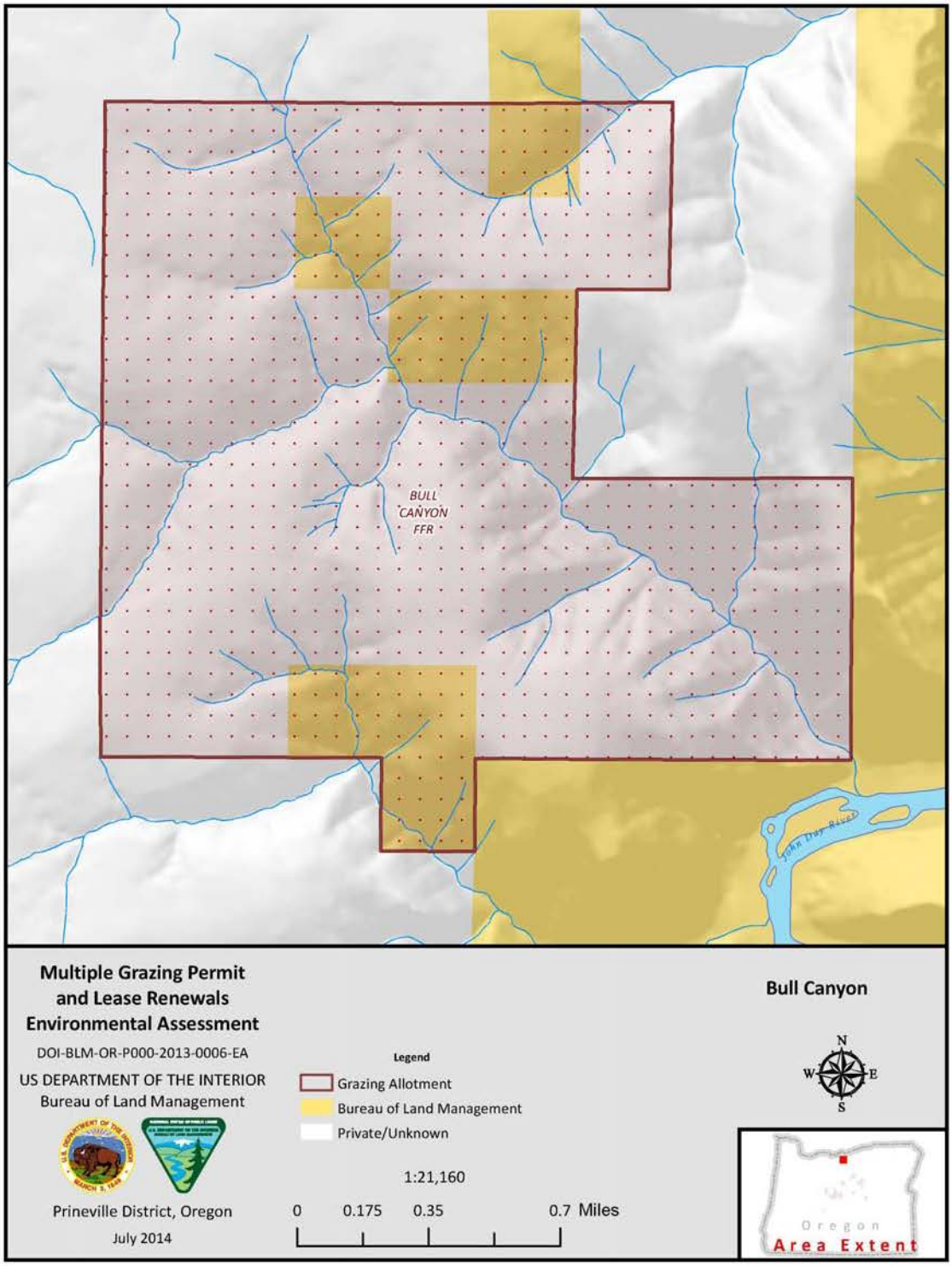
0 0.5 1 2 Miles
Brooks Lease FFR
N
W
E
S
Oregon
Area Extent
BROOKS
LEASE FFR
Pine Creek
South Amity Creek
Studhorse Creek
Horse Creek
Ogal Creek
Trout Creek
Dick Creek
Auger Creek
North Fork Beaver Creek


BULL
CANYON
FFR
John Day River
Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Grazing Allotment
Bureau of Land Management
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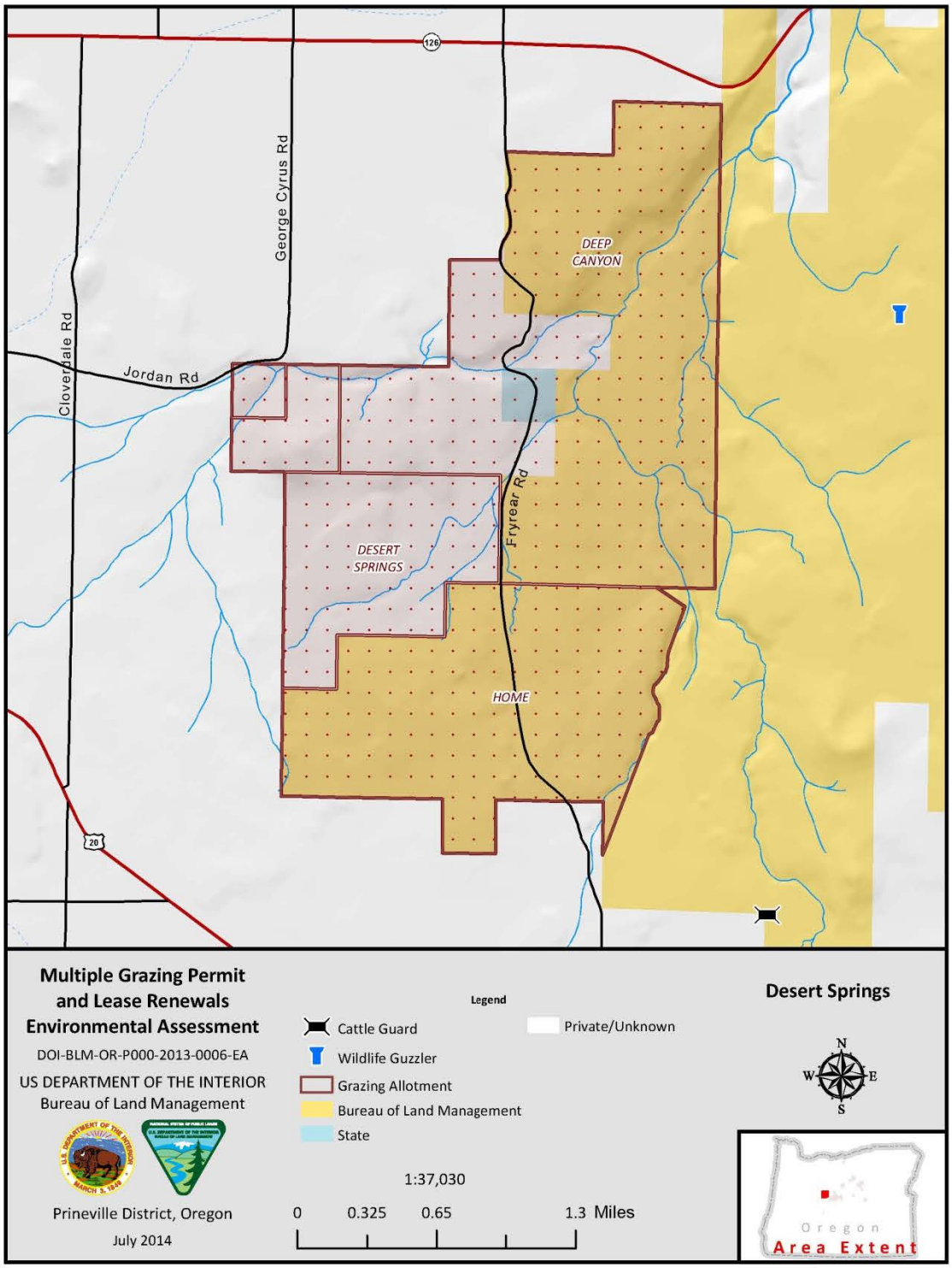
Bull Canyon
N
W
E
S
Oregon
Area Extent


126
George Cyrus Rd
Cloverdale Rd
Jordan Rd
DEEP CANYON
Fryrear Rd
DESERT SPRINGS
HOME
20
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Cattle Guard
Wildlife Guzzler
Grazing Allotment
Bureau of Land Management
State
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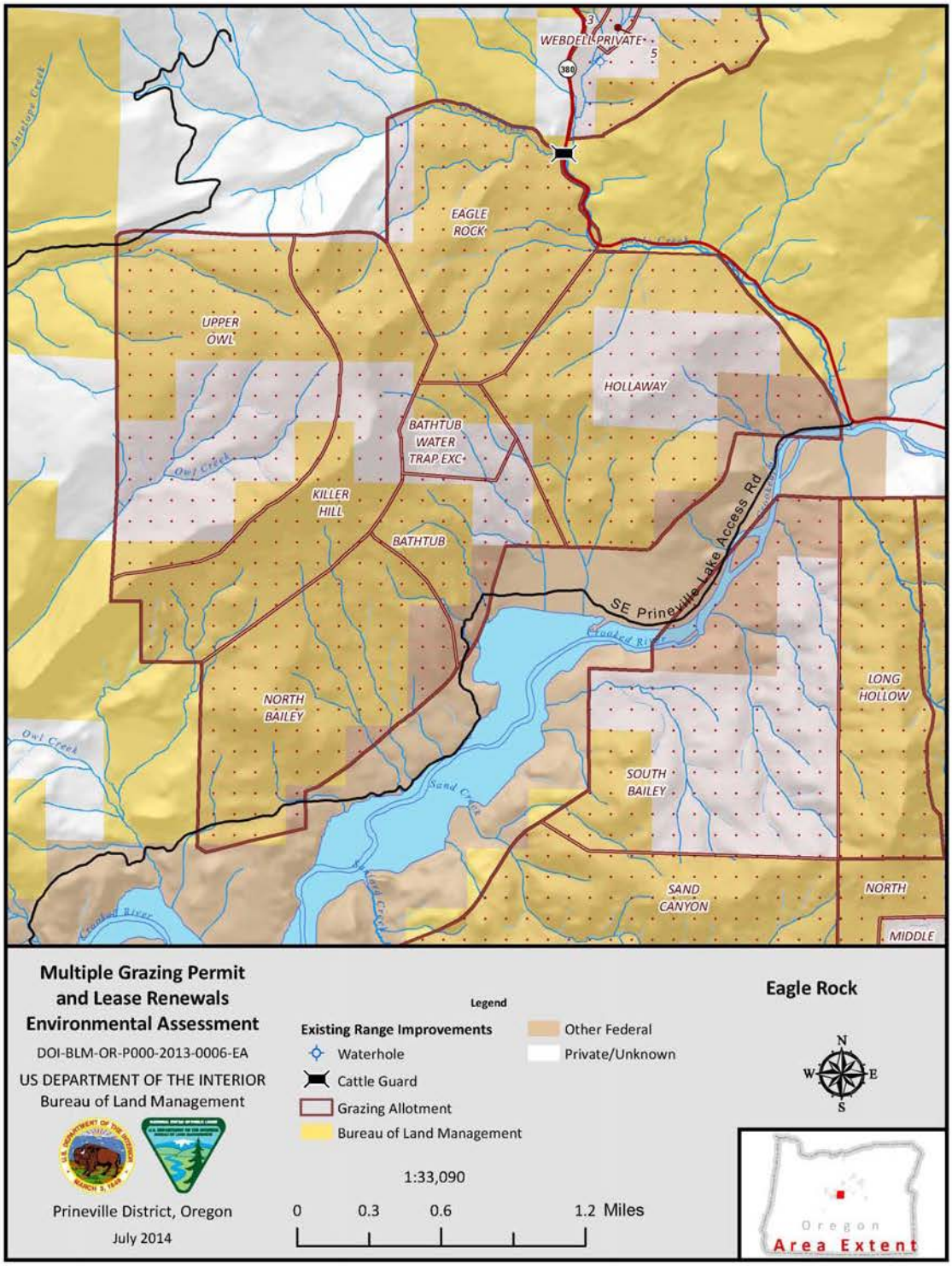
Desert Springs
N
W
E
S
Oregon
Area Extent


WEBDELL PRIVATE
380
EAGLE ROCK
UPPER OWL
HOLLAWAY
BATHTUB WATER TRAP EXC
KILLER HILL
BATHTUB
SE Prineville Lake Access Rd
NORTH BAILEY
LONG HOLLOW
SOUTH BAILEY
SAND CANYON
NORTH
MIDDLE
Owl Creek
Sand Creek
Crooked River
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Existing Range Improvements
Waterhole
Cattle Guard
Grazing Allotment
Bureau of Land Management
Other Federal
Private/Unknown
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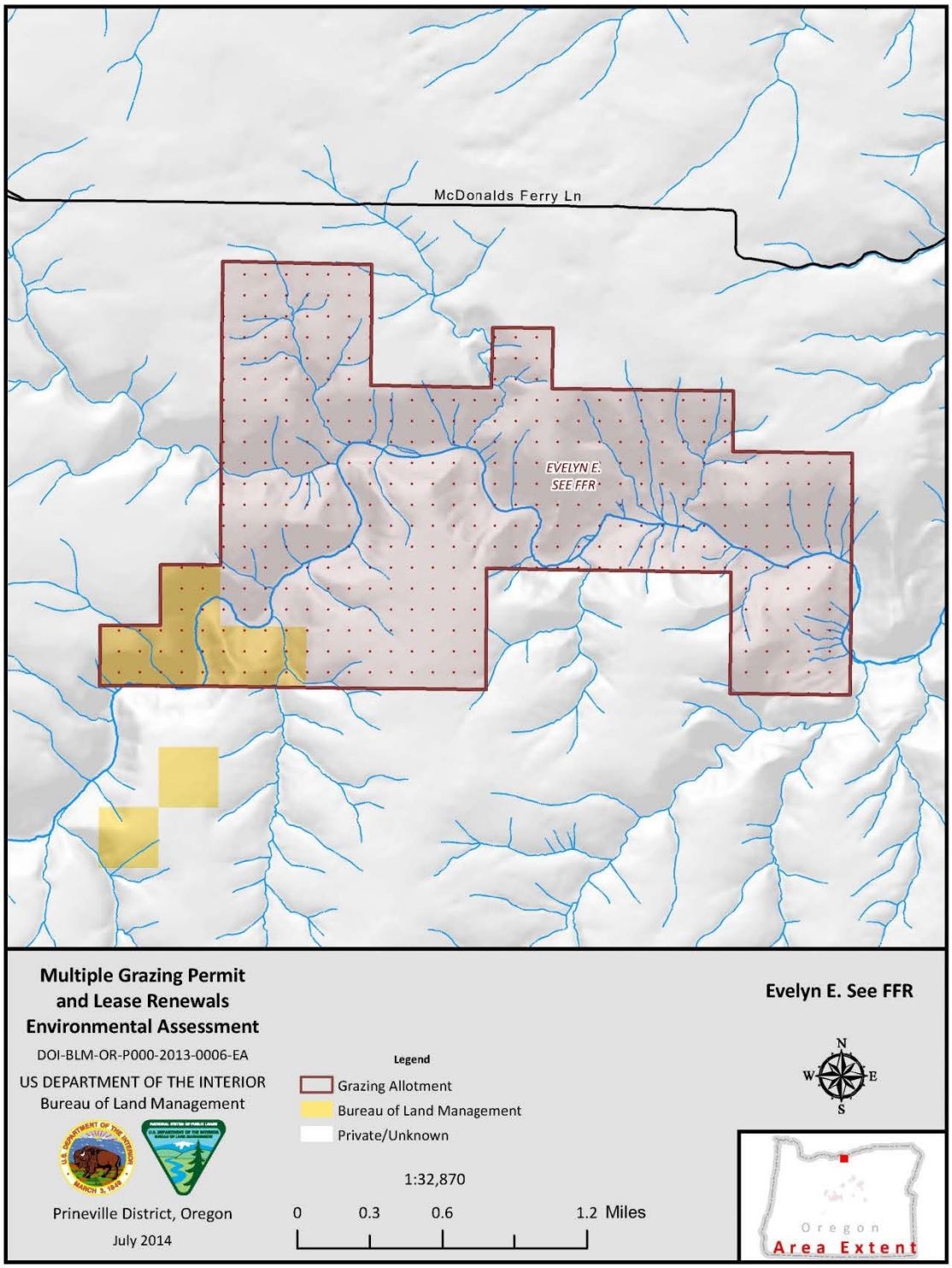
Eagle Rock
N
W
E
S
Oregon
Area Extent


McDonalds Ferry Ln
EVELYN E.
SEE FFR
Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Grazing Allotment
Bureau of Land Management
Private/Unknown
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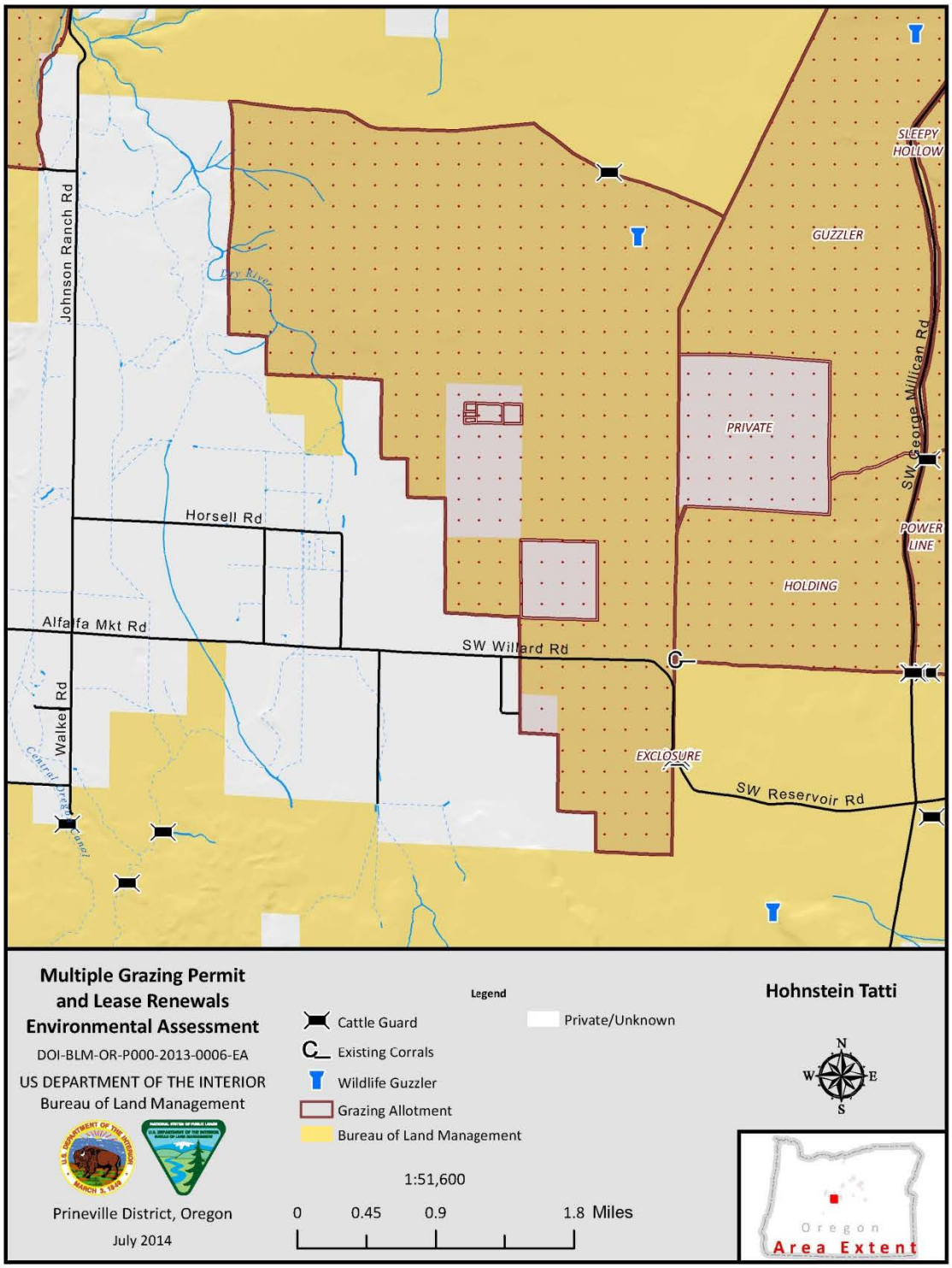
0 0.3 0.6 1.2 Miles
Evelyn E. See FFR
N
W
E
S
Oregon
Area Extent


Johnson Ranch Rd
Dry River
SLEEPY HOLLOW
GUZZLER
SW George Millican Rd
PRIVATE
POWER LINE
Horsell Rd
HOLDING
Alfalfa Mkt Rd
SW Willard Rd
Walker Rd
EXCLOSURE
SW Reservoir Rd
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Cattle Guard
Existing Corrals
Wildlife Guzzler
Grazing Allotment
Bureau of Land Management
Private/Unknown
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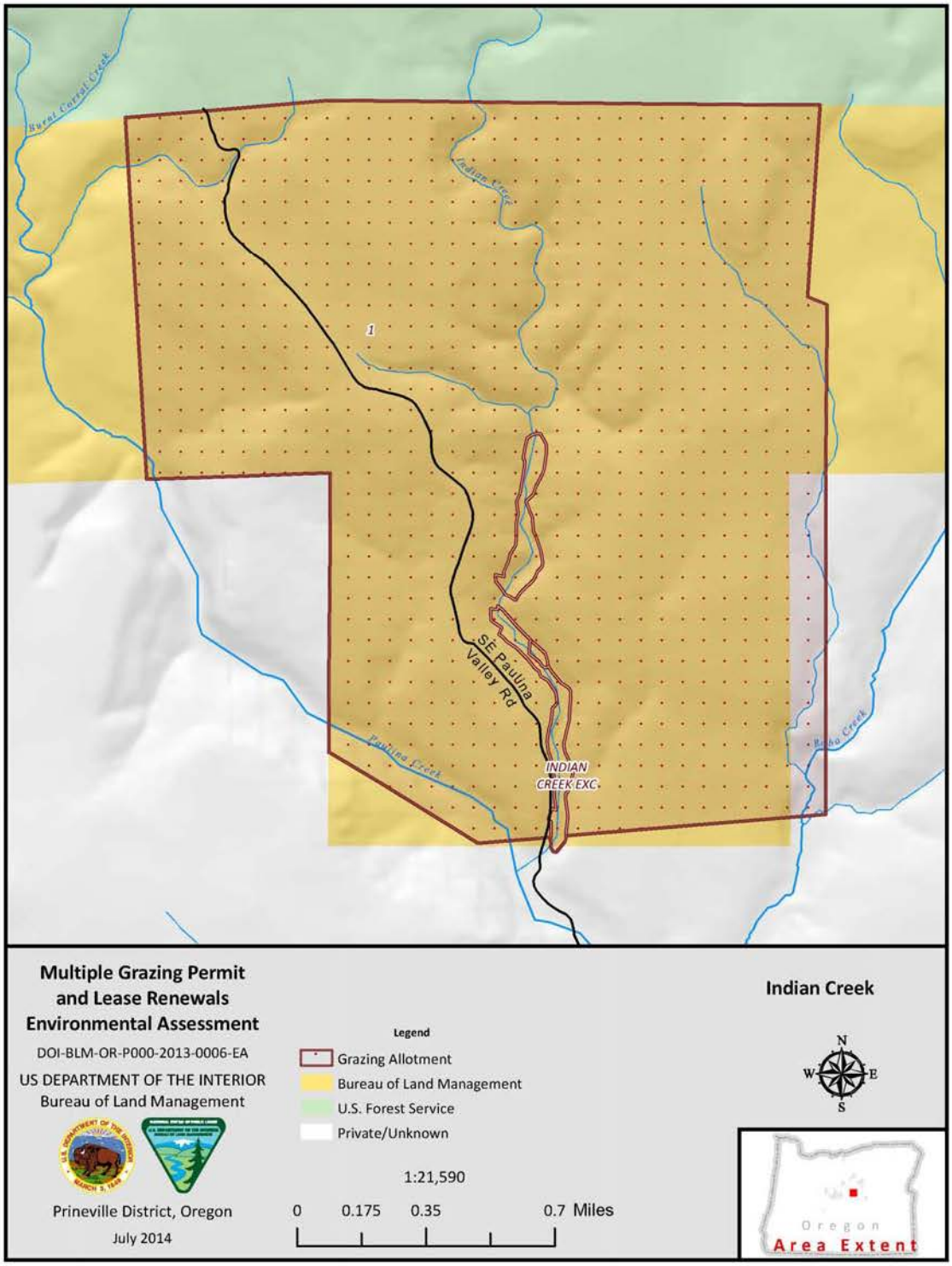
Hohnstein Tatti
N
W
E
S
Oregon
Area Extent


Burnt Corral Creek
Indian Creek
1
SE Paulina Valley Rd
INDIAN CREEK EXC.
Paulina Creek
Rabbit Creek
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Grazing Allotment
Bureau of Land Management
U.S. Forest Service
Private/Unknown
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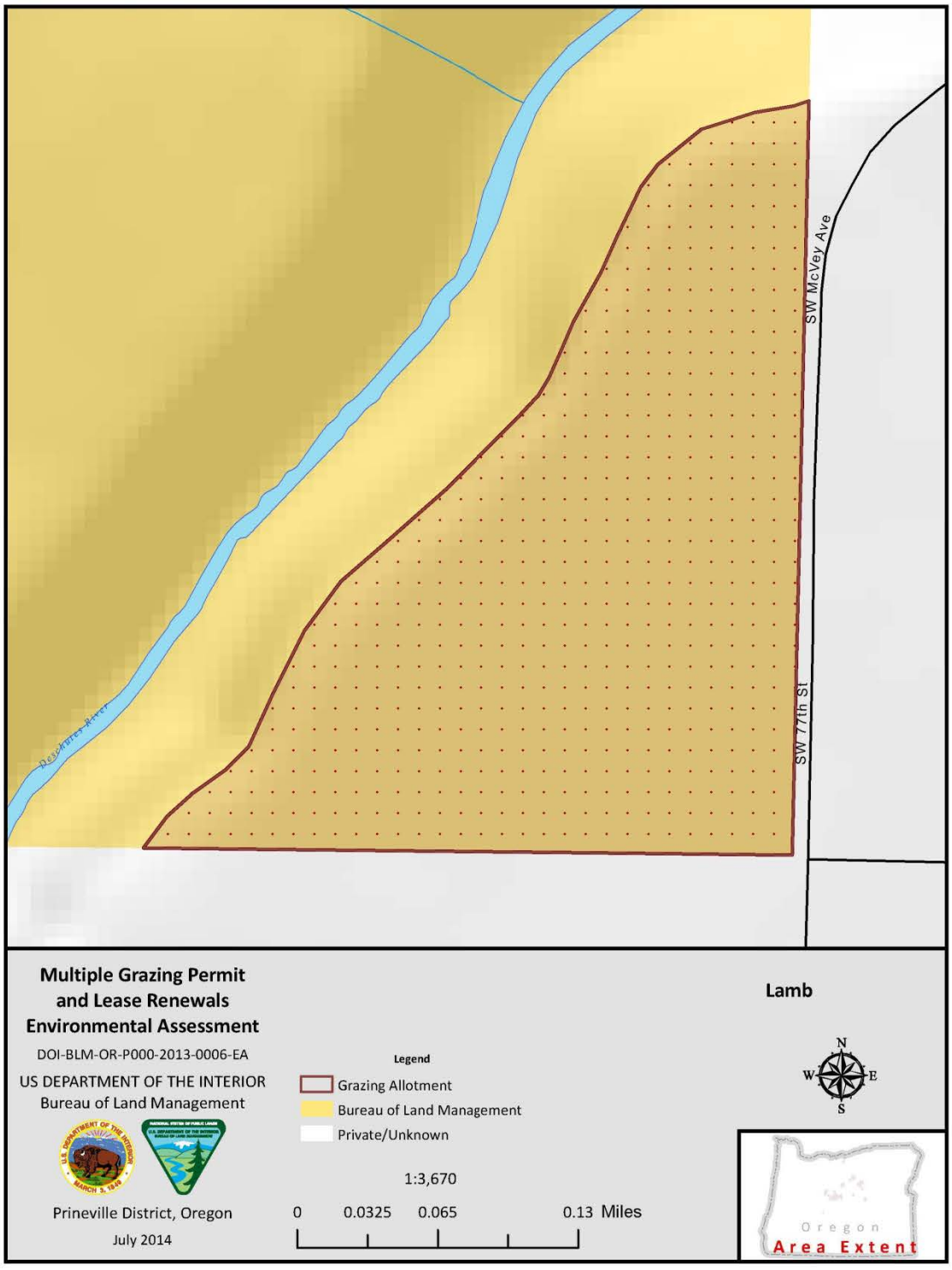
Indian Creek
N
W
E
S
Oregon
Area Extent


SW McVey Ave
SW 77th St
Deschutes River
Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Grazing Allotment
Bureau of Land Management
Private/Unknown
1:3,670
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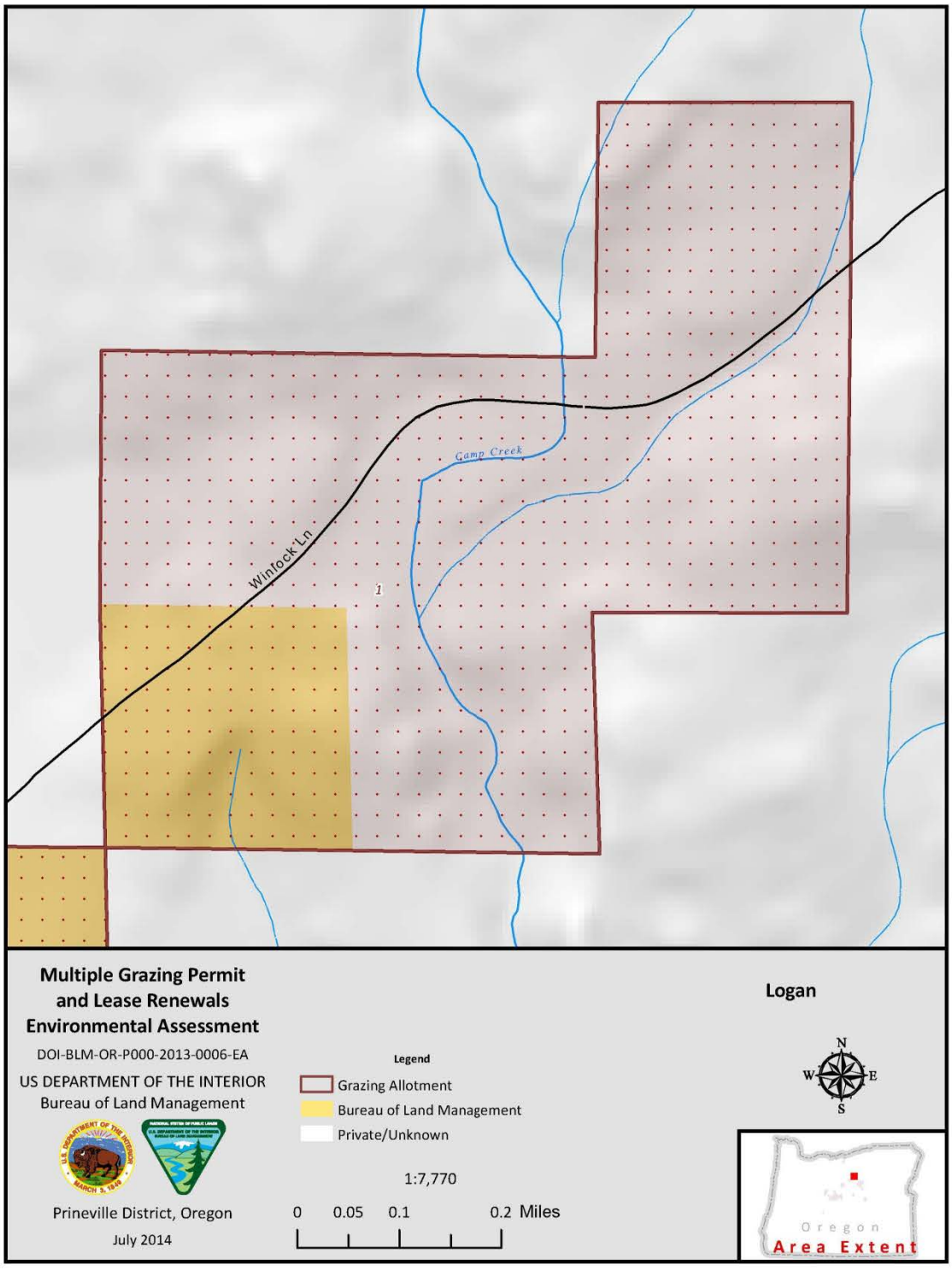
Lamb
N
W
E
S
Oregon
Area Extent


Winfock Ln
Camp Creek
1
Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Grazing Allotment
Bureau of Land Management
Private/Unknown
1:7,770
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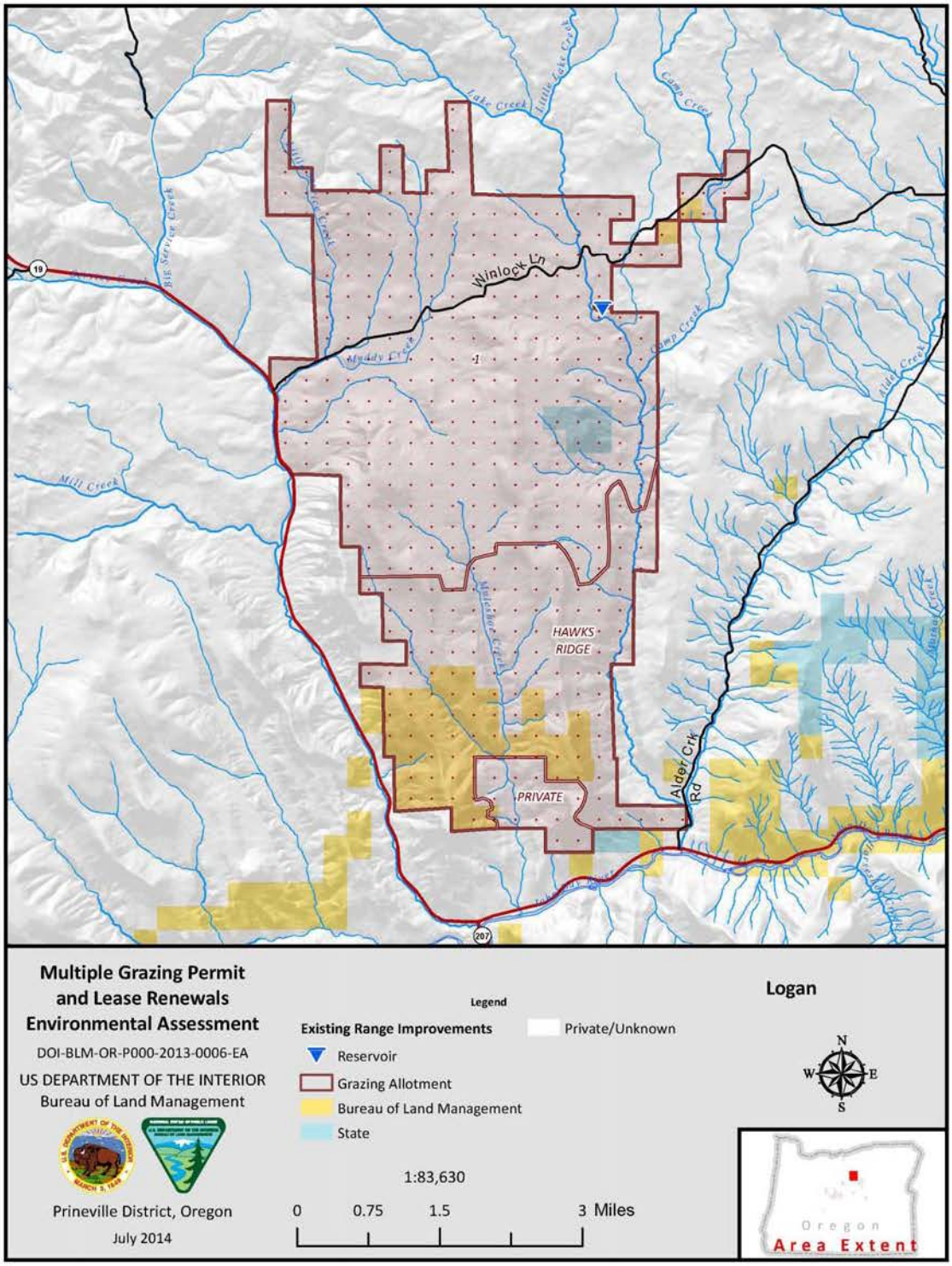
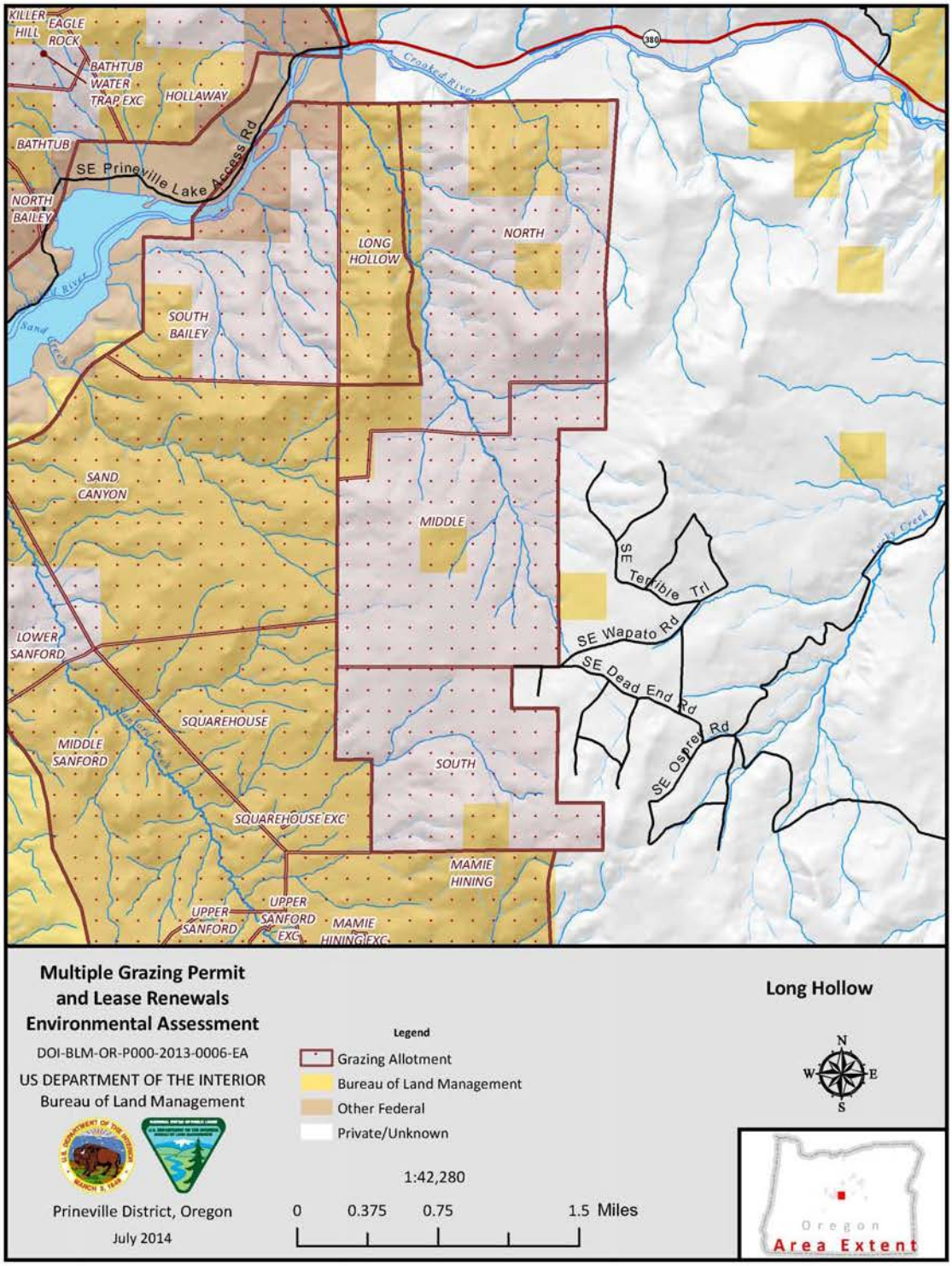
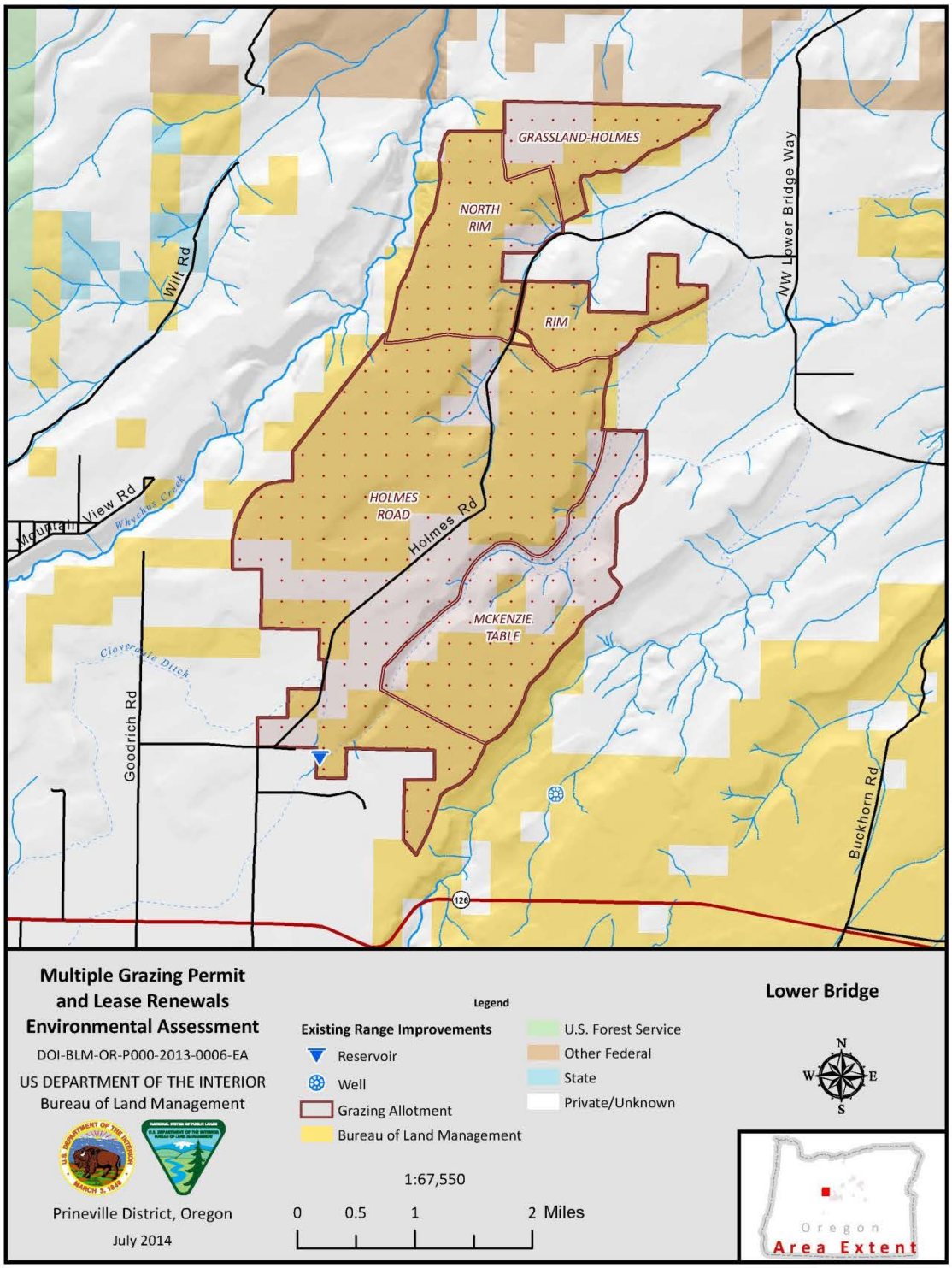
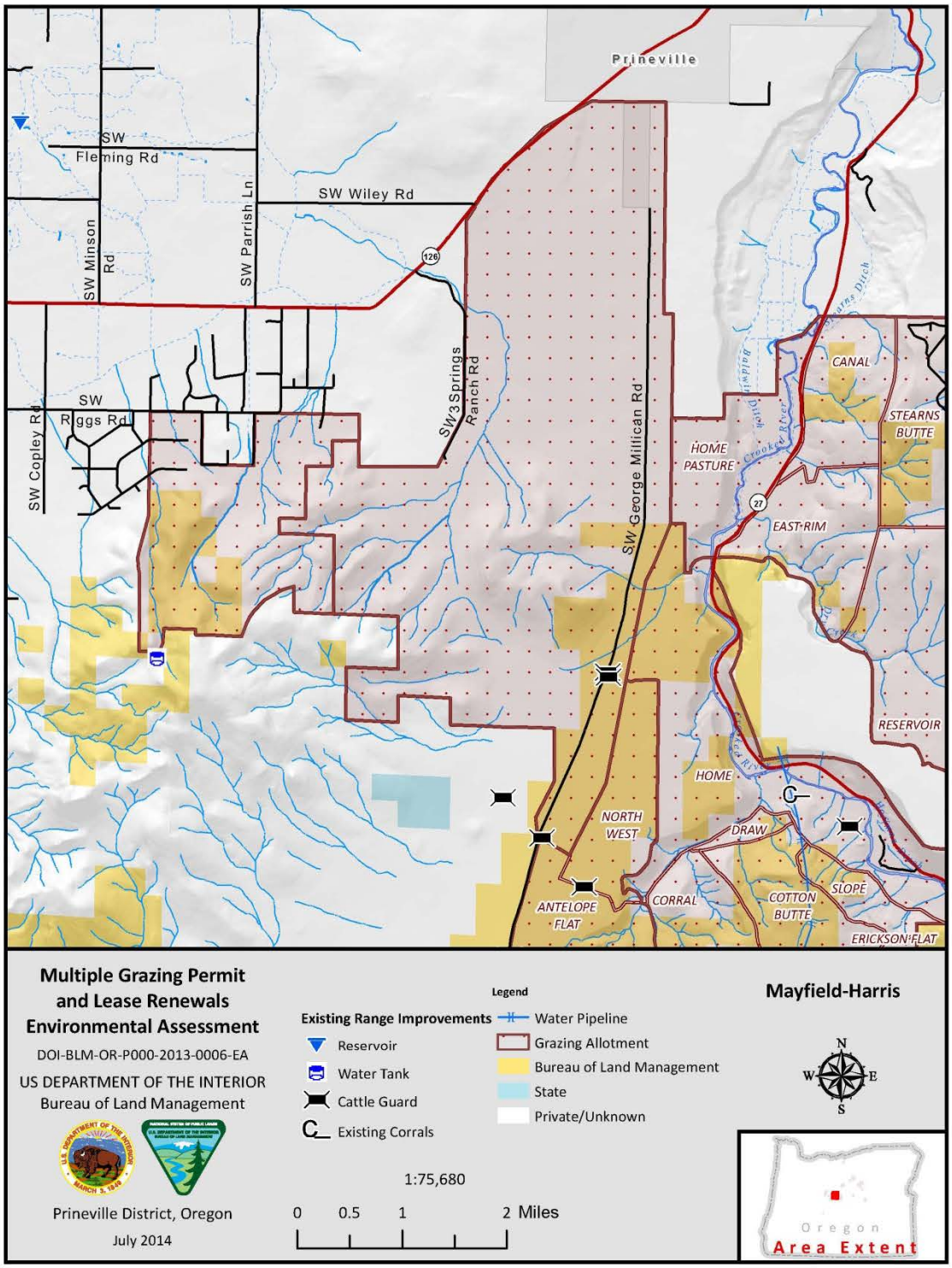
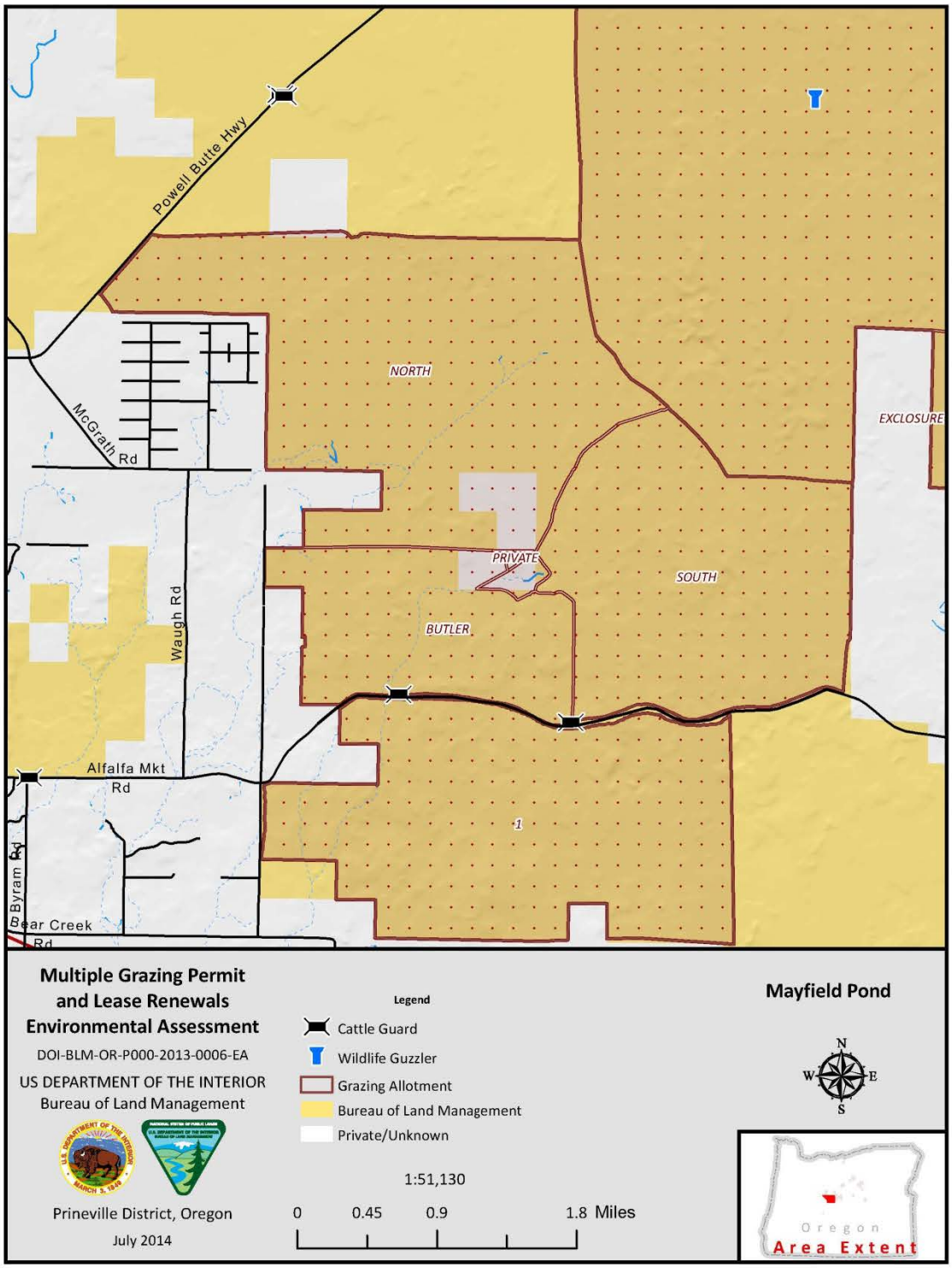
Logan
N
W
E
S
Oregon
Area Extent

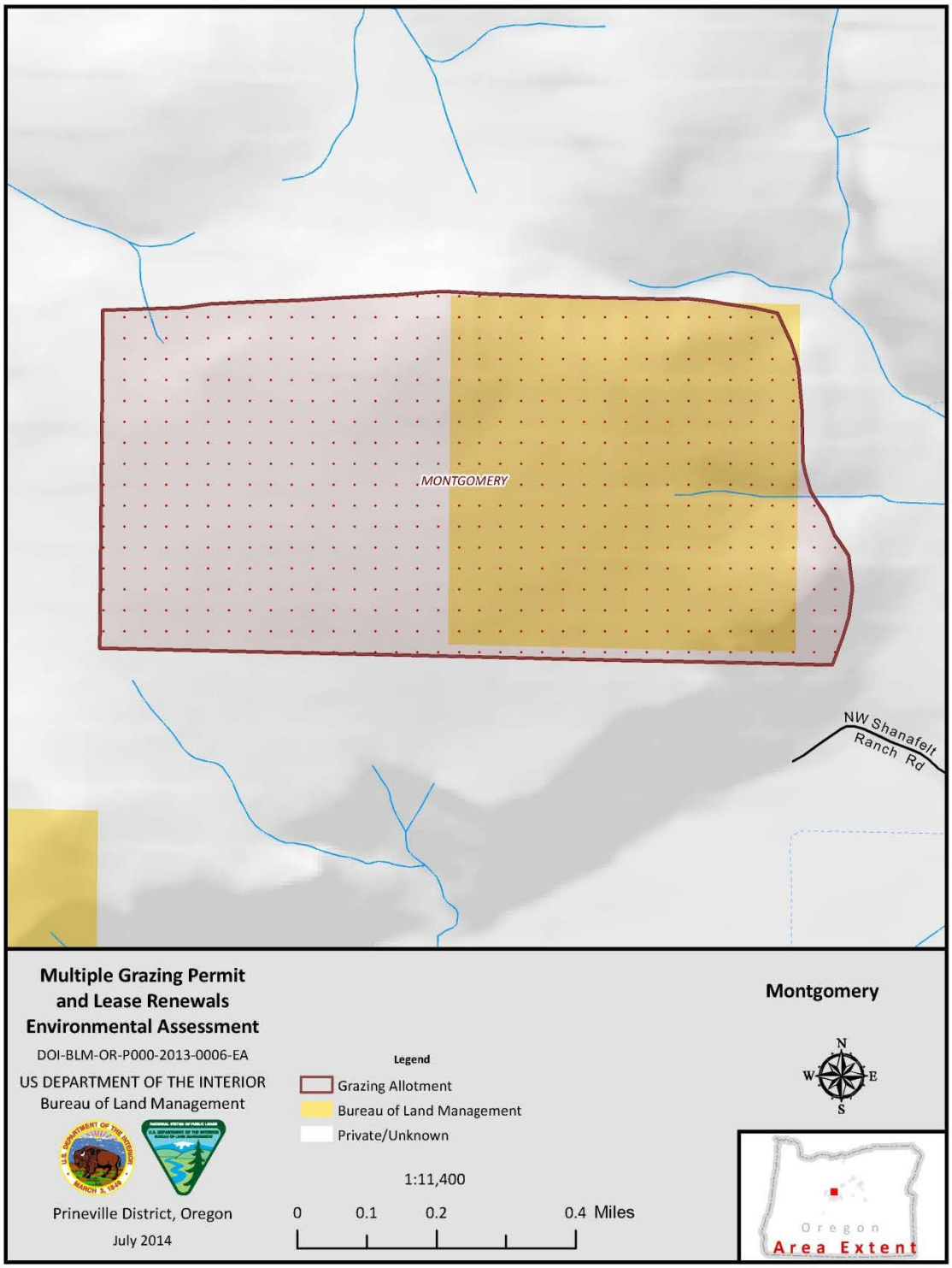

Lake Creek
Little Lake Creek
Camp Creek
Big Service Creek
Winlock Ln
Muddy Creek
Mill Creek
Shelldrake Creek
HAWKS
RIDGE
PRIVATE
Alder Crk Rd
19
207
Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Existing Range Improvements
Reservoir
Grazing Allotment
Bureau of Land Management
State
Private/Unknown
1:83,630
0
0.75
1.5
3 Miles
Logan
N
W
E
S
Oregon
Area Extent

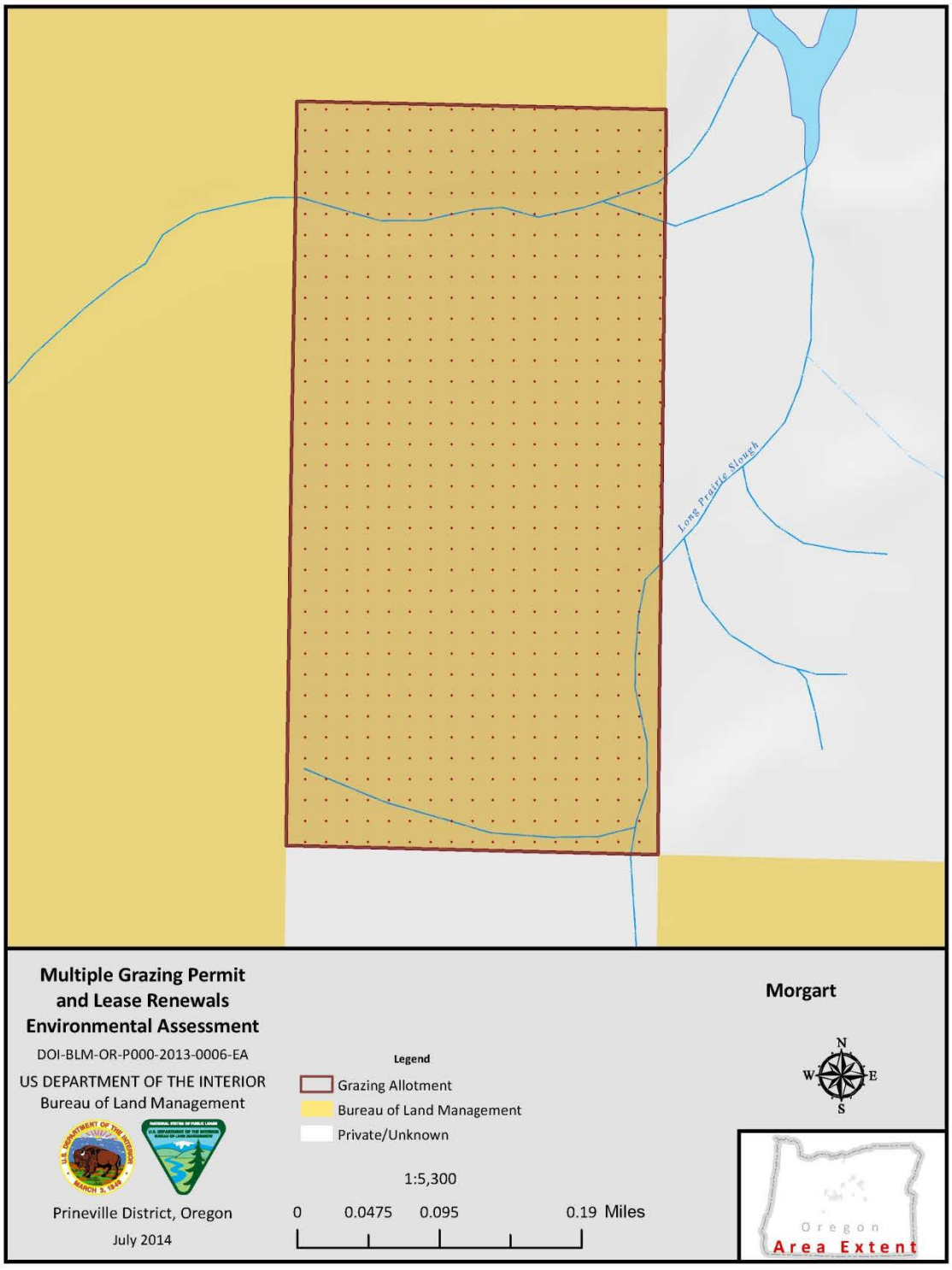

KILLER HILL
EAGLE ROCK
BATHTUB
WATER TRAP EXC
HOLLAWAY
BATHTUB
SE Prineville Lake Access Rd
NORTH BAILEY
LONG HOLLOW
NORTH
SOUTH BAILEY
SAND CANYON
MIDDLE
SE Terrible Trl
SE Wapato Rd
SE Dead End Rd
SE Osprey Rd
LOWER SANFORD
SQUAREHOUSE
MIDDLE SANFORD
SOUTH
SQUAREHOUSE EXC
MAMIE HINING
UPPER SANFORD
UPPER SANFORD EXC
MAMIE HINING EXC
Crooked River
380
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Grazing Allotment
Bureau of Land Management
Other Federal
Private/Unknown
1:42,280
0 0.375 0.75 1.5 Miles
Long Hollow
N
W
E
S
Oregon
Area Extent

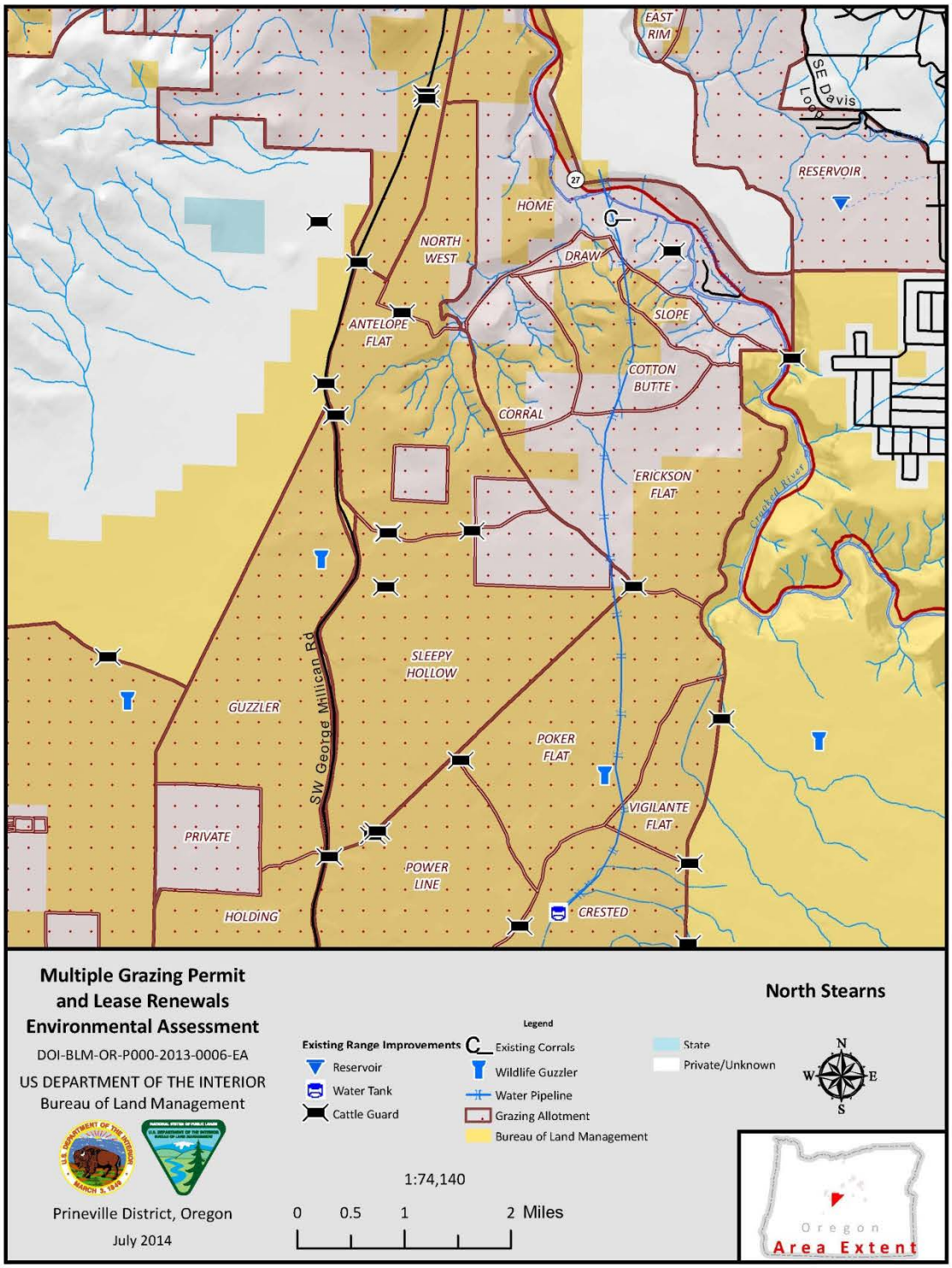

GRASSLAND-HOLMES
NORTH RIM
RIM
HOLMES ROAD
MCKENZIE TABLE
Wilt Rd
NW Lower Bridge Way
Holmes Rd
Mountain View Rd
Whychus Creek
Cloverdale Ditch
Goodrich Rd
Buckhorn Rd
126
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Existing Range Improvements
Reservoir
Well
Grazing Allotment
Bureau of Land Management
U.S. Forest Service
Other Federal
State
Private/Unknown
1:67,550
0 0.5 1 2 Miles
Lower Bridge
N
W
E
S
Oregon
Area Extent

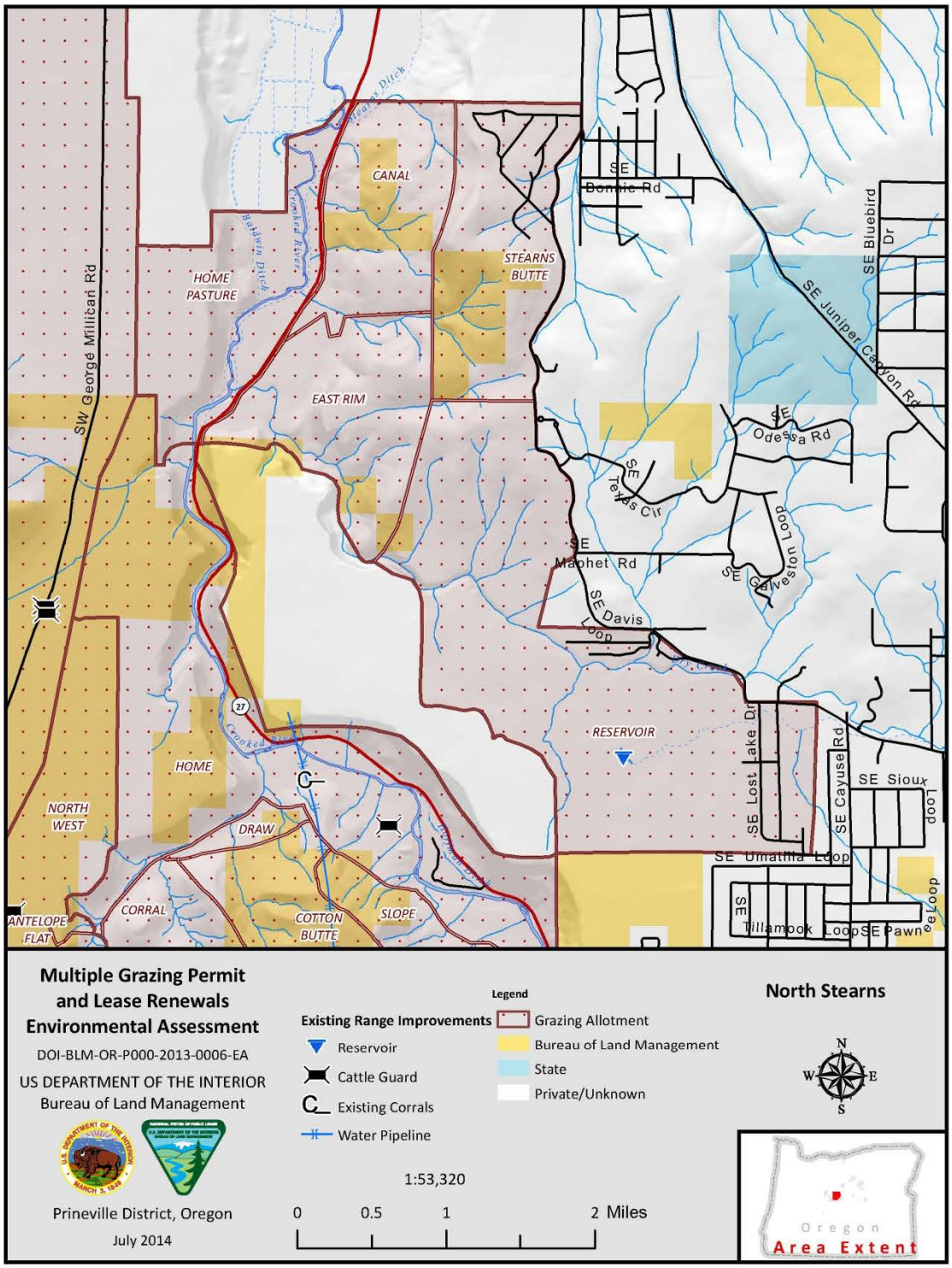

Prineville
SW Fleming Rd
SW Wiley Rd
SW Minson Rd
SW Parrish Ln
SW Copley Rd
SW Riggs Rd
SW Springs Ranch Rd
SW George Millican Rd
126
27
CANAL
STEARNS BUTTE
HOME PASTURE
EAST RIM
RESERVOIR
HOME
NORTH WEST
DRAW
SLOPE
ANTELOPE FLAT
CORRAL
COTTON BUTTE
ERICKSON FLAT
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Existing Range Improvements
Reservoir
Water Tank
Cattle Guard
Existing Corrals
Water Pipeline
Grazing Allotment
Bureau of Land Management
State
Private/Unknown
1:75,680
0 0.5 1 2 Miles
Mayfield-Harris
N
W
E
S
Oregon
Area Extent

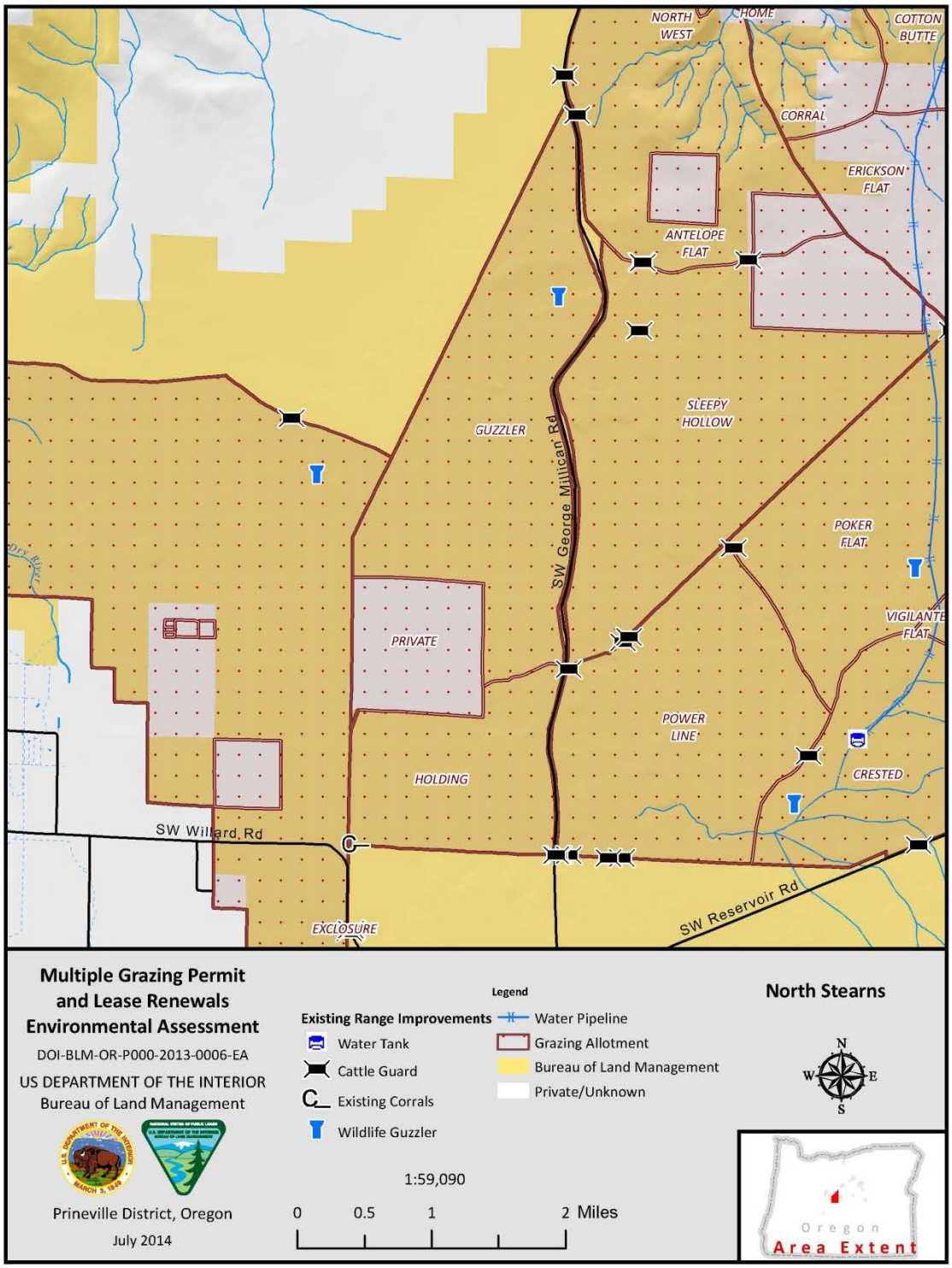

Powell Butte Hwy
McGrath Rd
Waugh Rd
Alfalfa Mkt Rd
Byram Rd
Bear Creek Rd
NORTH
SOUTH
BUTLER
PRIVATE
EXCLOSURE
1
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Cattle Guard
Wildlife Guzzler
Grazing Allotment
Bureau of Land Management
Private/Unknown
1:51,130
0 0.45 0.9 1.8 Miles
Mayfield Pond
N
W
E
S
Oregon
Area Extent

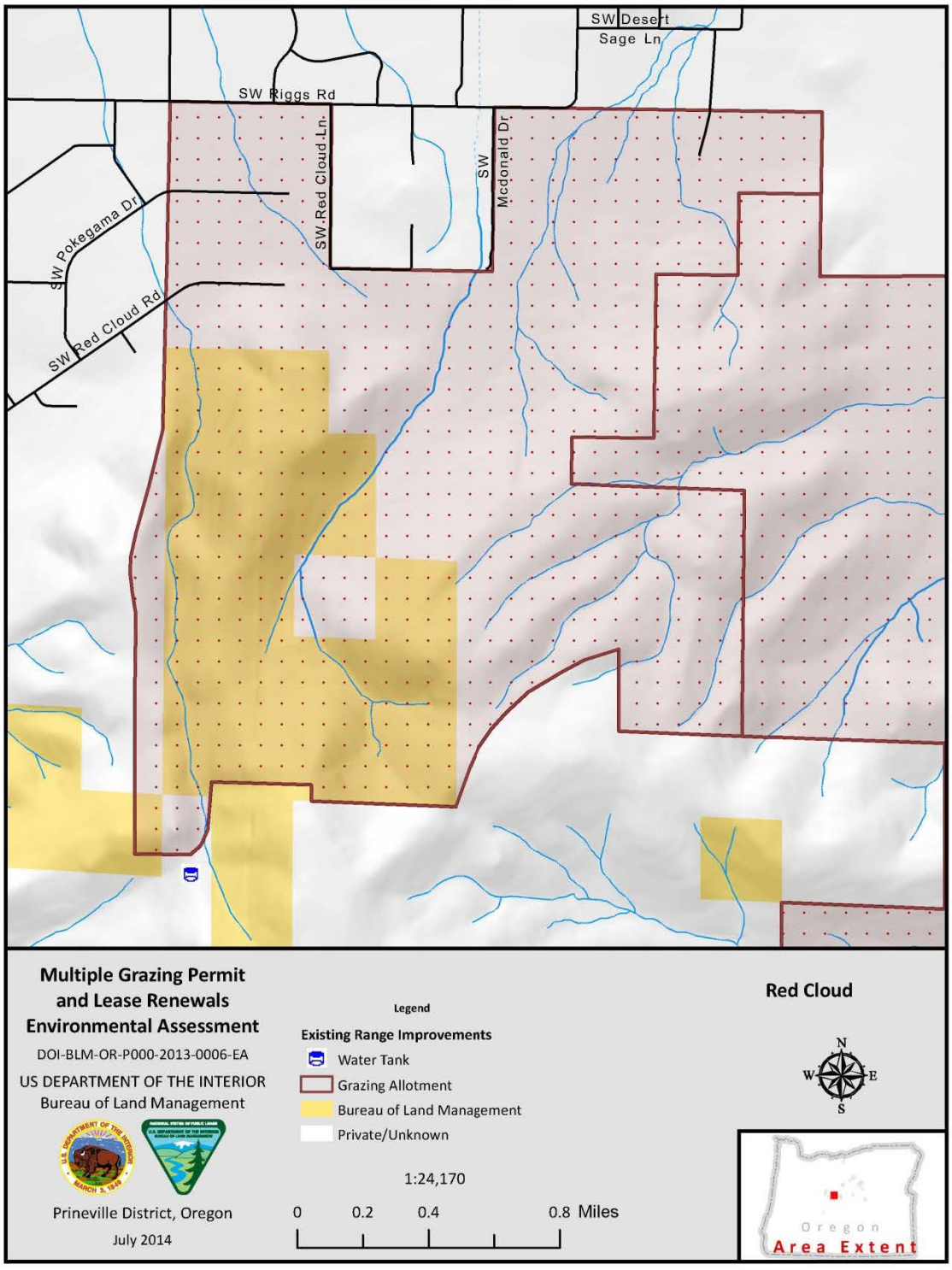

MONTGOMERY
NW Shanafelt Ranch Rd
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Grazing Allotment
Bureau of Land Management
Private/Unknown
1:11,400
0 0.1 0.2 0.4 Miles
Montgomery
N
W
E
S
Oregon
Area Extent

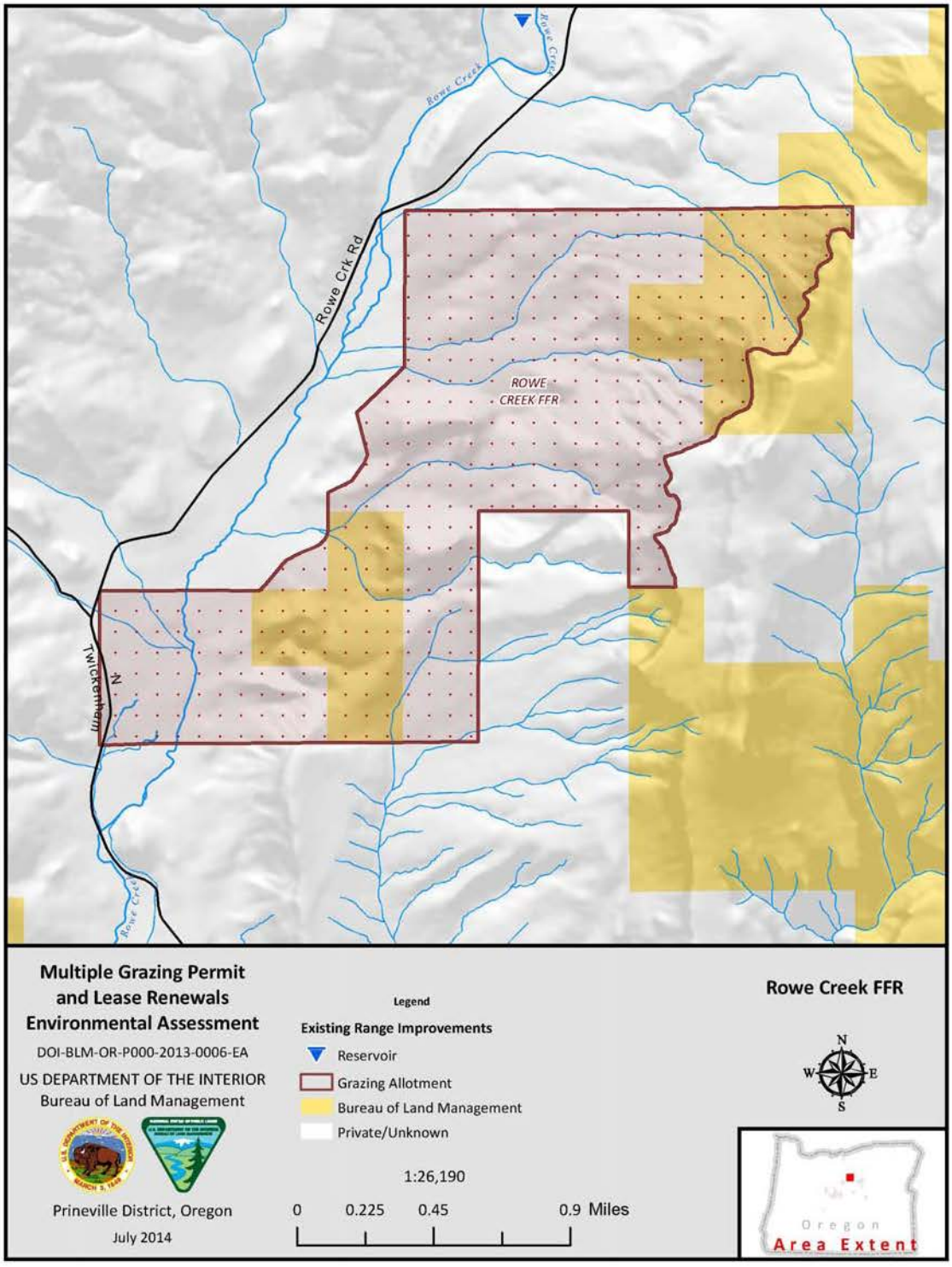

Long Prairie Slough
Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Grazing Allotment
Bureau of Land Management
Private/Unknown
1:5,300
0
0.0475
0.095
0.19 Miles
Morgart
N
W
E
S
Oregon
Area Extent

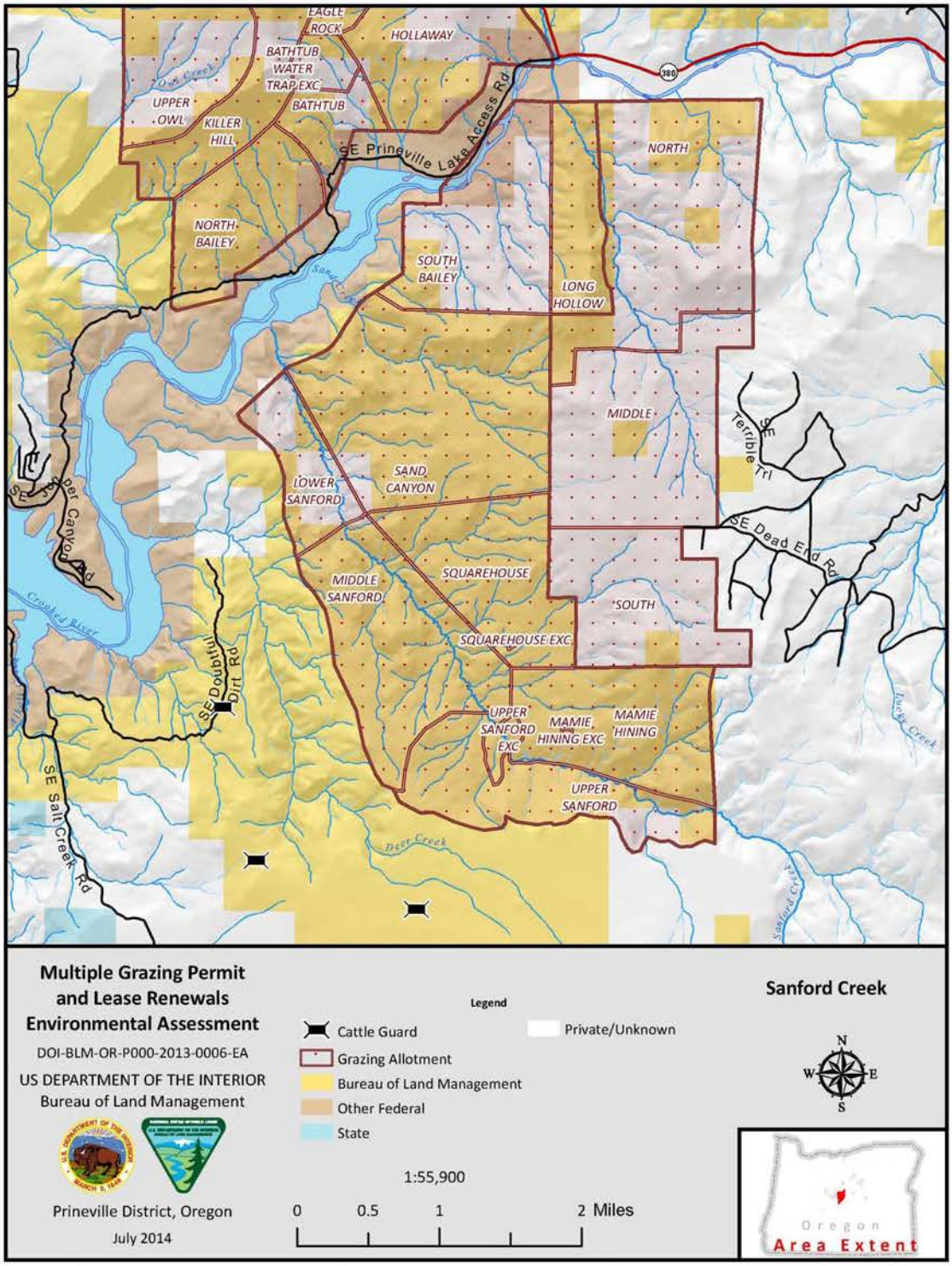

EAST RIM
SE Davis Loop
RESERVOIR
HOME
NORTH WEST
DRAW
SLOPE
ANTELOPE FLAT
COTTON BUTTE
CORRAL
ERICKSON FLAT
Crooked River
SLEEPY HOLLOW
SW George Millican Rd
GUZZLER
POKER FLAT
VIGILANTE FLAT
PRIVATE
POWER LINE
HOLDING
CRESTED
27
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
North Stearns
Legend
Existing Range Improvements
Reservoir
Water Tank
Cattle Guard
Existing Corrals
Wildlife Guzzler
Water Pipeline
Grazing Allotment
Bureau of Land Management
State
Private/Unknown
N
W
E
S
1:74,140
0 0.5 1 2 Miles
Oregon
Area Extent

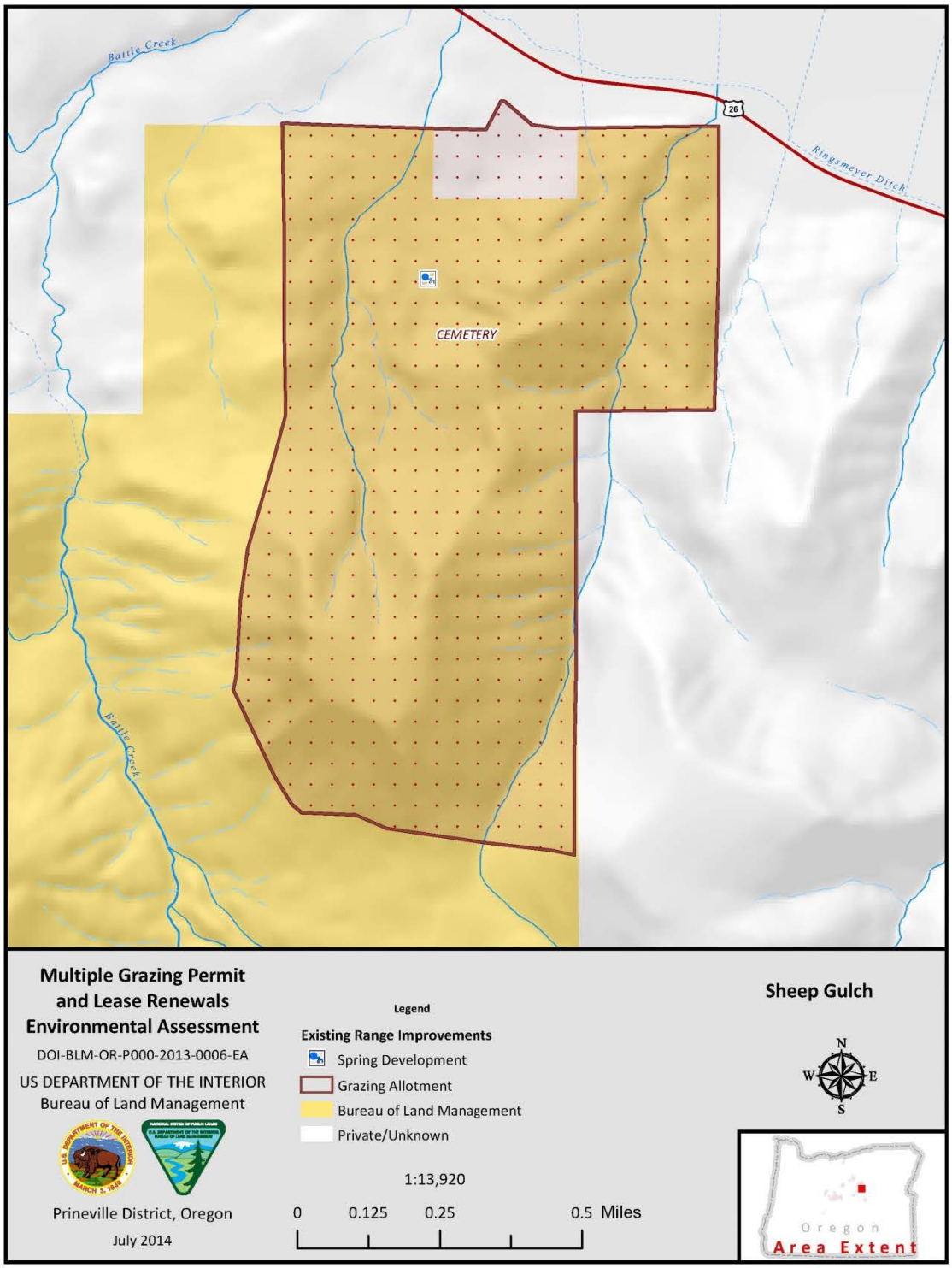

Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Existing Range Improvements
Reservoir
Cattle Guard
Existing Corrals
Water Pipeline
Grazing Allotment
Bureau of Land Management
State
Private/Unknown
1:53,320
0 0.5 1 2 Miles
North Stearns
N
W
E
S
Oregon
Area Extent
CANAL
HOME PASTURE
STEARNS BUTTE
EAST RIM
RESERVOIR
HOME
NORTH WEST
DRAW
CORRAL
COTTON BUTTE
SLOPE
ANTELOPE FLAT
SW George Millican Rd
SE Bonnie Rd
SE Bluebird Dr
SE Juniper Canyon Rd
SE Odessa Rd
SE Texas Cir
SE Galveston Loop
SE Mahonet Rd
SE Davis Loop
SE Lost Lake Dr
SE Cayuse Rd
SE Sioux Loop
SE Umatilla Loop
SE Tillamook Loop
SE Pawnee Loop
Crooked River
Baldwin Ditch
Stearns Ditch
27

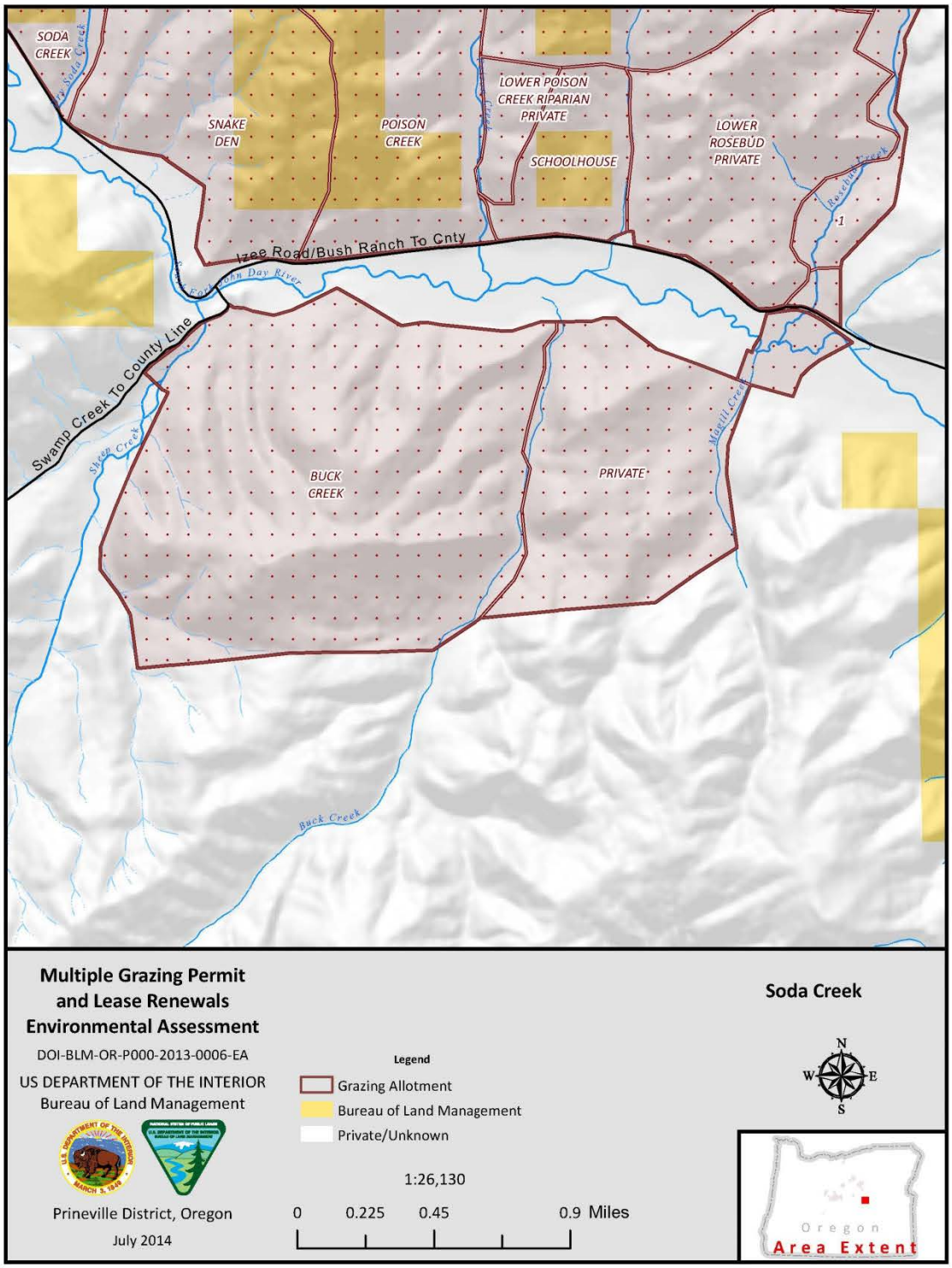

NORTH WEST
HOME
COTTON BUTTE
CORRAL
ERICKSON FLAT
ANTELOPE FLAT
SLEEPY HOLLOW
GUZZLER
SW George Millican Rd
POKER FLAT
VIGILANTE FLAT
PRIVATE
POWER LINE
HOLDING
CRESTED
SW Willard Rd
EXCLOSURE
SW Reservoir Rd
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Existing Range Improvements
Water Tank
Cattle Guard
Existing Corrals
Wildlife Guzzler
Water Pipeline
Grazing Allotment
Bureau of Land Management
Private/Unknown
1:59,090
0 0.5 1 2 Miles
North Stearns
N
W
E
S
Oregon
Area Extent

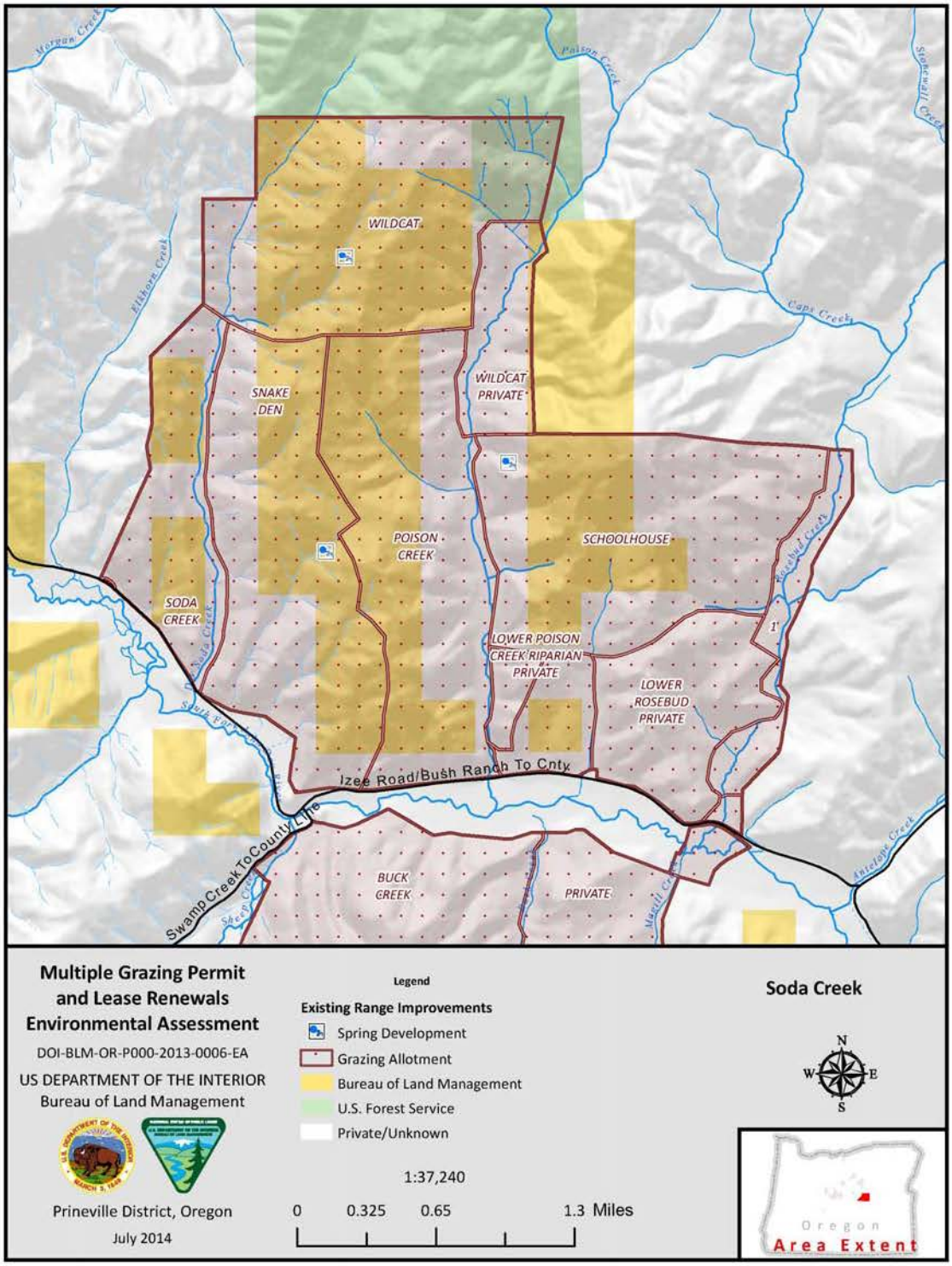

SW Desert
Sage Ln
SW Riggs Rd
SW Red Cloud Ln
SW Mcdonald Dr
SW Pokegama Dr
SW Red Cloud Rd
Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Existing Range Improvements
Water Tank
Grazing Allotment
Bureau of Land Management
Private/Unknown
1:24,170
0 0.2 0.4 0.8 Miles
Red Cloud
N
W
E
S
Oregon
Area Extent

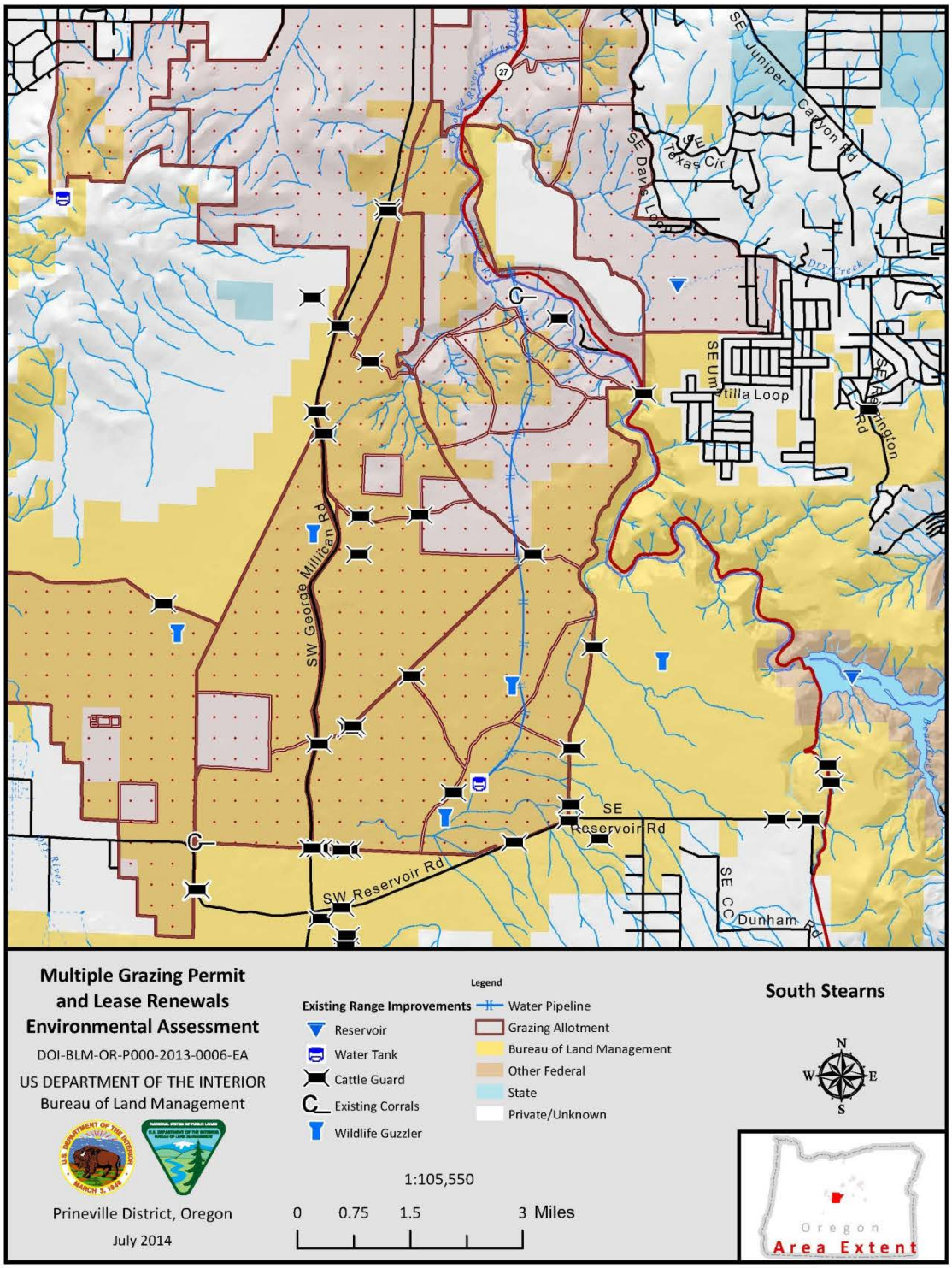

Rowe Creek
Rowe Crk Rd
ROWE
CREEK FFR
N Twickenham
Rowe Creek
Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Existing Range Improvements
Reservoir
Grazing Allotment
Bureau of Land Management
Private/Unknown
1:26,190
0 0.225 0.45 0.9 Miles
Rowe Creek FFR
N
W
E
S
Oregon
Area Extent

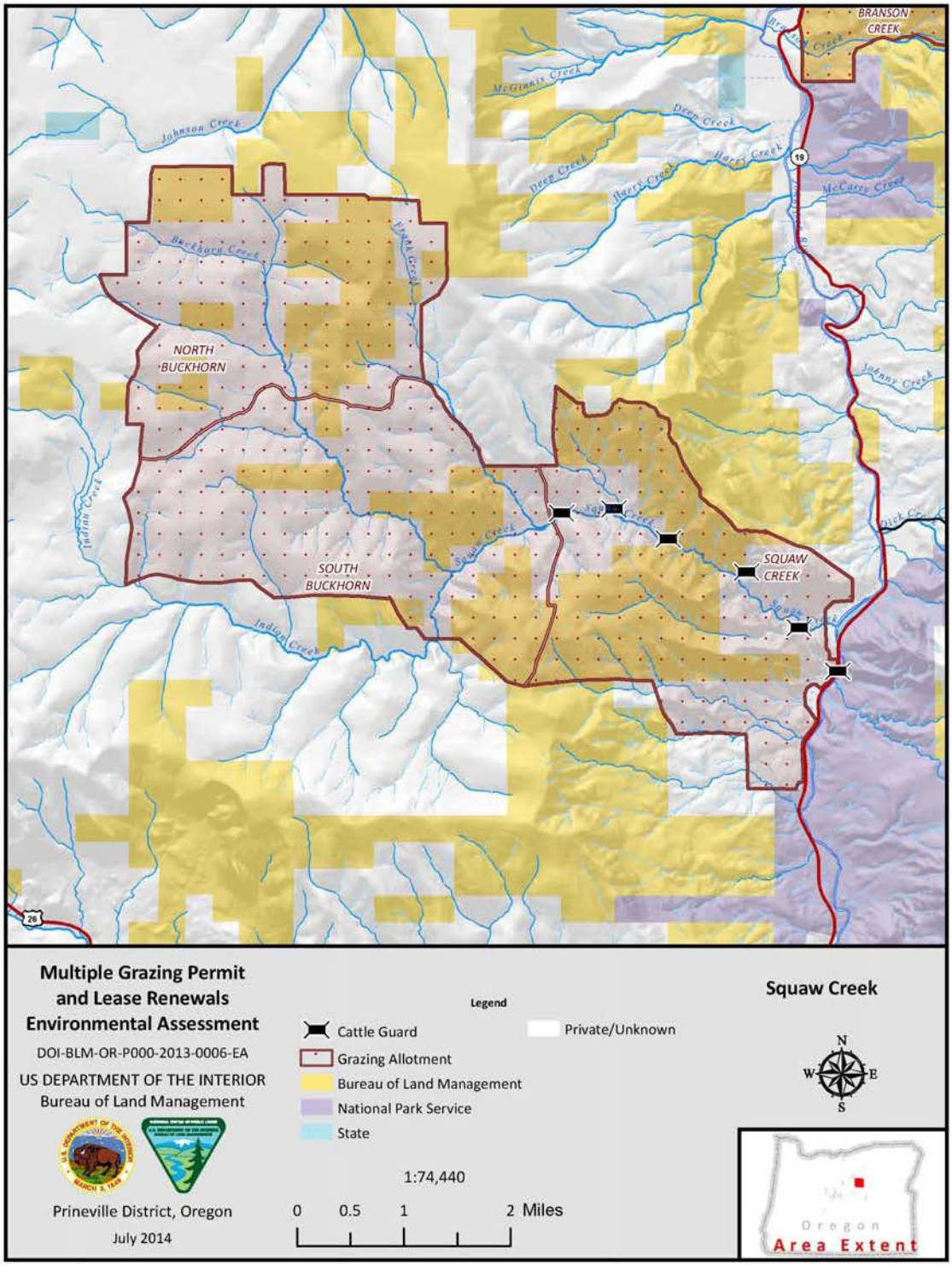

EAGLE ROCK
HOLLAWAY
BATHTUB
WATER TRAP EXC
BATHTUB
UPPER OWL
KILLER HILL
SE Prineville Lake Access Rd
NORTH
NORTH BAILEY
SOUTH BAILEY
LONG HOLLOW
MIDDLE
SE Terrible Trl
LOWER SANFORD
SAND CANYON
SE Dead End Rd
SE Upper Canyon Rd
MIDDLE SANFORD
SQUAREHOUSE
SOUTH
SQUAREHOUSE EXC.
SE Doubtful Dirt Rd
UPPER SANFORD EXC
MAMIE HINING EXC
MAMIE HINING
UPPER SANFORD
SE Salt Creek Rd
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Cattle Guard
Grazing Allotment
Bureau of Land Management
Other Federal
State
Private/Unknown
1:55,900
0 0.5 1 2 Miles
Sanford Creek
N
W
E
S
Oregon
Area Extent

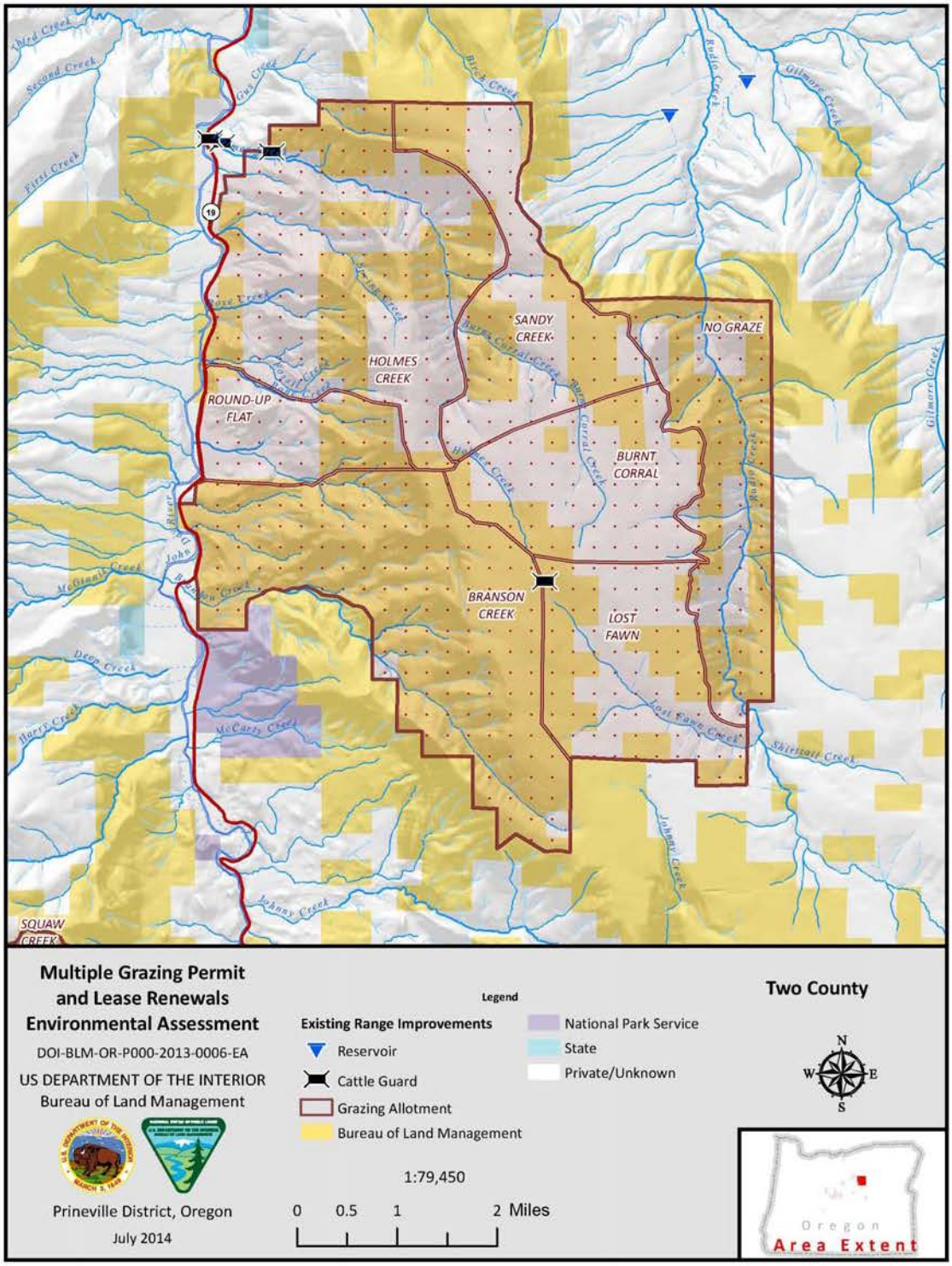

Battle Creek
26
Ringsmeyer Ditch
CEMETERY
Battle Creek
Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Existing Range Improvements
Spring Development
Grazing Allotment
Bureau of Land Management
Private/Unknown
1:13,920
0 0.125 0.25 0.5 Miles
Sheep Gulch
N
W
E
S
Oregon
Area Extent

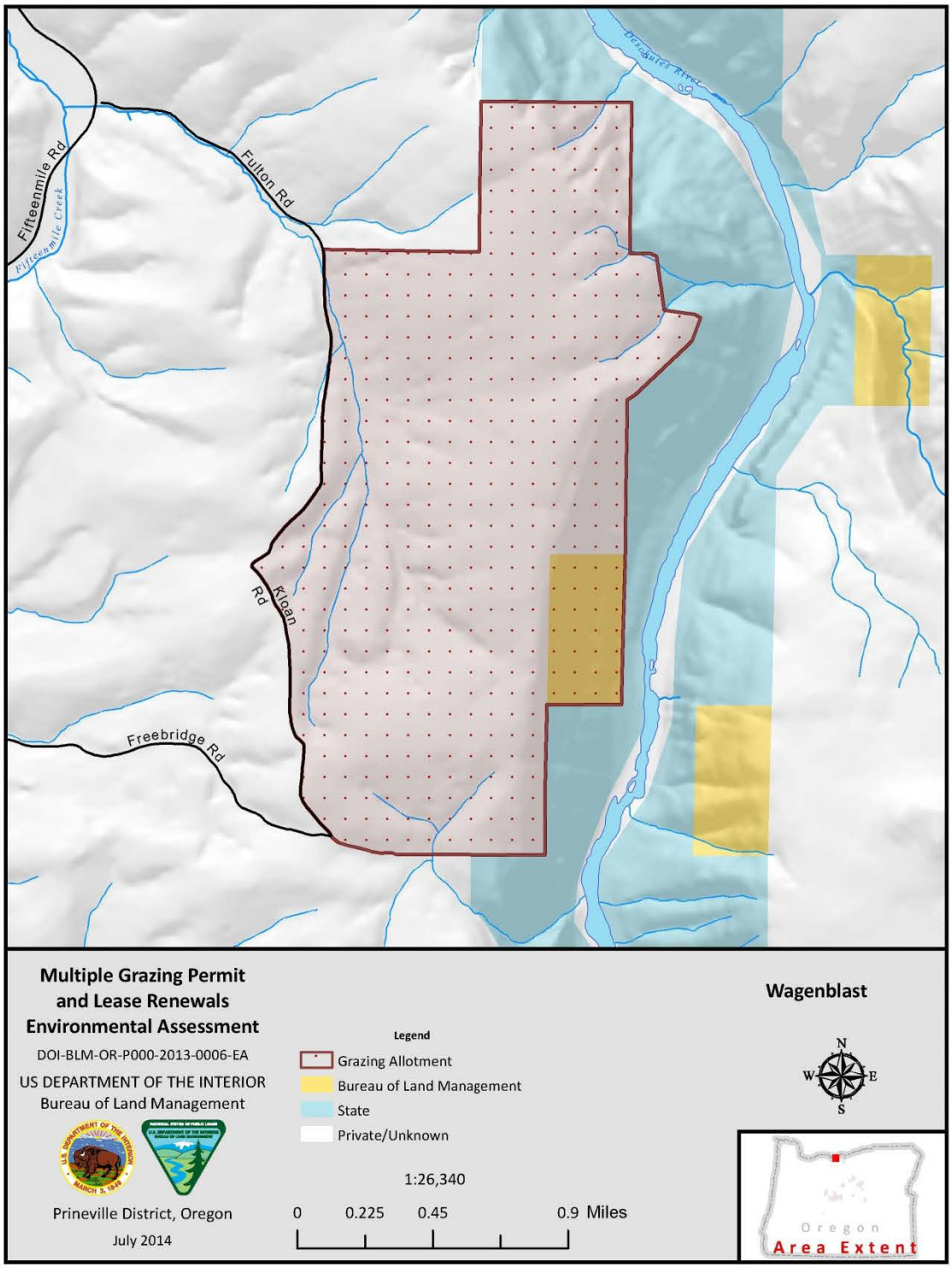

SODA CREEK
SNAKE DEN
POISON CREEK
LOWER POISON CREEK RIPARIAN PRIVATE
SCHOOLHOUSE
LOWER ROSEBUD PRIVATE
Izee Road/Bush Ranch To Cnty
Swamp Creek To County Line
BUCK CREEK
PRIVATE
Buck Creek
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Grazing Allotment
Bureau of Land Management
Private/Unknown
1:26,130
0 0.225 0.45 0.9 Miles
Soda Creek
N
W
E
S
Oregon
Area Extent

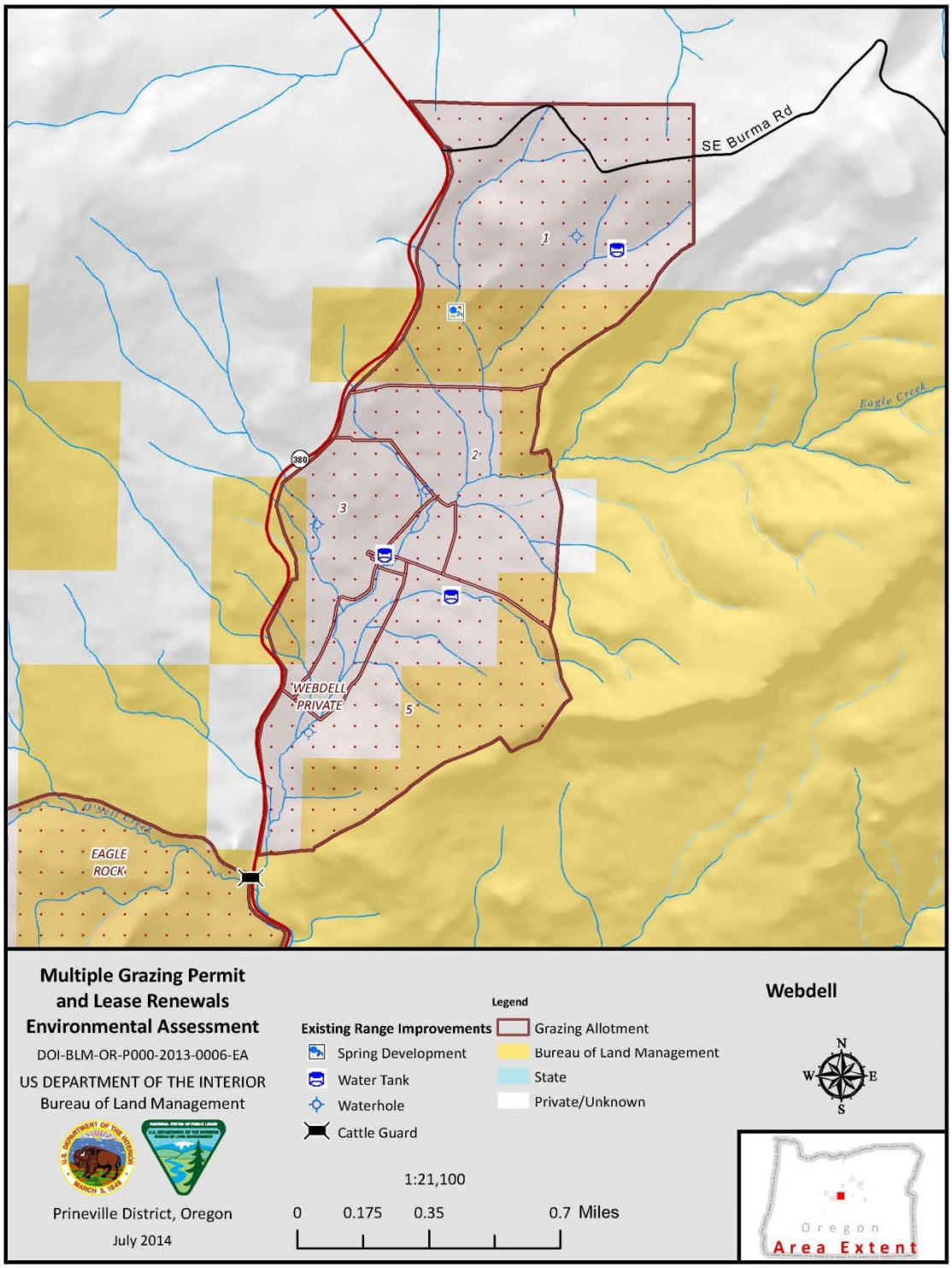

WILDCAT
SNAKE DEN
WILDCAT PRIVATE
POISON CREEK
SCHOOLHOUSE
SODA CREEK
LOWER POISON CREEK RIPARIAN PRIVATE
LOWER ROSEBUD PRIVATE
Izee Road/Bush Ranch To Cnty
Swamp Creek To County Line
BUCK CREEK
PRIVATE
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Existing Range Improvements
Spring Development
Grazing Allotment
Bureau of Land Management
U.S. Forest Service
Private/Unknown
1:37,240
0 0.325 0.65 1.3 Miles
Soda Creek
N
W
E
S
Oregon
Area Extent

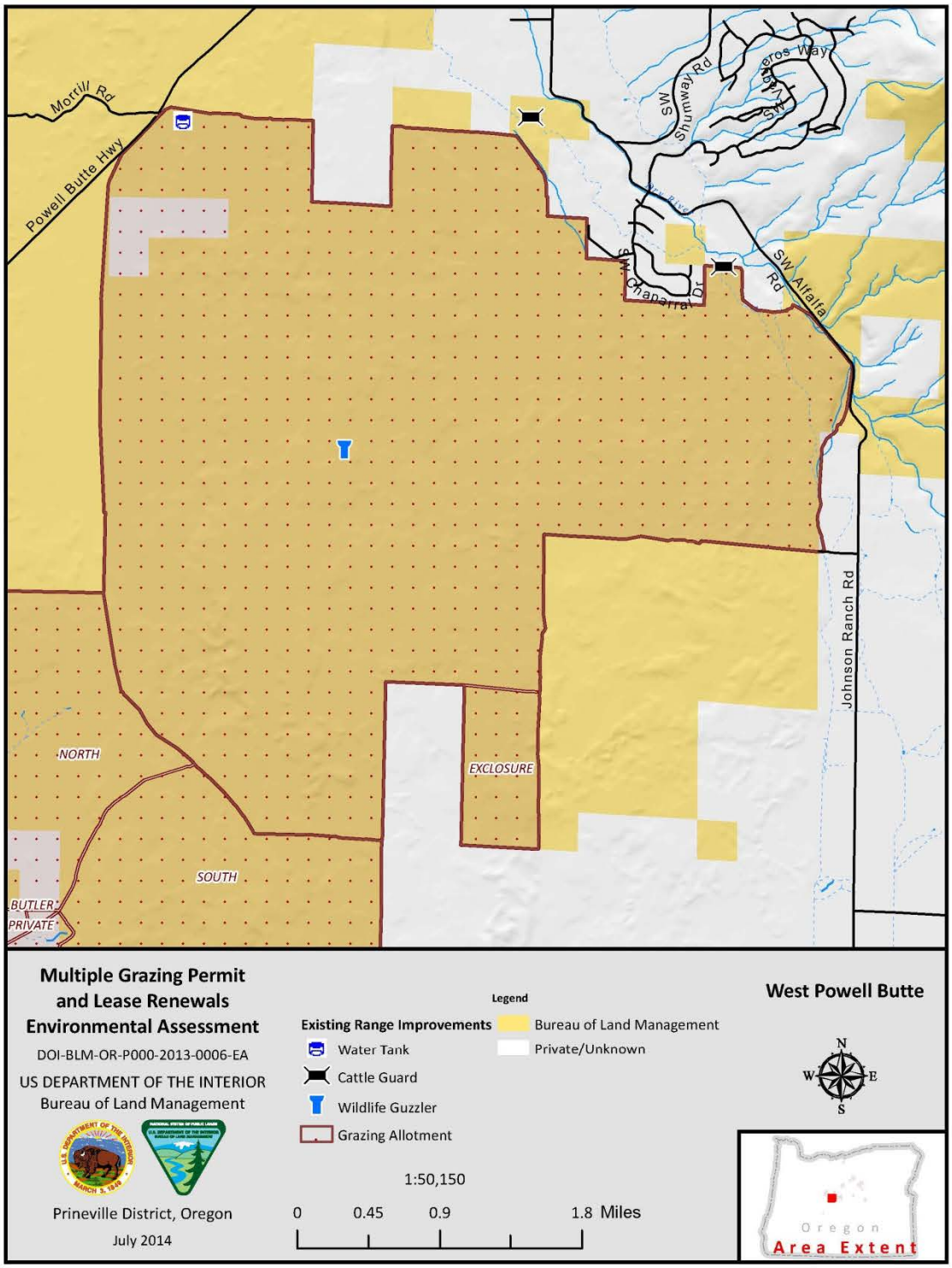

SE Juniper Canyon Rd
SE Texas Cir
SE Davel Loop
SE Umatilla Loop
SE Pilkington Rd
SW George Millican Rd
SW Reservoir Rd
SE Reservoir Rd
SE CC Dunham Rd
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Existing Range Improvements
Reservoir
Water Tank
Cattle Guard
Existing Corrals
Wildlife Guzzler
Water Pipeline
Grazing Allotment
Bureau of Land Management
Other Federal
State
Private/Unknown
1:105,550
0 0.75 1.5 3 Miles
South Stearns
N
W
E
S
Oregon
Area Extent


BRANSON CREEK
McGinnis Creek
Johnson Creek
Deep Creek
Harris Creek
McCarty Creek
Buckhorn Creek
Frank Creek
NORTH BUCKHORN
Johnny Creek
Indian Creek
SOUTH BUCKHORN
Squaw Creek
SQUAW CREEK
19
26
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Cattle Guard
Grazing Allotment
Bureau of Land Management
National Park Service
State
Private/Unknown
1:74,440
0 0.5 1 2 Miles
Squaw Creek
N
W
E
S
Oregon
Area Extent

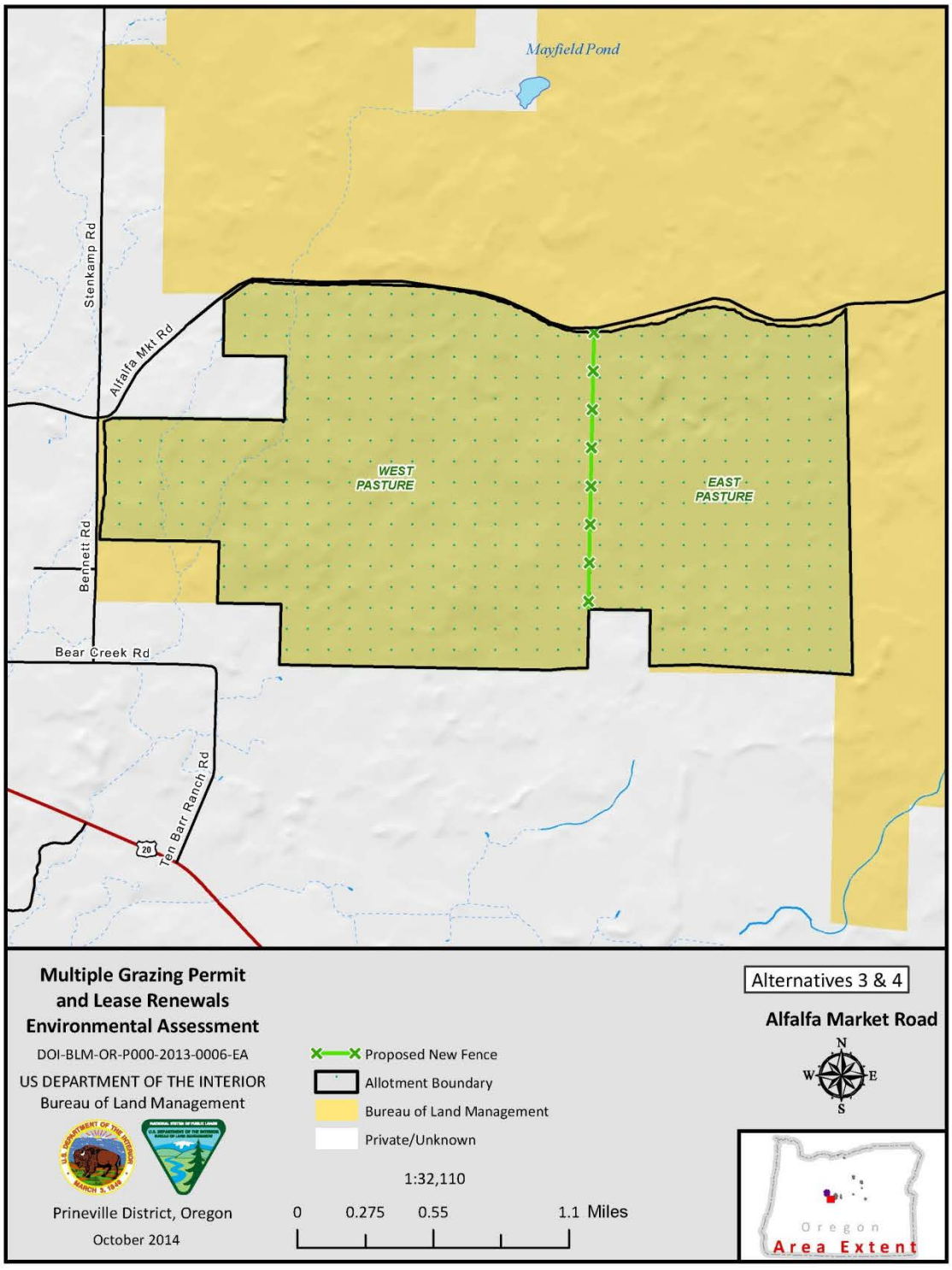

SANDY CREEK
NO GRAZE
HOLMES CREEK
ROUND-UP FLAT
BURNT CORRAL
BRANSON CREEK
LOST FAWN
SQUAW CREEK
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Existing Range Improvements
Reservoir
Cattle Guard
Grazing Allotment
Bureau of Land Management
National Park Service
State
Private/Unknown
1:79,450
0 0.5 1 2 Miles
Two County
N
W
E
S
Oregon
Area Extent

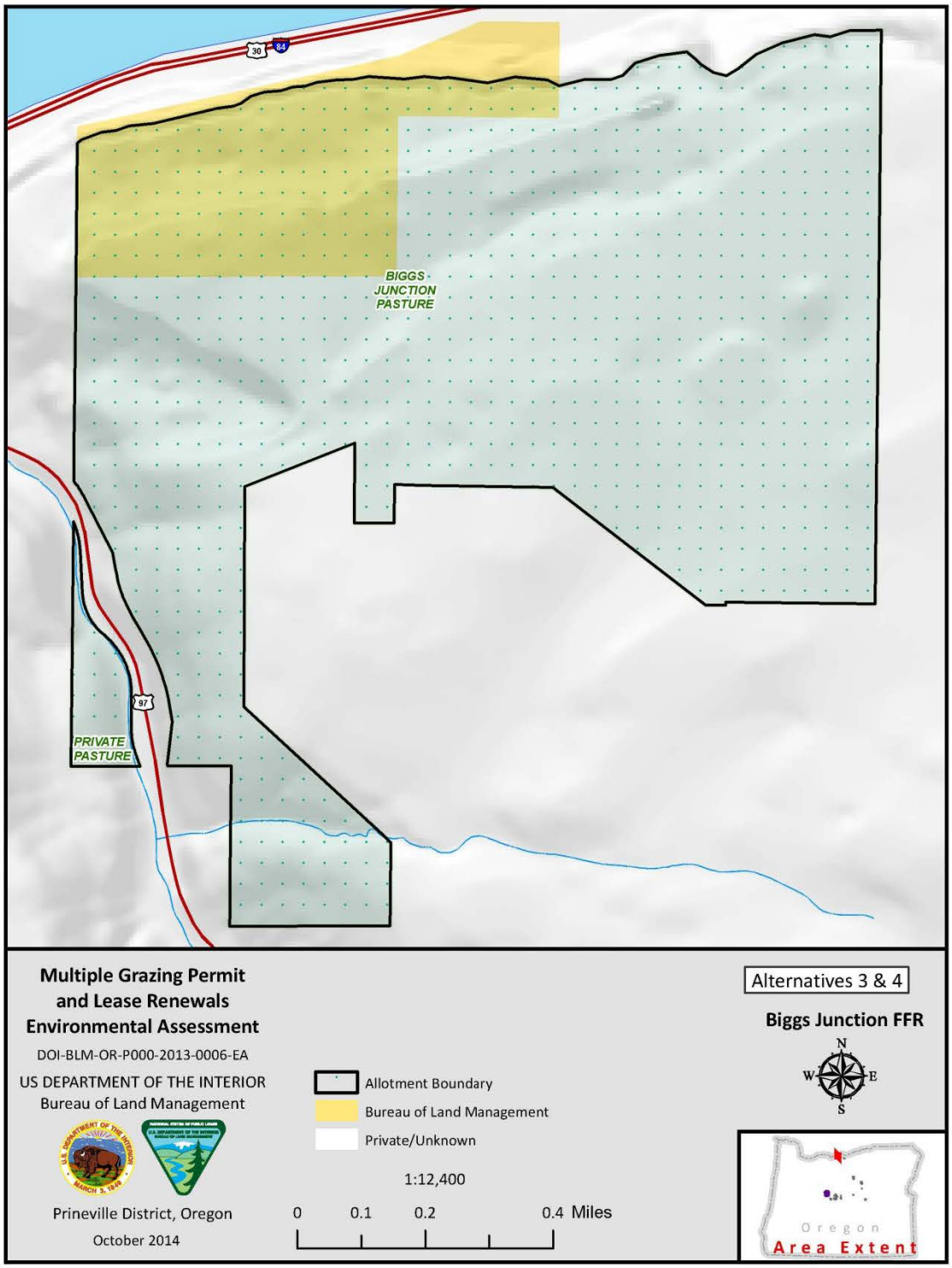

Fifteenmile Rd
Fifteenmile Creek
Fulton Rd
Deschutes River
Kloan Rd
Freebridge Rd
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Grazing Allotment
Bureau of Land Management
State
Private/Unknown
1:26,340
0 0.225 0.45 0.9 Miles
Wagenblast
N
W
E
S
Oregon
Area Extent

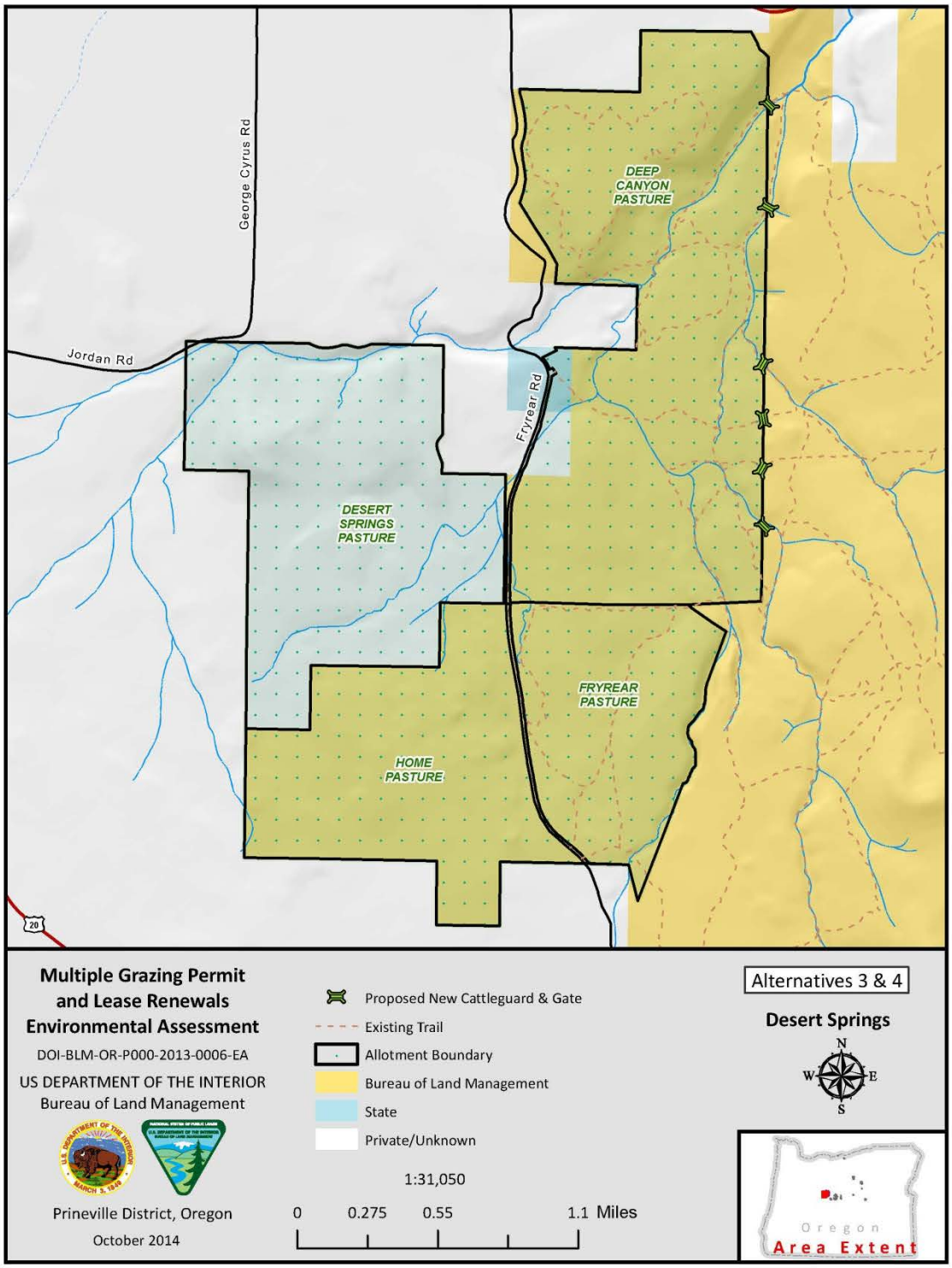

SE Burma Rd
Eagle Creek
380
1
2
3
5
WEBDELL PRIVATE
O'Neil Creek
EAGLE ROCK
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Existing Range Improvements
Spring Development
Water Tank
Waterhole
Cattle Guard
Grazing Allotment
Bureau of Land Management
State
Private/Unknown
1:21,100
0 0.175 0.35 0.7 Miles
Webdell
N
W
E
S
Oregon
Area Extent

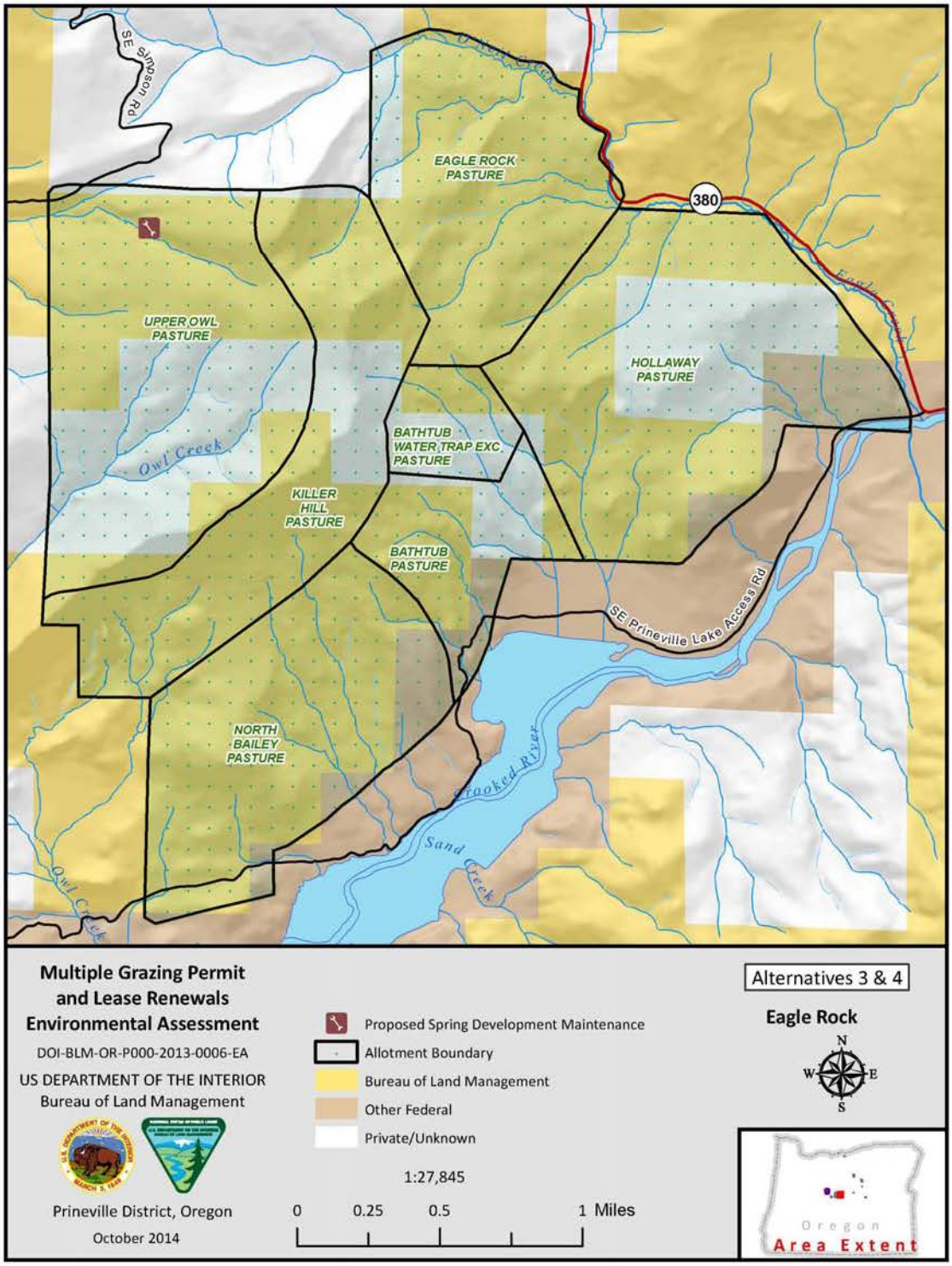

Morrill Rd
Powell Butte Hwy
SW Shumway Rd
SW Eros Way
SW Chaparral Dr
SW Alfalfa Rd
Johnson Ranch Rd
NORTH
EXCLOSURE
SOUTH
BUTLER
PRIVATE
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
July 2014
Legend
Existing Range Improvements
Water Tank
Cattle Guard
Wildlife Guzzler
Grazing Allotment
Bureau of Land Management
Private/Unknown
1:50,150
0 0.45 0.9 1.8 Miles
West Powell Butte
N
W
E
S
Oregon
Area Extent

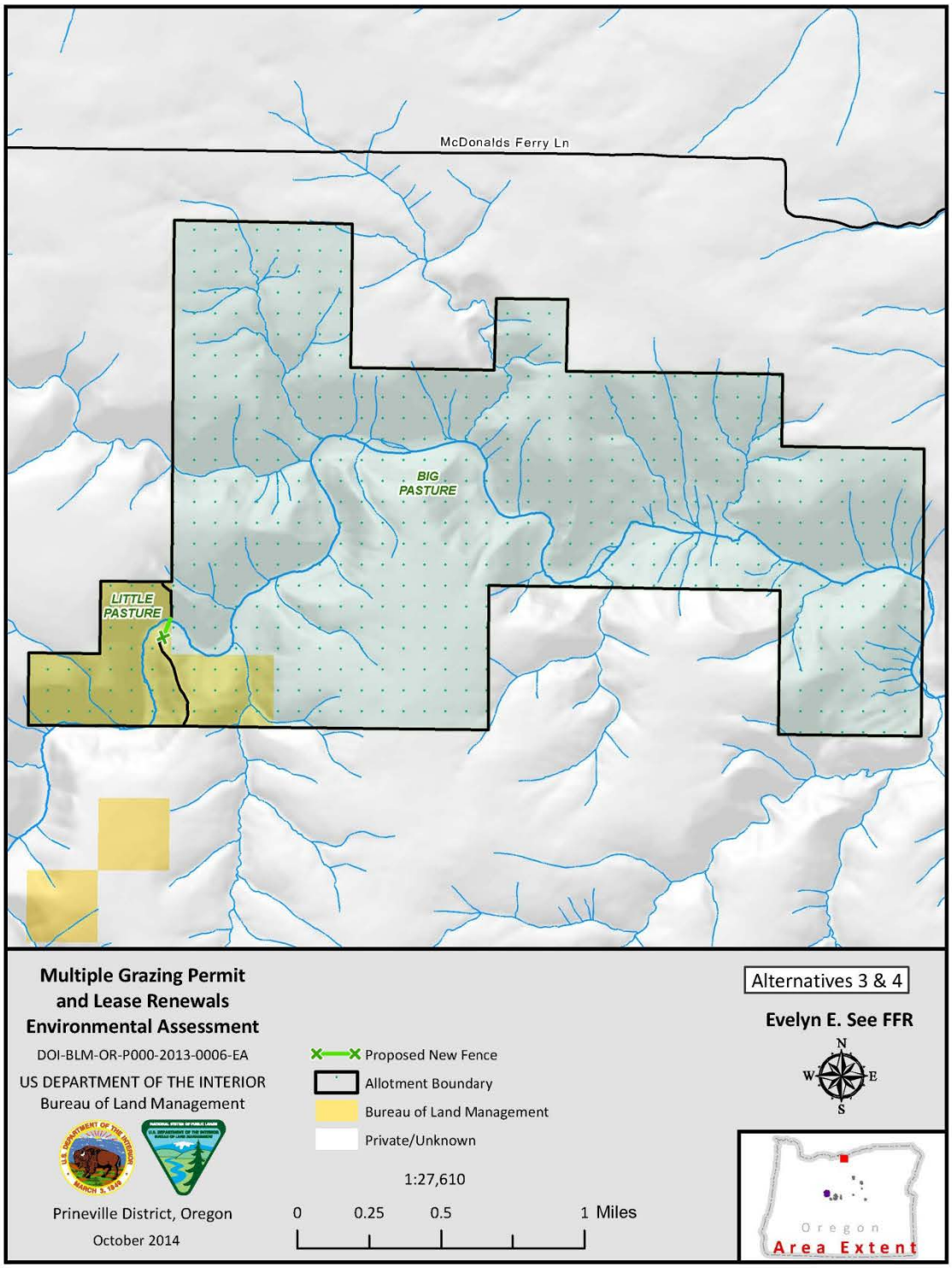
Appendix E: Maps that are similar for Alternatives 3 and 4

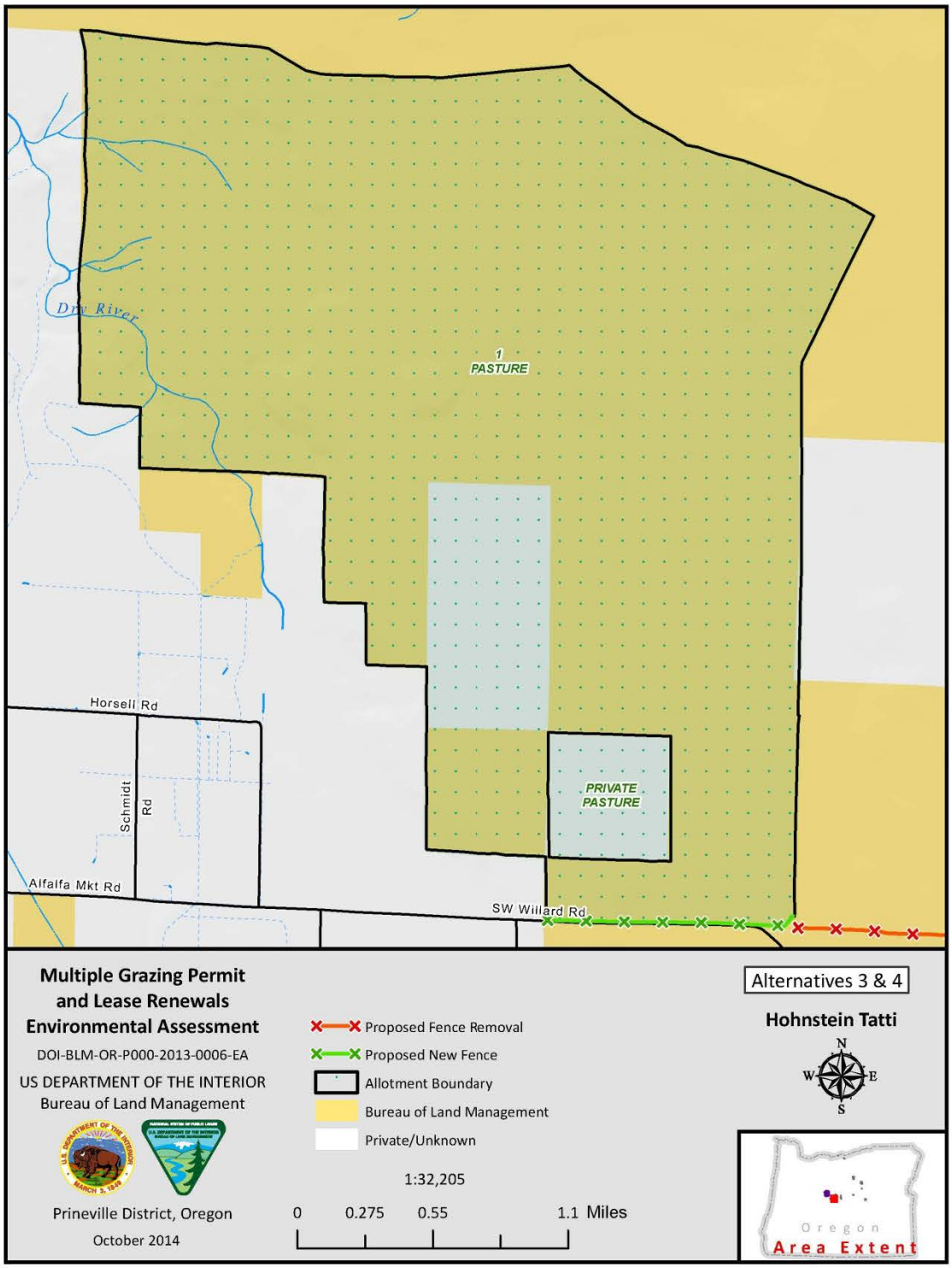

Mayfield Pond
Stenkamp Rd
Alfalfa Mkt Rd
WEST PASTURE
EAST PASTURE
Bennett Rd
Bear Creek Rd
Ten Barr Ranch Rd
20
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed New Fence
Allotment Boundary
Bureau of Land Management
Private/Unknown
1:32,110
0 0.275 0.55 1.1 Miles
Alternatives 3 & 4
Alfalfa Market Road
N
W
E
S
Oregon
Area Extent

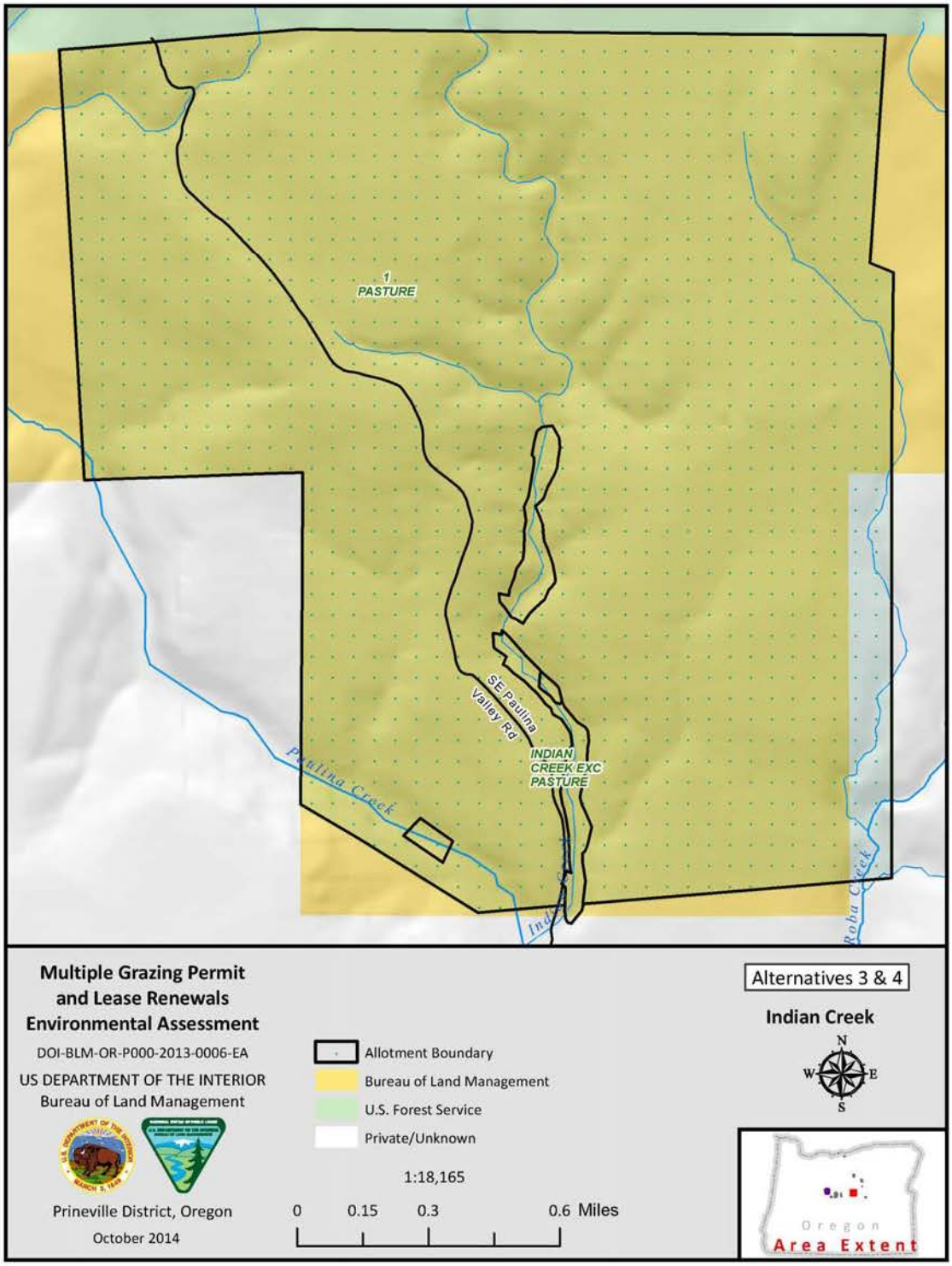

30
84
BIGGS JUNCTION PASTURE
97
PRIVATE PASTURE
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Allotment Boundary
Bureau of Land Management
Private/Unknown
1:12,400
0 0.1 0.2 0.4 Miles
Alternatives 3 & 4
Biggs Junction FFR
N
W
E
S
Oregon
Area Extent

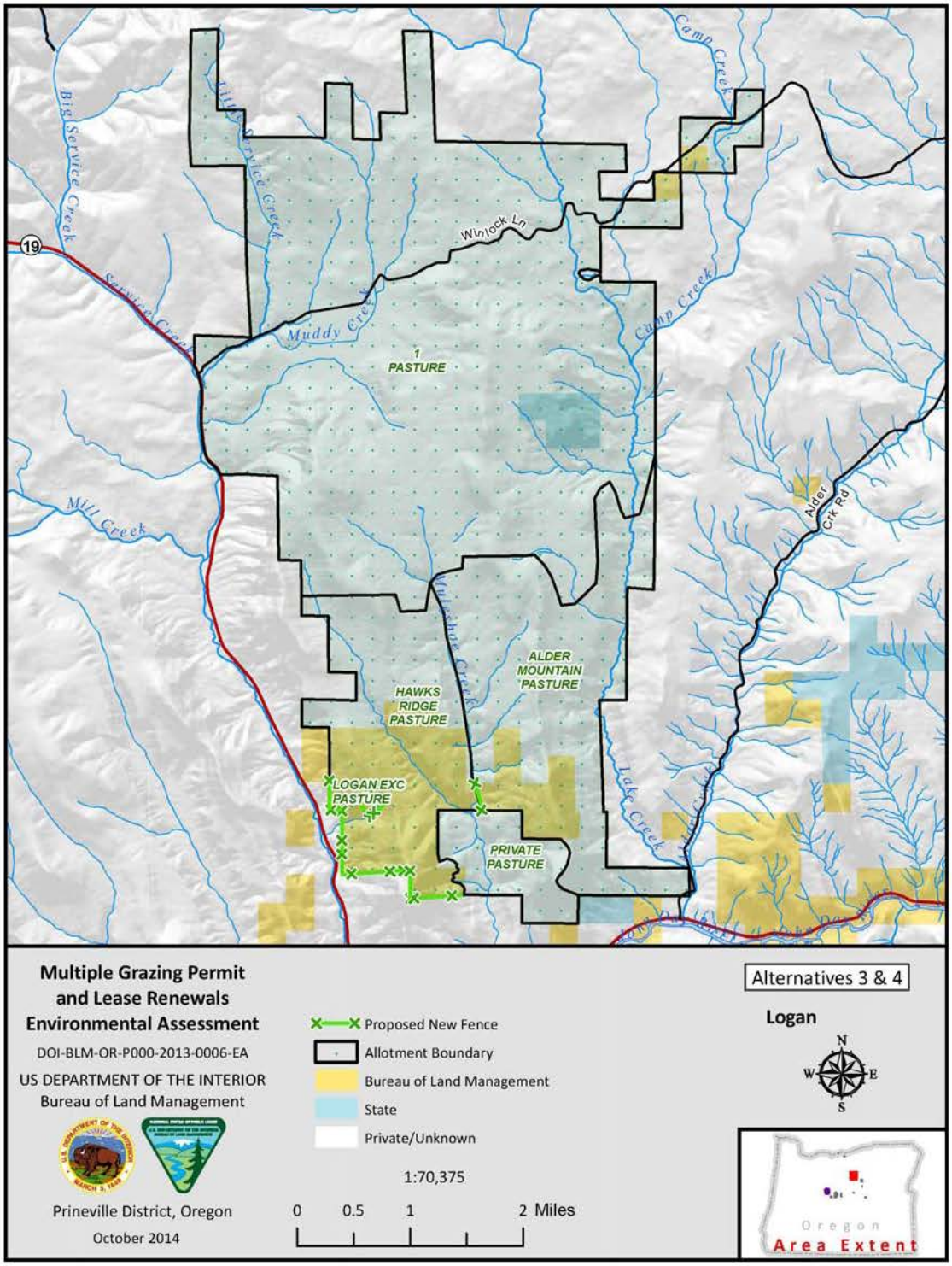

George Cyrus Rd
Jordan Rd
Fryrear Rd
DEEP CANYON PASTURE
DESERT SPRINGS PASTURE
FRYREAR PASTURE
HOME PASTURE
20
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed New Cattleguard & Gate
Existing Trail
Allotment Boundary
Bureau of Land Management
State
Private/Unknown
1:31,050
0 0.275 0.55 1.1 Miles
Alternatives 3 & 4
Desert Springs
N
W
E
S
Oregon
Area Extent

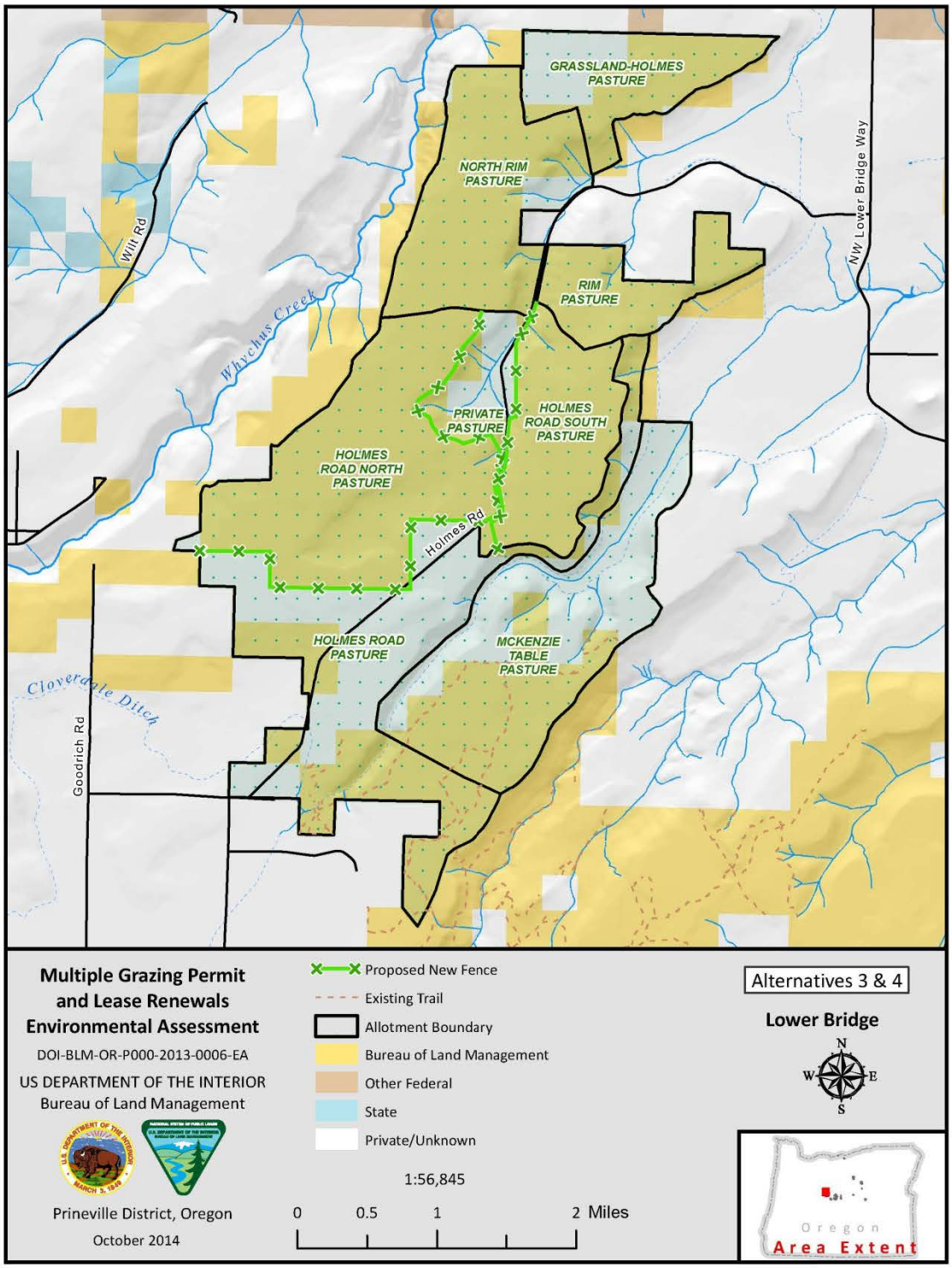

SE Pson Rd
EAGLE ROCK PASTURE
380
UPPER OWL PASTURE
HOLLAWAY PASTURE
BATHTUB WATER TRAP EXC. PASTURE
Owl Creek
KILLER HILL PASTURE
BATHTUB PASTURE
SE Prineville Lake Access Rd
NORTH BAILEY PASTURE
Crooked River
Sand Creek
Owl Creek
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed Spring Development Maintenance
Allotment Boundary
Bureau of Land Management
Other Federal
Private/Unknown
1:27,845
0 0.25 0.5 1 Miles
Alternatives 3 & 4
Eagle Rock
N
W
E
S
Oregon
Area Extent

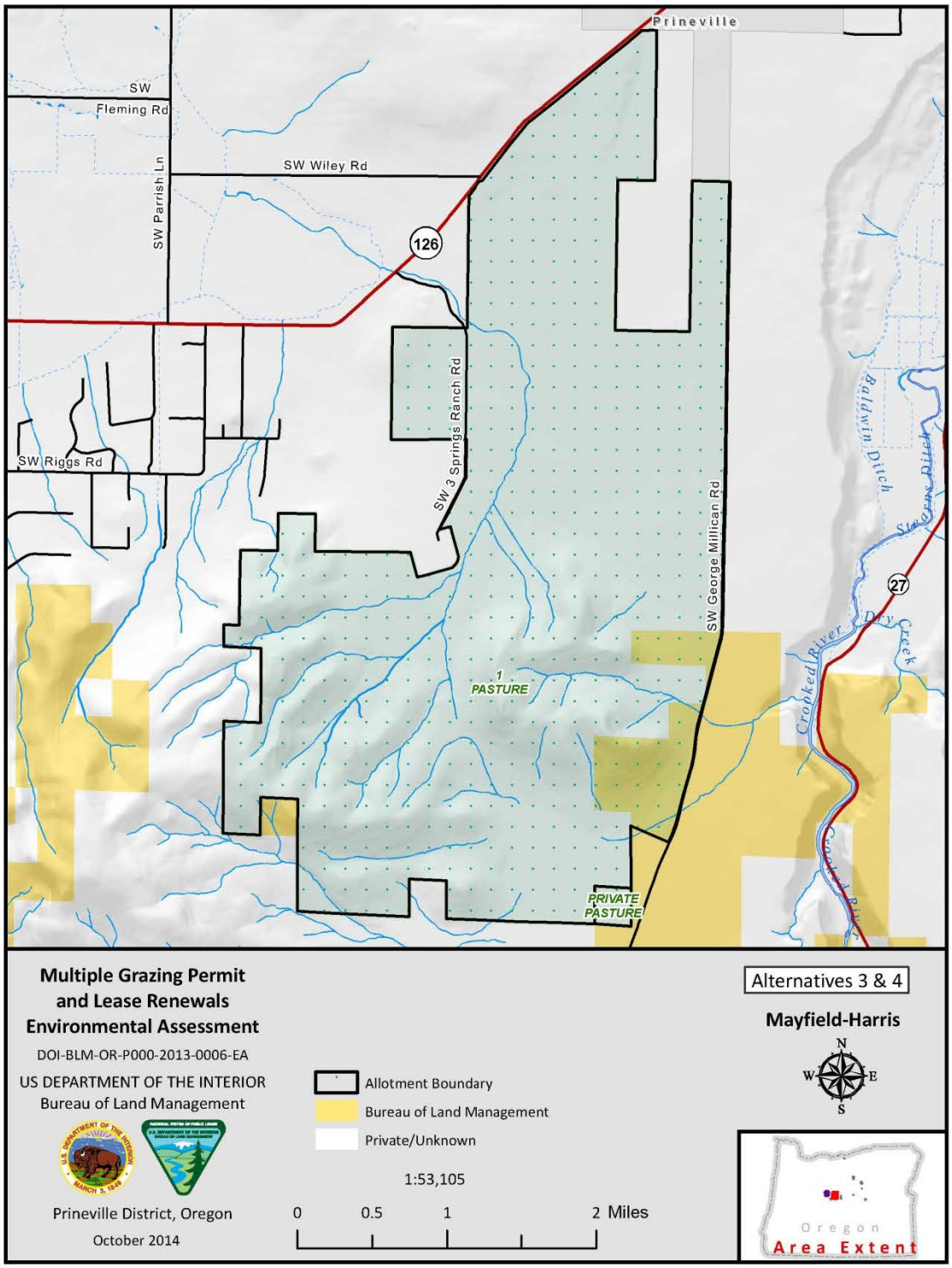

McDonalds Ferry Ln
BIG PASTURE
LITTLE PASTURE
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed New Fence
Allotment Boundary
Bureau of Land Management
Private/Unknown
1:27,610
0 0.25 0.5 1 Miles
Alternatives 3 & 4
Evelyn E. See FFR
N
W E
S
Oregon
Area Extent

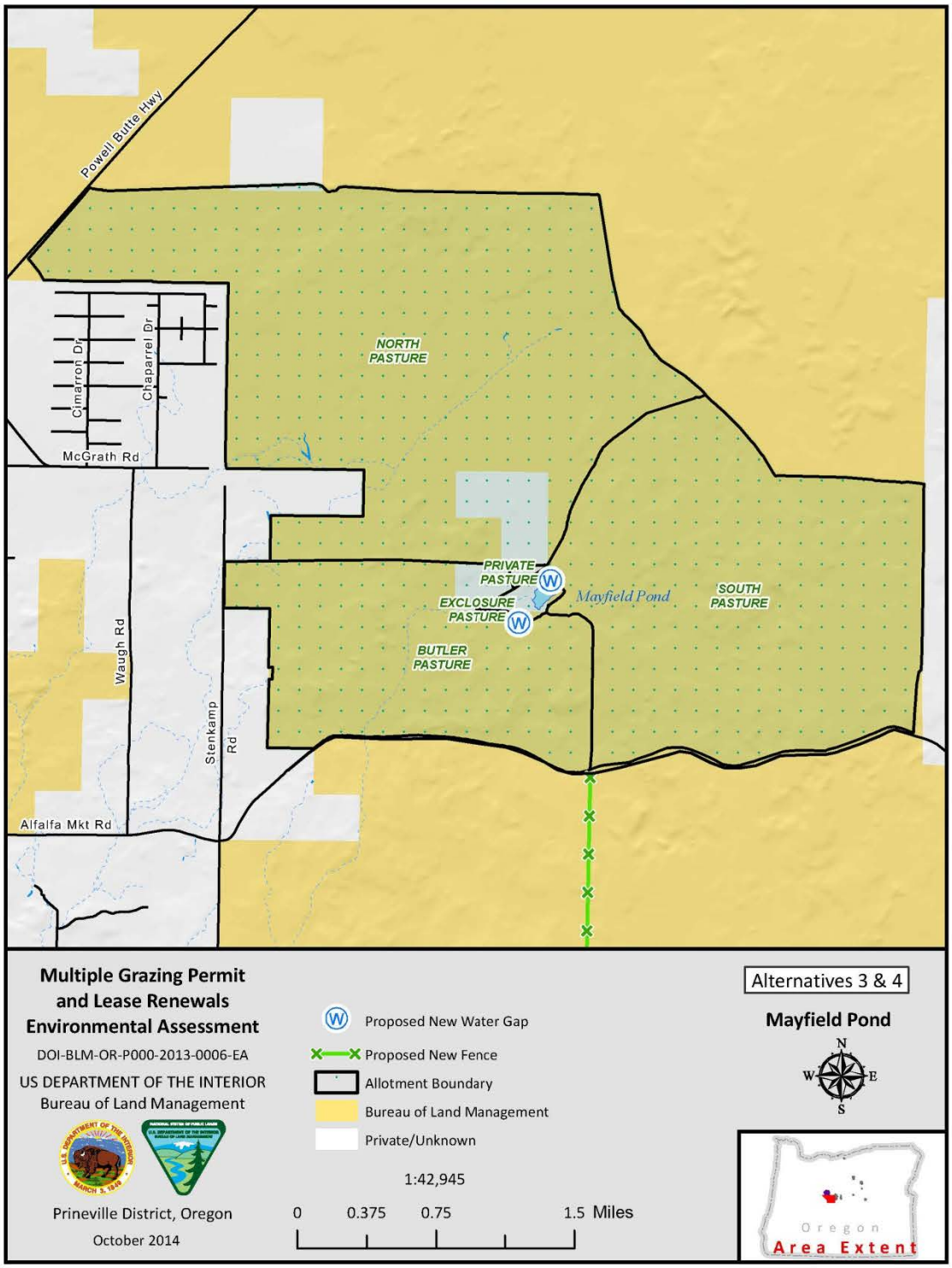

Deschutes River
1
PASTURE
PRIVATE
PASTURE
Horsell Rd
Schmidt
Rd
Alfalfa Mkt Rd
SW Willard Rd
Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed Fence Removal
Proposed New Fence
Allotment Boundary
Bureau of Land Management
Private/Unknown
1:32,205
0
0.275
0.55
1.1 Miles
Alternatives 3 & 4
Hohnstein Tatti
N
W
E
S
Oregon
Area Extent

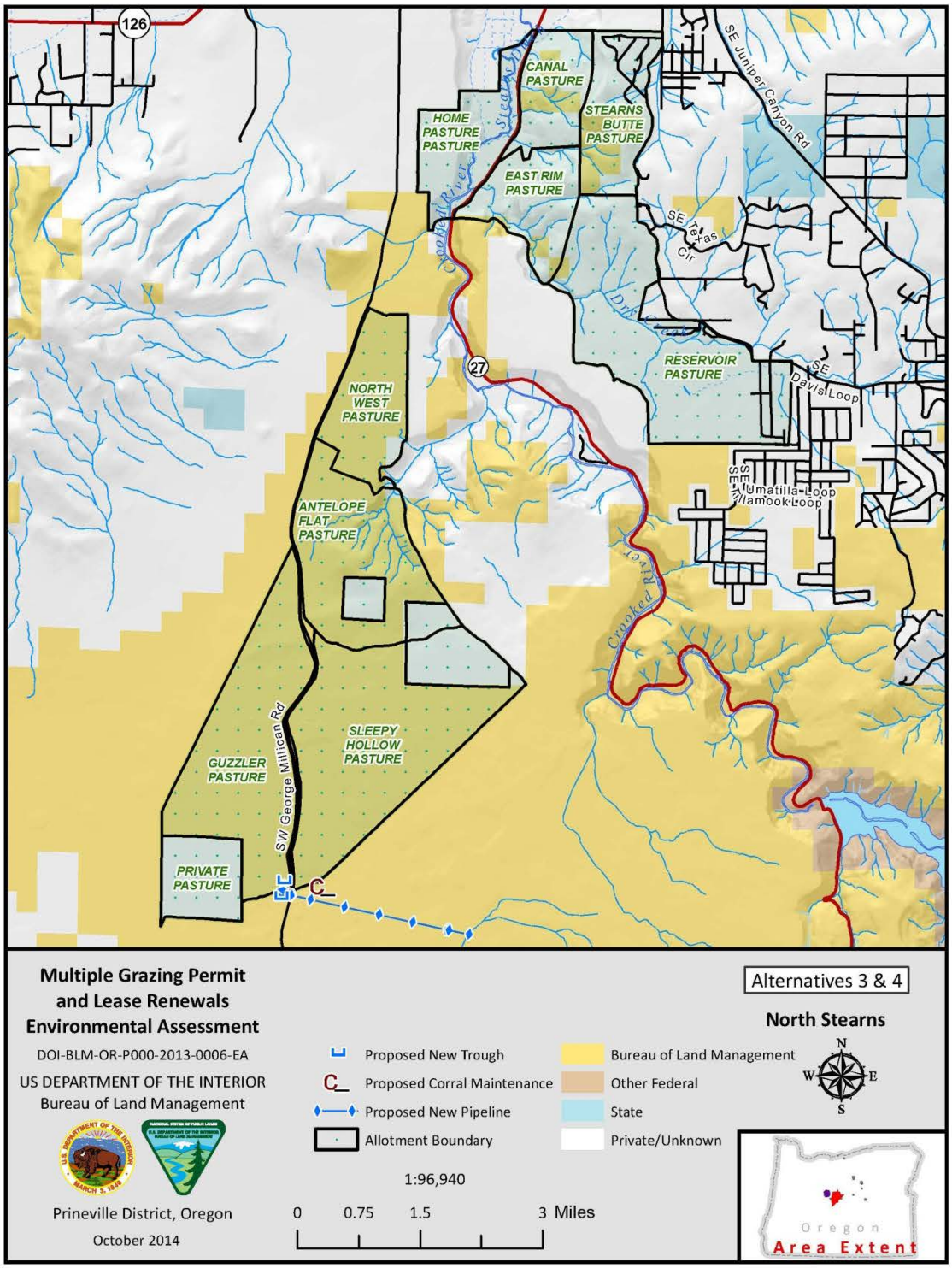

1
PASTURE
SE Paulina
Valley Rd
INDIAN
CREEK EXC
PASTURE
Paulina Creek
Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Allotment Boundary
Bureau of Land Management
U.S. Forest Service
Private/Unknown
1:18,165
0 0.15 0.3 0.6 Miles
Alternatives 3 & 4
Indian Creek
N
W
E
S
Oregon
Area Extent

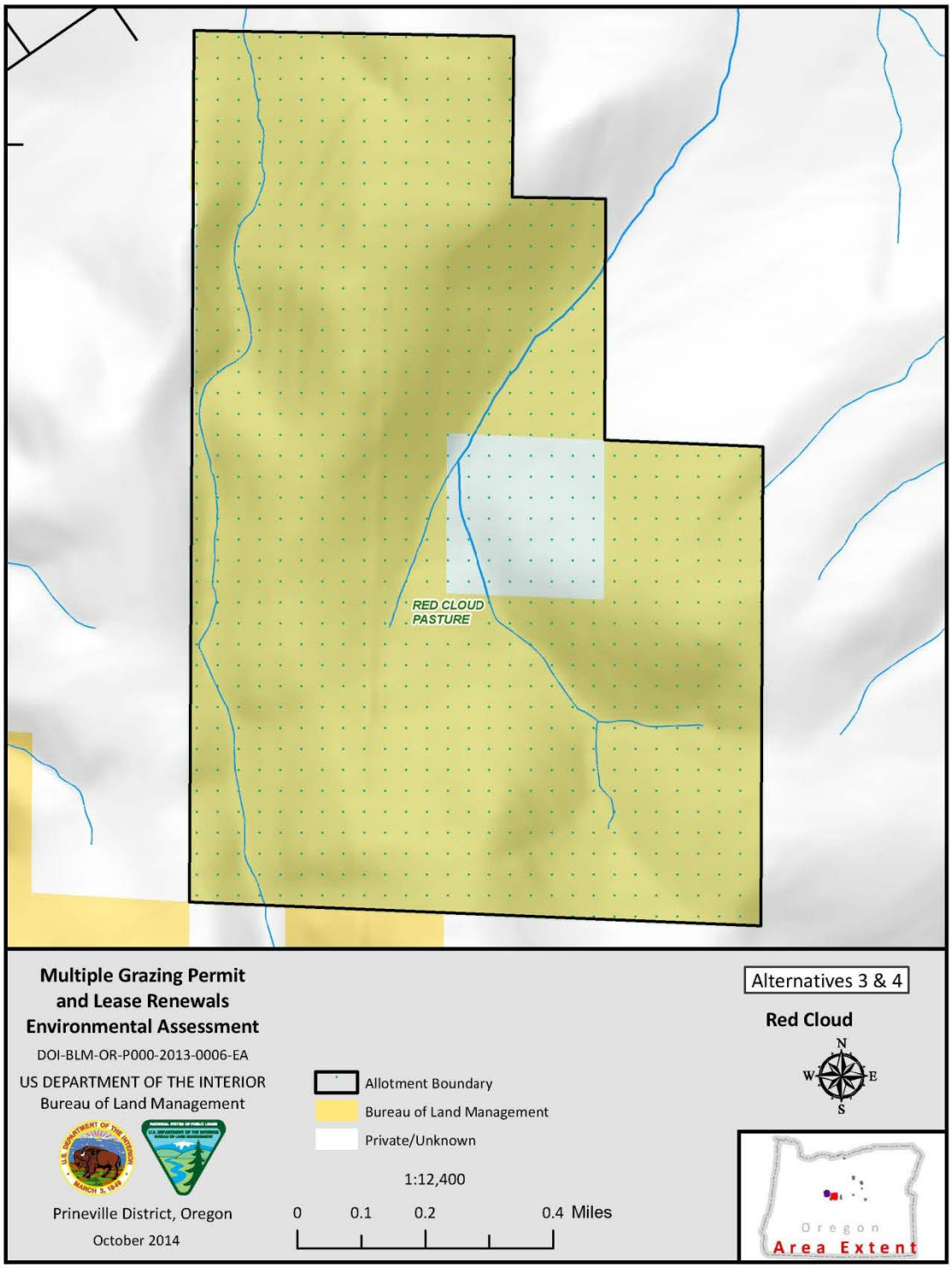

Big Service Creek
Little Service Creek
Camp Creek
Winlock Ln
19
Muddy Creek
1 PASTURE
Mill Creek
Alder Crk Rd
ALDER MOUNTAIN PASTURE
HAWKS RIDGE PASTURE
LOGAN EXC PASTURE
PRIVATE PASTURE
Lake Creek
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed New Fence
Allotment Boundary
Bureau of Land Management
State
Private/Unknown
1:70,375
0 0.5 1 2 Miles
Alternatives 3 & 4
Logan
N
W
E
S
Oregon
Area Extent

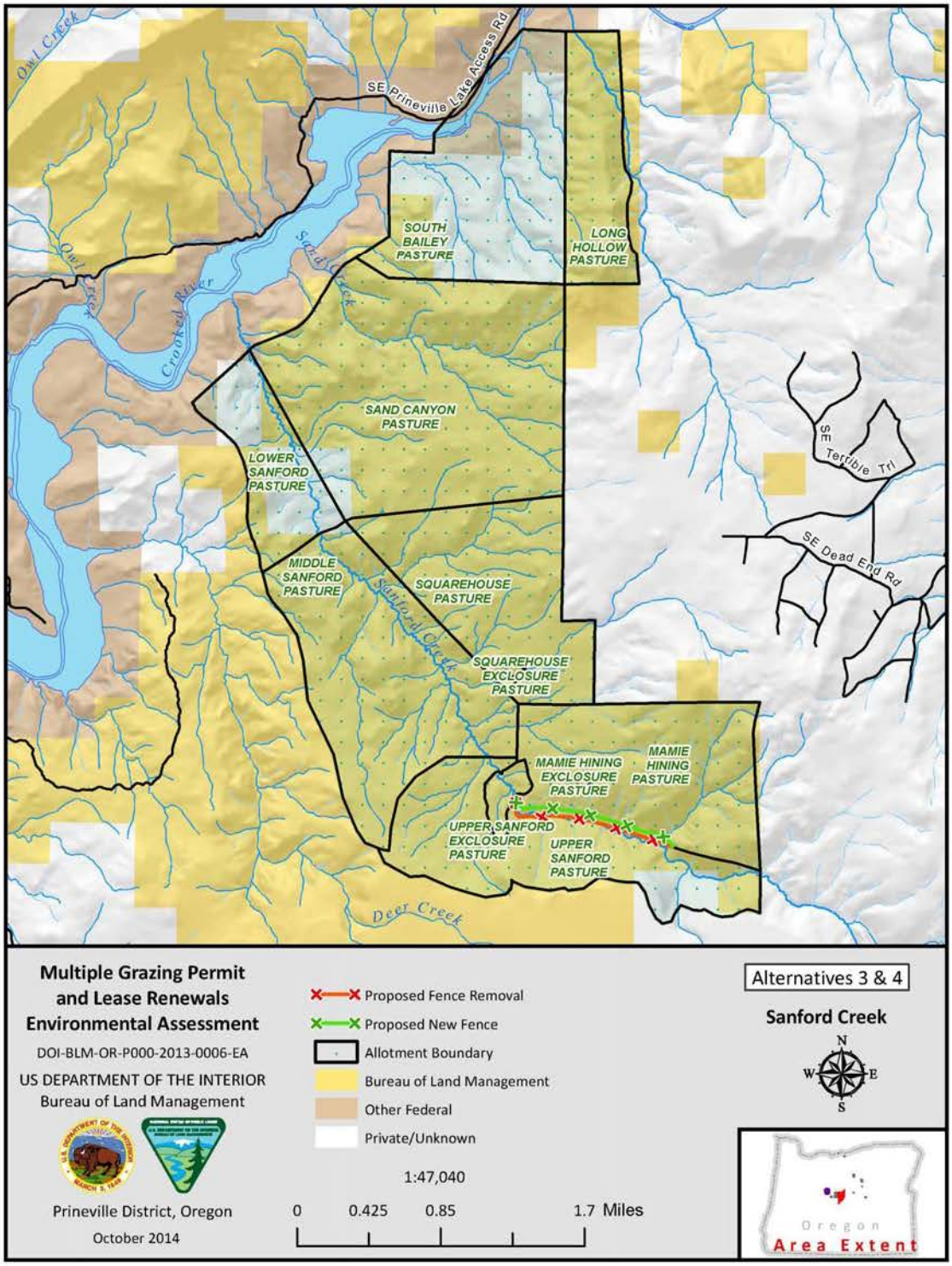

GRASSLAND-HOLMES PASTURE
NORTH RIM PASTURE
RIM PASTURE
PRIVATE PASTURE
HOLMES ROAD SOUTH PASTURE
HOLMES ROAD NORTH PASTURE
HOLMES ROAD PASTURE
MCKENZIE TABLE PASTURE
Holmes Rd
Wilt Rd
NW Lower Bridge Way
Whychus Creek
Cloverdale Ditch
Goodrich Rd
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed New Fence
Existing Trail
Allotment Boundary
Bureau of Land Management
Other Federal
State
Private/Unknown
1:56,845
0 0.5 1 2 Miles
Alternatives 3 & 4
Lower Bridge
N
W E
S
Oregon
Area Extent

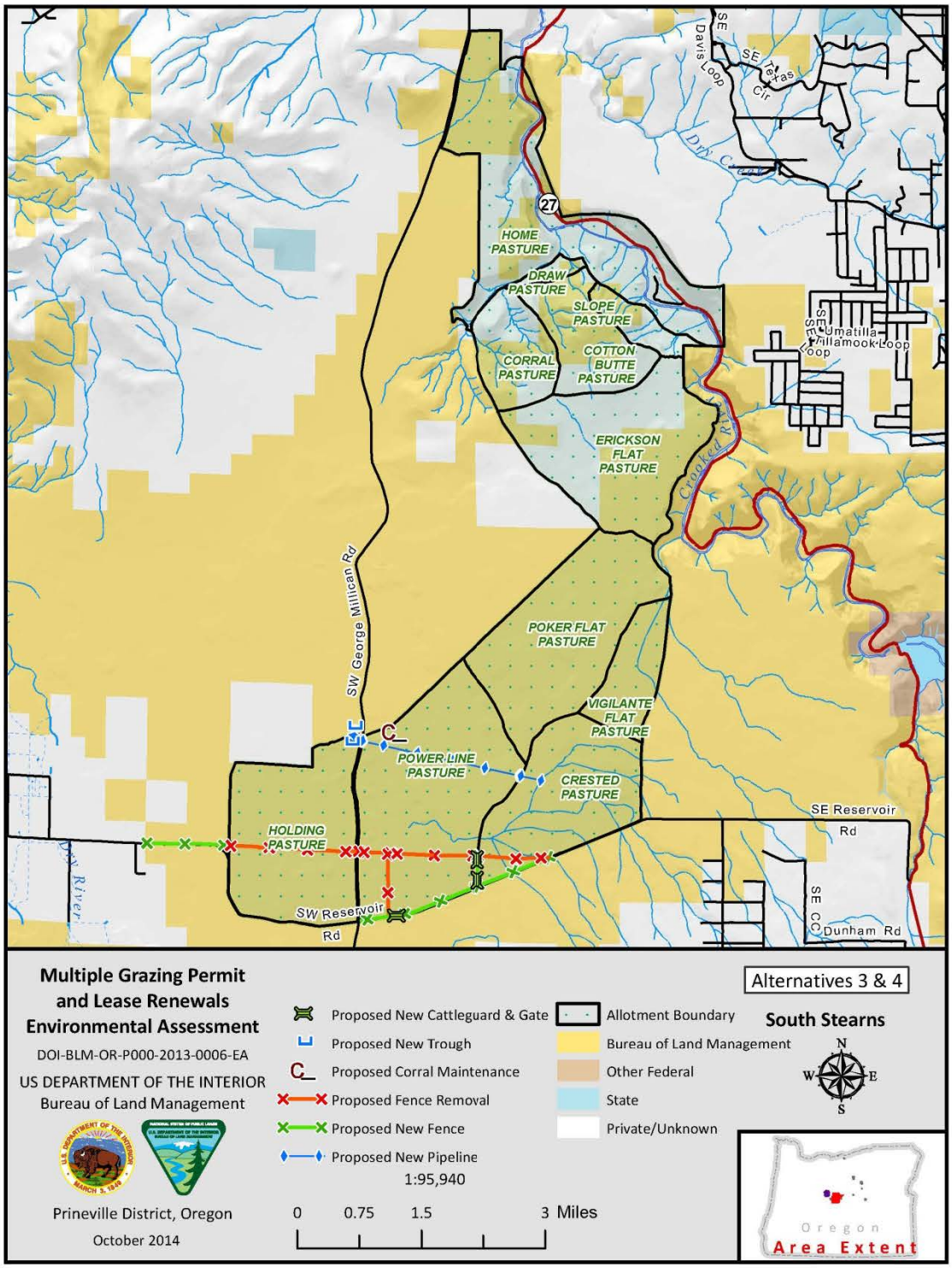

Prineville
SW Fleming Rd
SW Wiley Rd
SW Parrish Ln
126
SW Riggs Rd
SW 3 Springs Ranch Rd
SW George Millican Rd
Baldwin Ditch
Storm Ditch
27
Crooked River
Dry Creek
1 PASTURE
PRIVATE PASTURE
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Allotment Boundary
Bureau of Land Management
Private/Unknown
1:53,105
0 0.5 1 2 Miles
Alternatives 3 & 4
Mayfield-Harris
N
W
E
S
Oregon
Area Extent

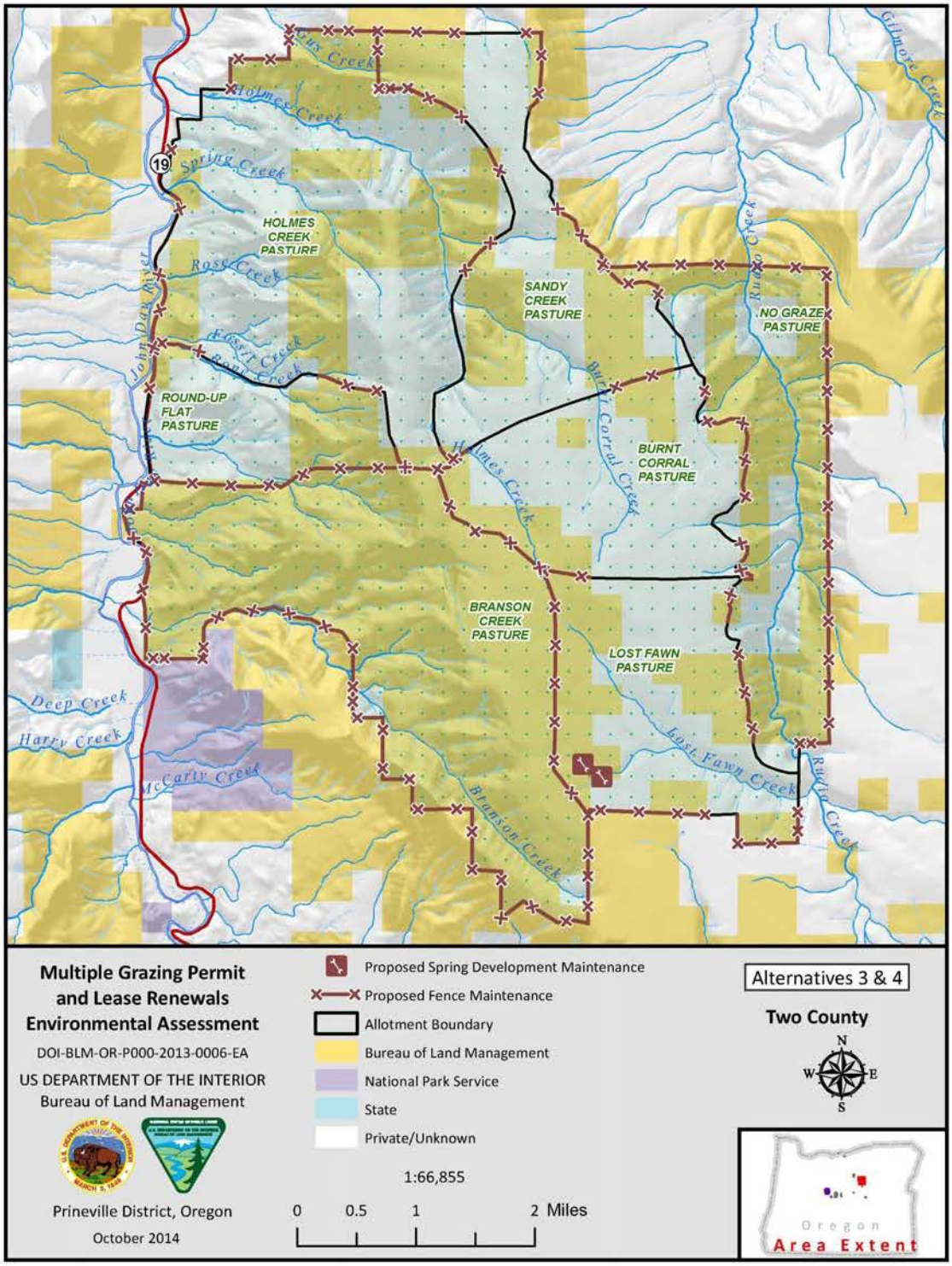

Powell Butte Hwy
Cimarron Dr
Chaparrel Dr
McGrath Rd
NORTH PASTURE
PRIVATE PASTURE
EXCLOSURE PASTURE
Mayfield Pond
SOUTH PASTURE
BUTLER PASTURE
Waugh Rd
Stenkamp Rd
Alfalfa Mkt Rd
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed New Water Gap
Proposed New Fence
Allotment Boundary
Bureau of Land Management
Private/Unknown
1:42,945
0 0.375 0.75 1.5 Miles
Alternatives 3 & 4
Mayfield Pond
N
W
E
S
Oregon
Area Extent


126
27
CANAL PASTURE
HOME PASTURE PASTURE
STEARNS BUTTE PASTURE
EAST RIM PASTURE
RESERVOIR PASTURE
NORTH WEST PASTURE
ANTELOPE FLAT PASTURE
SLEEPY HOLLOW PASTURE
GUZZLER PASTURE
PRIVATE PASTURE
SW George Millican Rd
SE Juniper Canyon Rd
SE Davis Loop
SE Umatilla Loop
SE Tillamook Loop
SE Tetas Cir
Crooked River
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed New Trough
Proposed Corral Maintenance
Proposed New Pipeline
Allotment Boundary
Bureau of Land Management
Other Federal
State
Private/Unknown
1:96,940
0 0.75 1.5 3 Miles
Alternatives 3 & 4
North Stearns
N
W
E
S
Oregon
Area Extent

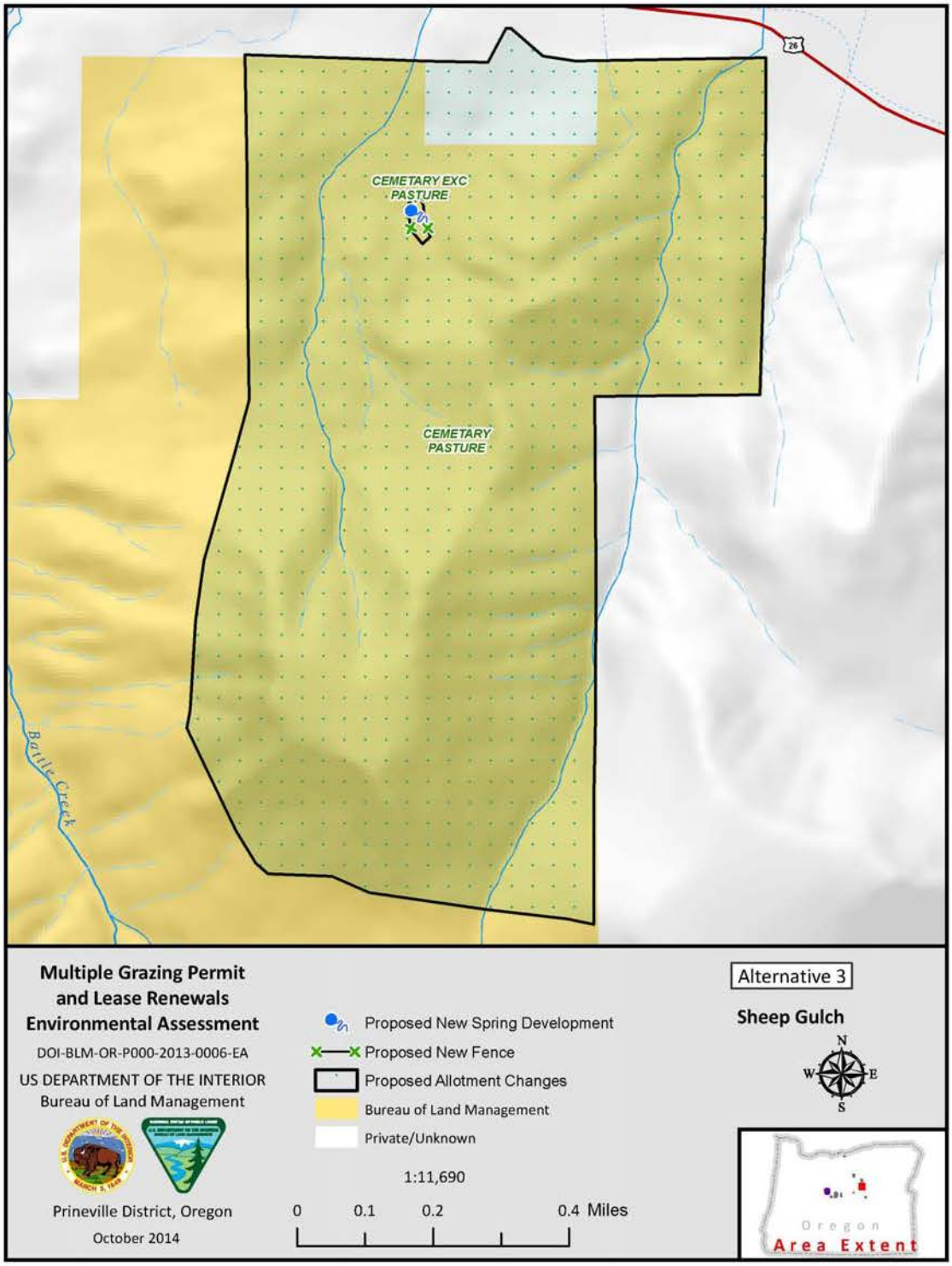

RED CLOUD
PASTURE
Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Allotment Boundary
Bureau of Land Management
Private/Unknown
1:12,400
0 0.1 0.2 0.4 Miles
Alternatives 3 & 4
Red Cloud
N
W
E
S
Oregon
Area Extent

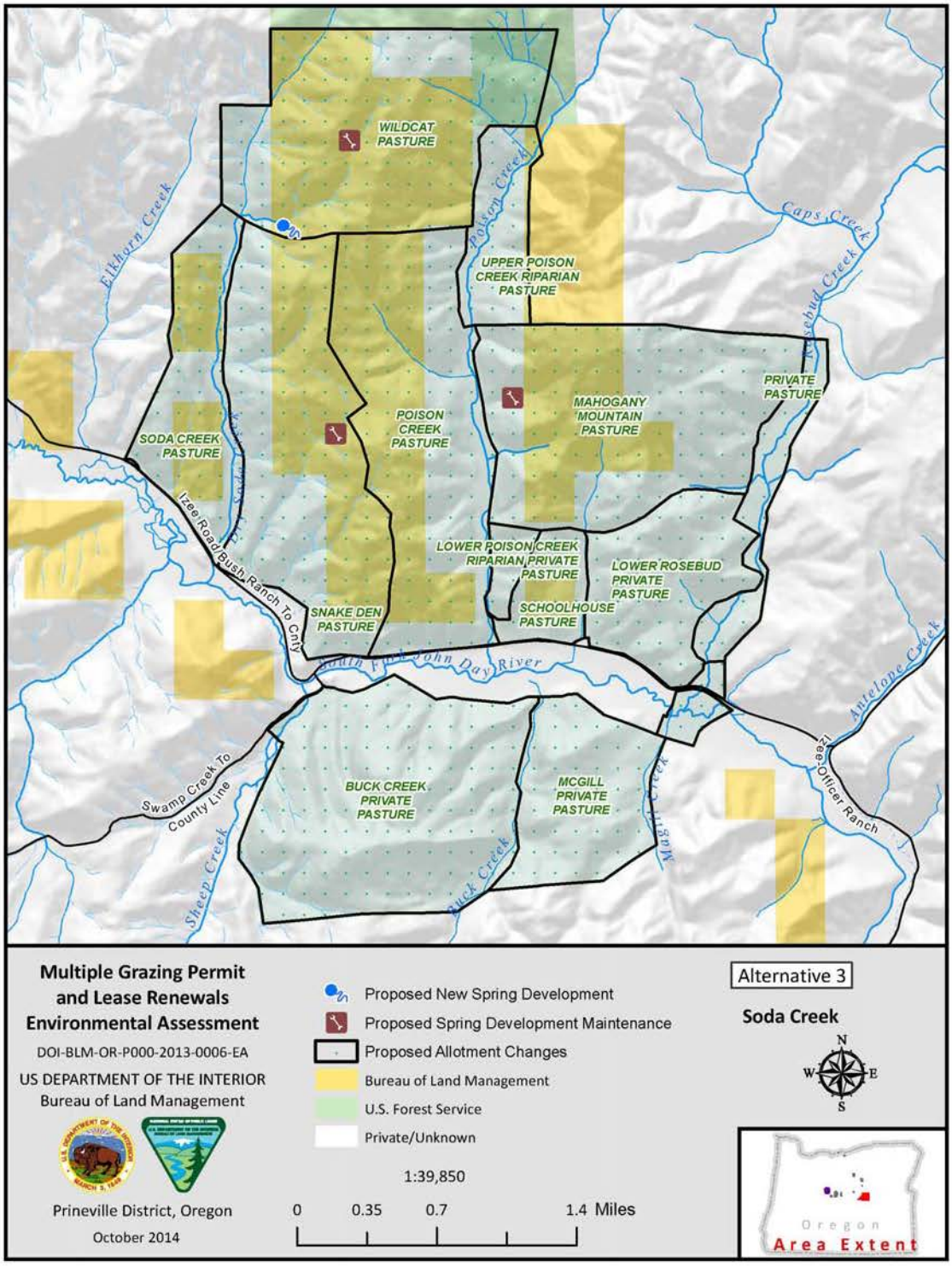

Owl Creek
SE Prineville Lake Access Rd
SOUTH BAILEY PASTURE
LONG HOLLOW PASTURE
Owl Creek
Crooked River
Sutton Creek
SAND CANYON PASTURE
SE Terrible Trl
LOWER SANFORD PASTURE
SE Dead End Rd
MIDDLE SANFORD PASTURE
SQUAREHOUSE PASTURE
Sanford Creek
SQUAREHOUSE EXCLOSURE PASTURE
MAMIE HINING EXCLOSURE PASTURE
MAMIE HINING PASTURE
UPPER SANFORD EXCLOSURE PASTURE
UPPER SANFORD PASTURE
Deer Creek
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed Fence Removal
Proposed New Fence
Allotment Boundary
Bureau of Land Management
Other Federal
Private/Unknown
1:47,040
0 0.425 0.85 1.7 Miles
Alternatives 3 & 4
Sanford Creek
N
W
E
S
Oregon
Area Extent

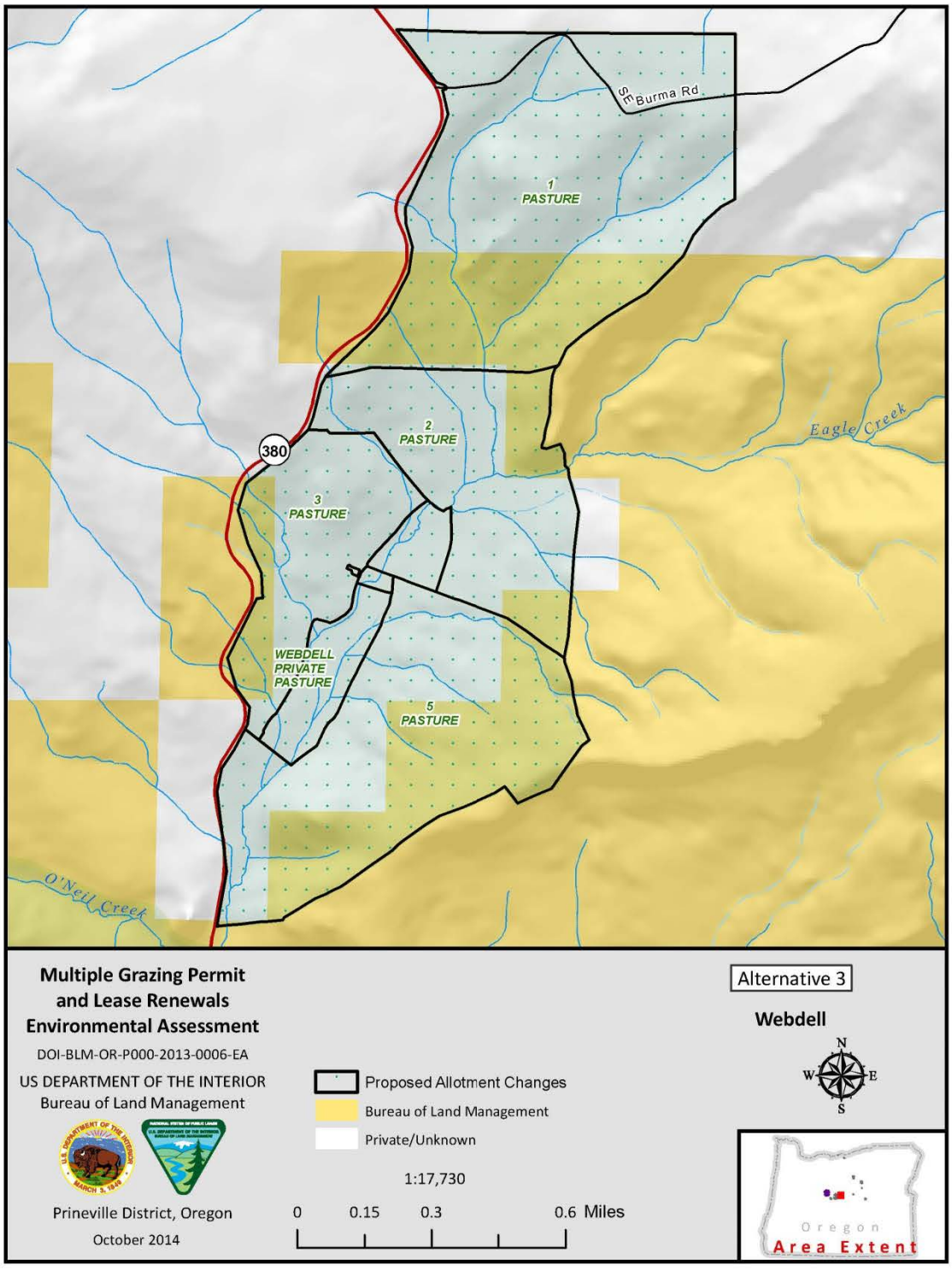

HOME PASTURE
DRAW PASTURE
SLOPE PASTURE
CORRAL PASTURE
COTTON BUTTE PASTURE
ERICKSON FLAT PASTURE
POKER FLAT PASTURE
VIGILANTE FLAT PASTURE
POWER LINE PASTURE
CRESTED PASTURE
HOLDING PASTURE
SW George Millican Rd
SW Reservoir Rd
SE Reservoir Rd
SE Dunham Rd
SE Davis Loop
SE Texas Cir
SE Umatilla Loop
SE Tillamook Loop
Crooked River
Dry Creek
27
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed New Cattleguard & Gate
Proposed New Trough
Proposed Corral Maintenance
Proposed Fence Removal
Proposed New Fence
Proposed New Pipeline
1:95,940
0 0.75 1.5 3 Miles
Allotment Boundary
Bureau of Land Management
Other Federal
State
Private/Unknown
Alternatives 3 & 4
South Stearns
N
W
E
S
Oregon
Area Extent


Gus Creek
Holmes Creek
Spring Creek
19
HOLMES CREEK PASTURE
Rose Creek
John Day River
Fossil Creek
Bone Creek
ROUND-UP FLAT PASTURE
SANDY CREEK PASTURE
Rudio Creek
NO GRAZE PASTURE
Gilmore Creek
Burnt Corral Creek
BURNT CORRAL PASTURE
Holmes Creek
BRANSON CREEK PASTURE
LOST FAWN PASTURE
Deep Creek
Harry Creek
McCarty Creek
Lost Fawn Creek
Branson Creek
Rudio Creek
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed Spring Development Maintenance
Proposed Fence Maintenance
Allotment Boundary
Bureau of Land Management
National Park Service
State
Private/Unknown
1:66,855
0 0.5 1 2 Miles
Alternatives 3 & 4
Two County
N
W
E
S
Oregon
Area Extent

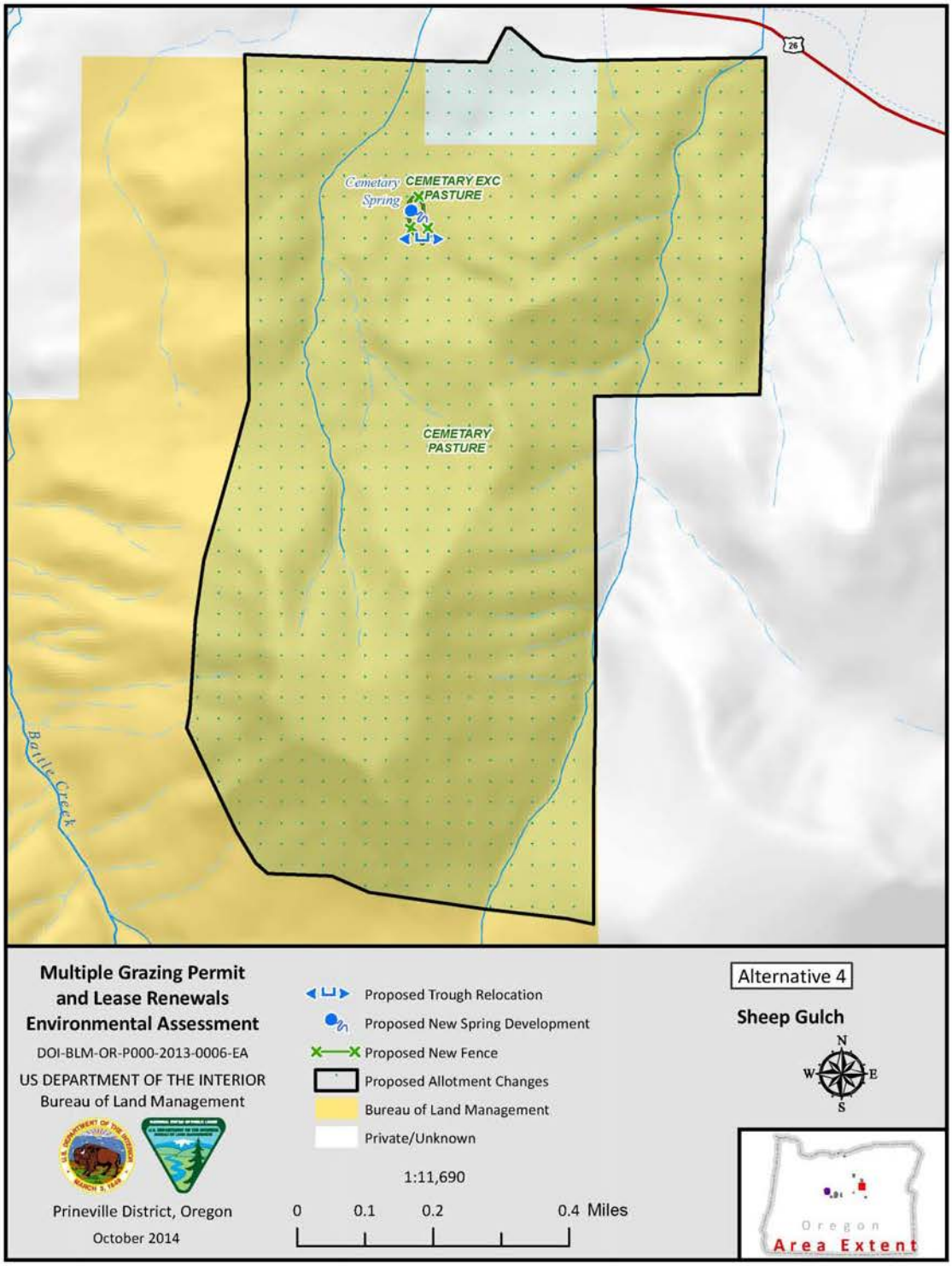
Appendix F: Maps that are specific to Alternative 3

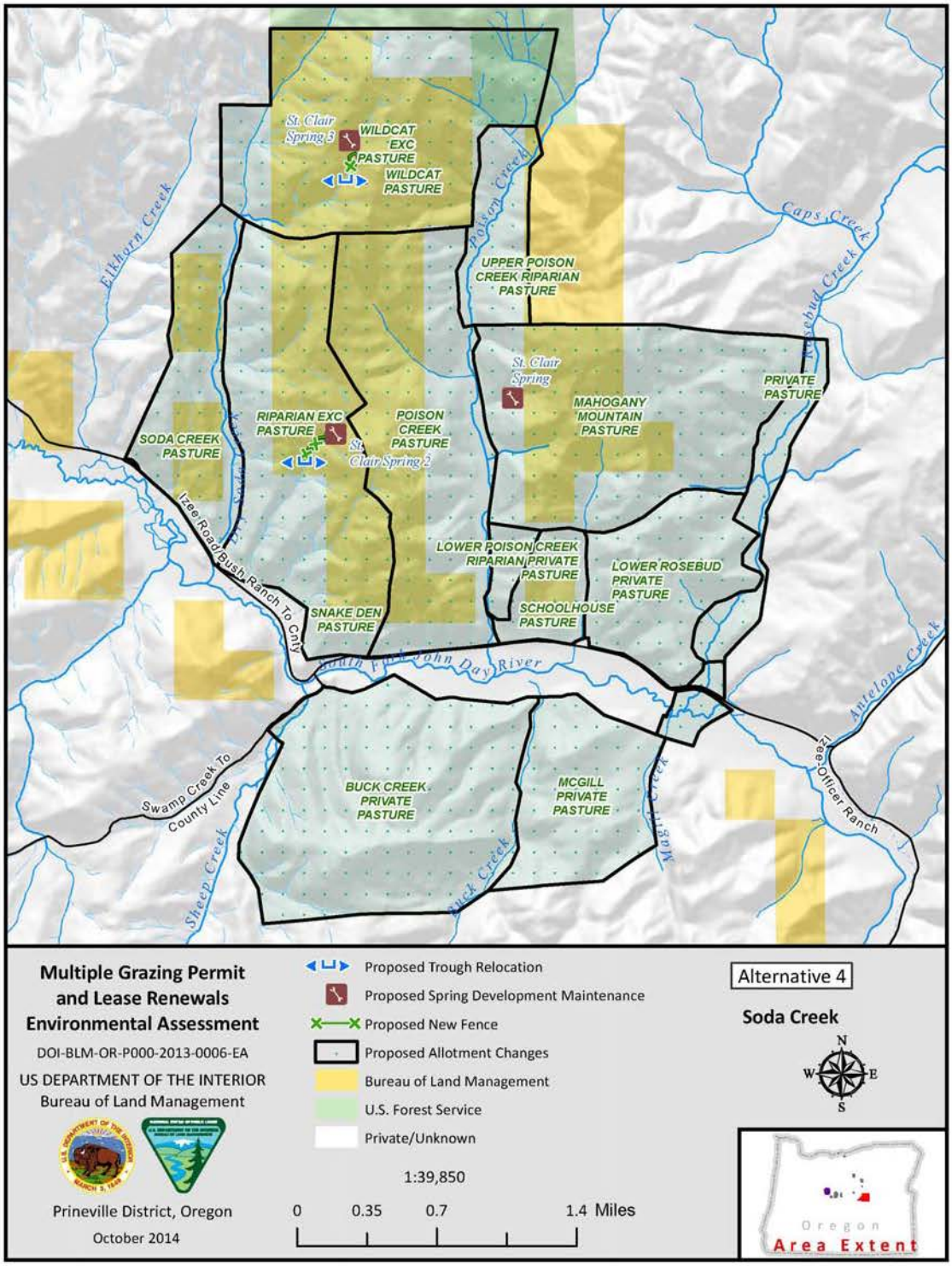

CEMETARY EXC PASTURE
CEMETARY PASTURE
Battle Creek
26
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed New Spring Development
Proposed New Fence
Proposed Allotment Changes
Bureau of Land Management
Private/Unknown
1:11,690
0 0.1 0.2 0.4 Miles
Alternative 3
Sheep Gulch
N
W
E
S
Oregon
Area Extent

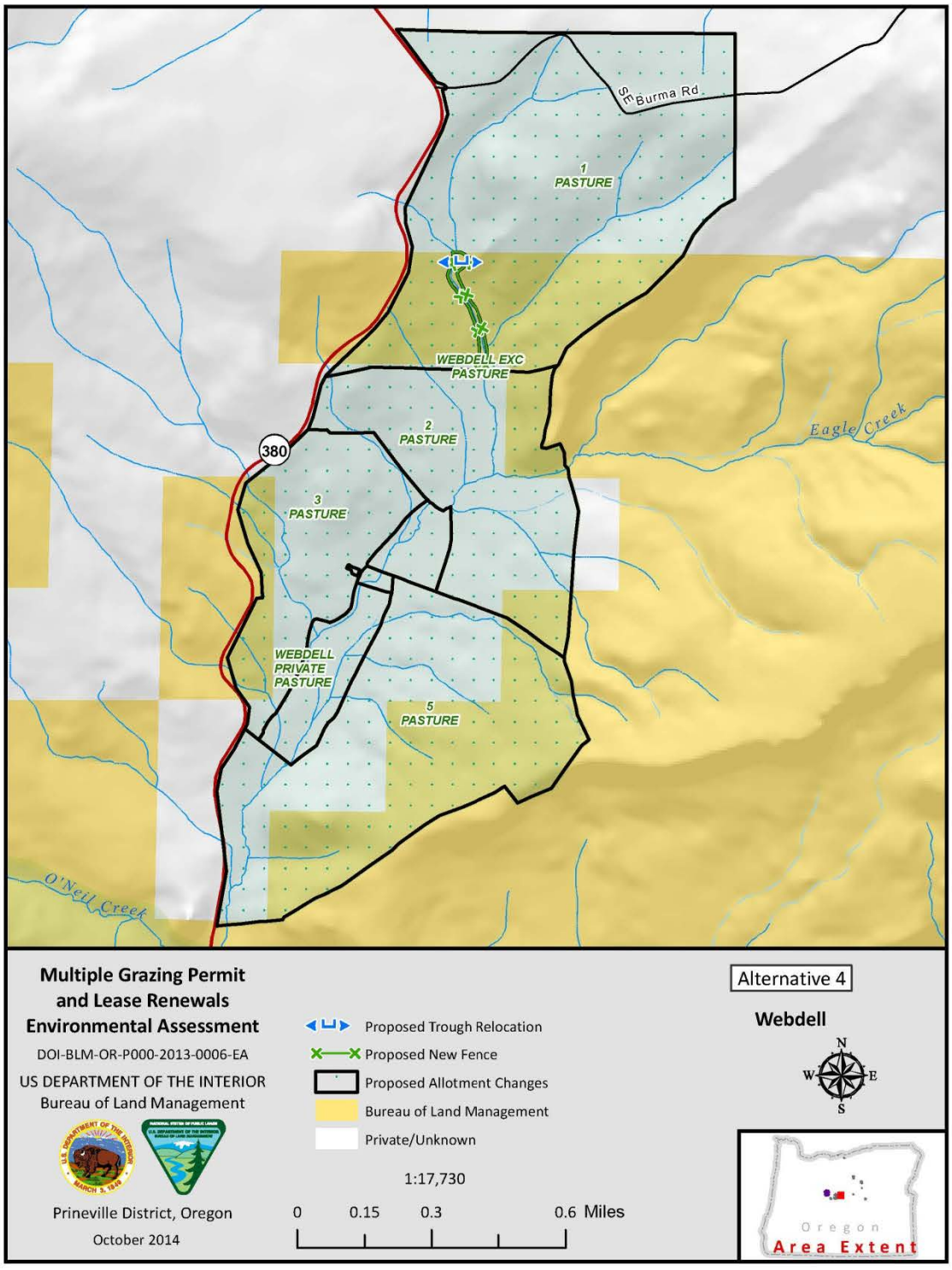

WILDCAT PASTURE
Elkhorn Creek
Poison Creek
Caps Creek
Rosebud Creek
UPPER POISON CREEK RIPARIAN PASTURE
PRIVATE PASTURE
MAHOGANY MOUNTAIN PASTURE
POISON CREEK PASTURE
SODA CREEK PASTURE
Dry Soda Creek
Izee Road/Bush Ranch To Only
LOWER POISON CREEK RIPARIAN PRIVATE PASTURE
LOWER ROSEBUD PRIVATE PASTURE
SCHOOLHOUSE PASTURE
SNAKE DEN PASTURE
South Fork John Day River
Antelope Creek
Izee/Officer Ranch
Swamp Creek To County Line
BUCK CREEK PRIVATE PASTURE
MCGILL PRIVATE PASTURE
Mill Creek
Buck Creek
Sheep Creek
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed New Spring Development
Proposed Spring Development Maintenance
Proposed Allotment Changes
Bureau of Land Management
U.S. Forest Service
Private/Unknown
1:39,850
0 0.35 0.7 1.4 Miles
Alternative 3
Soda Creek
N
W
E
S
Oregon
Area Extent


S Burma Rd
1
PASTURE
2
PASTURE
3
PASTURE
380
WEBDELL
PRIVATE
PASTURE
5
PASTURE
Eagle Creek
O'Neil Creek
Multiple Grazing Permit
and Lease Renewals
Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed Allotment Changes
Bureau of Land Management
Private/Unknown
1:17,730
0 0.15 0.3 0.6 Miles
Alternative 3
Webdell
N
W
E
S
Oregon
Area Extent

Appendix G: Maps that are specific to Alternative 4


Cemetary Spring
CEMETARY EXC PASTURE
CEMETARY PASTURE
Battle Creek
26
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed Trough Relocation
Proposed New Spring Development
Proposed New Fence
Proposed Allotment Changes
Bureau of Land Management
Private/Unknown
1:11,690
0 0.1 0.2 0.4 Miles
Alternative 4
Sheep Gulch
N
W
E
S
Oregon
Area Extent


St. Clair Spring 3
WILDCAT EXC PASTURE
WILDCAT PASTURE
Elkhorn Creek
Poison Creek
Caps Creek
Rosebud Creek
UPPER POISON CREEK RIPARIAN PASTURE
St. Clair Spring
PRIVATE PASTURE
MAHOGANY MOUNTAIN PASTURE
RIPARIAN EXC PASTURE
POISON CREEK PASTURE
SODA CREEK PASTURE
St. Clair Spring 2
Izee Road/Bush Ranch To Only
LOWER POISON CREEK RIPARIAN PRIVATE PASTURE
LOWER ROSEBUD PRIVATE PASTURE
SCHOOLHOUSE PASTURE
SNAKE DEN PASTURE
South Fork John Day River
Antelope Creek
Izee/Officer Ranch
Swamp Creek To County Line
BUCK CREEK PRIVATE PASTURE
MCGILL PRIVATE PASTURE
Sheep Creek
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed Trough Relocation
Proposed Spring Development Maintenance
Proposed New Fence
Proposed Allotment Changes
Bureau of Land Management
U.S. Forest Service
Private/Unknown
1:39,850
0 0.35 0.7 1.4 Miles
Alternative 4
Soda Creek
N
W
E
S
Oregon
Area Extent


S Burma Rd
1 PASTURE
WEBDELL EXC PASTURE
2 PASTURE
3 PASTURE
WEBDELL PRIVATE PASTURE
5 PASTURE
380
Eagle Creek
O'Neil Creek
Multiple Grazing Permit and Lease Renewals Environmental Assessment
DOI-BLM-OR-P000-2013-0006-EA
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Prineville District, Oregon
October 2014
Proposed Trough Relocation
Proposed New Fence
Proposed Allotment Changes
Bureau of Land Management
Private/Unknown
1:17,730
0 0.15 0.3 0.6 Miles
Alternative 4
Webdell
N
W
E
S
Oregon
Area Extent