United States Department of the Interior
Bureau of Land Management

Environmental Assessment # DOI-BLM-ID-B030-2012-0011-EA

Owyhee Field Office
Livestock Trailing Environmental Assessment

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

Applicant (if any): **Multiple**	Proposed Action: **Issuing Crossing Permits for Livestock Trailing**		EA No. **DOI-BLM-ID-B030-2012-0011-EA**
State: **Idaho**	County: **Owyhee**	District: **Boise**	
Prepared By: **Owyhee Field Office ID Team**	Title: **Owyhee Field Office Livestock Trailing Environmental Assessment**		Report Date: **April 12, 2012**

Consideration of Critical Elements	N/A or Not Present	Applicable or Present, No Impact	Discussed in EA	Comments
Air Quality		X		There would be some methane gas and other greenhouse gasses produced from vehicles and livestock due to trailing actives. However periodic vehicle use to manage livestock and livestock themselves would not impact air quality because the total agriculture sector contributes less than 10% of the total U.S greenhouse gas emissions according to EPA. http://epa.gov/climatechange/emissions/usinventoryreport.html
Areas of Critical Environmental Concern		X		There would be no impact to ACECs as livestock trailing would not be authorized in these areas in any alterative.
Cultural Resources			X	See Cultural analysis
Environmental Justice (E.O. 12898)		X		Livestock trailing would not affect minority or low income communities since livestock trailing would not occur next to these populations.
Farm Lands (prime or unique)	X			There are no farmlands, prime or unique, in the proximity of the proposed project area.
Floodplains	X			The proposed action would not affect any floodplains.
Migratory Birds			X	See Wildlife section
Native American Religious Concerns		X		To date no American Indian tribe has identified any area of traditional cultural concern.

Invasive, Nonnative Species			X	See Upland Vegetation section
Wastes, Hazardous or Solid	X			There are no wastes, hazardous or solid, located on BLM-administered lands in the proposed project area due to past mining activities. There would be no wastes generated as a result of any alternative to contribute to existing wastes, hazardous or solid.
Threatened or Endangered Species			X	See Wildlife and Upland Vegetation sections
Social and Economic			X	See Social and Economic section included in the grazing section
Water Quality (Drinking/Ground)			X	See Water Quality section
Wetlands/Riparian Zones			X	See Riparian Vegetation section
Wild and Scenic Rivers (Eligible)		X		There are Wild and Scenic Rivers in the general affected area; however, livestock trailing is not proposed in these areas so there would be no impact to this resource.
Wilderness Study Areas/Wilderness		X		There are Wilderness areas in the proposed project area; however, livestock trailing is not proposed in these areas so there would be no impact to this resource.
Visual Resource		X		Visual Resources (Class I, II, III, and IV) would not be impacted by livestock trailing because these activities would not change the scenic quality of the project area.
Access/ Transportation/ Recreation		X		Recreational uses in the general area include hunting, hiking, wildlife viewing and OHV use. Livestock trailing and trucking would not affect these recreational resources or public safety because the trailing events should generally be a short term only last 5-10 min, not frequent and the buffers provide an opportunity for livestock to get off roads. Also, most roads trailed on are gravel which should keep traffic speeds slow.

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1.0 Introduction

To address trailing that has been occurring for decades, the Owyhee Field Office (OFO) sent all permittees letters in 2011 notifying them that they would need to apply for crossing permit for livestock trailing starting in March of 2012. The OFO received a total of 23 applications to trail livestock across BLM-administered lands on routes that have been previously used.

Livestock Grazing Administration
The OFO administers livestock grazing on 151 allotments (Map 1 – Grazing Allotments). A total of 135,116 animal unit months (AUMs) per year are allocated to livestock grazing per the Owyhee Resource Management Plan (RMP; 1999). The Owyhee RMP also states that stocking levels necessary to meet RMP objectives are projected to be approximately 112,649 AUMs/year in five years and approximately 105,899 AUMs/year in 20 years.

As part of livestock grazing, some producers cross BLM-administered land. Before crossing BLM-administered land the producer must submit an application. The resulting authorization is documented by a crossing permit that specifies the allotment(s) and/or BLM-administered lands to be trailed across, period of use (dates), number and kind of livestock, and specific Terms and Conditions of the crossing permit to minimize and/or eliminate impacts to other resources on the public lands. Crossing permits are not required for trailing across private or state lands, or when entirely on maintained roads.

The timing of specific trailing events varies annually based on factors such as forage production, drought, resource conditions, weather, wildfire, court decisions, and individual livestock operations. Trailing events across BLM-administered lands on the OFO have ranged from less than one mile to approximately 25 miles, and in duration from less than one day to three days for one trailing route.

Trailing of livestock occurs at different times throughout the year to facilitate the established general seasons of grazing use. Trailing of cattle and sheep is necessary to implement grazing management systems designed to make progress towards meeting Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management (Standards).

Of the 52 allotments that contain a proposed trailing route, 30 allotments have been assessed for Standards and 22 allotments have not been assessed. Some of these allotments' assessments and determinations are not current, and these allotments are scheduled to be re-assessed by 2013. Most of the assessed allotments are not meeting Standards or making significant progress toward meeting Standards due to livestock grazing. See Table Intro-1 for allotments with proposed trailing routes and the status of their determination of Standards.

Table Intro - 1 Allotments with Proposed Trailing Routes

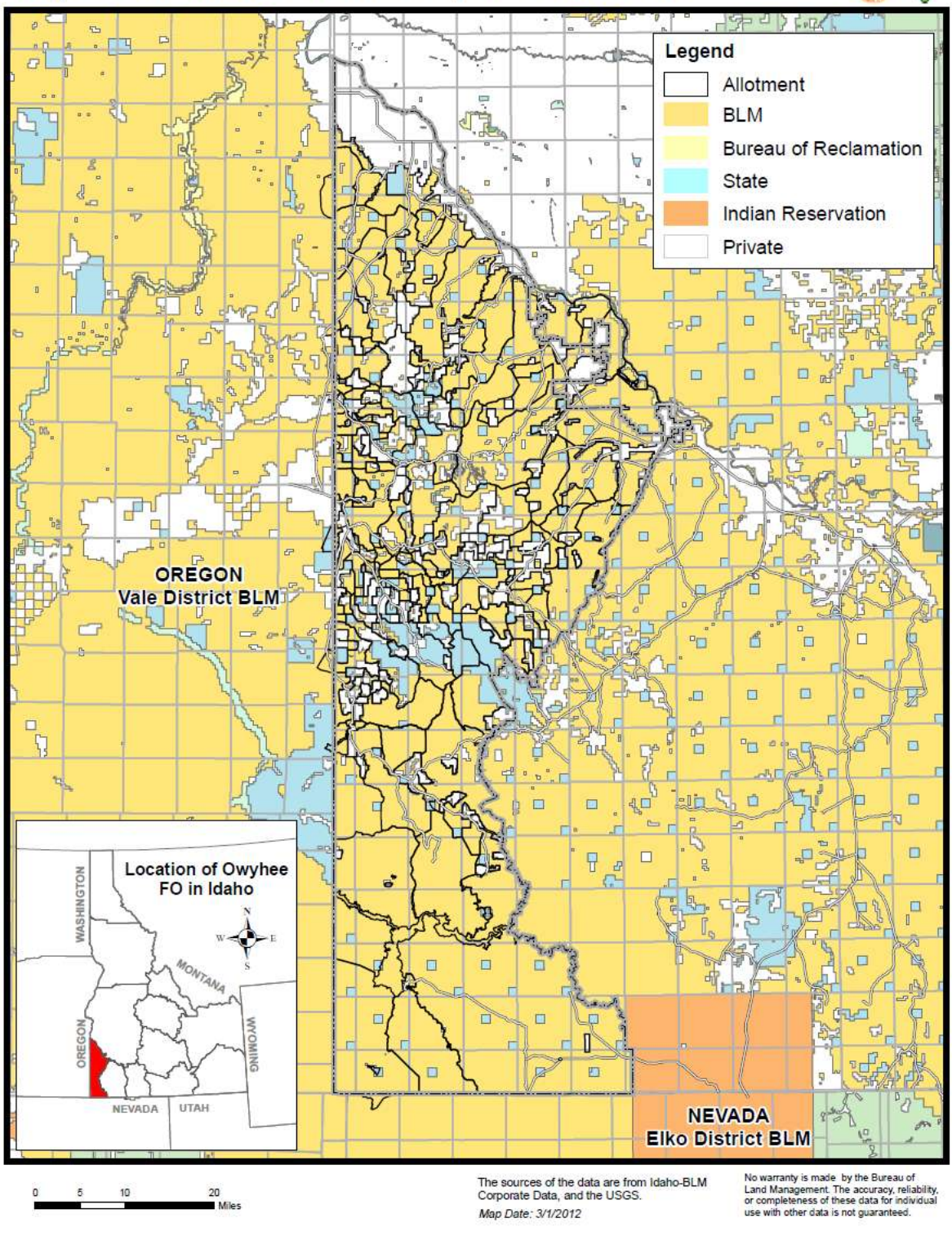
ALKALI-WILDCAT	CANAL	HART CREEK	MORGAN	STONE
BAHEM	CLIFFS	INDIAN MEADOWS	POISON CREEK	SUCCOR CREEK
BAXTER BASIN	COW CREEK IND.	JACKSON CREEK	POLE CREEK	TEXAS BASIN FFR
BERRETT FFR	EAST REYNOLDS CREEK	JOINT	RED MOUNTAIN	TOY
BLACK BIRD POINT	ELEPHANT BUTTE	JOSEPHINE FFR	REYNOLDS CREEK	TROUT SPRINGS
BLACKSTOCK SPRINGS	FOSSIL BUTTE	JUNIPER SPRING	ROCKVILLE	UPPER DEER CREEK
BOULDER	GARRETT FFR	LONE TREE ALLOTMENT	SANDS BASIN	WEST ANTELOPE
BOULDER FLAT	GLASS CREEK	LOUSE CR.	SHARES BASIN	WHITEHORSE-ANTELOPE
BOX T	GRAVEYARD POINT	LOUSE CREEK FFR	SODA CREEK	
BROWN'S CREEK	GUSMAN	MADARIAGA	SOUTH MOUNTAIN IND.	
BURGESS	HARDTRIGGER	MILLER FFR	SQUAW CREEK FFR	

Shaded boxes are allotments which have **not** been assessed for Standards
White boxes are allotments that have been assessed for Standards

The impacts from trailing within each of these allotments would not affect the ability of any allotment to make progress towards or meet Standards. This is because 81% of the trailing events would occur in a corridor along two-track or better roads and the majority of the livestock should be trailing on the road surface limiting the impact to specific resources. When livestock are trailing cross country (not on roads) most of the effects would be from trampling of vegetation because livestock are actively being moved and not allowed to graze. Trampling is anticipated to affect up to 5% of the living biomass (Abdel-Madig et al. 1987). Trailing events are short-term impacts (generally no more than 2-3 days for one trailing event, and only a few moments on any piece of ground, except overnighting areas). The amount of forge trampled and or consumed should be less than 20%, generally at overnight areas. The acres impacted within each allotment would generally be small compared to the whole allotment.

While trailing, the majority of the animals are on the road surface, they are not actively grazing, the trailing events are short term, and there would be limited amount of forage affected, so trailing of livestock is not expected to substantially impact resources and thus would not affect the ability of crossed allotments to meet or make significant progress toward meeting Standards. For this reason there will be no further discussion on meeting allotment Standards in this EA. In some instances site-specific impacts from trailing have been identified. Terms and Conditions and/or design features may be used to avoid, minimize and/or eliminate adverse impacts on site-specific routes.

Map 1 - Allotments in the Owyhee Field Office



1.1 Need for and Purpose of Action

The BLM is required under the Federal Land Policy and Management Act (FLPMA) and the Taylor Grazing Act to respond to requests for livestock trailing/crossing on BLM-administered lands. In many instances, livestock producers must move their livestock to facilitate proper grazing management of BLM grazing allotments, as well as to facilitate movements of livestock to and from private, State, or other federally-administered lands.

The purpose of the action is to respond to applications for crossing permits by identifying routes and Terms and Conditions for authorizing livestock trailing across BLM-administered public lands. Authorization of livestock trailing, while considering the needs of other resources, would be in accordance with 43 CFR 4130 and 4160, and consistent with the provisions of the Taylor Grazing Act, FLPMA, and current Department of Interior Grazing Regulations.

1.2 Summary of Proposed Action

The BLM proposes to issue crossing permits to qualified applicants authorizing the trailing of livestock across BLM-administered lands in the OFO in response to crossing permit applications. The temporary crossing permits would be issued for one or multiple years (up to 10 years) and would include design criteria and/or Terms and Conditions to minimize and/or eliminate adverse environmental effects from the trailing activities.

1.3 Decision To Be Made

The OFO Field Manager will decide whether to authorize applications for crossing permits. If trailing routes are to be authorized, the OFO Field Manager will decide whether to include routes and trailing conditions that correspond to crossing permit applications received by the OFO or that have been modified to avoid or reduce impacts to resources of concern. If crossing permits are issued, the Field Manager would also decide what specific Terms and Conditions to include as part of the authorization.

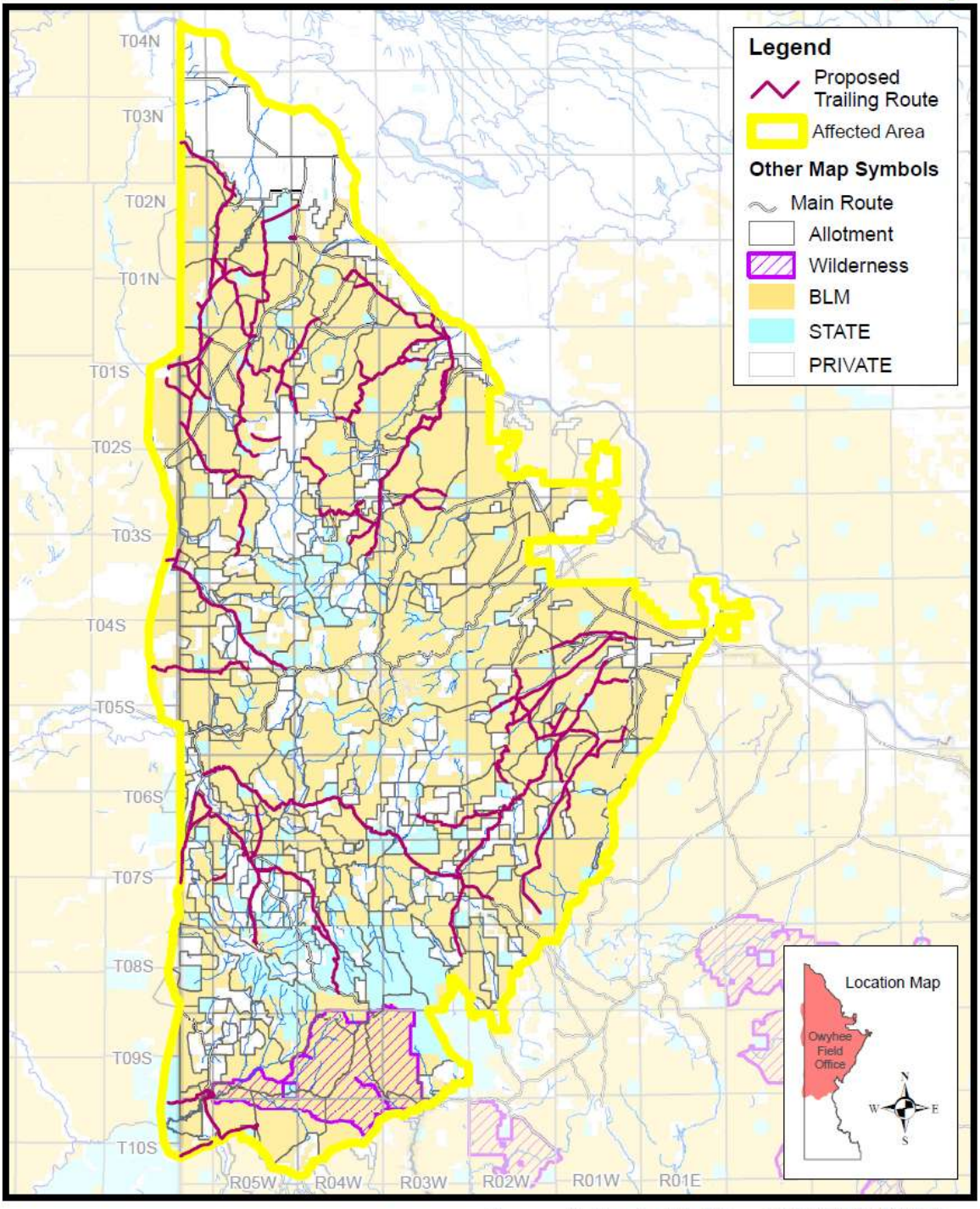
1.4 Location and Setting

The OFO area is located in Owyhee County, in southwest Idaho, and encompasses a total of 1,320,492 acres of public lands. Most of the public lands are contiguous with only a few scattered or isolated parcels. The affected area for this trailing analysis is roughly the northern half of the field office area, bounded to the west mostly by Oregon (but also extending into Oregon about 2 miles where trails connect), on the south by the Mud Flat and Dutcher roads, on the north by the Snake River, and on the east by Castle Creek and Deep Creek. See Map 2 – Alternative A - Affected Area and Proposed Trailing Routes.

The affected area has approximately 733,000 acres of public lands, of which the proposed trailing corridors cover approximately 45,000 acres within the affected area. It contains the northern extent of the Owyhee Mountain Range and lies within the Columbia Plateau. The Columbia Plateau is an elevated plateau with mountains separated by deep canyons draining into the Pacific Ocean via the Snake River and Columbia River. This broad regional landform and vegetative classification is known as the Intermountain Sagebrush Province/Sagebrush Steppe Ecosystem.

The proposed trailing routes are located in a semi-arid steppe climate with little annual rainfall and highly variable annual temperatures. Elevations in the affected area range from approximately 2,300 feet to 8,400 feet, but proposed trailing routes are generally below 6,800 feet in elevation. The majority of the trailing activities are planned to occur on existing roads and/or trails where disturbances have already occurred from previous trailing activities, road maintenance, and vehicle usage.

Map 2 - Alternative A



1.5 Conformance with Applicable Land Use Plan

The proposed action and alternatives are in conformance with the Owyhee Resource Management Plan (RMP). The Owyhee RMP (December 30, 1999) objective LVST 1 states "Provide for a sustained level of livestock use compatible with meeting other resource objectives." It is reasonable to assume that livestock trailing is part of livestock grazing and, therefore, trailing is necessary to meet this objective on public lands administered by the OFO.

The Owyhee RMP also states "Allocate 135,116 AUMs for livestock, 2,304 AUMs for wild horses and 2,673 AUMs for wildlife." The livestock allocation is the current active permitted use for livestock. The RMP also states that the "Evaluation of monitoring data will determine future stocking levels. Stocking levels necessary to meet objectives are projected to be approximately 112,649 AUMs in 5 years and approximately 105,899 AUMs in 20 years. The average actual grazing use has been 96,676 AUMs from 1988-1997."

1.6 Relationship to Statutes, Regulations, and Other Requirements

The proposed action analyzed in this EA is consistent with statues regulations and other requirements identified below:

- The Taylor Grazing Act of June 28, 1934 as amended (43 U.S.C. 315, 315a through 315r);
- The Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 *et seq*) as amended by the Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901 *et seq.*);
- Public land orders, Executive orders, and agreements authorize the Secretary to administer livestock grazing on specific lands under the Taylor Grazing Act or other authority as specified.
- 43 C.F.R. 4100.0-2 in part ….*"to establish efficient and effective administration of grazing of public rangelands;*
- C.F.R. 4130.6-3 Other grazing authorizations
- C.F.R. 4130.6-3; Crossing permits
- C.F.R. 4130.8-1; Payment of fees
- C.F.R. 4180.2(c) in part….*"Practices and activities subject to standards and guidelines include the development of grazing related portions of activity plans,…***"**
- *Native American Graves Protection and Repatriation Act of 1990 (*NAGPRA*)*: Prescribes a term and condition on all new grazing permits protecting human remains.
- *National Historic Preservation Act of 1966* (NHPA)
- *American Indian Religious Freedom Act of 1979* (AIRFA)
- *Clean Water Act of 1972* (CWA)
- *Endangered Species Act of 1973* (ESA)

Cultural Resource Laws and Executive Orders

Because of the social and scientific value placed on cultural resources, they are protected under a variety of laws and regulations. The National Historic Preservation Act (NHPA) of 1966 created historic preservation programs with oversight that would lead to the system of evaluating and protecting archaeological finds, including their eligibility for the National

Register of Historic Places (NRHP). Determinations of eligibility may be based on a site's associations with important individuals or events, potential scientific contributions, or other factors. The National Environmental Policy Act (NEPA) of 1969 established protocol for protecting important heritage resources and cultural properties from Federal undertakings that might threaten their integrity. Section 106 of the NHPA, (specifically 36 CFR 800) directs agencies such as the BLM to consider impacts to cultural resources, and allows State Historic Preservation Offices (SHPO) to comment before decisions are implemented.

BLM is required to consult with Native American tribes to "help assure (1) that federally recognized tribal governments and Native American individuals, whose traditional uses of public land might be affected by a proposed action, will have sufficient opportunity to contribute to the decision, and (2) that the decision maker will give tribal concerns proper consideration" (U.S. Department of the Interior, BLM Manual Handbook H-8120-1). Tribal coordination and consultation responsibilities are implemented under laws and executive orders that are specific to cultural resources which are referred to as "cultural resource authorities," and under regulations that are not specific which are termed "general authorities." Cultural resource authorities include: the National Historic Preservation Act of 1966, as amended (NHPA); the Archaeological Resources Protection Act of 1979 (ARPA); and the Native American Graves Protection and Repatriation Act of 1990, as amended (NAGPRA). General authorities include: the American Indian Religious Freedom Act of 1979 (AIRFA); the National Environmental Policy Act of 1969 (NEPA); the Federal Land Policy and Management Act of 1976 (FLPMA); and Executive Order 13007-Indian Sacred Sites. The proposed action is in compliance with the aforementioned authorities.

Southwest Idaho is the homeland of two culturally and linguistically related tribes: the Northern Shoshone and the Northern Paiute. In the latter half of the 19th century, a reservation was established at Duck Valley on the Nevada/Idaho border west of the Bruneau River. The Shoshone-Paiute Tribes residing on the Duck Valley Reservation today actively practice their culture and retain aboriginal rights and/or interests in this area. The Shoshone-Paiute Tribes assert aboriginal rights to their traditional homelands as their treaties with the United States, the Boise Valley Treaty of 1864 and the Bruneau Valley Treaty of 1866, which would have extinguished aboriginal title to the lands now federally administered, were never ratified.

Other tribes that have ties to southwest Idaho include the Bannock Tribe and the Nez Perce Tribe. Southeast Idaho is the homeland of the Northern Shoshone Tribe and the Bannock Tribe. In 1867 a reservation was established at Fort Hall in southeastern Idaho. The Fort Bridger Treaty of 1868 applies to BLM's relationship with the Shoshone-Bannock Tribes. The northern part of the BLM's Boise District was also inhabited by the Nez Perce Tribe. The Nez Perce signed treaties in 1855, 1863 and 1868. BLM considers off-reservation treaty-reserved fishing, hunting, gathering, and similar rights of access and resource use on the public lands it administers for all tribes that may be affected by a proposed action.

1.7 Scoping and Development of Issues

Through internal scoping, the OFO Interdisciplinary (ID) Team has identified the following as potential issues. Many of these issues were resolved with the addition of Terms and Conditions and/or design features.

- Species Listed as a Candidate for Listing under the ESA – Issuing crossing permits during sage-grouse breeding and nesting periods could result in disturbance to displaying and nesting birds.
- Special Status Plants – Issuing crossing permits could reduce viability of special status plants if the routes cross occupied habitat.
- Native Plant Community Health – Issuing crossing permits could damage native plants. Repeated localized trailing may alter the native plant community to a less desirable state.
- Special Status Wildlife – Issuing crossing permits could result in damage to special status wildlife nests or natal burrows.
- Migratory Birds – Issuing crossing permits during migratory bird nesting periods could result in damage to bird nests or burrows.
- Big Game – Issuing crossing permits during big game fawning/calving/lambing and wintering periods could result in disturbance and reduced individual fitness.
- Special Status Fish – Issuing crossing permits could affect habitat for special status fish.
- Soils – Issuing crossing permits across areas of highly erosive soils could increase the potential for erosion. Livestock trailing on wet soils could degrade soil surface structure leading to soil compaction if repeated in localized areas.
- Vegetation Treatments – Issuing crossing permits could prevent vegetation treatments from achieving the intended objectives.
- Riparian/Water Quality – Issuing crossing permits may degrade riparian areas and water quality.
- Noxious Weeds and Invasive Plants – Issuing crossing permits could increase the potential for noxious weeds and invasive plants to spread.
- Cultural Resources – Issuing crossing permits through archaeological sites could cause effects to sites.
- Wild Horses – Issuing crossing permits could affect wild horse management.
- Wilderness and Wild & Scenic Rivers – Issuing crossing permits through Wilderness or Wild & Scenic Rivers could result in impacts to wilderness character or the river's Outstandingly Remarkable Values.

A scoping letter was sent on December 15, 2011, to interested publics, permittees, county governments, state governments, and tribal governments. In response to scoping, 14 comment letters were received, in addition to applications for crossing permits. The comments offered in these letters were considered to help develop the alternatives, specifically Alternatives B and C. See Appendix A for a summary of all comments received, and how they were addressed. The primary additional issues raised through external scoping include the following:

- Crossing permits could limit livestock operations, complicate grazing management administration, and affect permitted AUMs.
- Trailing could increase disease transmission between domestic sheep and bighorn sheep.
- Trailing could increase dust creation, and West Nile virus.
- Section 106 review process should be conducted for cultural resources as outlined in the National Historic Preservation Act (NHPA).

2.0 Description of the Alternatives

2.1 Alternative Development Process

Three alternatives have been developed and analyzed in detail. Alternative A analyzes trailing as applied for by the 23 applicants. Alternative B analyzes the same 23 crossing permits as Alternative A, but also considers additional Terms and Conditions and design features. Alternative C would deny livestock trailing.

2.2 Alternatives Considered But Not Analyzed in Detail

Trucking

While trucking could be an option, the determination on whether to truck livestock is a private individual's call. BLM has no legal authority to require or authorize trucking of livestock on public lands as a specific alternative. However, the BLM will discuss economic impacts of hauling livestock within the grazing section if livestock trailing was not approved, as it is a reasonably foreseeable consequence of a denial.

2.3 Description of Proposed Action and Alternatives

2.3.1 Alternative A – Permittees' Proposal

The BLM would issue 23 crossing permits to the applicants identified in Table Alt A 1for one or multiple years authorizing the trailing of livestock across BLM-administered lands in the Owyhee Field Office. Due to the number of livestock an applicant can move at one time, it may take multiple trips to move the total number of livestock. However, the total number of livestock would be moved in the specified time period. The crossing permit would have no priority for renewal and cannot be transferred or assigned.

A total of 1,903 AUMs would be authorized for all trailing events as applied for by the applicants. Because trailing on these routes has historically been done by other livestock producers, an additional 400 AUMs would be authorized for a maximum total of 2,303 AUMs. The BLM would authorize the additional 400 AUMS to qualified future applicants who would need to follow the routes analyzed in this EA. Under this alternative, trailing AUMs would be approximately 2% of the RMP's 20-year projection. In 2011, actual use was approximately 98,300 AUMs. With the additional 2,303AUMs the total would be below the 20-year projection of 105,899 AUMs identified in the RMP objectives (p. 23 of RMP).

BLM would authorize livestock trailing within 0.125 (1/8) mile on either side of trailing routes as depicted on Map 2. The total trailing corridor width would be 0.25 (¼) mile. The BLM has determined that this width is appropriate because as herders move livestock, topography, lambs/calves, season (spring or fall) and time impact how livestock move. This is based on personal knowledge and communication with the applicants who have stated that in steeper topography there is a greater variation in how livestock move within a trailing route. For example, cattle will bunch up more or vary off the trailing route more in steep terrain. In these areas they may need a larger buffer compared to flat land where they tend to "line out" and move in a straight line unless the cattle get off track. This is also true in the spring when cattle/sheep travel more slowly and in less of a straight line due to weaker younger calves/lambs which may

also require a larger buffer. Also, trailing is a labor and time intensive event where the objective is to get the livestock home or to a destination allotment. Because the herders have a limited amount of time to accomplish this task, they will be actively moving the livestock which should keep the livestock within this buffer.

Many of the trailing routes would occur on existing maintained roads, and in some cases different segments of the same route may be trailed on by multiple applicants with different livestock numbers and class. For example, a portion of the Sand Basin Road in the Poison Creek Allotment is trailed on by approximately 250 cattle and 1400 sheep. The same road but in the Sands Basin Allotment would have only 250 cattle trailing on it. Another example would be on the Bachman Grade Road where 3,844 cattle could trail on this road within the Browns Creek Allotment (Pastures 1 and 2) while 2,600 cattle could be trailed on the road within the Box T Allotment (Pasture 3).

Overnighting areas and temporary water haul sites were identified during the application process (Table Alts - 1). There are six cattle overnight areas at least partially on BLM lands; three within corrals and three in unfenced areas. One unfenced and one temporary fenced sheep overnight area on BLM land (and an associated sheep water haul site) is also included in this alternative. Additional overnighting not in this table would occur on private or state lands.

Table Alts - 1: Overnight Areas on BLM land

Applicant	Type of overnight area	Location (Allotment)	Livestock Type
Chipmunk Grazing Association	Unfenced area	Shares Basin (private and BLM)	cattle
Chipmunk Grazing Association and Jaca Livestock	Corral	Reynolds Creek	cattle
Doug Burgess	Unfenced area	Juniper Springs	cattle
Robert Thomas, Scott and Sherri Nicholson, Estate of Charles Steiner	Corral	Browns Creek	cattle
Payne Family LLC	Unfenced area	Squaw Creek FFR (private and BLM)	cattle
Chipmunk Grazing Association	Corral	Corral FFR	cattle
Poison Creek Grazing Association	Unfenced area and water haul site	Graveyard Point	sheep
Poison Creek Grazing Association	Temporary Electric Fence Corral	Poison Creek	sheep

The dates and durations of trailing and the numbers and class of livestock identified for each trailing route are summarized in Table Alts - 2.

Table Alts - 2: Crossing Permit Application Information Grouped by Applicant

Allotment Number	ALLOTMENT NAMES	LIVESTOCK		TIME FRAME		DURATION	AUMs	METHOD
		NUMB.	KIND	BEGIN	END			
Bob and Carol Bruce Grazing Association LLC								
Trailing Route 1								
505	Morgan	375	Cattle	5-25	7-1	3 days	37	Horse and motorized
552	Glass Creek							
600	South Mtn Indv							
650	Stone							
	BLM Land	375	Cattle	10-15	11-30	2 days	25	
609	Berrett FFR							
	Private and State Land							
No trailing permit needed on the South Mountain Road, Owyhee Back Country Rd and private and state roads or trailing routes								
						Total AUMs	**62**	
Chipmunk Grazing Association								
Trailing route 1								
513	Elephant Butte	450	Cattle	4-1	5-15	1 day	15	Horse and motorized
516 508	Hardtrigger Reynolds Creek							
Trailing route 2								
556	Shares Basin	450	Cattle	5-15	6-15	2 days Overnight on public and private in Shares Basin	30	Horse and motorized
516	Hardtrigger							
Trailing route 3								
556	Shares Basin	320	Cattle	5-15	6-15	2 days to move all livestock Overnight in corral in Corral FFR Allotment	21	Horse and motorized
515	Blackstock Springs							
Trailing route 4								

Allotment Number	ALLOTMENT NAMES	LIVESTOCK		TIME FRAME		DURATION	AUMs	METHOD
		NUMB.	KIND	BEGIN	END			
515	Blackstock Springs	450	Cattle	5-16	6-15	2 days Start from corral in Corral FFR and Overnight on State Land	30	Horse and motorized
Trailing permit needed on Gravel Pit road because overnight on State Land								
Trailing route 5								
515	Blackstock Springs	300	Cattle	10-15	11-14	1 day	10	Horse and motorized
Trailing route 6								
511	Succor Creek	400	Cattle	4-1	6-15	1 day	13	Horse and motorized
506	Jackson Creek							
Trailing route 7								
515	Blackstock springs	600	Cattle	5-1	7-1	1 day	20	Horse and motorized
506	Jackson Creek	600	Cattle	9-1	11-14	1 day	20	
525	Juniper Spring							
472	Texas Basin FFR							
Trailing route 8								
	Oregon BLM							
525	Juniper Spring	300	Cattle	4-1	5-15	1 day	10	Horse and motorized
No trailing permit needed on the McBride Creek Road and Sands Basin Road								
Trailing route 9								
525	Juniper Spring	600	Cattle	5-16	6-5	1 day	20	Horse and motorized
No trailing permit needed on the McBride Creek Road and Sands Basin Road								
Trailing route 10								
	Oregon BLM							
525	Juniper Spring	600	Cattle	5-1	6-20	1 day	20	Horse and
	State HWY							

Allotment Number	ALLOTMENT NAMES	LIVESTOCK		TIME FRAME		DURATION	AUMs	METHOD
		NUMB.	KIND	BEGIN	END			
565	Rockville	600	Cattle	10-1	11-14	1 day	20	motorized
No trailing permit needed on the McBride Creek Road and Sands Basin Road								
Trailing route 11								
646	Canal	600	Cattle	4-1	6-5	1 day	20	Horse and motorized
514	Alkali Wildcat							
		400	Cattle	10-1	11-14	1 day	13	
Trailing route 12								
602	Corral FFR	450	Cattle	5-10	6-15	1 day	15	Horse and motorized
565	Rockville							
556	Shares Basin							
						Total AUMs	**277**	
Chipmunk Grazing Association and Jaca Livestock								
Trailing route 1								
516	Hardtrigger	250	Cattle	3-1	3-20	2 days	16	Horse and motorized
651	East Reynolds Creek							
508	Reynolds Creek	700	Cattle	11-1	12-1	2 days Overnight in corral on State and BLM in Reynolds Creek Allotment	46	
	private							
No trailing permit needed on Reynolds Creek Road								
Trailing route 2								
516	Hardtrigger	450	Cattle	4-1	5-15	1 day	15	Horse and motorized
508	Reynolds Creek							
651	East Reynolds Creek							
	private							
No trailing permit needed on Reynolds Creek Road								
Trailing route 3								

Allotment Number	ALLOTMENT NAMES	LIVESTOCK		TIME FRAME		DURATION	AUMs	METHOD
		NUMB.	KIND	BEGIN	END			
651	East Reynolds Creek	700	Cattle	4-1	12-31	7 Trips throughout the season to move all cattle No overnight needed	161	Horse and motorized
Trailing route 4								
508	Reynolds Creek	250	Cattle	5-10	6-10	1 day	8	Horse and motorized
651	East Reynolds Creek							
No trailing permit needed on the Whisky Mountain Road								
						Total AUMS	246	
	Craig and Ronda Brasher							
Trailing Route 1								
505	Morgan	110	Cattle	5-1	6-1	2 day Overnight on private	7	Horse and motorized
509	Boulder							
526	Boulder Flat							
609	Berrett FFR							
520	Indian Meadows							
	Private and State Land							
No trailing permit needed on the South Mountain Look out Road, private and state land								
Trailing Route 2								
No trailing permit needed for the following routes on South Mountain Look out Road and the South Mountain Road or private land								
609	Berrett FFR	110	Cattle	9-1	10-1	1 day	4	Horse and motorized
520	Indian Meadows							
	Private land, State land							
						Total AUMs	11	

Allotment Number	ALLOTMENT NAMES	LIVESTOCK		TIME FRAME		DURATION	AUMs	METHOD
		NUMB.	KIND	BEGIN	END			
	Doug Burgess							
Trailing route 1								
Trailing permit would be needed on the Sands Basin Road because of overnighting of livestock								
	Oregon							
525	Juniper Spring	250	Cattle	11-1	11-30	2 days	16	Horse and motorized
521	Sands Basin							
603	Poison Creek					Overnight in Juniper Springs		
568	Graveyard Point							
						Total AUMs	16	
	Ed and Debby Wilsey Grazing Association							
Trailing route 1								
565	Rockville	300	Cattle	3-15	3-25	1 day	10	Horse and motorized
		300	Cattle	5-31	6-1	1 day	10	
						Total AUMs	20	
	Elordi Cattle Company LLC							
Trailing Route 1								
	Oregon							
530	Baxter Basin	300	Cattle	6-1	6-15	1 day	10	Horse and motorized
562	Cow Creek Ind							
						Total AUMs	10	
	Hook Family LLC							
Trailing route 1								
651	East Reynolds Creek	250	Cattle	11-1	11-15	1 day	8	Horse and Motorized
508	Reynolds Creek							
No trailing permit needed on the Rabbit Creek Road								
Trailing route 2								
651	East Reynolds Creek	450	Cattle	2-28	3-20	1 day	15	Horse and Motorized
		450	Cattle	5-1	5-15	1 day	15	

Allotment Number	ALLOTMENT NAMES	LIVESTOCK		TIME FRAME		DURATION	AUMs	METHOD
		NUMB.	KIND	BEGIN	END			
Trailing route 3								
652	East Reynolds Creek	250	Cattle	11-1	11-30	2 days To move all cattle No overnight needed	16	Horse and Motorized
						Total AUMs	54	
	Morgan Properties LP DBA Morgan Ranches							
Trailing Route 1								
509	Boulder	100 100	Cattle Cattle	6-5 9-25	7-1 10-5	1 day 1 day	3 3	Horse and Motorized
Trailing route 2								
609	Berrett FFR	200 200	Cattle Cattle	4-1 10-1	6-10 10-31	1 day 1 day	7 7	Horse and Motorized
						Total AUMs	20	
	Payne Family LLC							
Trailing route 1								
	Oregon State land	540	Cattle	6-12	6-25	2 days Overnight on private and BLM in Squaw Creek FFR	36	Horse and Motorized
	BLM Land by Owyhee River Campground							
501	Cliffs							
539	Trout Springs							
611	Squaw Creek FFR							
No trailing permit needed on the Owyhee Uplands Backcountry Byway (Mud Flat), Oregon State land								
Trailing route 2								
635	Pole Creek	750 750	Cattle Cattle	8-1 3-1	11-30 7-31	1 day 1 day	25 25	Horse and Motorized
						Total AUMs	86	

Allotment Number	ALLOTMENT NAMES	LIVESTOCK		TIME FRAME		DURATION	AUMs	METHOD
		NUMB.	KIND	BEGIN	END			
Poison Creek Grazing Association LLC								
Trailing route 1								
521	Sands Basin	125	Cattle	5/25	5/31	1 day	4	Horse and Motorized
565	Rockville							
602	Corral FFR							
						Total AUMS	4	
Richard and Connie Brandau								
Trailing route 1								
508	Reynolds Creek	183	Cattle	4-1	5-25	1 day	6	Horse and Motorized
Trailing route 2								
508	Reynolds Creek	183	Cattle	4-1	5-25	1 day	6	Horse and Motorized
No trailing permit needed on the Wilson Creek road								
Trailing route 3								
508	Reynolds Creek	215	Cattle	10-15	11-25	1 day	7	Horse and Motorized
No trailing permit needed on the following routes of the Wilson Creek road								
Trailing route 4								
508	Reynolds Creek	215	Cattle	9-1	10-31	1 day	7	Horse and Motorized
Trailing route 5								
No trailing permit needed on the Whisky Mountain Road								
508	Reynolds Creek	215	Cattle	9-1	10-31	1 day	7	Horse and Motorized
651	East Reynolds Creek							
						Total AUMs	33	
Robert Thomas								
Trailing route 1								
535	Fossil Butte	700	Cattle	3-1	4-1	1 day	23	Horse and Motorized
	Private							
No trailing permit needed on private land								
Trailing route 2								

Allotment Number	ALLOTMENT NAMES	LIVESTOCK		TIME FRAME		DURATION	AUMs	METHOD
		NUMB.	KIND	BEGIN	END			
532	Hart Creek	1200	Cattle	11/15	12/15	1 day	39	Horse and Motorized
Trailing route 3								
Trailing permit would be needed on this route due to overnighting on BLM land								
532	Hart Creek	1200	Cattle	11-15	12-15	2 days Overnight in corral within Browns Creek Allotment	79	Horse and Motorized
585	Browns Creek							
534	Box T							
533	Toy							
	Private							
Trailing route 4								
534	Box T	700	Cattle	5-1	6-1	1 day	23	Horse and Motorized
533	Toy							
	Private							
Trailing route 5								
585	Browns Creek	700	Cattle	4-10	5-1	1 day	23	Horse and Motorized
Trailing route 6								
585	Browns Creek	700	Cattle	4-10	5-1	1 day	23	Horse and Motorized
Trailing route 7								
532	Hart Creek	700	Cattle	6-10	7-1	1 day	23	Horse and Motorized
Trailing route 8								
534	Box T	1200	Cattle	11-15	12-10	1 day	39	Horse and Motorized
574	West Antelope	1200	Cattle	5-1	6-1	1 day	39	
						Total AUMs	311	
	Scott and Sherri Nicholson							
Trailing route 1								
Trailing permit would be needed on this route due to overnighting on BLM land								
532	Hart Creek	400	Cattle	11-15	12-31	2 days Overnight in corral within the Browns Creek Allotment	26	Horse and Motorized
585	Browns Creek							
541	Whitehorse Antelope							
639	Alder Creek FFR							
626	Garrett FFR							

Allotment Number	ALLOTMENT NAMES	LIVESTOCK		TIME FRAME		DURATION	AUMs	METHOD
		NUMB.	KIND	BEGIN	END			
						Total AUMs	26	
	Ted Gammett							
Trailing route 1								
	Idaho State Land							
514	Alkali Wildcat	300	Cattle	8-20	3-15	2 days	20	Horse and Motorized
521	Sands Basin							
525	Juniper Spring					Overnight on private within Sand Basin		
No Trailing Permit needed on Sand Basin Road and McBride Road								
						Total AUMs	20	
	Tim and Gwen Miller							
Trailing route 1								
646	Canal	135	Cattle	3-15	4-15	1 day	4	Horse and Motorized
						Total AUMs	4	
	Vernon Kershner							
Trailing route 1								
541	West Antelope	200	Cattle	4-29	5-5	1 day	7	Horse and Motorized
574	Miller FFR							
587	Lone Tree							
458	Josephine FFR	200	Cattle	10-1	10-18	1 day	7	
613	Steiner FFR							
No Trailing Permit needed on Flint Creek Road								
						Total AUMs	14	
	Rohl and Faye Hipwell							
Trailing route 1								
535	Fossil Butte	844	Cattle	10-15	2-28	1 day	28	Horse and Motorized
532	Hart Creek							
	Private							
Trailing route 2								
532	Hart Creek	844	Cattle	3-28	5-15	1 day	28	Horse and

Allotment Number	ALLOTMENT NAMES	LIVESTOCK		TIME FRAME		DURATION	AUMs	METHOD
		NUMB.	KIND	BEGIN	END			
588	Red Mountain	844	Cattle	10/1	12/31	1 day	28	Motorized
588	Red Mountain	844	Cattle	3-28	6-15	1 day	28	
Trailing route 3								
585	Browns Creek	844	Cattle	3-28	6-15	1 day	28	Horse and Motorized
532	Hart Creek							
588	Red Mountain	844	Cattle	10-1	12-31	1 day	28	
Trailing route 4								
No Trailing Permit needed on Bachman Grade Road								
585	Browns Creek	844	Cattle	10-1	12-31	1 day	28	Horse and Motorized
532	Hart Creek							
Trailing route 5								
534	Box T	844	Cattle	5-1	6-15	1 day	28	Horse and Motorized
588	Red Mountain	844	Cattle	10-1	12-31	1 day	28	
Trailing route 6								
533	Toy	844	Cattle	5-25	7-1	1 day	28	Horse and Motorized
		844	Cattle	10-1	12-31	1 day	28	
						Total AUMs	308	
Bill Watterson								
Trailing route 1								
508	Reynolds Creek	47	Cattle	4-1	5-30	1 day	2	Horse and Motorized
Trailing route 2								
508	Reynolds Creek	100	Cattle	10-20	11-15	1 day	3	Horse and Motorized
No trailing permit needed on the Wilson Creek road								
						Total AUMs	5	
Baltzor Cattle Company								

Allotment Number	ALLOTMENT NAMES	LIVESTOCK		TIME FRAME		DURATION	AUMs	METHOD
		NUMB.	KIND	BEGIN	END			
Trailing route1								
572	Burgess	308 308	Cattle Cattle	3-25 10-1	4-20 10-30	1 day 1 day	10 10	Horse and Motorized
						Total AUMs	20	
						Total Billed AUMs	20	
Poison Creek Grazing Association LLC								
Trailing route 1								
568	Graveyard Point	2 Bands 800 800	 Sheep Sheep	 3-20 3-20	 4-1 4-1	 2 days 2 days 1 overnight on BLM for each band	 11 11	Horse, Wagon and Motorized
521	Sands Basin	2 Bands 800 800	 Sheep Sheep	 4-10 4-10	 4-30 4-30	 1 day 1 day	 6 6	Horse, Wagon and Motorized
521 603 568	Sand Basin Poison Creek Graveyard Point (trail on Sands Basin Rd only in the fall within Graveyard Point)	1 Band 1600	Sheep	10-15	11-1	2 days Overnight in Poison Creek allotment	22	Horse, Wagon and Motorized
Trailing route 2								
No trailing permit needed on the Cow Creek Rd or Flint Creek Rd								
	Cow Creek Road	2 Bands 800 800	 Sheep Sheep	 5-15 5-15	 11-17 11-17	 10 days 10 days Overnight on private land	 53 53	Horse, Wagon and Motorized
Trailing route 3								

Allotment Number	ALLOTMENT NAMES	LIVESTOCK		TIME FRAME		DURATION	AUMs	METHOD
		NUMB.	KIND	BEGIN	END			
	Flint creek Road	2 Bands 800 800	 Sheep Sheep	 5-15 5-15	 11-17 11-17	 9 days 9 days Overnight on private land	 48 48	Horse Wagon and Motorized
						Total AUMs	258	
Tom Gluch								
Trailing route 1								
659	Walts Pond FFR	100	Cattle	6-1	6-20	1 day	3	Horse
552	Glass Creek	100	Cattle	9-5	9-30	1 day	3	
505	Morgan							
No trailing permit needed on South Mountain Road								
						Total AUMs	6	
						Total Billed AUMs	6	
Estate of Charles Steiner								
Trailing route1								
Trailing permit required on Bachman Grade Road because of overnighting livestock on BLM land								
	BLM	700	Cattle	4-15	5-5	2 days spring	46	Horse and Motorized
532	Hart Creek							
585	Browns Creek							
534	Box T							
533	Toy	700	Cattle	11-20	12-5	2 days fall	46	
574	West Antelope					Overnight in corral within the Browns Creek Allotment		
						Total AUMs	92	
						Total Billed AUMs	92	

- Travel Management and Off Highway Vehicles - Term and Condition

Motorized vehicles incorporated with trailing activities would remain on existing vehicle routes. Cross country use of motorized vehicles would not be authorized.

2.3.2 Alternative B – BLM Proposal - Trailing with Specific Terms and Conditions

The BLM would issue crossing permits to qualified applicants authorizing the trailing of livestock across BLM-administered land in OFO. Livestock trailing would be authorized within 0.125 miles or narrower on either side of designated trailing routes, as applied for in Alternative A. Alternative B would require the applicant to adhere to design features and Terms and Conditions. Trailing would occur on the same routes as Alternative A except for Trailing route 1 for Rohl Hipwell. This route was moved due to cultural resource concerns; however, the season of use, number of cattle and AUMs for this route would be the same as in Alternative A. Map 3, below, shows Alternative B routes with standard (0.25 miles) or narrowed (240 feet) width sections, and Map 4, below, shows Alternative B routes with trailing hour limitations.

The same overnighting areas and water haul sites as in Alternative A are included in Alternative B. There are six cattle overnight areas (three within corrals and three unfenced areas) and two sheep overnight area and water haul site on BLM lands.

In addition to the 1,903 AUMs currently applied for, the BLM would authorize an additional 400 AUMs to qualified future applicants who would need to follow the Terms and Conditions, design criteria, and the routes analyzed in this EA, for a maximum total of 2,303 AUMs. The maximum AUMs that could be applied for by future applicants would be 60 AUMs for any one trailing application. Also, crossing permits for new application(s) would not allow overnighting of livestock on BLM land unless it is in an existing corral.

Livestock trailing routes would adhere to the following design features and Terms and Conditions. These Terms and Conditions and design features are specific to Owyhee Field Office and are incorporated into the crossing permit in order to avoid, minimize, and/or eliminate resource impacts identified in both internal and external scoping. They are also specific to the affected area (See Map 3 and 4).

- Livestock Grazing - Terms and Conditions
    - Trailing would be active with livestock moving toward their final destination, except at night.
    - 90% of the livestock (sheep and cattle) must complete their move within the duration as described in the crossing permit. Sick, weak or injured livestock that are not able to finish trailing may be left behind but must be moved to the final destination or private land within 3 days after the end date on the final authorization/grazing bill .
    - 90% of the livestock must stay within the required 0.25-mile and or 240-foot corridor.
    - The permittee must contact the OFO if natural events such as heavy rain or fire would not allow the permittee to complete the trailing event during the permitted time. The BLM would work with the permittee in these instances to mitigate resource impacts using all of the applicable terms and conditions and design criteria.
    - Per the Final Supplementary Rules published in the *Federal Register* on July 21, 2011 (76 FR 43706), all supplemental feeding of livestock during trailing,

including feeding of horses used for the purposes of herding, must use certified noxious-weed-free forage to prevent the spread of noxious weeds on BLM-administered public lands in Idaho.
    - Areas used for staging vehicles, horse trailers, fence panels, etc. should avoid sagebrush areas. If this is not feasible, previously disturbed sites should be used, such as areas around stock ponds or troughs, or in past seedings, or other grassland sites.
    - Sheep trailing in the fall through Graveyard Point, Sands Basin and Poison Creek allotments would require 1 scout, 2 herders, and sheep herding dogs. A wagon or truck would follow to ensure no sheep are left behind for any reason.
    - Fall overnighting of sheep in the Poison Creek allotment would require electric fencing of bedding ground and a watch person.

- Soils - Terms and Conditions
    - Trailing would only be authorized during times when soils are firm enough to support trailing livestock with little to no pugging/hummocking to minimize impacts to soils, as per Boise District Range Readiness soil criteria.

- Wildlife - Terms and Conditions
    - From March 1 to May 15, livestock trailing would be routed at least 0.62 miles (1 km) from occupied and undetermined sage-grouse leks; if this is not possible, trailing events would be timed to occur between 10:00 am and 6:00 pm. If applicable, these route(s) are identified on attached trailing permitte map(s) by Trailing Hour Limitation.
    - From March 1 to July 15, trailing routes would avoid areas known to be occupied by pygmy rabbits in order to avoid impacts to natal burrows; if this is not possible, then livestock are to be kept within 120 feet of trailing routes in those areas. If applicable, these areas are included in the Narrow Width buffer as shown on attached permittee map(s).
    - From March 1 to June 30, temporary water sites and over-night areas would not be located in sagebrush habitat within 4.0 miles of occupied or undetermined sage-grouse leks in order to avoid impacts to lekking or nesting sage-grouse (and/or hens with early broods); if this is not possible, 90% of watering and overnighting livestock are to be kept within a 35-acre area or in previously disturbed sites, such as areas around stock ponds or troughs, corrals, past seedings, or other grassland sites.

- Special Status Plants - Terms and Conditions
    - Livestock trailing would be narrowed to within 120 feet on either side (240 feet total width) of the identified trailing route within pastures containing special status plants within the otherwise 0.25-mile corridor. If applicable, these areas are included in the Narrow Width buffer as shown on map(s).

- Riparian - Terms and Conditions
    - Livestock trailing adjacent to perennial streams or springs would require 90% of the livestock to be kept out of riparian areas for resource protection.

- Cultural - Terms and Conditions
    - Bedding or other congregation areas would not be allowed within at least 0.25 miles of known National Register of Historic Places eligible sites.
    - Trailing would not occur over wet soils to avoid mixing of undisturbed stratified cultural deposits, as per Boise District Range Readiness soil criteria.

- Travel Management and Off Highway Vehicles - Terms and Conditions
    - Motorized vehicles incorporated with trailing activities would remain on existing vehicle routes. Cross country use of motorized vehicles would not be authorized.

The following design features were considered by the BLM in Alternative B. They would not be Terms and Conditions on the permit because these design features are best management practices that may be used to address the changing environment (for example, changes in weather conditions).

- Wildlife - Design Features
    - From April 1 to June 30, livestock trailing routes should avoid sagebrush habitats to the extent practical to minimize potential impacts to nesting sage-grouse (and/or hens with early broods).
    - From June 30 through November 30, sage-grouse leks may be used for livestock over-night areas or temporary water sites to maintain shorter vegetation for the lek.
    - From February 1 to July 31, trailing routes should be routed at least 0.25 miles to 1.0 miles (varies by species) from occupied raptor nests to avoid impacts to nesting birds; exceptions may be granted based on biologically reasonable factors. For routes in this analysis, BLM would allow trailing of livestock in these areas because raptors have become habituated to this type of use (Karen Steenhof pers. comm.).

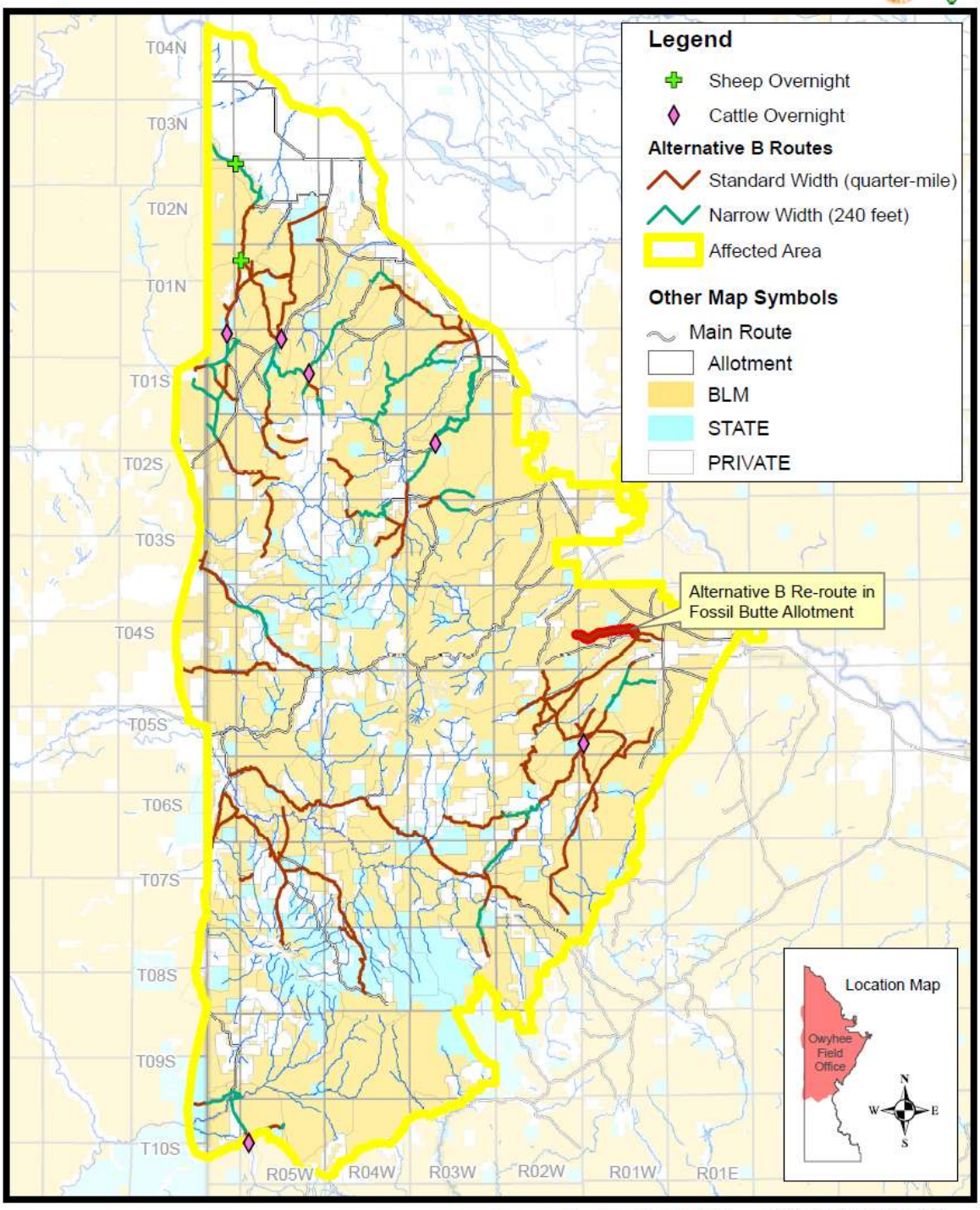
- Vegetation - Design Features
    - Trailing routes should avoid areas recently burned by wildfire where practical. Where it is not practical to avoid, the trailing corridor may need to be narrowed to within 120 feet on either side of the trailing route through the burned area based on the fire restoration plan.
    - Trailing routes should avoid recent vegetation treatments (Emergency Stabilization and Rehabilitation, fuels reduction, or restoration treatments) to the extent possible. If not possible or practical, the trailing corridor may need to be narrowed to within 120 feet on either side of the trailing route through the treatment area based on the restoration plan.
    - Trailing routes should be located, or timed, to minimize the potential spread of noxious weeds. For routes in this analysis, BLM would allow trailing of livestock in these areas because noxious weeds are being actively treated.

- Riparian - Design Features

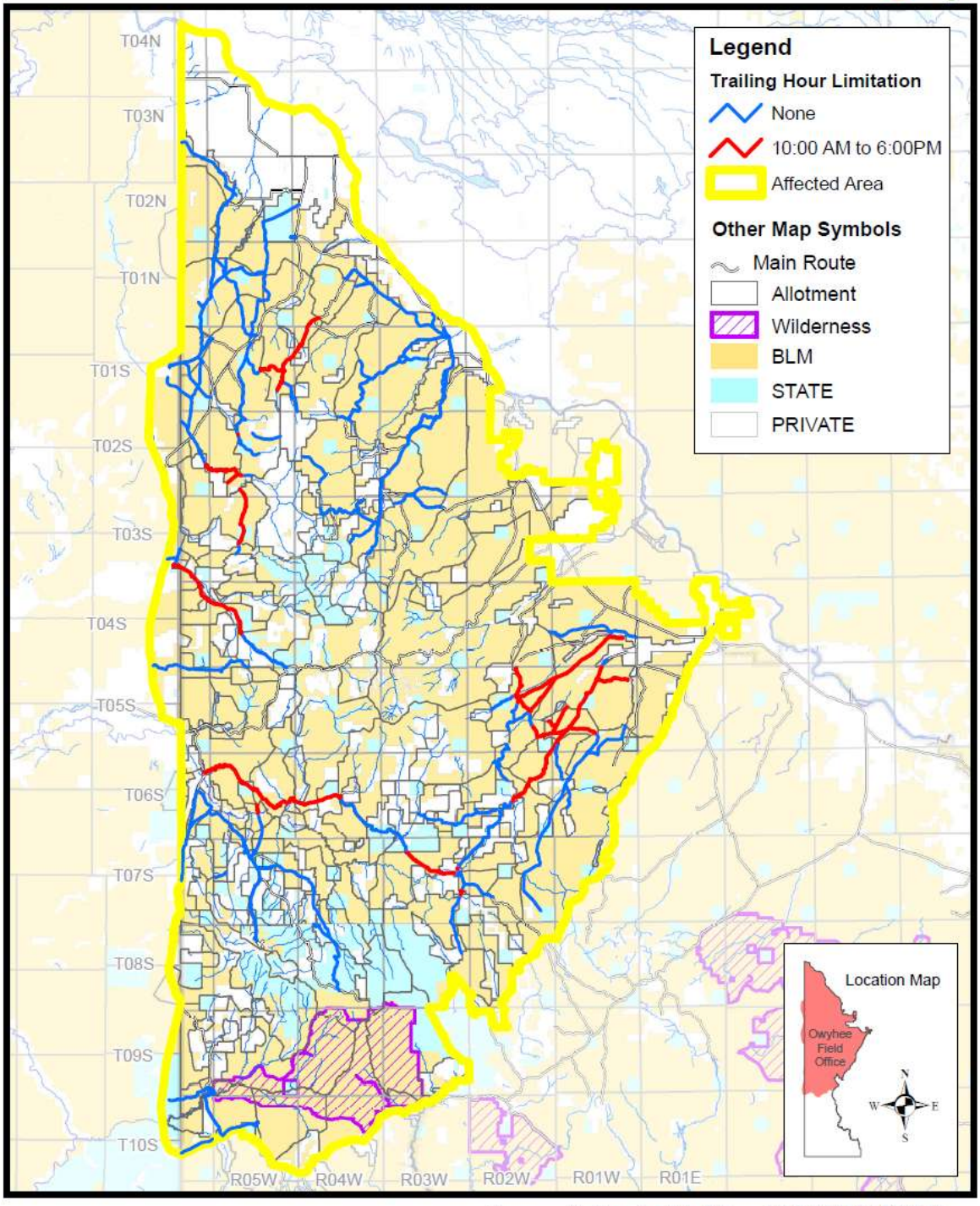
- Bedding or over-night areas should be at least 0.25 miles from riparian areas unless otherwise approved by the BLM.
- Temporary water facilities should be placed at least 0.25 miles from riparian areas unless otherwise approved by the BLM.

- Cultural - Design Features
  - Livestock trailing should be routed at least 0.25 miles from canyon rims and live streams to minimize impacts to cultural resources unless otherwise approved by the BLM.

Map 3 - Alternative B



Map 4 - Alternative B Hour Limitation



2.3.3 Alternative C – No Trailing/No Action

Applications received in accordance with 43 C.F.R. 4130.1-1 and 4130.6-3 for crossing permits to trail livestock on public lands would be denied. All applications received would be denied by decision in accordance with C.F.R. 4160. Livestock could be trailed on non-BLM roads, publicly maintained roads, State managed lands, or on private lands, but no authorizations would be issued for any trailing events on public lands within the OFO area. Because some publicly maintained roads or non-BLM roads cross BLM land, livestock would be required to stay on the road surface.

2.4 Comparison of Alternatives

The following table is a comparison of the three alternatives and the affected area. The affected area is approximately all lands north of the Mud Flat Road within the Owyhee Field Office boundary. These numbers are the maximum of what could be trailed on for comparison purposes; however, it is more likely that fewer acres would be actually affected.

Table Alts - 3: Comparison of Alternatives: Relevant Issues/Features and Indicators

Issue/Feature identified by ID Team and through scoping	**Indicator** (On public lands only)	**Alternative A** Permitees' Proposal	**Alternative B** Trailing with design features and terms and conditions	**Alternative C** No trailing	**Total of each Indicator** within the affected area (BLM Land Only)
Trailing corridor width	Distance	0.125- mile buffer on either side of route	0.125-mile buffer or narrower on either side of route (for example, narrowed to 120-foot buffer on either side of route in special status plant pastures)	0	N/A
Trailing AUMs	Cattle and Sheep	2,303	2,303	0	N/A
Two-track road or better needed for livestock trailing	Miles	242.5 miles of two-track road or better followed (BLM land only)	241 miles of two-track road or better followed (BLM land only)	0	2,566 miles of two-track or better roads in affected area (BLM land only)
Cross country travel needed for livestock trailing	Miles	56.5 miles of cross country travel needed	58 miles of cross country travel needed	0	N/A
Vegetation Trampled or grazed	Acres	45,295 BLM acres in trailing buffer	33,681 BLM acres in trailing buffer	0	733,184 BLM acres in affected area

Occupied and un-occupied **Sage-grouse leks** within 0.62 miles during breeding season 3/1-5/15	Acres	3,931 acres of affected breeding habitat (occupied and undetermined leks) from 3/1-5/15	3,432 acres of affected breeding habitat (occupied and undetermined leks) from 3/1-5/15 Terms and Conditions: BLM would allow trailing as long as it occurs from 10:00 AM to 6:00 PM from 3/1-5/15	0	60,664 acres of affected breeding habitat (occupied and undetermined leks)
Overnight of Livestock within 4 mile buffer of Sage-grouse lek	Acres	116 acres of priority habitat are impacted by cattle and sheep overnight areas	116 acres of priority habitat are impacted by cattle and sheep overnight areas Terms and Conditions: Overnighting of livestock on BLM lands must keep 90% of livestock within a 35 acre area or within a corral.	0	499,296 acres priority habitat within 4 mile lek buffer
Sage-grouse Preliminary Priority Habitat (9/27/2011)	Acres	36,983 acres of priority habitat affected by trailing	31,217 acres of priority habitat affected by trailing	0	553,614 acres of priority habitat in affected area

Big Game Winter Range (Mule Deer and Pronghorn Crucial habitat) affected by trailing of livestock from 11/15-4/30	Acres	1,517 acres of big game winter range affected by trailing from 11/15-4/30. 460 acres of crucial mule deer winter habitat affected by trailing from 11/15-4/30. 1,057 acres of crucial pronghorn winter habitat affected by trailing from 11/15-4/30.	643 acres of big game winter range affected by trailing from 11/15-4/30. 331 acres of crucial mule deer winter habitat affected by trailing from 11/15-4/30. 312 acres of crucial pronghorn winter habitat affected by trailing from 11/15-4/30. Term and Condition: From 11/15-4/30 BLM would allow trailing in these areas as long as overnighting of livestock on public land is in corrals or is approved by the BLM as noted on the permits. BLM would allow the Juniper Springs overnight area.	0	88,032 acres of big game winter range in affected area. 57,949 acres of crucial mule deer winter habitat. 30,083 acres of crucial pronghorn winter habitat.
Bighorn Sheep lambing areas affected by trailing of livestock from 4/15-6/15	Acres	0 acres of bighorn sheep lambing areas affected by trailing 4/15-6/15	0 acres of bighorn sheep lambing areas affected by trailing from 4/15-6/15	0	29,962 acres of bighorn sheep lambing areas in affected area

Pygmy Rabbit habitat	Acres	7,919 acres of potential pygmy rabbit habitat affected by trailing 3/1-7/15	6,803 acres of potential pygmy rabbit habitat affected by trailing and/or overnight areas 3/1-7/15 Term and Condition: Trailing 3/1-7/15 in areas with known occupied pygmy rabbit sites is to be kept within 120 feet of trailing routes.	0	309,274 (ID only) acres of potential pygmy rabbit habitat in affected area
Raptor Nests 2/1-7/31	# of nests	40 nests within 0.25-1.0 mi. (varies by species) of Trailing or Overnighting Areas (2/1-7/31)	38 nests within 0.25-1.0 mi. (varies by species) of Trailing or Overnighting Areas (2/1-7/31) Design Feature: BLM would allow trailing of livestock in these areas because raptors have become habituated to this type of use from 2/1-7/31	0	70 raptor nests (various species) in affected area
Redband Trout and **Spotted Frogs**	Number of observation records Miles of redband trout streams impacted # of springs	27 spotted frog observations in trailing corridor. 16.8 stream miles 13 springs	26 spotted frog observations in trailing corridor. 12.9 stream miles 13 springs.	0	258 spotted frog observations 222 stream miles of Redband Trout habitat (BLM land) approximately 300 springs in the affected area

Noxious Weeds	Number of infestation records for noxious weed species within trailing corridors	299 infestation records of 15 noxious weed species within corridors	265 infestation records of 13 noxious weed species within corridors Design Feature: BLM would allow trailing through infestations of priority noxious weeds that are being actively treated.	N/A	1,967 infestation records of 18 noxious weed species in affected area
Riparian and Water Quality (Perennial Streams & Springs)	# of linear miles of streams # of springs	22.4 linear stream miles in trailing corridor 13 springs	22.4 linear stream miles in trailing corridor 13 springs Terms and Conditions: 90% of livestock shall be kept out of perennial streams and springs when actively trailing.	0	348 miles of perennial streams approximately 300 springs in the affected area
Special Status Plants	Number of occurrences of Special Status Plants	48 occurrences of 23 different species of Special Status Plants within trailing corridors	26 occurrences of 17 different species of Special Status Plants within trailing corridors Terms and Conditions: 90% of livestock stay within 240-foot corridor in pastures with special status plants	N/A	About 260 occurrences of 34 species of Special Status Plants in affected area

Cultural Resource Sites	Number of Sites	90 known sites within trailing corridors	76 known sites within trailing corridors Terms and Conditions: No bedding within 0.25 miles of NRHP Eligible sites. Some routes were narrowed to protect sites. Design Feature: No trailing over wet soils.	N/A	929 reported sites in affected area

3.0 Affected Environment and Environmental Consequence

Methodology and Assumptions:

The following methodology was used for this analysis:

- After scoping, meetings were held with individual applicants and maps of their proposed trailing routes were developed. These trailing routes were then transferred into a Geographic Information System (GIS) program for further analysis.

- The analysis of the proposed trailing routes was completed using the most accurate GIS data available from both Boise and Vale BLM districts. The BLM met with Idaho Fish and Game to review wildlife data. BLM staff then analyzed effects of trailing routes on applicable resources. This approach met the "hard look" needed to support a reasoned conclusion as required by NEPA.

- During the initial review of trailing routes and alternative development, some resource concerns were identified through scoping. Terms and Conditions and design features were developed by the BLM ID team to minimize trailing effects, and have been incorporated into Alternative B.

The following analysis is based on the following assumptions:

- When trailing livestock on roads, it is assumed that the most of the livestock would stay on the road surface because it is easier for livestock to move. However, there would be some livestock trailing off the road within the corridor.

- Although the Terms and Conditions require 90% of the livestock stay within the corridor or out of riparian areas, we assume that nearly all livestock would do so due to active

herding. For this analysis, we assume that effects from livestock trailing outside of the corridor or within riparian areas would be negligible and are not discussed further.

- Grazing would occur primarily in overnight areas. The amount of grazing likely to occur while livestock are moving along a trailing route is small enough (less than 20% utilization) that it is unlikely to reduce forage within allotments. However, a fee must be administered for livestock crossing public lands at a specified rate per AUM.

- Livestock would overnight in small groups scattered over approximately 35 acres unless in corrals.

- Maintained roads are improved, graveled, paved, and/or bladed and support no vegetation. Two-track roads are unimproved and may support vegetation.

- Because motorized vehicle use is restricted to existing vehicle routes and because of the small number of horses that would be involved in herding livestock cross-country, the analysis assumes the impacts of herding itself would be negligible.

- If Alternative C were to be implemented and applications for crossing permits were denied, it is assumed applicants would find alternate means to transport their cattle than trailing across public land. For the purposes of analysis, it is assumed that most applicants would truck or trail their livestock to and from their allotments on maintained roads, and trailed livestock would be required to stay on the road surface.

- Trailing of livestock would not impact the ability of the allotments being crossed to meet Standards (see Section 1.0).

- For the purposes of this EA, "permittee" refers to livestock operators whose allotments are being trailed across, while "applicant" refers to livestock operators who have applied for crossing permits for trailing livestock. The term "livestock operators" is used to refer to permittees and applicants collectively or when the distinction between permittees and applicants is not important.

- Trailing cattle would generally move 5-10miles/day while sheep would move 3-5 miles/day.

- Overnight areas outside of corrals would only be used once per year. Corral areas may be used many times and vegetation may not be maintained in these areas.

- When trailing sheep, a small wagon or truck with water is pulled on the road. The analysis assumes that the impact of the wagon and truck would be negligible. The watering area coincides with the sheep overnighting area, and is therefore included in the overnight area's analysis.

3.1 Watershed/Soils

3.1.1 Affected Environment – Watershed/Soils

Healthy watersheds and soils are maintained by having adequate amounts and types of ground cover to support infiltration, maintain soil moisture storage and transfer, and stabilize soils. Watershed health is the degree to which the integrity of the soil, vegetation, water, and air, as well as the ecological and hydrological processes of the ecosystem, is balanced and sustained. Indicators of soil instability and watershed dysfunction include low amounts and distributions of ground cover, evidence of accelerated erosion, and physical soil crust/surface sealing. Livestock trailing (both current and historic), may affect soil stability, productivity, and watershed health. Grazing by livestock has and continues to affect soil and watershed conditions by altering the amount and type of vegetative cover and litter. In most cases, grazing does not destabilize soils or watershed function because current management systems limit utilization levels, seasons of use, and stocking rates.

Soil erosion is a natural process occurring slowly but constantly throughout the area. The process may be accelerated by natural phenomena or anthropogenic actions. The primary natural factors driving erosion are water and wind. Anthropogenic actions that may accelerate erosion include surface disturbing activities, such as road maintenance and construction, livestock grazing, fire suppression line construction, recreation, vegetation treatments, and range improvements. Regardless of the causal factor, erosion may be accelerated from removal of the natural vegetative cover, and the loss of below ground organic residue, particularly root structures. Accelerated erosion is a two-step process. The initial detachment or loosening influence is a preparatory action. Then soil is transported by floating, rolling, dragging, and splashing. Organic matter reduces erodibility because it reduces the susceptibility of the soil to detachment and increases infiltration, which reduces runoff and erosion potential.

Trailing corridors encompass 45,000 acres within 15 watersheds (Table W/S 1). Trailing corridors contain from 11,246 acres down to 270 acres per watershed. Affected area soils are diverse as a result of variability in parent materials, climate, and vegetative communities. These soils are classified into three major geomorphological units: granitic-derived, developed from the Idaho Batholith; basalt and rhyolite-derived; and sedimentary- and loess-derived materials. Snake River Plain soils are typically deep and non-saline, often with a biological soil crust, where the benches, plateaus, and gullies are well-drained, alkaline soils derived from volcanic tuff or shale that often have been modified by alluvial deposits. Owyhee Plateau soils are typically shallow, fine-textured soils, poorly drained clays, almost always very stony, characterized by recent rhyolite or basalt, with some deep and non-saline soils with a biological soil crust. For a vegetation group and soil/substrate description, see Section 3.2.1.1.

Roughly 20,000 acres (45%) of the soil surface within trailing corridors (not accounting for maintained roads) are classified as sandy, 15,000 acres (33%) are classified as silty, and 8,000 acres (17%) are classified as clayey. The general physical soil properties and erosion potential within the affected area are presented in Table W/S 2. Soil susceptibility to wind erosion is low (Wind Erodibility Index), and susceptibility to sheet and rill erosion by water ranges from low to high (K-factor, whole soil, based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity). Soil information was obtained from the Natural Resources Conservation Service's (NRCS) soil survey database (2003a) and Soil Data Viewer.

Table W/S 1: Watersheds and associated public acres within the 0.25-mile trailing corridors

Watersheds	Hydrologic Unit Code (HUC 10)	Acres within Affected area Corridor
Castle Creek	1705010303	11,246
Reynolds Creek	1705010306	6,741
Upper Succor Creek	1705010308	5,467
Jump Creek-Snake River	1705010310	4,468
Hardtrigger Creek-Snake River	1705010307	4,418
Trout Creek-Jordan Creek	1705010804	3,677
Rock Creek	1705010801	2,660
North Fork Owyhee River	1705010704	1,502
Upper Cow Creek	1705010806	1,380
Rabbit Creek-Snake River	1705010305	910
Big Boulder Creek	1705010802	869
Jordan Creek-Sheep Spring Creek	1705010805	820
Headwaters Jordan Creek	1705010803	505
Swan Falls-Snake River	1705010304	299
Lower Succor Creek	1705010309	270

Table W/S 2: General physical soil properties and erosion potential within the affected area

Geomorphological Unit	Moisture and Temperature Regimes	Soil Texture	Wind and Water Erosion Potential
Granitic	Xeric moisture/mesic or frigid temperature	Sandy loam to gravelly loam with many rock fragments	*Moderate to high
Basaltic	Xeric or xeric bordering aridic moisture/ mesic temperature	Loamy to clay loam with many rock fragments	*Low to high
Sedimentary	Aridic, bordering xeric moisture/ mesic temperature	Sandy loam to clay loam	*Low to high

*Depending on soil texture and slope

3.1.2 Environmental Consequences – Watershed/Soils

3.1.2.1 Alternative A

General Trailing Effects

The direct and indirect effects to soils and watershed by livestock trailing would depend on livestock type in relation to pounds/square inch of impact, trailing frequency and timing, as well as the climatic conditions during and after trailing. Livestock trailing would be comprised of relatively rapid movement of animals (at least 5 miles/day for cattle and 3-5miles/day for sheep), whereas overnighting livestock would increase the magnitude of spatial and temporal impact.

Watershed and soil impacts associated with trailing would vary by such factors as slope, aspect, soil type, precipitation, and plant community composition and distribution. Impacts to soils from livestock trailing would include a potential loss of ground cover, such as biological soil crusts, litter, and vegetation when trailing occurs off existing roads/trails. Trampling can cause soil compaction and erosional pedestals in areas where livestock trailing occurs, especially where ground cover has been reduced or removed.

Soil surface disturbance reduces the capability of a site to limit the redistribution and loss of soil resources by wind and water (erosion). In annual (shallow-rooted) dominated plant communities, soil erosion potential risk increases. Livestock trailing management practices that minimize surface disturbance (such as trailing on existing roads/trails), especially in areas with biological soil crusts, would decrease soil erosion potential by increasing greater soil aggregate stability (Thurow 1991), increasing water infiltration, and helping to retain organic matter, which, in turn, would create more productive soils to support vegetation.

Mechanical and Biological Impacts

Livestock trailing can cause both mechanical and biological impacts to soil and watershed resources. Mechanical disturbance to the soil surface results in compaction and structural breakdown. Soil disturbance has been shown to reduce vegetative composition, vigor, and productivity. Several studies on grazing intensity consider heavy livestock trampling to be more harmful to the watershed than excessive grazing (Warren et al. 1986a & b).

Mechanical impacts include:

- Increased compaction, which reduces water infiltration and increases surface runoff,
- Decreased soil roughness that affects soil texture, micro-topography, and soil temperature.

These mechanical impacts affect biological crusts specifically because in some arid systems, greater than 75% of photosynthetic biomass and productivity is from organisms living in the top 3 mm of soils; thus, disturbance that results in even small soil losses can dramatically reduce site fertility and further reduce soil surface stability (Garcia-Pichel and Belnap 1996).

Biological impacts from soil crust disturbance include:

- Decreased plant carbon and nitrogen fixation,
- Decreased plant available magnesium, potassium, iron, calcium, phosphorus, manganese, and sulfur,
- Decreased spatial distribution of nutrients.

Biological soil crusts are an important component of many ecological sites in the affected area. They function as living mulch by retaining soil moisture and discouraging annual weed growth. By occupying interspatial areas between larger plants, these crusts reduce wind and water erosion, and enhance soil stability, soil moisture retention, and site fertility by fixing atmospheric nitrogen and contributing soil organic matter (Eldridge and Greene 1994, Belnap and Gillette 1998, McKenna-Neumann et al.1996).

The NRCS identifies biological soil crusts as a critical ecological attribute to be used as an indicator of rangeland health (USDA 2003b). These crusts may serve as an early indicator of ecological site decline since they appear to be more sensitive to disturbance than vascular plants. In addition, the crusts also appear to limit germination and establishment of invasive annual grasses (USDI 2001). Biological crust condition and spatial extent is a direct function of the ecological health of the plant community. Within the affected area, crusts would be less likely to occur in sites that have experienced successive disturbance legacies, e.g. seedings, agricultural sites, roads, and roadsides.

Disturbance timing can affect the degree to which the cover and species richness of a biological crust is reduced. Soils have different intrinsic soil strengths that vary with moisture content. Soils with little tendency to form aggregates, such as sands, are more susceptible to compressional stresses when dry. Crust components are brittle when dry, and the connections they make between soil particles are easily crushed. Thus, compressional disturbances can affect the crust's ability to stabilize soils, especially in dry sandy and silty soils (Belnap et al. 2001). As crustal species are only metabolically active when wet and are brittle when dry, disturbance in dry seasons is generally more destructive, and organisms are less able to recover, than when disturbed in wet seasons (Harper and Marble 1988) (Table W/S 3).

The majority of the trailing events would occur under dry soil conditions with few inclusions of water saturated and frozen soil conditions.

Table W/S 3: Impact ratings under dry soil conditions

Resource Impacts	Trailing Type (linear)*	Trailing Type (overnight)*	Loamy	Sandy	Clay	Rocky
Biological Soil Crusts	moderate	high	high	high	high	low
Erosion **	low to moderate	moderate to high	*moderate to high	*moderate to high	low to moderate	low
Compaction	low to moderate	moderate to high	low to moderate	low	moderate to high	low

*depending on frequency

**increases with slope

Fine-textured soils or those with inorganic crusts are more vulnerable to compressional disturbance when wet (Table W/S 4).

Table W/S 4: Impact ratings under saturated soil conditions

Resource Impacts	Trailing Type (linear)*	Trialing Type (overnight)*	Loamy	Sandy	Clay	Rocky
Biological Soil Crusts	low to moderate	moderate	low to moderate	low to moderate	high	low
Erosion *	low to moderate	low	low	low	low	low

Compaction*	moderate to high	high	moderate to high	moderate	high	low

*Livestock trailing which occurs on existing roads/trails will either avoid/minimize/reduce/or eliminate the above described impacts.

On silty soils of the Great Basin, early wet season (winter) use by livestock has been shown to have less impact on crust cover and species composition than late winter or spring use (Table W/S 5). Crusts on clay soils can be an exception, as they are generally more vulnerable when wet.

Table W/S 5: General impact ratings under frozen soil conditions

Resource Impacts	Trailing Type (linear)*	Trialing Type (overnight)*	Loamy	Sandy	Clay	Rocky
Biological Soil Crusts	low	low to moderate	low	low	moderate	low
Erosion *	low to moderate	low	low	low	low	low
Compaction*	moderate	moderate	low to moderate	moderate	low to moderate	low

*Livestock trailing which occurs on existing roads/trails will either avoid/minimize/reduce/or eliminate the above described impacts.

A soil's k-factor (whole soil) is based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity, and represents soils' resistance to sheet and rill erosion. Approximately 31,000 acres within the trailing corridor has a low (0.02 to 0.24 k-factor) susceptibility to sheet and rill erosion, 9,300 acres have a moderate (0.25 to 0.47 k-factor) susceptibility, and 2,800 acres have a high (greater than 0.48 k-factor) susceptibility to erosion. Approximately 1,900 acres have soils that have not been classified.

Summary

Vegetation is the primary factor that influences the spatial and temporal variability of soil processes (USDA 2003b), and as vegetation condition changes, so does runoff, erosion, and infiltration. Most of the trailing would occur along established roads and the borrow ditches due to ease of livestock travel. Animals may spread out up to 0.125 miles on each side of the trailing route (total 0.25 mile width), potentially impacting soil and vegetated areas once or several times over each route within a year. Alternative A proposes a total of 299 miles of trailing with a total of 2,303 AUMs over approximately 45,000 acres of public lands throughout the year. This acreage represents only 6% of the public land in the affected area. The majority of trailing (81% of trailing miles) would occur on existing roads, limiting actual soil and upland vegetation acres affected because much of the trailing would occur on roadbeds within the area, and because in many areas fences or topography would confine the trailing herds to less than the entire 0.25-mile width.

In addition to the specific trailing events, six cattle and two sheep overnighting areas on public lands have also been identified. All of these overnighting areas are within the designated 0.25-mile corridor. Three of the five cattle and one sheep overnight areas are within fenced

enclosures, while the others include an area up to about 35 acres each where livestock may overnight.

Overall effects on watersheds and soils due to trailing are minor because effects occur on a relatively small proportion of the landscape and are of very short durations. Consequently, the effects are not expected to have lasting watershed or soil effects for the long-term. Adherence to Range Readiness criteria would prevent much of the compaction issues by restricting trailing from wet (saturated) soils. Trailing on roads greatly reduces impacts, and areas adjacent to roads tend to be previously disturbed areas and would not likely support soil crust communities. Therefore, no increased loss of biotic soil crusts would be expected. Nutrient cycling would continue to occur within the watersheds

Effects on watersheds and soils due to trailing in overnighting areas would be the same as effects mentioned above, except would be more concentrated and for a longer duration (although not more than overnight). Thus, more trampling and soil disturbance is expected to occur within these areas, resulting in a higher probability of plant mortality, increased soil compaction, decreased nutrient cycling, and increased erosion. However, because use would be limited to one night (except in corrals), adequate time for regrowth of remaining plants is expected.

3.1.2.2 Alternative B

Effects to watersheds and soils due to trailing are similar to those described for Alternative A. Narrowing livestock trailing through some pastures reduces the affected area, and consequently reduces the impacts to upland plants and soils. Alternative B trailing corridors would affect approximately 33,600 acres (26% fewer acres than Alternative A). Additionally, approximately 4,000 acres of soils with moderate to high susceptibility to sheet and rill erosion were avoided due to narrowing of the routes. Because AUMs are the same and trailing events would occur on fewer acres, trailing intensity would be higher, and impacts would be somewhat more concentrated on resources in those narrowed corridors than in Alternative A. However, trailing on roads would greatly reduce impacts to upland plants and soils. Areas adjacent to main roads tend to be previously disturbed areas and would not likely support soil crust communities. Overall impacts are expected to be minimal and, because of the reduced acres impacted, slightly less than Alternative A.

Effects on watersheds and soils in overnighting areas would be the same as those described for Alternative A.

3.1.2.3 Alternative C

No impacts to watersheds and soils on public lands are expected because no trailing events would be authorized. Trucking or trailing entirely on maintained roads would have no effect to watersheds and soils.

3.2 Upland Vegetation

3.2.1 Affected Environment – Upland Vegetation

The affected area for the proposed routes falls mainly within two Major Land Resource Areas (MLRA). Northeastern routes cross the Snake River Plains MLRA, an area considerably lower and flatter than the surrounding regions. Southern routes cross the Owyhee High Plateau MLRA, an area with tablelands, dissected lava plains, valleys, alluvial fans, and scattered mountains. A small part (<1%) of the affected area on the west edge is within the Malheur High Plateau MLRA. Vegetation groups in each MLRA reflect differences in climate, geology, substrates, hydrology, and disturbance regimes.

3.2.1.1 Upland Vegetation Groups

The vegetation group descriptions represent combinations of diagnostic plant species and diagnostic growth forms. While these groups form a mosaic of vegetative cover across the trailing routes, some generalizations about their locations and constituent species are possible (Table Veg 1). A description of each vegetation group follows the table.

Table Veg 1: Associations of Vegetation, Topography, and Climate

Major Land Resource Area	Major Plant Indicators	Vegetation Groups	Elevation, Topography	Climate
Snake River Plains (435,659 acres, 37% of affected area)	Shadscale, budsage, Wyoming sagebrush, ricegrass, Thurber's needlegrass, winterfat	Salt Brush Scrub Inter-Mountain Basins Big Sagebrush Steppe Semi-natural herbaceous rangeland	2,300 to 5,000 feet. Alluvial fans, terraces, and gently sloping bottomlands	Average annual precipitation ranges from 7 to 12 inches. Most precipitation falls in fall, winter, and spring. Little or no precipitation occurs in summer. Growing season is 110 to 220 days.
Owyhee High Plateau (727,964 acres, 62% of affected area)	Mountain sagebrush, low sagebrush, Idaho fescue, oatgrass, western juniper	Inter-Mountain Basins Montane Sagebrush Steppe Owyhee Plateau Low Sagebrush Steppe Juniper and Conifer Woodlands	5,000 to 8,400 feet. Rolling plateaus and gently sloping basins dissected by canyons, some mountains	Average annual precipitation is from 8-15 inches at mid-elevations, distributed throughout the year but is low from midsummer to early autumn. Growing season is 90 to 120 days.

Salt Brush Scrub

Includes the following General Cover Types from Pacific National Nuclear Laboratory (PNNL):

- Salt Desert Shrub;
- Greasewood

9% of Affected Area (BLM only)

This vegetation group is widely scattered on benches, plateaus, and gullies within the Snake River Plains MLRA. It is typically found on well-drained, alkaline soils derived from volcanic tuff or shale that often have been modified by alluvial deposits. Low-growing *Atriplex confertifolia* is often the dominant shrub, usually with up to 15% cover, although other shrubs, including *Picrothamnus desertorum*, *Tetradymia*, *Krascheninnikovia lanata*, *Artemisia tridentata* ssp. *wyomingensis*, *Gutierrezia sarothrae*, *Grayia spinosa*, and *Sarcobatus*

vermiculatus, may also be present. In good condition stands, *Achnatherum hymenoides* is well represented in the otherwise sparse herbaceous understory. Other perennial grasses often include *Leymus cinereus, Achnatherum thurberianum, Elymus elymoides,* and *Poa secunda*. Forbs vary greatly across the range of this group and never contribute substantial cover. Some locally common species include *Erigeron spp., Phlox hoodii,* and *Sphaeralcea munroana*. Stands degraded by improper livestock grazing management have abundant *Bromus tectorum* in the understory and higher total herbaceous cover. Other common indicators of disturbance include *Halogeton glomeratus, Lactuca serriola* and *Lepidium perfoliatum*. Biological soil crusts are a critical component of salt desert shrub vegetation, providing soil stability and nutrient input into the ecosystem (Mayland et al. 1966, West and Skujins 1977).

Inter-Mountain Basins Big Sagebrush Steppe Group
Includes the following General Cover Types from PNNL:

- Big Sage;
- Big Sage Mix;
- Rabbitbrush

23% of Affected Area (BLM only)
This vegetation group occurs mostly in the Snake River Plain MLRA but also extends into the Owyhee High Plateau MLRA. Soils are typically deep and non-saline, often with a biological soil crust. The plant community has potential to be dominated by perennial grasses and forbs (>25% foliar cover) with *Artemisia tridentata* ssp. *tridentata, A. tridentata* ssp. *wyomingensis,* dominating or co-dominating the open to moderately dense (10-40% foliar cover) shrub layer. Shrubs may increase following heavy grazing and/or with fire suppression, particularly in mesic sites. Areas with deeper soils more commonly support *A. tridentata* ssp. *tridentata*. *Atriplex canescens, Chrysothamnus viscidiflorus, Ericameria nauseosa,* or *Gutierrezia sarothrae* may be common, especially in disturbed stands. Associated grasses can include *A. hymenoides, A. thurberianum, Elymus elymoides, P. secunda*, or *Pseudoroegneria spicata*. *Festuca idahoensis* is uncommon in this vegetation group, although it may occur in areas of higher elevations/precipitation. *Sporobolus cryptandrus* and *Aristida purpurea* var. *longiseta* are less common but can be found along fringes with salt brush scrub areas. Common forbs include *Phlox hoodii, Arenaria, Penstemon spp.* and *Astragalus spp*. Many of these plant communities have been converted to semi-natural herbaceous rangelands by fire. Fire was relatively infrequent in this group historically, but fires have become much more frequent recently due to the naturalization of *B. tectorum*. Areas that burn repeatedly support little or no sagebrush, but rather an abundance of short-lived perennial grasses and annual species.

Inter-Mountain Basins Mountain Sagebrush Steppe Group
Includes the following General Cover Types from PNNL:

- Mountain Big Sage;
- Mountain Shrub;
- Aspen;
- Bitterbrush

21% of Affected Area (BLM only)
This vegetation group is more mesic and compositionally diverse than the xeric Inter-Mountain Basins Big Sagebrush Steppe. It primarily occurs on deep-soiled to stony flats, ridges, nearly flat ridge tops, and mountain slopes. Shrub canopy cover ranges from 10% to 40% and is composed

primarily of *A. tridentata* ssp. *vaseyana*, though *Purshia tridentata* may co-dominate some stands. Other common shrubs include *Symphoricarpos oreophilus, Amelanchier alnifolia, E. nauseosa, Ribes cereum,* and *C. viscidiflorus*. *A. tridentata* ssp. *wyomingensis* may be present to co-dominant. Most stands have an abundant perennial herbaceous layer (over 25% cover, in some cases over 40% cover). Common grasses include *F. idahoensis, P. spicata, P. secunda, Danthonia unispicata,* and *E. elymoides*. Wildfire maintains an open herbaceous-rich steppe condition. Pockets of *Populus tremuloides* and *Cercocarpus ledifolius* can be found in this group. *B. tectorum* is less competitive in this higher elevation and wetter group, compared to the xeric Inter-Mountain Basins Big Sagebrush Steppe.

Owyhee Plateau Low Sagebrush Steppe Group
Includes the following General Cover Types from PNNL:

- Low Sage;
- Stiff Sage;
- Bunchgrass

26% of Affected Area (BLM only)
This vegetation group is composed of sagebrush dwarf-shrub-steppe that occurs in a variety of shallow-soil habitats in a matrix with other groups throughout the Owyhee High Plateau MLRA. *A. arbuscula* ssp. *arbuscula* and *A. arbuscula* ssp. *longiloba* form stands that typically occur on mountain ridges and flanks and broad terraces, ranging from 5,000 to 8,000 feet in elevation. Substrates are shallow, fine-textured soils, poorly drained clays, almost always very stony, characterized by recent rhyolite or basalt. Other shrubs and dwarf-shrubs present may include *Purshia tridentata*, *Eriogonum* spp., and other species of *Artemisia*. Common grasses include *F. idahoensis*, *D. unispicata, P. spicata,* and *P. secunda*. Many forbs also occur and may dominate the herbaceous vegetation, especially at the higher elevations. Isolated individuals of *Juniperus occidentalis* and *C. ledifolius* can be found in this group.

Juniper and Conifer Woodlands
Includes PNNL General Cover Types:

- Juniper;
- Conifer

13% of Affected Area (BLM only)
Juniper woodlands, dominated by *J. occidentalis*, are found extensively on deep soil sites previously occupied by mountain big sagebrush, as well as rocky outcrops where old growth juniper are typically found. Understory vegetation is often sparse, dominated by *Achnatherum* spp. Relatively small stands of larger conifers such as Douglas-fir and subalpine fir are found on upper elevations slopes in the Silver City Range of the Owyhee Mountains.

Semi-natural Herbaceous
Includes the following General Cover Types from PNNL:

- Exotic Annuals;
- Seedings;
- Agriculture

6% of Affected Area (BLM only)
B. tectorum—an invasive non-native annual grass—has become established in low to mid elevation plant communities of the proposed routes. With the moderate temperatures in these

areas, *B. tectorum* is able to germinate in the fall, overwinter, and emerge in the spring with an established root system. This growth habit allows *B. tectorum* to take advantage of available early spring moisture, giving it a jump start on the growing season. Following disturbance such as fire or improper livestock grazing management, plant communities experience an increase in annual grasses and forbs, sometimes becoming the dominant species. Remnant native grass species are generally the short-short lived *P. secunda* and *E. elymoides*. The longer-lived native grasses *A. thurberianum* and *P. spicata* are rarely present. *Salsola tragus*, *Ceratocephala testiculata*, and a host of annual species from the family Brassicaceae are common associates with *B. tectorum*. Conditions in the higher elevations reduce the risk of *B. tectorum* dominance, where it must complete a full lifecycle during a spring/summer period. In the higher elevations, *B. tectorum* could still become a dominant species, but adequate competition from other plants often precludes this from occurring. Crested wheatgrass seedings make up a very small percentage (0.2%) of the affected area. Agricultural lands are mapped as a small percentage (0.1%) of the affected area.

Other miscellaneous cover types include wet meadows, water, urban areas, and sparse vegetation, which collectively make up approximately 2% of the affected area.

3.2.1.2 Special Status Plants

Special status species are defined as species listed or proposed for listing under the Endangered Species Act (ESA) and species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA. The BLM State Director designates BLM sensitive plants. BLM special status plants are assigned a status (from Type 1 to 4) based on risk of extinction, population size, distribution, and trend; plants with the highest threat are Type 1 and those with the least threat are Type 4. There are no ESA-listed or candidate plants known or expected within the affected area. Slickspot peppergrass (*Lepidium papilliferum*), listed as threatened under ESA, has not been documented in the Owyhee Field Office area, nor has critical or potential habitat (as mapped by Boise District BLM) been identified in the affected area; thus, this species will not be addressed further. There are 34 BLM special status plant species that have been recorded in the affected area. Of these, 23 special status plants have been recorded within the 0.25-mile-wide trailing corridors (Table Veg 2).

Table Veg 2: Special Status Plants within Proposed Trailing Corridors

Special Status Plant Species	BLM Status	Allotment	Pasture(s)
Astragalus conjunctus – stiff milkvetch	Type 4	Corral FFR	2
		Blackstock Springs	1
		Shares Basin	1, 3, 5
		Hardtrigger	5
		East Reynolds Creek	2, 4
		Reynolds Creek	7
		Toy	2
		Box T	3
Astragalus cusickii var. *sterilis* - barren milkvetch	Type 3	Rockville (ID)	1, 2
		Rockville (OR)	4

Special Status Plant Species	BLM Status	Allotment	Pasture(s)
Astragalus mulfordiae – Mulford's milkvetch	Type 2	Hardtrigger	1
		Reynolds Creek	3
Astragalus purshii var. *ophiogenes* – Snake River milkvetch	Type 4	Blackstock Springs	1
		Fossil Butte	1
Astragalus yoder-williamsii – Mud Flat milkvetch	Type 3	Toy	2
		Box T	3
Blepharidachne kingii – King's desertgrass	Type 3	Hart Creek	2
Catapyrenium congestum – earth lichen	Type 4	Hart Creek	2
Chaenactis cusickii – Cusick's false yarrow	Type 2	Elephant Butte	3
		Juniper Spring	1
Cryptantha propria – Malheur cryptantha	Type 4	East Reynolds Creek	1
Cymopterus acaulis var. *greeleyorum* – Greeley's wavewing	Type 3	Graveyard Point	1
		Rockville	1, 2
Dimeresia howellii - dimeresia	Type 3	Shares Basin	1, 3, 5
		Hardtrigger	5
		Lone Tree	1
		Trout Springs	4
Downingia bacigalupii – Bacigalupi's downingia	Type 4	Cliffs	1
		North Fork – not an allotment	
		Trout Springs	4
Downingia insignis – harlequin calicoflower	Type 3	Pole Creek	2
Eatonella nivea – white eatonella	Type 4	Reynolds Creek	8
		East Reynolds Creek	1
Glyptopleura marginata – white-margined wax plant	Type 4	Hart Creek	2
Lomatium packardiae – Packard's biscuitroot	Type 2	Hardtrigger	5
Mentzelia mollis – soft blazingstar	Type 2	Elephant Butte	3
		Juniper Spring	1
		Rockville	1, 2
Pediocactus simpsonii – Simpson's hedgehog cactus	Type 4	Reynolds Creek	8
Penstemon janishiae – Janish's penstemon	Type 2	Reynolds Creek	8
Penstemon seorsus – shortlobe penstemon	Type 4	Trout Springs	2
Phacelia lutea var. *calva* – Mahler phacelia	Type 3	Juniper Springs	1
		Blackstock Springs	1
		Rockville	1

Special Status Plant Species	BLM Status	Allotment	Pasture(s)
Pyrrocoma linearis – thinleaf goldenhead	Type 3	Box T	3
Sairocarpus kingii – least snapdragon	Type 3	Hardtrigger	1

3.2.1.3 Noxious Weeds and Invasive Plants

Noxious is a legal designation given by the Director of the Idaho State Department of Agriculture (ISDA) to any plant having the potential to cause injury to public health, crops, livestock, land or other property (Idaho Statute 22-2402). The ISDA is responsible for administering the State Noxious Weed Law in Idaho and maintains a list of noxious species.

The Boise District BLM has an active weed control program that annually updates the locations of noxious weeds and treats known weed infestations utilizing chemical, mechanical, and biological control techniques. Infestations of noxious weeds are treated contingent upon the BLM annual weed budget, employee availability, and noxious weed priority. The BLM has also developed partnerships known as Cooperative Weed Management Areas (CWMAs) with federal, state, county, and private organizations to cooperatively combat noxious weeds across ownership boundaries.

Weeds typically spread by dispersal of seeds or plant parts in a variety of ways. Wind, water, animals, machinery, and people carry seed and plant parts from one location to another. Many weeds produce abundant seeds with attaching devices (e.g. hooks, barbs, sticky resins) that adhere to people, animals, or equipment. Weeds usually become established and advance along highways, roads, trails, and river corridors (ISDA 2005).

Noxious weeds are widely scattered throughout the OFO in varying degrees and densities. Boise and Vale BLM Districts GIS layers show 1,967 infestations records of 17 different noxious weeds species mapped within the affected area. Many of these records are re-visits of previously recorded infestation for follow-up treatment in multiple years, so while the figure does not represent infestations *per se*, it is an indication of abundance of the noxious weeds. BLM resource specialists, along with CWMA groups, identified priority/focus species of noxious weeds for control in the OFO, based on local abundance and the State of Idaho noxious weed category (

Table Veg **3**).

Idaho noxious weed categories include:

- Statewide early detection and rapid response – Eradication of these weeds must begin in the same season they are found. No weeds in this category are known from terrestrial habitats in the OFO.
- Statewide control – In some areas of the state control or eradication is possible.
- Statewide containment – New or small infestations can be reduced or eliminated, while established populations may be managed as determined by the weed control authority.

Table Veg 3: Noxious Weeds within Affected Area

Common Name	Scientific Name	Idaho Category	Infestations mapped within Affected Area
Canada thistle	*Cirsium arvense*	Containment	92
Diffuse knapweed	*Centaurea diffusa*	Containment	23
Field bindweed	*Convolvulus arvensis*	Containment	1
Houndstongue	*Cynoglossum officinale*	Containment	1
Leafy spurge	*Euphorbia esula*	Containment	296
Perennial pepperweed	*Lepidium latifolium*	Containment	53
Poison hemlock	*Conium maculatum*	Containment	4
Puncturevine	*Tribulus terrestris*	Containment	18
Purple loosestrife	*Lythrum salicaria*	Containment	2
Rush skeletonweed	*Chondrilla juncea*	Containment	36
Russian knapweed	*Acroptilon repens*	Control	63
Russian olive	*Elaeagnus angustifolia*	*	35
Saltcedar	*Tamarix spp.*	Containment	192
Scotch thistle	*Onopordum acanthium*	Containment	215
Spotted knapweed	*Centaurea stoebe*	Containment	35
Whitetop	*Centaurea draba*	Containment	897
Yellow starthistle	*Centaurea solstitialis*	Containment	4
		Total:	1,967

*Not a noxious weed, but included because it is a high priority for control within the Boise District.

There are 299 infestation records of 15 different noxious weed species (all but diffuse knapweed and purple loosestrife from Table Veg 3) within the 0.25-mile corridors.

Besides weeds listed as noxious, there are a number of other invasive, non-native plants that affect native plant communities in the OFO. Some form monoculture patches, such as some medusahead infestations, but these weeds also are localized to dominant understory components of lower elevation shrub communities. Invasive plants include weedy annual grasses such as cheatgrass (*Bromus tectorum*) and other annual bromes, medusahead (*Taeniatherum caput-medusae*), and North Africa grass (*Ventenata dubia*), which are well established in some lower elevations in the affected area, particularly in disturbed areas. These species are persistent and have replaced or reduced native vegetation in extensive areas within the affected area. Also present are a number of annual weedy forbs, including Russian thistle (*Salsola tragus*), tumble mustard (*Sisymbrium altissimum*), flixweed (*Descurainia sophia*), halogeton (*Halogeton glomeratus*), and bur buttercup (*Ceratocephala testiculata*). These invasive plants are primarily found at low elevations in open, disturbed areas where there is little competition from other species.

3.2.1.4 Vegetation Treatment Areas

In the past two years (2010-2011) wildfires and vegetation treatment projects have occurred in a relatively small proportion of the OFO. Within the affected area, wildfires have burned about

2,200 acres and vegetation treatments have been implemented on about 500 acres during this time period (Table Veg 4). A two year time period is considered because normally cattle are kept off of burn or treatment areas for a minimum of two growing seasons (until specified recovery criteria are met).

Table Veg 4: Wildfires and Vegetation Treatments within the Affected Area

Fire or Treatment Name	Year	Acres Affected
Jupiter wildfire	2011	629
Hokie wildfire	2010	58
Flint wildfire	2010	710
Buckster wildfire	2010	775
Silver City Fuels mechanical pile and burn	2010-2011	499

Of these wildfires or vegetation treatments, only a small portion of the Buckster wildfire overlaps with a proposed trailing route, in the Whitehorse/Antelope Allotment Pastures 4 and 7. Less than 0.25 miles of trailing through the Buckster wildfire area on public lands is proposed.

3.2.1.5 ACECs

Nine Areas of Critical Environmental Concern (ACECs) have been designated within the affected area. None of the ACECs overlap with the proposed trailing routes. Because no trailing would occur within ACECs and there will be no effect from trailing to ACECs, ACECs will not be discussed further.

3.2.2 Environmental Consequences – Upland Vegetation

3.2.2.1 Alternative A

The primary effect of trailing is trampling vegetation. Secondary effects of trailing include grazing (i.e. consumption) and potential increase of noxious and invasive weeds.

Most of the trailing would occur along established roads and the borrow ditches along the roads, and most of the livestock would walk on the roadbed because there are fewer obstacles there. However, animals may spread out up to 0.125 miles on each side of the trailing route and impact vegetated areas. Trailing may occur once or several times over each route within a year. Alternative A proposes a total of 299 miles of trailing with 2,303 AUMs over 45,295 acres of public lands. This acreage is 6% of the public land in the affected area. Approximately 81% of the trailing length is along existing roads. Although trailing could occur throughout those 45,295 acres, actual upland vegetation acres affected would be lower because much of the trailing would occur on non-vegetated roadbeds within the area, and because in many areas fences or topography would confine the trailing herds to less than the entire 0.25-mile width. The effects to upland vegetation described below would occur within the trailing corridor.

3.2.2.1.1 Upland Vegetation Groups

The vegetation groups within the trailing corridors for Alternative A are shown in Table Veg 5.

Table Veg 5: Vegetation Groups within Alternative A Trailing Corridors (public lands only)

Vegetation Group	Approximate Acres	Percentage of Corridors Area
Salt Brush Scrub	4,347	10%
Inter-mountain Basins Big Sagebrush Steppe	14,326	32%
Inter-mountain Basins Mountain Sagebrush Steppe	6,396	14%
Owyhee Plateau Low Sagebrush Steppe	13,109	29%
Juniper and Conifer Woodlands	2,464	5%
Semi-natural Herbaceous	4,172	9%
Other (meadows, sparse vegetation, urban)	480	1%
Total:	45,295	100%

Percentages of vegetation groups in the corridors are similar to the percentages of these vegetation types within the affected area as a whole, except that the corridors have a somewhat higher percentage within the Inter-mountain Basins Big Sagebrush Steppe group, and lower percentages in the Inter-mountain Basins Mountain Sagebrush Steppe and Juniper and Conifer Woodlands groups. The acres for each vegetation group within the corridors are a small percentage of the acres of the vegetation group within the affected area as a whole (about 6%); no vegetation group is disproportionally impacted.

Effects of Trampling

Perennial Herbaceous Vegetation

Livestock trailing that occurs off established roads/trails would result in trampling of perennial herbaceous plants, which could reduce perennial herbaceous plant productivity but would be unlikely to result in mortality to established plants. Herbaceous perennials (grasses and forbs) are generally more resilient to trampling than shrubs or annual plants due to more flexible tissues and more extensive root systems. A simulated study of hoof action on total shoot biomass and detached material in short grass sod vegetation types suggests moderate levels of trampling (i.e., 4 footfalls) removes approximately 5% of living biomass (Abdel-Magid et. al. 1987). Trampling impacts would be less during dormancy (winter or fall at higher elevations; generally summer and winter at lower elevations) than during growth because perennial plants are less susceptible to above-ground injury when dormant. Trampling could uproot perennial plant seedlings and young plants, resulting in mortality to those plants. Soil compaction from trampling also affects vegetation by reducing water and oxygen infiltration and restricting root growth.

Annual Vegetation

Annual plant injuries could result in mortality and/or or seed bank reductions if plants are trampled during their growing season. Native annuals' (primarily forbs) growing season is generally spring through early summer, while cheatgrass and some other invasive annuals germinate in the fall as well as the spring and grow throughout spring and summer. Damage to plants and soils can reduce plants' overall productivity and competitiveness, and impacts to native annuals and perennials could create niches for invasive plants to occupy. Moist conditions and openings in ground cover created by hoof (or tire) action provide opportunities for germination and spread of invasive plants, particularly where cheatgrass is a component of the plant community.

Woody Vegetation

If livestock trailing events occur off established roads/trails, woody shrubs within trailing routes would display more deformities and fewer young plants than adjacent stands. Trampling of shrubs would deform mature individuals and could kill immature shrubs (Owens and Norton 1990). Brittle shrubs, such as bitterbrush and shadscale, are more sensitive to trampling than more flexible shrubs, such as rabbitbrush. Shrub seedlings are more sensitive to trampling and dislodgement than older plants.

Trampling Summary: Because vegetation trampling associated with trailing in Alternative A affects a small proportion of the landscape and is of short duration within the growing season, the effects described above would be minor and not expected to have lasting effects on upland vegetation.

Effects of Grazing

Perennial Herbaceous Vegetation

Livestock trailing events that occur off established roads/trails would result in minor direct grazing effects. Livestock graze preferentially on herbaceous components of the plant community, to the extent that vegetation is actively growing, non-toxic, and non-piercing. Perennial grasses are most susceptible to grazing impacts during their critical growth periods, i.e. from seed stalk emergence to seed dissemination. Generally, the vigor of perennial grasses can be sustained with repeated light utilization, while repeated moderate to heavy utilization reduces photosynthetic tissue and can diminish vigor. Utilization during periods when plants are withdrawing reserves from roots for growth, during re-growth, or during seed formation will impact herbaceous species more than the same level of utilization when the plant is not actively growing. During trailing events, cattle tend to actively trail since riders are pushing the cattle, so little grazing is expected. However, because livestock are trailing within a 0.25-mile corridor (including on existing roads), a small amount of grazing of perennial herbaceous vegetation would occur within this corridor. Sheep trailing events tend to be slower than cattle trailing events. During sheep trailing events that occur off existing roads/trails, active grazing and trampling impacts occur as sheep are moved across the landscape.

Annual Vegetation

When livestock trailing events occur off established roads/trails, grazing would remove biomass and could kill individual plants, but these effects would be insignificant to the populations due to the high fecundity and short life cycles of this group. Grazing in mixed native perennial grass and invasive annual grass communities during the winter or early spring could result in some short-term indirect benefit for perennial native species by potentially preferentially removing cheatgrass, which greens up earlier than most natives. Palatability and rapid growth of cheatgrass is typically earlier than the rapid growth phase for perennial native grasses.

Woody Vegetation

Livestock trailing events off established roads/trails would have very little effect from direct grazing on woody vegetation. Trailing during late summer, fall, and winter could result in livestock utilization of browse species such as bitterbrush, fourwing saltbush, shadscale, greasewood, and winterfat. Livestock utilize browse species into the late summer and fall, as herbaceous vegetation goes dormant (Stuth and Winward 1977, Ganskopp et al. 1999, Ganskopp

et al. 2004). However, because animals are actively trailing so the grazing time very short, and because woody vegetation is not preferred fodder, little direct grazing impact to woody vegetation from trailing is expected.

Grazing Summary: Because of the short duration of trailing, grazing effects from cattle trailing are expected to be minimal. Direct grazing from sheep trailing would occur where sheep are trailed off existing roadbeds. However, because both sheep and cattle trailing would occur on such a small proportion of the landscape and for a limited duration, grazing effects from grazing during trailing is expected to be insignificant.

Overnighting Areas

Six cattle and two sheep overnighting areas on public lands have been identified. All of these areas are within the designated 0.25-mile corridor. Three of the six cattle and one sheep overnight areas are within fenced enclosures, while the others include an area up to about 35 acres each where livestock may overnight. Effects to vegetation in overnighting and watering areas would be the same as the trampling and grazing effects mentioned above, except more concentrated and for a longer duration (although not more than overnight). Thus, more intensive trampling and grazing is expected to occur within these areas, resulting in a higher probability of mortality to plants. However, because use would be limited to one night a year, adequate time for regrowth of remaining plants is expected, except in corrals.

3.2.2.1.2 Special Status Plant Species

Occurrences of 23 of the 34 special status plants known in the affected area are recorded within proposed trailing corridors. Approximately 48 occurrences of these plants have been recorded within the trailing corridors in 29 different pastures. Some of the occurrence records (about 10%) are not specific (mapped as a relatively large circle covering several sections, for example), so the plant location may or may not actually be within the corridor. Additional unrecorded occurrences of special status plants are likely to be present as well. Special status plants include both annual and perennial species.

Special status plant occurrences that overlap with at least part of Alternative A's trailing corridors are mapped at about 46,000 acres, of which 5,374 acres are mapped within the actual corridor; thus, about 12% of the acres for these particular occurrences are within the trailing corridor. The acres within the corridors mapped as special status plant occurrences make up about 7% (5,374 acres within 76,530 acres) of the total acres mapped for special status plant occurrences within the analysis area.

Effects to special status plant species from trailing are similar to those effects described above for perennial herbaceous vegetation and annual vegetation, but often to a greater degree because of the plants' rarity. The major impacts of livestock trailing on these species are due primarily to trampling of both plants and the adjacent habitat, particularly in the spring when plants are flowering and soils tend to be saturated. Trampling effects include crushing and uprooting plants, potentially reducing the occurrences' vigor and reproductive capability. Plants that are killed or damaged during their critical growth period may not be able to set seed and would have limited food reserves to send to the roots for survival. This trampling could have localized

effects on special status plant occurrences, and potentially affect an entire occurrence if it occupies a small area entirely within the 0.25-mile corridor.

None of the special status plant species known from the trailing corridors are particularly palatable to livestock, although Packard's biscuitroot may be somewhat palatable as none of the lomatium species are known to be poisonous, and perennials like penstemons and goldenhead are eaten, especially in concentrated use areas. The majority of the milkvetch species are known to be poisonous to livestock. Because livestock would be moving during trailing, and the special status plants are not preferred grazing fodder, the direct effects of livestock grazing on these plants is likely to be minimal.

The topographical position of special status plants also determines how they will respond to trailing impacts. Low elevation sites that receive less precipitation would experience the greatest impacts, while mid to upper elevations that retain soil moisture longer would tend to be more resilient to trailing impacts. The increased soil moisture and less extreme summer temperatures in the higher elevation may allow plants to compensate for plant tissue removal by regrowth. Upper elevations may also experience more frost heaving that could alleviate soil compaction caused by trailing. Plant communities on north and east-facing slopes generally respond with greater resiliency than south or west-facing slopes because those aspects retain soil moisture longer.

Indirect effects from trampling-related invasive weed increase into special status plant habitat, and potential effects on pollinators (such as trampling ground-nesting native bees) are possible from trailing. These effects are likely to be minor because of the short-duration impacts from trailing.

Overnighting areas are not expected to impact special status plants because no special status plants are known within identified areas. One fenced overnight cattle area is within an imprecisely mapped (large circle) *Eatonella nivea* occurrence; however, it is highly unlikely that the plant occurs within the less than 2-acre fenced area, so using this overnight area is not expected to affect the occurrence.

Overall, the effects from trailing from Alternative A are expected to be minor because only a small percentage of the occupied occurrence acreage within the affected are impacted, and this area only for a short time with relatively low impacts.

3.2.2.1.3 Noxious Weeds and Invasive Plants

Alternative A would allow trailing over approximately 45,000 acres of public lands, within which 299 noxious weed infestation records of 15 different noxious weed species have mapped. (These records are not necessarily different infestations because re-visits in subsequent years are individually recorded.) Most noxious weed infestations have been treated (chemically, mechanically, or biologically, and usually more than once per infestation), resulting in a reduction in size and the related ability to produce seed. Noxious weeds most often occur along roads and trails, so trailing of livestock has the potential to increase the weeds' abundance and facilitate their spread into other areas. Trailing has the potential to move weeds along the travel corridor, and, to a lesser degree, to the trailing destination. Livestock may transport weed seeds

that adhere to their bodies and drop undigested weed seeds in their feces. Cheatgrass has been known to spread in this manner (Young and Longland 1996). If noxious weed seeds are dispersed, whether the weeds become established and spread outside the corridor is determined by the plant community composition and ground cover, which influence a community's resistance to weed invasion. However, because noxious weed infestations are generally small and being treated, resulting in few seeds produced, Alternative A trailing is anticipated to have little effect on the spread of noxious weed seed.

Impacts to other invasive plants are not quantified for analysis, but effects would be similar to those described for noxious weeds. Other invasive plants' seeds may be spread by livestock trailing; these invasive plants are more widespread than noxious weeds and are generally not being treated, so their seeds are readily available and subject to spreading. Trailing could indirectly elevate competition for limited resources between native and invasive plants if livestock import and deposit weed seed (Laycock and Conrad 1981). Invasive and noxious weeds that become established as a result of livestock trailing may spread into otherwise intact native plant communities or special status plant habitat, resulting in increased competition for resources over the short and long term. However, invasive plants are already widespread at lower elevations, and higher elevations (above 5,000 feet) are less prone to weed invasion because increased effective precipitation normally results in higher native perennial plant cover. Thus, an increase in invasive plants at either low or higher elevation due to seed spread by trailing is not likely to be discernible from background conditions.

Because weeds generally set seed in the summer, mature weed seed are less available for transport during spring than fall trailing; both spring and fall trailing would occur in Alternative A. Livestock trailing could also have limited, indirect short-term benefits for upland vegetation by dispersing native seeds and creating microhabitats for native species through localized soil disturbance (Burkhardt 1996).

Soil disturbance from trampling due to trailing creates open soil microsites favored by noxious weeds and invasive plants. Trailing intensity, as measured by the number of livestock that pass through a given area, influences the degree of adverse effects. Low intensity trailing (such as fewer than about 500 animals per route) may not trample enough native vegetation to allow for noxious weeds or invasive plants to colonize a site, while moderate to high trailing intensities have a greater potential to create the bare ground openings that allow these colonizing species to become established. Trailing in Alternative A would have soil disturbance limited in both extent (within 0.25-wide corridors, mostly on previously disturbed existing roads and trails) and duration (each route would be used no more than a few days per year), and so is not expected to create soil disturbance substantial enough to result in discernible increases in noxious weeds or invasive plants.

Native perennial grasses are preferred for grazing over most noxious weeds and invasive plants during the summer, so preferential grazing would impact palatable native bunchgrasses more than weeds, potentially leading to a species composition shift from more palatable to less palatable species within a plant community. But because no substantial grazing is expected during trailing (except at overnight areas, about half of which are within fenced corrals), effects to species composition due to trailing would be limited to the few unfenced overnight areas.

Effects would be localized and short-term, because each unfenced overnighting site is less than 35 acres and used only once per year. Thus, only minimal effects from trailing to species composition change due to preferential grazing are expected.

Overall, the combination of livestock trailing impacts from Alternative A, such as weed seed transport, soil disturbance, and preferential grazing of native plant species, is expected to produce minimal increases in noxious weeds and invasive plants beyond baseline conditions.

3.2.2.1.4 Vegetation Treatment Areas

Approximately 0.25 miles of trailing route is proposed on public lands through the 2010 Buckster wildfire area, within a corridor area of less than 160 acres. No emergency stabilization activities were deemed necessary for this fire. The mountain big sagebrush plant community in this area has recovered well, and thus trailing this short distance through the burn on the proposed route is not expected to have discernible effect to vegetative recovery.

No other recent wildfires or vegetation treatment areas are crossed by proposed trailing routes.

3.2.2.2 Alternative B

Effects to upland vegetation from trailing as proposed in Alternative B are expected to be similar to those described for Alternative A, except that effects will occur on a smaller area because the trailing corridor would be narrower through some pastures to respond to specific resource concerns. Trailing corridors in Alternative B would affect 33,681 acres of public lands, or 26% fewer acres than Alternative A. Because Alternative B has the same number of AUMs as Alternative A, the same number of livestock and trips would occur on those fewer acres, so trailing intensity would be higher; impacts would be somewhat more concentrated in narrowed corridor pastures than in Alternative A. However, with a narrower corridor in those pastures, it is likely that a higher proportion of animals will stay on the un-vegetated roadway. Thus, the net effect is likely to be a similar trailing intensity for Alternatives A and B, but on a smaller area for Alternative B. Overall, trailing effects from trampling and grazing on upland vegetation are expected to be localized, short-term, and insignificant at the landscape scale for Alternative B.

3.2.2.2.1 Upland Vegetation Groups

The vegetation groups within the trailing corridors for Alternative B are shown in Table Veg 6.

Table Veg 6: Vegetation Groups within Alternative B Trailing Corridors (public lands only)

Vegetation Group	Approximate Acres	Percentage of Corridors Area
Salt Brush Scrub	3,133	9%
Inter-mountain Basins Big Sagebrush Steppe	10,097	30%
Inter-mountain Basins Mountain Sagebrush Steppe	5,153	15%
Owyhee Plateau Low Sagebrush Steppe	10,294	31%
Juniper and Conifer Woodlands	1,836	6%
Semi-natural Herbaceous	2,830	8%
Other (meadows, sparse vegetation, urban)	338	1%
Total:	33,681	100%

As in Alternative A, the percentage of the vegetation groups in the corridors in Alternative B are similar to the percentages of these vegetation groups within the affected area as a whole, indicating that no vegetation group is greatly disproportionally impacted. The effect on vegetation overall within the affected area is small because less than 5% of the acres within the affected area are potentially affected by trailing.

Effects to upland vegetation from overnighting areas in Alternative B are the same as those described for Alternative A.

3.2.2.2.2 Special Status Plants

Alternative B differs from Alternative A in that trailing corridors would be narrower through pastures that contain special status plants in the otherwise 0.25-mile-wide corridor. As a result, fewer occurrences of special status plants would be within the trailing corridors. In Alternative B, 26 occurrences of special status plant species would be within trailing corridors in 23 pastures, a reduction of 46% in the number of occurrences potentially affected compared to Alternative A. There is also a reduction in acres potentially affected associated with those occurrences; Alternative B contains 1,118 acres mapped as special status plant occurrences within the corridors, a 79% reduction in potentially impacted acres compared to Alternative A. Impacts to those occurrences within the narrowed corridors would be similar to the effects described in Alternative A. Because the corridors would be only 240 feet wide in special status plant areas, it is much less likely that an entire occurrence is within the trailing corridor, thus it is unlikely that trailing would impact an entire occurrence. In fact, for Alternative B, only 2% of the acres for occurrences that overlap with the corridors are actually within the corridor (and potentially affected by trailing). The combination of only short-term effects, a limited extent of impacts, and avoidance of many special status plant occurrences would produce only minor negative effects on special status plant species from Alternative B.

No effects to special status plants from overnighting areas are expected in Alternative B, the same as described in Alternative A.

3.2.2.2.3 Noxious Weeds and Invasive Plants

Trailing as proposed in Alternative B would occur in corridors containing 265 infestation records of 13 different noxious weeds (11% fewer infestation records and two fewer noxious weed species than Alternative A). As in Alternative A, an un-quantified amount of other invasive plants also exist in trailing corridors for Alternative B, but because fewer acres would be trailed across, fewer acres would be subject to an increase in invasive plants. Effects to noxious weeds and invasive plants would be similar in Alternative B to those described in Alternative A for seed transport, soil disturbance, and preferential grazing of native plant species, but because fewer infestations and acres would be trailed over, overall effects would be slightly less than Alternative A.

3.2.2.2.4 Vegetation Treatment Areas

The trailing corridor would be narrowed within the short section of trail through the Buckster fire area. Therefore, impacts to this area (which were minimal under Alternative A) would be reduced even further because a smaller area would be crossed. Therefore, Alternative B would have negligible effect from trailing in the Buckster fire area, and no effect to vegetation treatment areas.

3.2.2.3 Alternative C

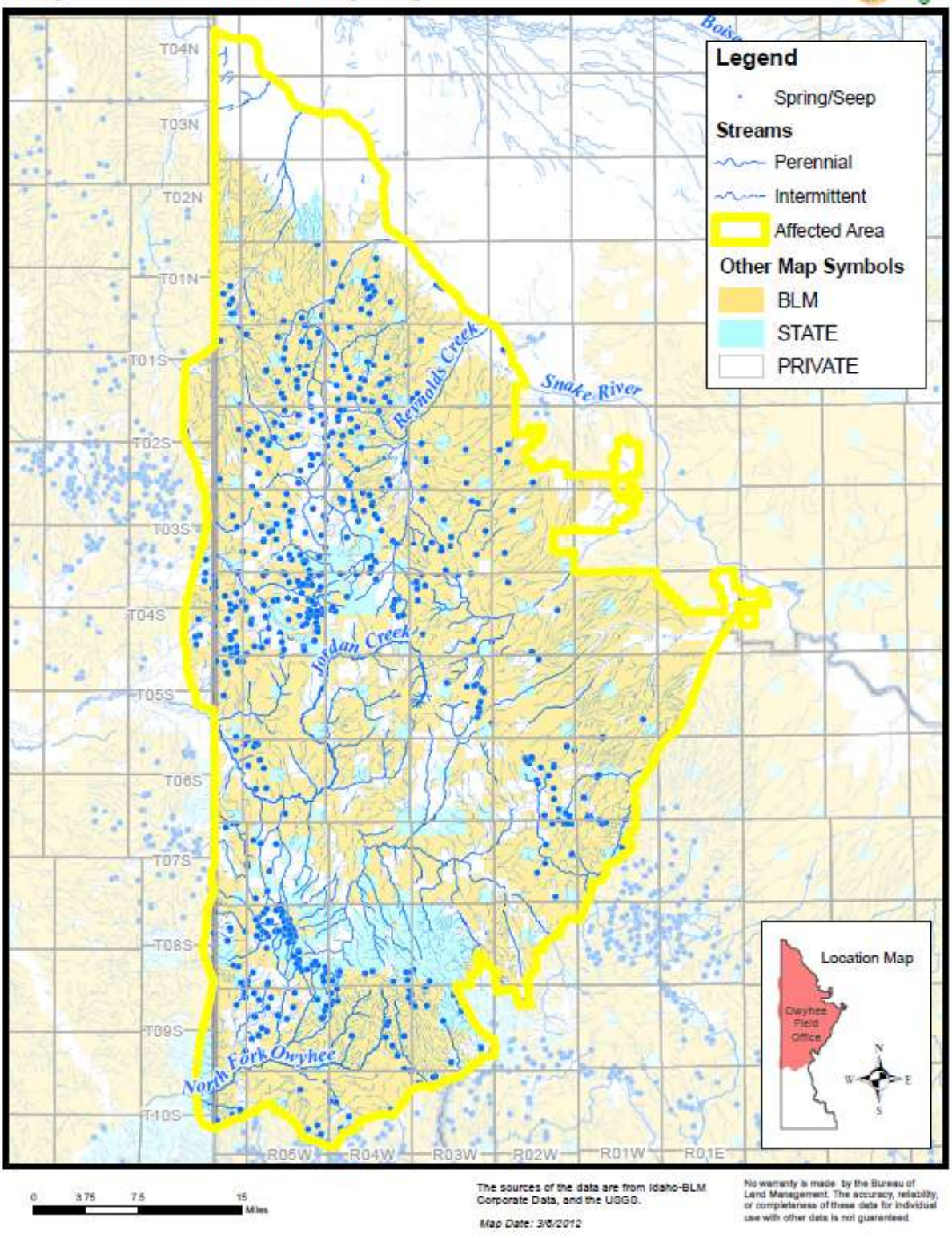
No permits authorizing livestock trailing would be issued. Livestock could be trailed on non-BLM roads, State managed lands, or on private lands, but no authorizations would be issued for any trailing events on public lands within the Owyhee Field Office area. No direct impacts to upland vegetation, special status plants, noxious weeds and invasive plants, or vegetation treatment areas on public lands are expected since no trailing events would be authorized. Trucking or trailing livestock on maintained roads would have almost no effect on vegetation, other than negligible effects from increased dust on adjacent vegetation, which would slightly reduce photosynthesis in the short term.

3.3 Riparian Vegetation and Water Quality

3.3.1 Affected Environment – Riparian Vegetation and Water Quality

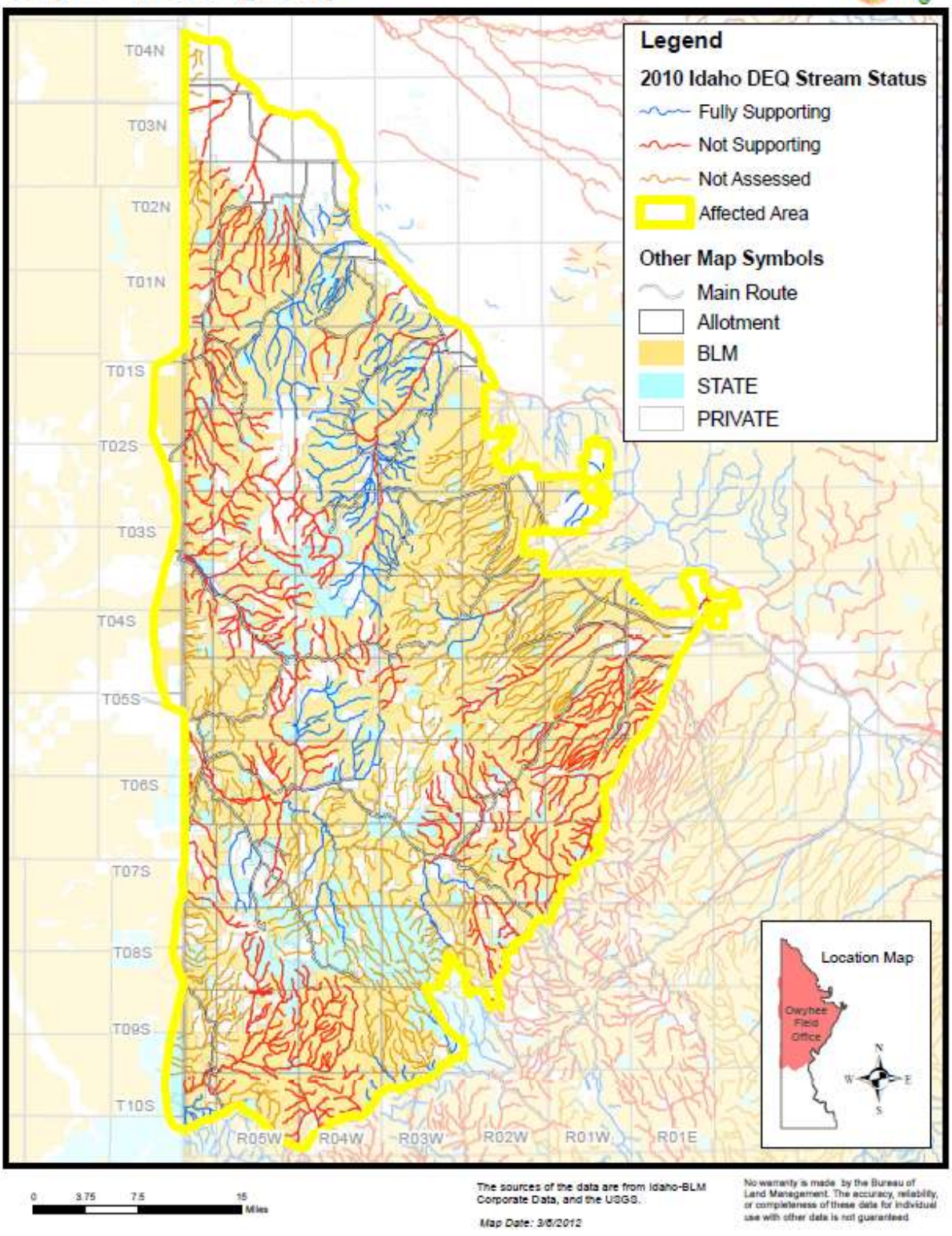
The affected area is diverse due to its size (approximately 45,000 acres in 15 watersheds) and varying topography. The majority of streams are classified as intermittent (1,182 stream miles) with few perennial streams (348 stream miles) containing intermittent reaches (Map 5). Approximately 300 springs also occur on public lands. Major drainages include the Snake River, North Fork Owyhee River, Reynolds Creek, and Jordan Creek and all their associated tributaries. The general fluvial geomorphology of many of the streams is low sinuosity, high gradient V-shaped channels. When the streams flow into the lower gradient plains, they typically increase in sinuosity and become chisel-shaped channels. Under deteriorating conditions, width to depth ratios increase, eroded banks become evident, and streams can become severely entrenched. Riparian communities (where they exist) generally include various willows, cottonwood, and a diversity of other shrubs along with herbaceous communities of various rushes, sedges and grasses. The flood plain is composed of finer soils and the channels are generally easily erodible. Where late-seral herbaceous riparian species (sedges and rushes) exist, they are typically in low numbers and are not expanding as well as the shrub communities. Riparian areas vegetated with shrub communities are generally dominated by willow and/or alder communities and stream channels are usually rock armored. Historic and current grazing management has affected the functionality of many of these stream reaches and springs. Stream reach functionality, if deficient, is typically due to stream channel morphology being out of balance with the landscape setting, and/or the plant community composition and structure not adequate to dissipate energy during high flow events.

Map 5 - Streams and Springs



Surface water quality varies throughout the affected area, and is dependent on geology, soils, land uses, and water discharge. The majority of the streams can be characterized as low volume rangeland type streams that have a combination of high ambient temperatures, geography, poor shading, low flow volume, flow alteration, and naturally warm springs, which often lead to exceedances of the water temperature standard. The majority of the streams either have not been assessed by the Idaho Department of Environmental Quality (IDEQ) or they are not meeting one or more of their beneficial uses. All streams have general beneficial use designations for secondary contact recreation, wildlife habitat, and aesthetics. Specific stream water quality designations are presented on Map 6. Water quality information was obtained from IDEQ's On-Line Integrated Report.

Map 6 - Water Quality



3.3.2 Environmental Consequences – Riparian Vegetation and Water Quality

3.3.2.1 Alternative A

Most of the trailing would occur along established roads and the borrow ditches due to ease of livestock travel. Animals may spread out up to 0.125 miles on each side of the trailing route (total 0.25 mile width). Alternative A proposes a total of 299 miles of trailing with a total of 2,303 AUMs over approximately 45,000 acres of public lands throughout the year. Approximately 23 miles of perennial streams and 13 springs (not developed and not within an exclosure) occur within the 0.25 mile trailing buffer on public land, and have the potential of being impacted from trailing (Map 7). The water quality designations for the 23 miles of perennial streams and 13 spring assessments (if assessed) are presented in Tables RWQ 1 and RWQ 2, respectively. Table RWQ 3 identifies specific beneficial uses the perennial stream is not supporting, the specific impairment, and the IDEQ category (approved total maximum daily load or on 303d list).

Map 7 - Affected Streams and Springs

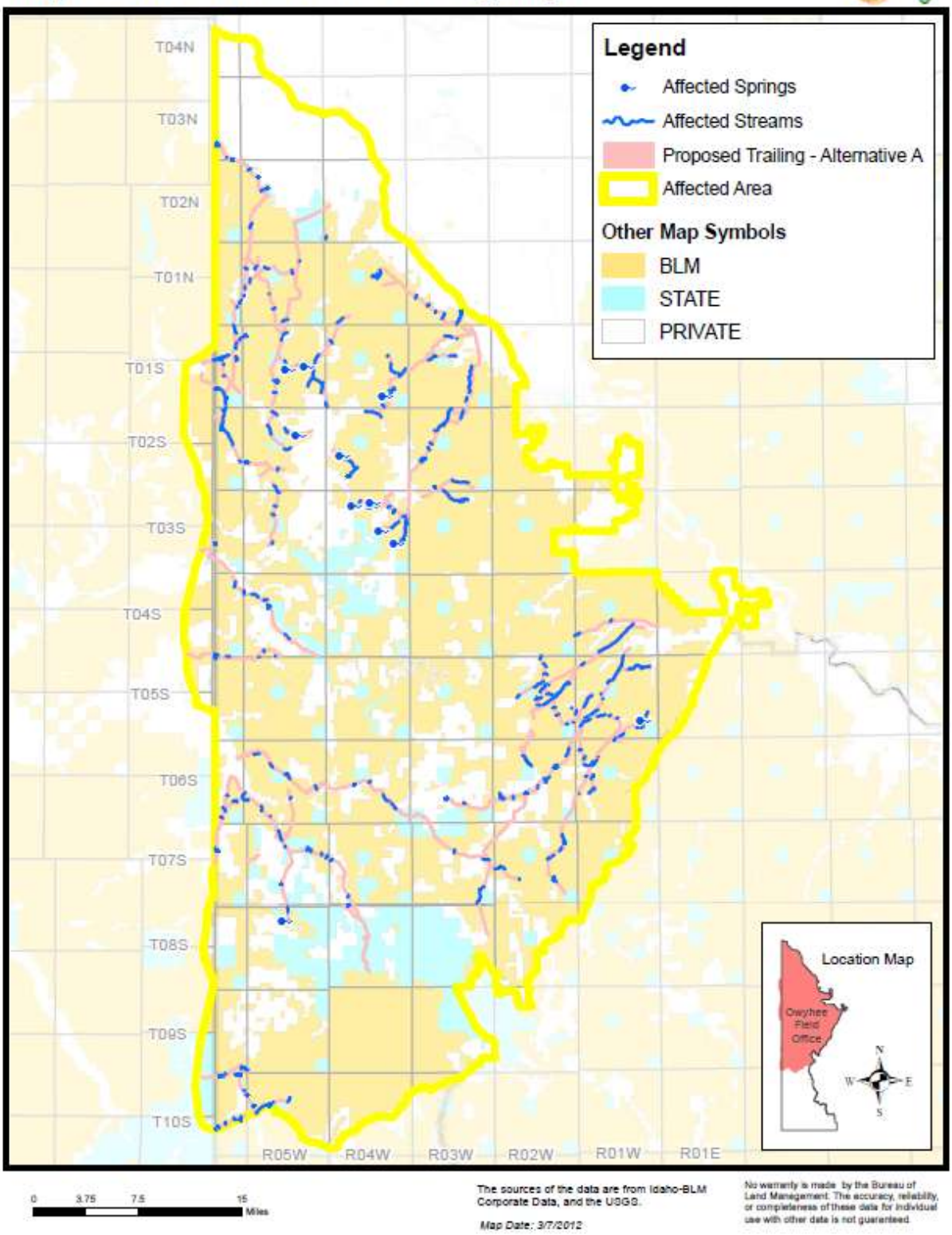


Table RWQ 1: Perennial stream miles and associated IDEQ designations for reaches within the 0.25 miles trailing corridor on public lands

Perennial Streams on Public Land	Designation Reach	Fully Supports Beneficial Use
Sheep Creek	Reynolds Creek - source to mouth	0.07
Snake River	Snake River - C.J. Strike Dam to river mile 425	0.08
Macks Creek	Reynolds Creek - source to mouth	0.13
Pole Creek	Squaw Creek - source to mouth	0.15
Reynolds Creek	Reynolds Creek - source to mouth	0.16
Flint Creek	Flint Creek - source to mouth	0.21
South Boulder Creek	South Fork Boulder Creek - source to mouth	0.22
Cow Creek	Cow Creek - source to Idaho/Oregon border	0.22
South Fork Macks Creek	Reynolds Creek - source to mouth	0.79
West Fork Squaw Creek	Squaw Creek - source to mouth	0.83
Little Squaw Creek	Squaw Creek - source to mouth	0.93
Squaw Creek	Squaw Creek - source to mouth	1.40
Williams Creek	Williams Creek - source to mouth	1.48
East Fork Squaw Creek	Squaw Creek - source to mouth	1.97
	Total Stream Miles	**8.63**
Perennial Streams on Public Land	**Designation Reach**	**Not Assessed Beneficial Use**
North Boulder Creek	North Boulder Creek-source to mouth	0.15
Hart Creek	Hart Creek - source to mouth	0.26
Jordan Creek	Jordan Creek - Williams Creek to Idaho/Oregon border	0.39
Stonehouse Creek	Jordan Creek - Williams Creek to Idaho/Oregon border	0.41
	Total Stream Miles	**1.21**
Perennial Streams on Public Land	**Designation Reach**	**Not Supporting Beneficial Use**
Alder Creek	Castle Creek - source to mouth	0.19
Bridge Creek	Spring Creek - source to mouth	0.63
Castle Creek (tributary)	Castle Creek - source to mouth	0.39
Cattle Creek	Lone Tree Creek - source to mouth	0.26
Chimney Creek	Soda Creek - source to mouth	0.29
Duck Creek	Jordan Creek - source to Williams Creek	0.36
East Fork Goose Creek	Jordan Creek - source to Williams Creek	0.18
Gilmore Creek	Castle Creek - source to mouth	0.16
Goose Creek	Jordan Creek - source to Williams Creek	0.37
Jordan Creek	Jordan Creek - source to Williams Creek	0.16
Jump Creek	Jump Creek - source to mouth	1.14
Little McBride Creek	McBride Creek - source to Idaho/Oregon border	0.53
Lone Tree Creek	Lone Tree Creek - source to mouth	0.01
McBride Creek	McBride Creek - source to Idaho/Oregon border	2.02
North Fork Castle Creek	Castle Creek - source to mouth	0.57
North Fork Owyhee River	North Fork Owyhee River - source to Idaho/Oregon border	0.86

Pickett Creek	Pickett Creek - source to mouth	1.25
Rail Creek	Jordan Creek - source to Williams Creek	0.26
Reynolds Creek	Reynolds Creek - source to mouth	1.94
Soda Creek	Soda Creek - source to mouth	0.10
Succor Creek	Succor Creek - source to Idaho/Oregon border	0.21
West Fork Goose Creek	Jordan Creek - source to Williams Creek	0.30
West Spring Creek	Castle Creek - source to mouth	0.43
	Total Stream Miles	**12.59**

Of the approximate 23 perennial stream miles within the 0.25 mile trailing corridor on public lands, water quality in 8.6 miles was designated by IDEQ as fully meeting their beneficial use; 1.2 miles have not been assessed, and 12.5 miles are not fully meeting one or more of their beneficial uses.

Table RWQ 2: Springs and associated assessment (if assessed) within the 0.25 miles trailing corridor on public lands

Spring Name	*Spring ID*	*Allotment*	*Pasture*	*Assessed*	*Deficiency*	*Year Assessed*
Unnamed Spring 2	131920199	Blackstock Springs	1	PFC		2011
Unnamed Spring 5	131919498	Blackstock Springs	2	FAR	excessive hoof action	2011
Unnamed Spring 5	131919474	East Reynolds Creek	7	FAR	excessive hoof action	2007
*	131919596	East Reynolds Creek	8	X		
*	131919998	East Reynolds Creek	5	X		
*	131919663	East Reynolds Creek	5	X		
Buckaroo Creek Spring	131919558	Hart Creek	3	NA	no spring observed	2008
*	166773930	Indian Meadows	1	X		
Salmon Corral Spring	131919799	Reynolds Creek	3	FAR	excessive hoof action	2010
Crest Spring	131920173	Reynolds Creek	5	FAR	excessive hoof action	2010
Unnamed Spring 4	131919941	Reynolds Creek	7	PFC		2010
*	131920019	Reynolds Creek	8	X		
*	131919671	Shares Basin	3	X		

Spring Name	*Spring ID*	*Allotment*	*Pasture*	*Assessed*	*Deficiency*	*Year Assessed*
Antelope Spring	131920051	Whitehorse/Antelope	1	PFC		2011

* No available information on springs.
X No available data.
NA Identified as a spring on National Hydrography Dataset, upon inspection, no spring was found.

Of the seven assessed springs within the 0.25 mile trailing corridor on public lands, four were assessed as functional at-risk (FAR) and a common deficiency was excessive hoof action due to livestock grazing. Three springs were assessed as properly functioning (PFC).

Table RWQ 3: Water quality limited perennial streams and associated beneficial use designations, impairments, and IDEQ category for reaches within the 0.25 miles trailing corridor on public lands

Stream Name	Impairment Reach	Beneficial Use (Not Supporting)				Impairment						IDEQ Category	
												4A	5
		Cold Water Aquatic Life	Salmonid Spawning	Primary Contact Recreation	Secondary Contact Recreation	Flow regime/ low flow alterations	Sediment/ siltation	Water temperature	Physical substrate habitat alterations/ combined biota/habitat bio-assessments	*E. coli*	Mercury		
Alder Creek	Castle Creek - source to mouth	X						X				Approved TMDL	
Bridge Creek	Spring Creek - source to mouth	X				X		X					303D Listed
Castle Creek (tributary)	Castle Creek - source to mouth	X	X		X			X				Approved TMDL	
Cattle Creek	Lone Tree Creek - source to mouth		X		X				X	X			303D Listed
Chimney Creek	Soda Creek - source to mouth	X					X	X					303D Listed
Jordan Creek (Duck Creek)	Jordan Creek - source to Williams Creek	X			X			X			X		303D Listed
Jordan Creek (East Fork Goose Creek)	Jordan Creek - source to Williams Creek	X			X			X			X		303D Listed
Gilmore Creek	Castle Creek - source to mouth	X	X					X				Approved TMDL	
Jordan Creek (Goose Creek)	Jordan Creek - source to Williams Creek	X			X			X			X		303D Listed
Jordan Creek	Jordan Creek - source to Williams Creek	X						X			X		
Jump Creek	Jump Creek - source to mouth	X				X	X		X			Approved TMDL	
Little McBride Creek	McBride Creek - source to Idaho/Oregon border	X					X	X					303D Listed
Lone Tree Creek	Lone Tree Creek - source to mouth	X	X		X				X	X			303D Listed

Stream Name	Impairment Reach	Beneficial Use (Not Supporting)				Impairment						IDEQ Category 4A	IDEQ Category 5
		Cold Water Aquatic Life	Salmonid Spawning	Primary Contact Recreation	Secondary Contact Recreation	Flow regime/ low flow alterations	Sediment/ siltation	Water temperature	Physical substrate habitat alterations/ combined biota/habitat bio-assessments	*E. coli*	Mercury		
McBride Creek	McBride Creek - source to Idaho/Oregon border	X					X	X					303D Listed
North Fork Castle Creek	Castle Creek - source to mouth	X	X					X				Approved TMDL	
North Fork Owyhee River	North Fork Owyhee River - source to Idaho/Oregon border	X	X					X				Approved TMDL	
Pickett Creek	Pickett Creek - source to mouth	X					X	X					303D Listed
Rail Creek	Jordan Creek - source to Williams Creek	X						X			X		303D Listed
Reynolds Creek	Reynolds Creek - source to mouth			X						X			303D Listed
Soda Creek	Soda Creek - source to mouth	X					X	X					303D Listed
Succor Creek (Upper Succor Creek)	Succor Creek - source to Idaho/Oregon border	X				X	X	X				Approved TMDL	
Jordan Creek (West Fork Goose Creek)	Jordan Creek - source to Williams Creek	X			X			X			X		303D Listed
West Spring Creek	Castle Creek - source to mouth	X						X				Approved TMDL	

The 23 stream miles represent only 5% of all perennial streams and the 13 springs represent only 4% of all springs on public land within the affected area. The majority of trailing (81% of trailing miles) would occur on existing roads, limiting trailing effects on riparian vegetation and water quality because much of the trailing would occur on roadbeds within the area, and because in many areas fences or topography would confine the trailing herds to less than the entire 0.25-mile width.

In addition to the specific trailing events, six cattle and two sheep overnighting areas on public lands have also been identified. All of these overnighting areas are within the designated 0.25-mile corridor and none occur within 0.25 mile from a riparian area. Consequently, the overnighting areas would not affect riparian areas or water quality.

The following effects to the riparian vegetation and water quality would occur within the trailing corridor.

Effects

The direct and indirect effects to riparian vegetation and water quality by livestock trailing would depend on livestock type in relation to pounds/square inch of impact, trailing frequency and timing, as well as the climatic conditions during and after trailing. Livestock trailing would be comprised of rapid movement of animals (at least 5 miles/day for cattle and 3-5 miles/day for sheep). Riparian vegetation (in both streams and springs) effects associated with trailing would vary by such factors as slope, aspect, soil type, precipitation, and plant community composition and distribution. Effects to stream reaches from livestock trailing across (perpendicular) or within channel would include a potential change in channel morphology, from narrow and deep to wide and shallow. Trampling in the stream channel can cause streambank alteration and erosion/sedimentation, especially where ground cover has been reduced or removed. Livestock trailing effects off established roads/trails would primarily consist of physical alterations to stream channels and wetlands, including: pugging, bank shearing, trampling, and soil compaction. Streambank damage and soil compaction extent and intensity are modified by the season livestock are trailing. Generally in the spring, compaction and streambank trampling potential is greater depending on soil type; streambanks are more stable in the summer and fall than earlier in the year. In the winter, if the soils are frozen, streambank trampling and compaction potential is low; if soils are not frozen, potential is greater depending on soil type. In addition, streamside and wetland herbaceous vegetation would be trampled, and if woody plants are present they may be physically damaged from stem breakage.

All effects would be confined to the near bank, flood-prone areas and secondary stream terraces in essentially a path perpendicular to and across the channel because livestock would not be trailed directly down active stream channels. If livestock trailing events occur off established roads/trails, water quality would be briefly impaired at stream crossings as livestock crossing perennial stream channels would disturb and mobilize bottom sediments which would then be released into the water column. Fine soils loosened by hoof action would be mobilized more easily following rainfall and more likely to yield sediment into a stream. Livestock defecating in and near a perennial stream may briefly increase levels of *E. coli* bacteria. However, increases in sediment and *E. coli* would be transient and would likely decrease to base levels following the trailing event.

Summary
Overall effects on riparian areas and water quality due to trailing are minor because they affect a relatively small proportion of the landscape and are of short durations. Consequently, the trailing events are not expected to have lasting effects for the long term, and stream/spring conditions are expected to return to what they were pre-trailing. Adherence to Range Readiness criteria would not directly prevent compaction issues because riparian area soils tend to have higher soil moisture or are even saturated if in a spring. However, adherence to Range Readiness could indirectly prevent sedimentation from uplands into streams. Trailing on roads greatly reduces impacts to riparian area and water quality. Trailing alongside or through (not crossing but adjacent) a stream reach has the greatest potential effects to channel morphology, damage to streambanks, and affecting water quality by increasing stream temperatures. Many of these areas have been previously disturbed by livestock grazing, and any additional impacts incurred by livestock trailing would keep disturbed areas localized and not expand to any potentially undisturbed or less disturbed riparian areas. Nutrient cycling, hydrologic cycling, and energy flow would continue to occur within the various watersheds, and water quality would likely not be affected in the long term.

3.3.2.2 Alternative B

Effects to riparian areas and water quality due to trailing are similar to those described for Alternative A.

The proposed Terms and Conditions requiring 90% of the livestock to be kept out of riparian areas while trailing adjacent to perennial streams and springs would reduce the size and intensity of all trailing-related effects to riparian areas and water quality as described in Alternative A. Although 10% of trailing livestock could be in the riparian areas, it is highly unlikely due to active herding. For this analysis, we assume that effects from livestock trailing outside of the corridor or within riparian areas would be negligible and are not discussed further. Additionally, narrowing livestock trailing through some pastures reduces the affected area, and consequently reduces the impacts to upland plants and soils, and indirectly affects water quality by reducing potential erosion in the upland into the riparian and water ways.

Overall impacts are expected to be minimal and are less than Alternative A.

3.3.2.3 Alternative C

No long-term impacts to riparian areas and water quality on public lands are expected since no trailing events would be authorized. Any stream crossings would occur on a bridge, a culvert, or a hardened streambank, reducing direct physical stream and water quality impacts. However, some short-term sedimentation in nearby streams from dust created from increased trailing or hauling livestock would occur. The sedimentation is expected to be short duration (2 to 5 days) and localized (immediately downstream), and the sediment would be redistributed downstream with increased flows from storm events and high spring flows.

3.4 Wildlife and Fisheries

3.4.1 Affected Environment – Wildlife and Fisheries

The OFO contains vast expanses of desert plains, deep canyons, and mountains which provide habitat for a variety of native wildlife species. Habitat within the OFO includes shrub covered

plateaus and foothills, deep rocky canyons, and variably-sized creeks, shallow lakes, and wet meadows. Important vegetation types in these habitats include Wyoming big sagebrush, mountain big sagebrush, low sagebrush, salt desert shrub, juniper, aspen, riparian vegetation, and wet meadows. (McGrath et al. 2002)

Roughly 40 wildlife species classified as BLM Sensitive Species are known or have the potential to occur within the OFO. Although IM ID-2003-057 (USDI BLM 2003) identifies the majority of these species, changes have occurred in the status of some ESA listed species. Changes in administrative boundaries have resulted in modifications to the list for the BLM Boise District. Appendix C shows the current species list and key habitat associations. Although multiple BLM Sensitive Species and other important wildlife species (e.g. big game, raptors) reside within the OFO, only those that are likely to be affected by trailing activities (e.g. burrowing, shrub-nesting, and disturbance-sensitive species) are assessed in detail. Given the nature of the activities and the effects described below, the following species and groups of species are likely to be impacted by trailing:

- Greater Sage-Grouse
- Columbia Spotted Frog
- Pygmy Rabbit
- California Bighorn Sheep
- Raptors
    - Ferruginous Hawk
    - Golden Eagle
    - Bald Eagle
    - Peregrine Falcon
    - Prairie Falcon
    - Northern Goshawk
    - Red-tailed Hawk
    - Western Burrowing Owl
- Neotropical Migrant Birds (uses sage-grouse analysis as surrogate for impacts description)
- Redband Trout

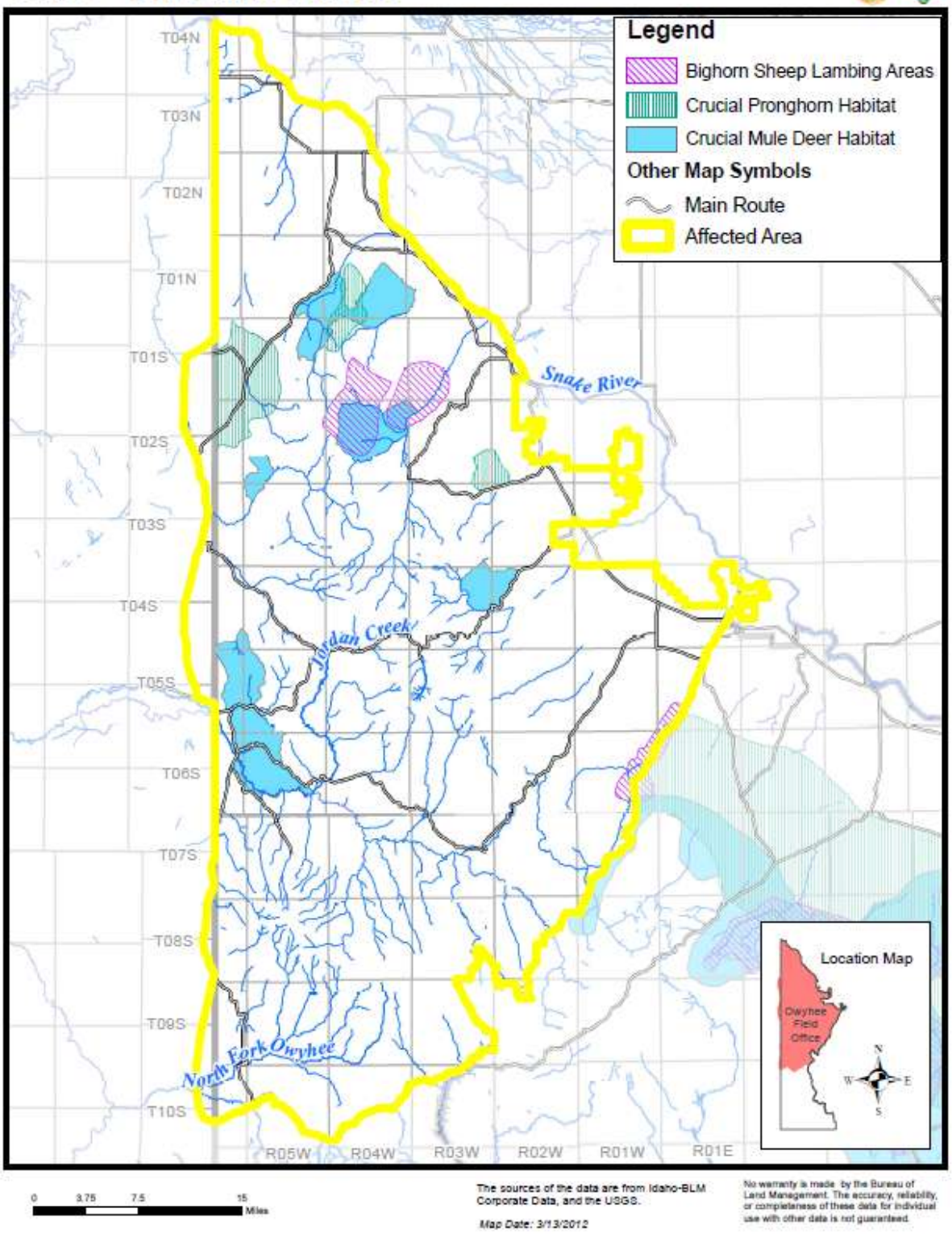
Additional species may be impacted by trailing activities, but impacts to them are so minimal they would be unable to be measured. These species include:

- Meriam's and Wyoming Ground Squirrel
- Rocky Mountain Elk
- Mule Deer
- Pronghorn Antelope

Although ground squirrels utilize burrows, impacts from livestock trailing and grazing are not likely due to the lack of forage competition and the depth of their natal burrows (Fehmi et al. 2005). Impacts from trailing to big game species (elk, mule deer, and antelope) could also occur through disturbance and forage competition. However, the large expanses of intact wintering and breeding habitat for big game in the OFO (~ 1,274,945 acres of combined pronghorn and mule deer winter and breeding habitat, all land ownerships included; Map 9) would allow individuals to easily disperse from the short term disturbance represented by the trailing events,

and minimal activities in riparian areas would preclude disturbance to fawning mule deer. Available data does not indicate that elk and antelope utilize areas in the OFO for concentrated calving/fawning activities so the limited spatial scope of the trailing activities during the relevant time period would not have any measurable impacts.

Map 9 - Big Game Habitat

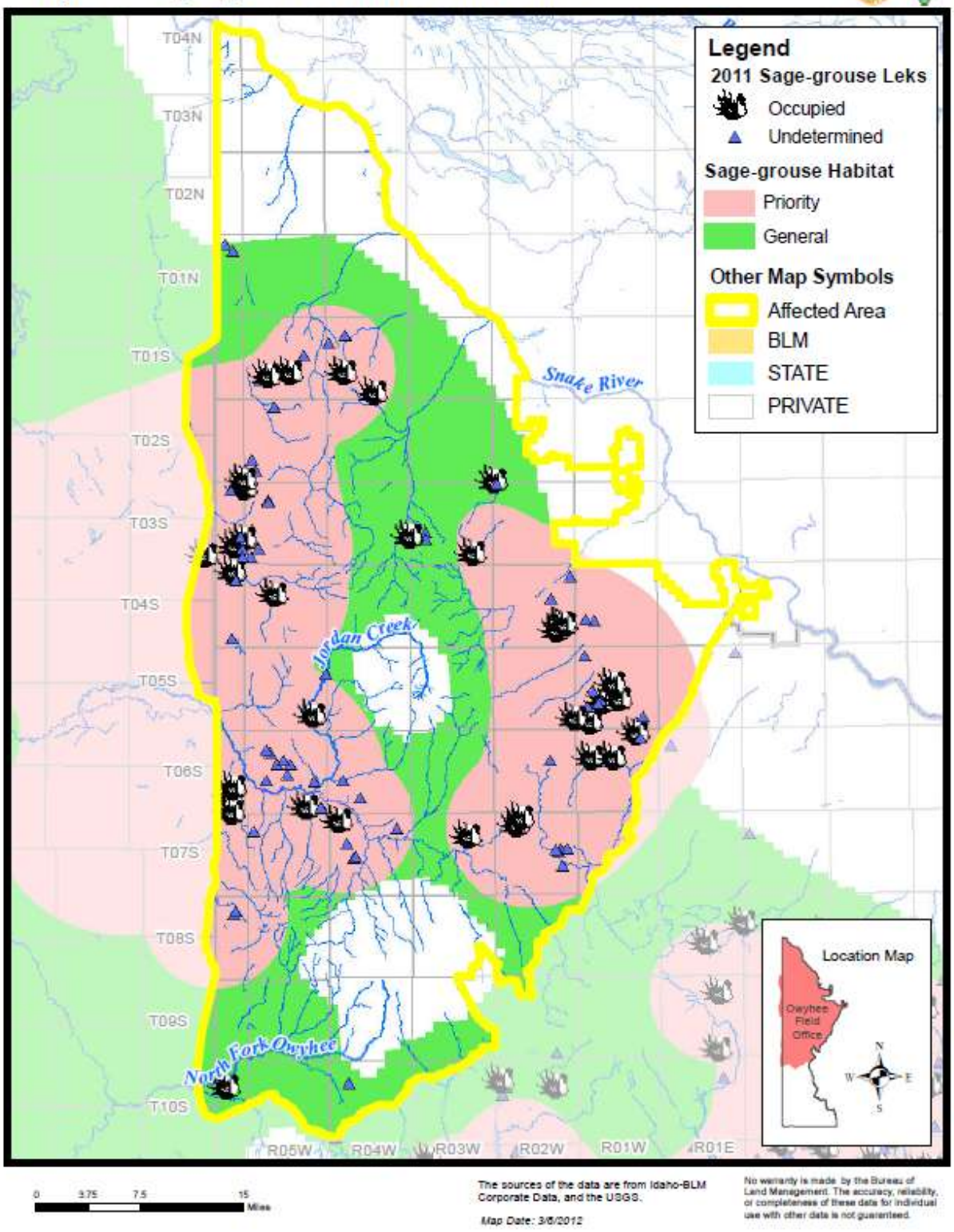


3.4.1.1 Greater Sage-Grouse

Greater sage-grouse (*Centrocercus urophasianus*) populations declined across their current distribution area from the 1960s to the mid-1980s and then tended to stabilize (Connelly et al. 2004). In Connelly et al. (2004), there were no clear conclusions about the principal causes of the decline of sage-grouse; instead, there was a discussion of a variety of factors affecting sage-grouse and sagebrush habitats. Sage-grouse numbers were extremely low during 1918-1942, such that wildlife managers feared extinction of the species (Autenreith 1981). Factors such as habitat loss, weather, disease (Autenreith 1981, Connelly et al. 2004) and predation (Coates 2007) are all involved in affecting sage-grouse populations. Aldridge et al. (2008) examined the chances of survival of sage-grouse across its range and developed a model to predict where they are most likely to persist and where they are at risk of disappearing. According to this model, sage-grouse in the OFO likely represent a secure population.

The OFO is within the Great Basin Core population of sage-grouse, one of the five largest across their range (Connelly et al. 2004). The OFO is also contained within the N-Central NV/SE OR/SW ID sage-grouse subpopulation, which has been demonstrated with IDFG telemetry data (IDFG 2011) to be loosely connected to the NE NV/Central ID/NW UT subpopulation. Approximately 130 active or undetermined sage-grouse leks occur within the OFO, all land ownerships included, with approximately 110 (82%) found within affected area (see Map 8) (IFWIS 2011). Within Idaho, Owyhee County contains the largest remaining unburned, intact sagebrush habitat, and the affected area includes over 550,000 acres mapped as priority habitat (~ 32% of the affected area including state, private and federal lands)(BLM 2011b). The majority of higher-elevation (≥ 5,000 ft.) mountain sagebrush habitat in the OFO has not been lost to wildfires; however, over 200,000 acres within the affected area have been mapped as areas where juniper and/or conifer species are encroaching into sage-grouse habitat.

Map 8 - Sage-grouse Habitat and Leks



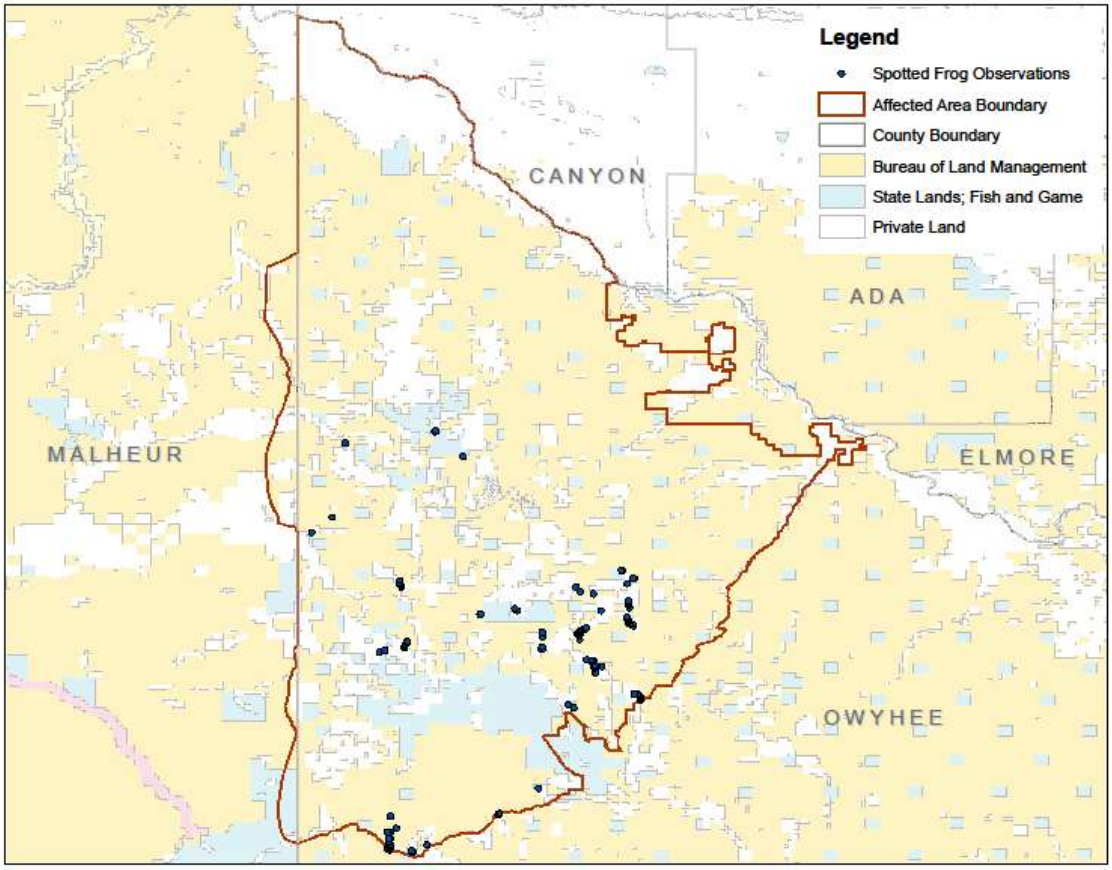
Sage-grouse are dependent on sagebrush throughout the year, for both food and cover. In the winter, they need areas where sagebrush can be found growing above snow. In the nesting season, they need sagebrush for cover and food, grasses for nesting cover, and forbs for food and nesting cover. In late summer and fall, as the vegetation dries, they use riparian areas, springs, moist meadows, and higher elevations where they can find green forbs to eat (Connelly et al. 2000, Connelly et al. 2004).

On March 23, 2010, the sage-grouse was determined to warrant protection under the Endangered Species Act (ESA) but was precluded from listing due to other species of higher listing priority. Subsequently, interim policy on conservation policies and procedures were published (BLM 2011b) to facilitate maintaining and restoring habitat for sage-grouse while the BLM determines how to incorporate long-term measures into their Land Use Plans. These interim measures include direction for land management practices in priority and general habitat, which comprise roughly 900,000 acres (~ 53% of the affected area, all ownerships included; see Map 8). In particular, grazing management practices are described that will minimize adverse effects on greater sage-grouse and its habitat; when appropriate, the grazing management practices have been incorporated into the design features for Alternative B.

3.4.1.2 Columbia Spotted Frog

Currently, Columbia spotted frogs (*Rana luteiventris*) appear to be widely distributed throughout southwestern Idaho (mainly in Owyhee County) and eastern Oregon, but local populations within this general area appear to be isolated from each other by either natural or human induced habitat disruptions (USFWS 2004). Spotted frogs have been found from sea level up to 10,000 feet elevation and are most likely to occur near permanent water along the edges of ponds or lakes or in pools along slower moving streams where algae persists. The largest local population of Columbia spotted frogs in Idaho occurs in Owyhee County in the Rock Creek drainage (USFWS 2004). Over the last 30 years, approximately 25 observations of this species have been documented in the southern portion of the affected area (IFWIS 2011); however, most of these observations occur on private land (see Figure WF 1).

Figure WF 1: Spotted frog observations within the affected area



Spotted frogs in southwestern Idaho are within the Great Basin subpopulation (or clade) and genetic analysis suggests that populations have undergone recent declines (Funk et al. 2008). The likely explanation for this decline is an extensive loss of habitat as wetland habitats have been converted to irrigated pastures, river areas have undergone dewatering, and intensive grazing has impacted riparian habitats (USFWS 1993). However, findings from a recent short-term grazing study suggests light to moderate grazing impacts to spotted frogs are not clearly negative (Adams et al. 2009). In 1993, this Great Basin subpopulation was determined to warrant protection under the Endangered Species Act (ESA) but was precluded from listing due to other species of higher listing priority (USFWS 1993).

3.4.1.3 Pygmy Rabbit

The pygmy rabbit (*Brachylagus idahoensis*) is the smallest North American rabbit species (USFWS 2010). On September 30, 2010, the FWS determined pygmy rabbits do not currently warrant listing under the ESA of 1973 (75 FR 60516). This species is typically found in areas of tall, dense sagebrush cover and is considered a sagebrush-obligate species due to its high dependence on sagebrush to provide both food and shelter throughout the year (Green and Flinders 1980, Katzner et al. 1997). Natal burrows can be active from March through mid-July (Rachlow and Witham 2004, unpublished Project Completion Report; Larrucea and Brussard 2009) and this is the most vulnerable time for young pygmy rabbits because they are tied to their natal burrows and are susceptible to burrow damage. Pygmy rabbits have been found from 2,900 ft. to over 6,000 ft. in elevation in southwestern Idaho. The species has been reported within the affected area (58 observations) from surveys conducted over the last decade, however none of

the records within the OFO boundary are given a high reliability rating by the IDFG due to their occurrence in atypical pygmy rabbit habitat (i.e. shallow claypan soils and low sage vegetation cover types) (IDFG 2008). Analyses of high confidence pygmy rabbit detections in Owyhee County relative to Ecological Site Descriptions (ESD; NRCS 2005) showed a logical association of locations with four ESD types. These ESD types represent roughly 300,000 acres in the affected area (~ 18% of the affected area, all ownerships included) and were used as a model for potential pygmy rabbit habitat in this EA.

3.4.1.4 California Bighorn Sheep

Historically, California bighorn sheep (*Ovis Canadensis sierrae*) were found from British Columbia southward to the Sierra Nevada mountain range in California (Krausman and Bowyer 2003). Following the arrival of settlers to Idaho, bighorn sheep (BHS) populations began to decline during the 1870s, and by the 1940s, they were extirpated from the Owyhee River area (IDFG 2010). Unregulated hunting, competition with domestic livestock for forage, and disease all contributed to BHS declines (Ibid.).

Currently, habitat degradation, cougar predation, energy development, and competition with livestock may be limiting BHS populations in the OFO, but the impacts of these issues are unknown (IDFG 2010). Additionally, disease could be a potential issue for BHS in the OFO since domestic sheep grazing occurs within the affected area, including on BLM lands. Disease is considered the primary limiting factor in BHS populations. The most important management direction to reduce the impact of disease on BHS populations is to minimize or eliminate contacts between BHS and domestic sheep and goats (Ibid.).

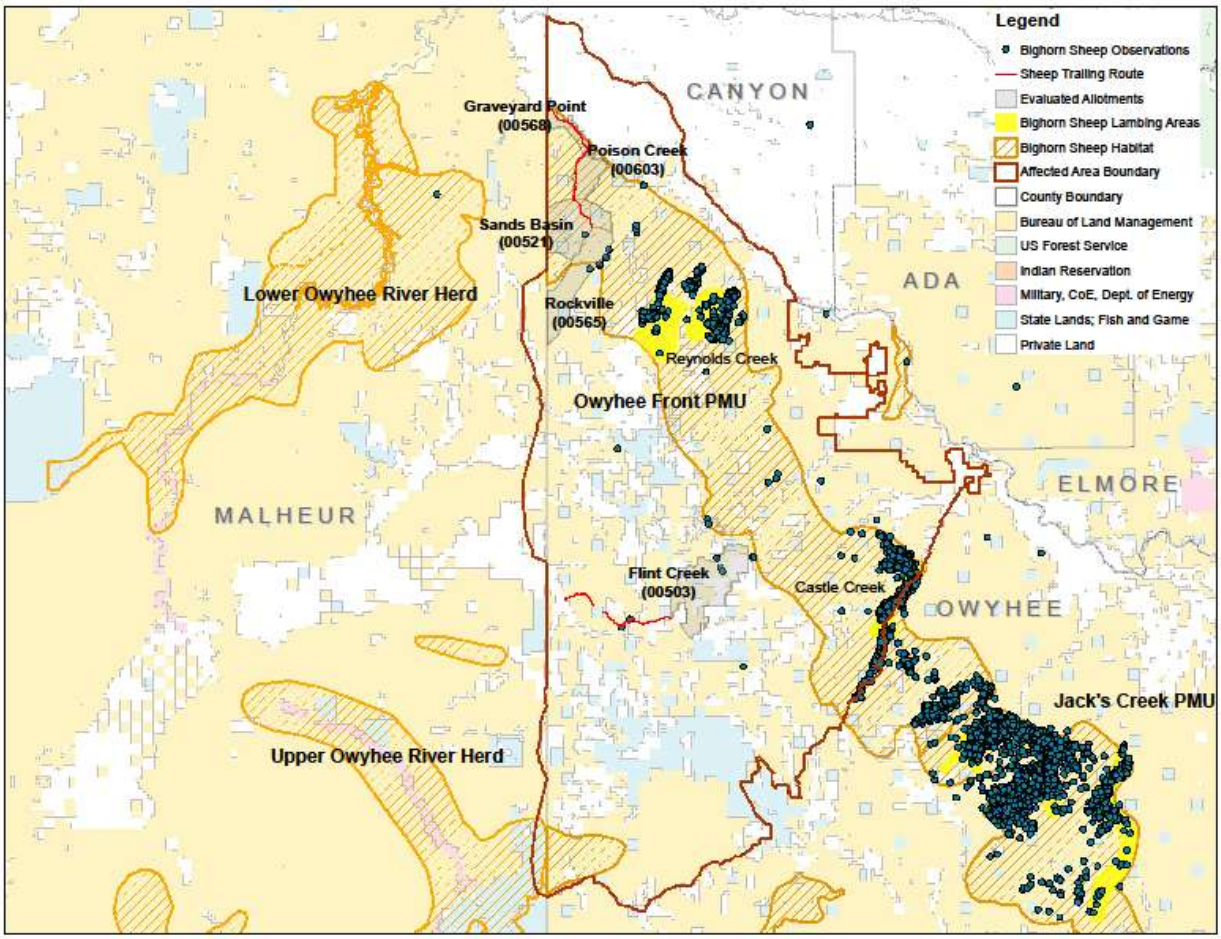
Domestic sheep have been implicated in transmitting various *Pasteurella* bacteria that contribute to respiratory diseases that cause mortality in BHS. Although the exact mechanism of transfer of disease organisms has not been shown in rangeland, empirical evidence has shown that disease transmission occurs when the species come into close contact with one another. Disease outbreaks may result in initial all-age mortality, followed by a number of years of poor lamb recruitment and low level adult sporadic mortality. Once found in BHS populations, these diseases appear to spread among interconnected populations over a period of years, resulting in the sickness and mortality of numerous BHS individuals in multiple populations over time. This results in chronically limited BHS numbers and distribution in areas where the disease occurs, allowing for stochastic events (e.g., weather, etc.) unrelated to disease to extirpate populations or subpopulations that are fragmented or isolated on the landscape (BLM 2011c).

California bighorn sheep typically occur in open areas where rugged topography is readily accessible, generally in desert or canyon habitats. BHS tend to prefer open habitats with an abundance of forage and without vegetation that obstructs visibility (Risenhoover and Bailey 1985). They forage on a variety of grasses, forbs, and shrubs throughout the year. Breeding occurs in the fall and lambs are born April to mid-June. BHS tend to form small groups for the increased vigilance that a herd provides. During the fall breeding period, young bighorn rams are known to disperse through potential habitat in search of breeding opportunities.

BHS occurring in and adjacent to the affected area are part of the IDFG's Owyhee Front population management unit (PMU). Resident BHS were identified in the Reynolds Creek area of the PMU by IDFG in the early 1990s and were thought to have immigrated from Oregon's

Lower Owyhee River herd, located approximately 12 miles west of the affected area boundary, following a wildfire in the late 1980s. The sheep occupying the Castle Creek drainage likely colonized from the Jack's Creek PMU, located approximately 15 miles south-east of the affected area boundary in Shoofly Creek within the BLM Bruneau Field Office (see Figure WF 2). In 2009, approximately 75 BHS occupied this management unit as estimated by IDFG (IDFG 2010). Approximately 4,200 BHS observations were recorded within the affected area, or adjacent to the affected area boundary, between 1971 and 2011, all land ownership included (see Figure WF 2) (IFWIS 2011). A substantial portion of these observations were the result of telemetry data collected from various studies and do not represent sightings of individual BHS (Ibid.). Much of the potential BHS habitat within the affected area is used primarily for travel between isolated patches of habitat within the Owyhee Front PMU and the adjacent Lower Owyhee River herd and Jack's Creek PMU (IDFG 2010).

Figure WF 2: BHS observations (1971-2011) and potential habitat within or adjacent to the affected area



Habitat quality and quantity in the Owyhee Front PMU (~ 420,800 acres of potential BHS habitat in the PMU, all land ownerships included) does not appear to be the limiting factor for BHS numbers, but localized competition with cattle for forage is possible where cattle can access canyon areas (IDFG 2010). However, widespread forage competition with livestock is unlikely

because BHS tend to graze on steeper slopes than cattle (Toweill 1999). Decreasing disturbance to BHS during the lambing season (4/15-6/15) is recommended to avoid decreasing the fitness of individual bighorn sheep and maintaining healthy populations (IDFG 2010). Although designated lambing areas are not comprehensively mapped, the affected area encompasses roughly 30,000 acres of BHS lambing habitat (see Figure WF 2) identified by IDFG (Jake Powell, pers. comm.).

In response to concerns over potential contact and disease transmission between domestic and BHS in the OFO, the "*Best Management Practices for Separation between Domestic Sheep and Bighorn Sheep*" was developed between IDFG and the OFO domestic sheep permittee in 2009 and the "*Separation Response Plan for Addressing Potential and Actual Contact between Bighorn Sheep and Domestic Sheep and Goats on the Flint Creek, Rockville, Poison Creek, Upper Deer Creek and Lower Deer Creek Allotments*" was developed between OFO BLM and the same permittee in 2010. These strategies include a communication and separation response plan (SRP) in reaction to BHS sightings, observations of stray domestic sheep, and any interactions between the two species as well as Best Management Practices (BMP) pursuant to Idaho Code 36-106(e)(5)(E) to minimize the risk of potential interaction between BHS and domestic sheep (cooperatively developed between the grazing permittee, IDFG, and BLM). If BHS are observed in close proximity to domestic sheep in these allotments, IDFG would be immediately contacted, and appropriate actions would be taken to prevent possible disease transmission to BHS herds (IDFG 2009, BLM 2010a).

In 2011, OFO BLM staff began to develop the "*Bighorn Sheep/Domestic Sheep Risk Evaluation for the Rockville (00565), Sands Basin (00521), Poison Creek (00603), Graveyard Point (00568), and Flint Creek (00503) Allotments*" in order to further address concerns over potential contact and disease transmission between domestic and BHS in the OFO. This document is still currently under development and is estimated to be completed by the end of 2013. The determination of which allotments were evaluated in this risk assessment was based on currently available BHS observations, domestic sheep use, the percentage of BHS habitat found within the allotments (see Table WF 1), and the allotments' proximity to potential BHS habitat (see Figure WF 2). Where there is range overlap between domestic sheep and BHS, the risk of contact between species is considered high to very high (BLM 201c). The draft document identifies that the potential risk of interaction and disease transmission between domestic and BHS in the Rockville, Sands Basin, Poison Creek, and Graveyard Point Allotments was rated as very high, while risk in the Flint Creek Allotment was rated as moderate.

Table WF 1: Risk rating and percentage of potential BHS habitat found within evaluated allotments

Allotment	Percentage of Potential BHS Habitat in Allotment	OFO Contact Risk Qualitative Rating
Rockville	37%	Very High
Sands Basin	100%	Very High
Poison Creek	100%	Very High
Graveyard Point	79%	Very High
Flint Creek	0%	Moderate

While the potential risk of interaction and disease transmission between domestic sheep and BHS was rated as very high for the majority of evaluated allotments, the chances of contact occurring along domestic sheep trailing routes is low. This reduced contact risk is due to domestic sheep trailing in potential BHS habitat lasting no more than six days in the spring and two days in the fall, the use of a herder, wagon, and herding dogs by the permittee when trailing domestic sheep, the high degree of site fidelity observed in BSH herds within the Owyhee Front PMU, and the implementation of a BLM SRP and IDFG BMPs. The mandatory term and condition for confining sheep inside an electric fence when overnighting in the Poison Creek allotment, the use of additional herders and ensuring no sheep are left behind would further reduce the risk that domestic sheep could come in contact with BHS. The permittee is aware of the contact concern and has cooperatively worked with the BLM and IDFG through this process.

The noise caused by humans, trucks, wagons, and dogs would limit contact between domestic sheep and BHS when trailing and overnighting within potential BHS habitat. Wild sheep view humans and dogs as predators and the physical presence and noise caused by either species are known to cause wild sheep to leave or entirely avoid an area (Sime 1999). Also, domestic sheep would be trailed through open areas, along roads, and in areas where there is other human disturbance caused by OHV, agricultural, and additional livestock use. In addition, the domestic sheep trailing event is in close proximity to other activities that would result in BHS disturbance, such as major highway traffic and recreation use at the Jump Creek Recreation Area. Because of the localized disturbances along the domestic sheep trailing route, and other disturbance activities in close proximity to the route, it is unlikely that BHS would be present near the route. This would further reduce the chance of contact between BHS and domestic sheep.

The highly concentrated nature of BHS observations within the Owyhee Front PMU is evidence that resident BHS show a high degree of site fidelity to the Reynolds and Castle Creek areas of the PMU and do not appear to travel extensively to other areas. While individual BHS observations cannot represent every BHS within the Owyhee Front PMU, the scarcity of BHS observations between the Reynolds Creek area of the PMU and the adjacent Castle Creek area (18 observations recorded from 1971-2011) and Lower Owyhee River Herd (11 observations recorded from 1971-2011) indicates that BHS sheep movement outside of the Reynolds Creek area is minimal (~ 0.7 % of all recorded BHS observations within or adjacent to the affected area boundary). Due to the minimal amount of BHS movement between the Reynolds Creek area of the Owyhee Front PMU and the Lower Owyhee River Herd, the risk of BHS coming in contact with domestic sheep during domestic sheep trailing within the OFO is further reduced.

In addition, the existence of the BLM SRP and IDFG BMPs and the permittees' adherence to those plans and practices further reduces the risk of potential interaction and disease transmission to BHS. The factors previously discussed, combined with the low number of BHS residing within the Owyhee Front PMU (estimated as 75 BHS, IDFG 2010), reduces the risk of BHS and domestic sheep contact to low levels along domestic sheep trailing routes. However, some risk of disease transmission would continue to exist with any domestic sheep use within potential BHS habitat.

3.4.1.5 Raptors

Several raptor species utilize habitat throughout the affected area and are identified in the FWS *Guidelines for Raptor Conservation in the Western United States* (Whittington and Allen 2008) relative to sensitivity to disturbance during the nesting period. Some commonly observed species include prairie falcon, golden eagle, red-tailed hawk, Swainson's hawk, ferruginous hawk, and western burrowing owl. Less common in the affected area are the bald eagle, northern goshawk, and peregrine falcon, but each have been observed and have the potential to use small portions of the area. All of these raptor species are protected and managed under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 et. seq.), and Executive Order 13186. Bald and golden eagles are also protected by the Bald and Golden Eagle Act, as amended in 1990.

Nest locations for many raptor species have been recorded in the affected area, with most of them residing in the northern areas near the Snake River. There are approximately 38 prairie falcon, 16 golden eagle, 13 western burrowing owl, and two historic ferruginous hawk nests within the affected area (IFWIS 2011). One observation of a red-tailed hawk nest and no observations of bald eagle, peregrine falcon, or Swainson's hawk nests exist in the affected area. Discovery of nests for raptors was the result of incidental observations and recorded observations do not represent systematic surveys.

3.4.1.6 Migratory Birds

Some of the species that inhabit the affected area are neotropical migrants. This means these birds are only present during the spring, summer, and fall. Neotropical migratory birds have become a concern in recent years because of declining populations. The Idaho Bird Conservation Plan (IDBCP) identified the highest priority habitats for priority bird species in need of conservation (IDPIF 2000).

Much of the affected area, especially the Owyhee Uplands and Canyons Level IV Ecoregion of Idaho (McGrath et al. 2002), is comprised of sagebrush habitat and is one of the priority habitats identified in the IDBCP. The IDBCP identifies the greater sage-grouse as an umbrella species to set the habitat objectives for sagebrush-obligate bird species. Although sage-grouse are only short distance migrants, they will be used to describe effects to high priority, sagebrush-obligate, neotropical migrant birds (e.g. sage thrasher, Brewer's sparrow, sage sparrow; IDBCP). This method overlooks habitat associations specific to some high priority bird species, but the sage-grouse analysis includes impacts to nesting habitat, which would be the only measurable impact livestock trailing would have on migratory birds. This analysis will account for impacts to the high priority neotropical migrant birds that could have some of their nesting activities impacted by trailing events. See the greater sage-grouse sections in this document as a surrogate for descriptions of how trailing would affect migratory birds in this EA.

3.4.1.7 Redband Trout

The Columbia River redband trout *(Oncorhynchus mykiss gairdneri)*, a subspecies of rainbow trout *(Oncorhynchus mykiss)*, is native to the Fraser and Columbia River drainages east of the Cascade Mountains to barrier falls on the Pend Oreille, Spokane, Snake, and Kootenai rivers (Allendorf et al. 1980; Behnke 1992). Logging, mining, agriculture, grazing, dams, over-harvest, and hybridization and competition with other trout contributed to the decline of redband trout abundance, distribution and genetic diversity across much of its range (Williams et al. 1989;

Behnke 1992). On BLM land in the affected area, 222 linear stream miles are considered redband trout habitat. This is the majority of streams on Map 5.

Long-term persistence of these populations is threatened by loss of migratory life history forms and connectivity with other populations, which is critical to maintaining genetic diversity and dispersal among populations (Rieman and McIntyre 1995). In response to population declines, resident forms of redband trout are considered a species of special concern by the U.S. Fish and Wildlife Service, American Fisheries Society, and all states throughout their historic range (Idaho, Oregon, Washington, Nevada, California and Montana) and are classified as a sensitive species by the U.S. Forest Service and the BLM (Muhlfeld 2010).

3.4.2 Environmental Consequences – Wildlife and Fisheries

General Effects

The following general effects are described in this section; see Section 3.4.2.1 through 3.4.2.6 for specific discussions of alternatives' effects.

The effects of trailing on wildlife include disturbance (i.e. behavioral) and physical impacts to wildlife species. Physical impacts are separated into direct (e.g. nest trampling) and indirect (e.g. forage competition) effects to wildlife. Trailing activities include the following factors that result in impacts to wildlife species:

Disturbance – Cattle and Human Presence
Physical, Direct – Trampling
Physical, Indirect – Grazing
Physical, Indirect – Disease Transmission

These activities will vary in magnitude over space and time during trailing since diurnal movement of cattle will comprise relatively rapid movement of animals (generally ≥ 5 miles/day), whereas overnighting cattle would increase the magnitude of some of the factors.

Disturbance – Winter Range

Disturbance to big game (elk, mule deer, bighorn sheep and pronghorn antelope) in winter range could be a direct effect of livestock trailing. However, the large expanses of intact wintering and breeding habitat for big game in the OFO (~ 1,274,945 acres of combined pronghorn and mule deer winter and breeding habitat, all land ownerships included) would allow individuals to easily disperse from the short term disturbance caused by the trailing events and minimal activities in riparian areas would preclude disturbance to fawning mule deer. Likewise, disturbance to sage-grouse during the winter would be negligible since there is no shortage of this habitat type in the OFO relative to the small footprint of trailing activities. Consequently, there will be no measurable disturbance to any of the species being analyzed.

Disturbance – Breeding Behavior

Disturbances from anthropogenic sources have the potential to impact breeding behaviors of wildlife species. Specifically, those species that are tied to specific breeding areas (e.g. sage-grouse and sharp-tailed grouse leks, territories of monogamous birds) are likely more susceptible to disturbance, whereas species with non-resource-based defense mating systems (e.g. many mammals) (Greenwood 1980) would be able to more easily avoid disturbance impacts.

Relative to sage-grouse, noise playback simulating energy development activities has been seen to reduce the number of males displaying at leks as well as increase the amount of fecal corticosterone (indicative of stress) (Blickley et al. 2010). Although not synonymous with trailing activities, use of motorized vehicles (e.g. ATVs, motorcycles, semi-trucks) could alter lekking activities and reduce reproductive success. This impact would likely increase with the frequency of motorized disturbance associated with any given lek.

Disturbance – Nesting/Juveniles
The disturbance of nesting and juvenile individuals of numerous wildlife species can be a direct impact of livestock trailing. In this instance, disturbance is defined as any activity which could result in the frequent flushing of adults or young, nest abandonment, or loss of prey base (Owyhee RMP 1999). Human intrusions near golden eagle nest sites have resulted in the abandonment of the nest; and corresponding high nestling mortality due to overheating, chilling or desiccation when young are left unattended; premature fledging; and ejection of eggs or young from the nest (Boeker and Ray 1971, Suter and Joness 1981). Likewise, a positive correlation of off highway vehicle (OHV) trails with songbird nest desertion suggests that motorized disturbance reduces the productivity of songbirds (Barton and Homes 2006).

Physical, Direct (Trampling) – Changes in Habitat Quality/Structure
Changes in wildlife habitat and structure can be both a direct and indirect impact of livestock trailing. Livestock-caused defoliation and trampling of palatable forage species would occur on trailing routes and could have short-term adverse impacts on upland vegetation by reducing plant populations and their ability to reproduce, thereby limiting resources available to wildlife and the capacity of residual perennial plant communities to reestablish (Anderson and Holte 1981).

Long-term adverse impacts to wildlife habitat could be caused by changes in the soil structure affecting native vegetation. Soil compaction due to hoof trampling reduces water infiltration, restricts root depth, and limits seed germination (Hart et al.1993). Mechanical impacts to soils and biological crusts reduce soil stability and fixed nitrogen availability (Belnap 1995; Eldridge and Green 1994). Soil disturbance from hoof shear and bedding create habitat for non-native invasive and noxious weed species, which likely increases the overall competition between annual and perennial vegetation (Laycock and Conrad 1981).

Trailing through riparian areas could result in habitat alteration through the removal of vegetation, trampling, and ground disturbance. This could create impacts for wildlife associated with riparian and open water habitat by reducing habitat through sedimentation and streambank alteration, resulting in elevated water temperatures and lower levels of dissolved oxygen (USFWS 1995, p. 24).

If livestock trailing events occur off established roads/trails, fisheries may be affected by physical disturbance related to livestock crossings, and short term water quality impairment may include an increase in suspended sediment levels at stream crossings. Longer-term impacts at repeatedly used crossing sites could include any of the previously listed effects on physical habitat and would vary in condition level based on the intensity and seasonal timing of events.

Fish redds, if present at stream crossings during trailing periods, could be physically damaged and juvenile fish or ova within the substrate may be crushed.

Restricting vehicle use to roads and restricting the trailing routes to existing road corridors would limit soil and vegetation disturbances, habitat fragmentation, the establishment and spread of noxious weeds, soil compaction, and the alteration of vegetative community dynamics.

Physical, Direct (Trampling) – Impacts to Animals (via stepping on nests, burrow collapse)
Damage to wildlife nests and burrows from trailing activities is another potential impact. If trailing occurs during the nesting period or while species reside within their burrows, livestock could cause adult mortalities but are more likely to impact juveniles that are present. Birds that nest on the ground (e.g. long-billed curlew) or in burrows (e.g. burrowing owls) would be more susceptible to trailing impacts than shrub nesting birds (e.g. sage sparrow). Similarly, pygmy rabbits would also be susceptible to trailing impacts, especially during their natal period when juveniles would not be able to detect oncoming livestock or herding mechanisms (i.e. ATVs, motorcycles, and horses) and escape their burrows.

Physical, Indirect – Grazing (Competition for Forage)
In terms of livestock trailing there is a small potential for forage competition among livestock and big game. Competition for forage may exist under the following conditions: 1) domestic and big-game animals utilizing the same area, 2) forage plants in limited supply, 3) both domestic and big-game animals consuming the same forage plants (Smith and Julander 1953). Competition potential is determined by the amount of overlap of different animal diets on a given area. Degree of utilization is also important in determining forage competition potential as a plant species that is not utilized under moderate grazing may be fully utilized under heavy grazing. Under limited forage availability, cattle and sheep are the most successful animals as they have broad food habit adaptability which allows them to regulate their diet to what is available (Holechek et al. 2011). Elk are large ruminants with the ability to alter their food habits substantially. They have a high rumen volume/body weight ratio and therefore, quantity of forage is more important than quality of forage, and is also the reason why elk can out-compete deer when the two animals occupy the same winter range (Holechek et al. 2011). Under proper livestock grazing, minimal forage competition occurs because big-game occupy more rugged and inaccessible areas during most of the year, where livestock use is light. During the winter, big-game animals such as deer and elk utilize lower areas that receive heavy livestock use; these are the areas where forage competition potential is greatest.

Physical, Indirect - Disease Transmission
As with livestock grazing, trailing has the potential to result in disease transmission from livestock to wildlife. Two possibilities include an increase of the likelihood of West Nile virus (WNV) outbreaks via an increase in habitat for mosquitoes and the infection of bighorn sheep with pathogens carried by domestic sheep.

Some birds, like greater sage-grouse, are susceptible to WNV so outbreaks of the disease can have deleterious impacts (Naugle et al. 2004). In 2006, WNV became epidemic in southwest Idaho and some sage-grouse in Owyhee County died, most of which were along Big Springs Creek and in Duck Valley Reservation (IDFG 2007). During a follow-up study conducted

during 2007 and 2008, no infected birds were detected via blood sampling (IDFG 2008). *Curex* spp. comprise the primary mosquito genus responsible for WNV transmission (Zou et al. 2006), with *C. tarsalis* representing the primary carrier in Idaho and the western United States (Ada County 2009). Although this species has been known to successfully utilize artificial containers as larval habitat, it is a colonizing species exhibiting its highest productivity in newly created aquatic habitats with vegetative decay (SDSU 2009). Vegetation along the edges of small bodies of water typify ideal larval habitat for this species (Zou et al. 2006). Consequently, trailing activities that increase trampling in riparian areas and add to the amount of stagnant water where vegetation can persist could increase habitat for *C. tarsalis* and thus the likelihood of WNV outbreaks.

Disease was a substantial factor in the historic decline of bighorn sheep and is a key factor limiting their recovery. Pneumonia is the disease that has the greatest impact on bighorn sheep populations. Bighorn sheep are vulnerable to organisms carried by healthy domestic sheep and goats and once these organisms are transmitted, there is no effective treatment for bighorn sheep. Therefore, the management direction to reduce the impact of disease on bighorn sheep populations is to minimize or eliminate contact between bighorn sheep and domestic sheep and goats (IDFG 2010).

Table WF 2: Comparison of Impacts to Wildlife and Fisheries

Issue	Indicator	Alternative		
		Alternative A	Alternative B	Alternative C)
Sage-grouse: Lek Disturbance	Acres Trailing w/in 0.62 mi. of Occupied or Undetermined Lek from (3/1-5/15)	3,932	3,432	0
Sage-grouse: Nesting Habitat Disturbed	Acres Overnighting w/in 4.0 mi. of Occupied or Undetermined Lek (4/1-6/30)	152	152	0
Sage-grouse: Nesting Habitat Trampled	Acres Trailing and Overnighting w/in 4.0 mi. of Occupied or Undetermined Lek (4/1-6/30)	34,252	27,489	0
Sage-grouse: West Nile Virus Habitat	# of Springs and Linear Miles of Streams Impacted	13 springs and 22.4 linear stream miles	13 springs and 22.4 linear stream miles	0
Columbia Spotted Frog: Habitat Alteration	# of Springs and Linear Miles of Impacted Streams Occupied by Spotted Frogs	16.8 stream miles and 13 springs 27 spotted frog observations w/in trailing corridor.	12.9 stream miles and 13 springs 26 spotted frog observations w/in trailing corridor.	0

Pygmy Rabbit: Habitat Alteration	Acres Potential Habitat in Trailing or Overnighting Areas (3/1-7/15)	7,919	6,803	0
California Bighorn Sheep: Lambing Disturbance	Acres of Lambing Habitat In Trailing or Overnighting Areas (4/15-6/15)	0	0	0
Raptors*: Nesting Activity Disturbance	# Nests w/in 0.25-1.0 mi. (varies by species) of Trailing or Overnighting Areas (2/1-7/31)	BO – 2 PF – 11 GE – 26 RH – 1 Other – 0	BO – 2 PF – 9 GE – 26 RH – 1 Other – 0	N/A
Redband Trout: Habitat Alteration	# of Linear Miles of Impacted Streams Occupied by Redband Trout	16.8 stream miles	12.9 stream miles	0

*W. Burrowing Owl = BO, Prairie Falcon = PF, Golden Eagle = GE, RH = Red-tailed Hawk, Others = Ferruginous Hawk, Swainson's Hawk, Bald Eagle, Peregrine Falcon, Northern Goshawk

Since quantifying impacts to any one species by varying numbers of livestock is untested, values shown for effects represent an upper limit of potential acres, nests, etc. that could receive an impact from trailing. Further discussion of the direct, indirect, and cumulative impacts to greater sage-grouse, redband trout, Columbia spotted frog, pygmy rabbit, California bighorn sheep, and raptors is grouped by species in the sections below.

3.4.2.1 Environmental Consequences – Greater Sage-Grouse

Impacts to sage-grouse were broken down by effects to the following:

- Lekking activities
- Nesting activities
- Changes to conditions for mosquitoes that carry WNV

While lekking impacts were measured by disturbance to leks from March 1 to May 15, nesting impacts included 1) disturbance to nests, which are more likely pertinent to neotropical migrant songbirds covered by this analysis, and 2) and trampling of nests from April 1 to June 30. The disturbance and impacts would likely lessen as the distance increases from the route and the livestock become more diffuse. However, a width of 0.25 miles for routes was generated, except where a more restrictive 240-foot width was imposed to reduce resource impacts, and no effort was made to describe a decrease in impacts with distance to routes. Consequently, impacts were overestimated. Finally, livestock trailing across fords, bridges or culverts and along perennial creeks were measured to estimate trailing increases to habitat for *C. tarsalis*, the mosquito species responsible for carrying WNV in Idaho.

3.4.2.1.1 Alternative A

With Alternative A, potential disturbance impacts to sage-grouse lekking on BLM land would amount to 152 acres of overnighting areas and 3,932 acres of trailing disturbance. Roughly 28 occupied or undetermined leks are within 0.62 miles of trailing activities between March 1 and May 15. Even with the aforementioned trailing acres within 0.62 miles of leks, trailing activities

would have to occur between the hours of 6:00 p.m. - 10:00 a.m. to incur disturbance impacts. Few trailing events are located within this 0.62 mile corridor during these hours and during lekking season. Although some activities could occur in this time span, most trailing should not, so the number of leks possibly impacted is less. Some reduction in reproduction could result with these trailing events but given that activities represent livestock and herders travelling a minimum of three to five miles a day and lekking occurs over a 1-2 month time period, impacts would be minimal.

Nesting impacts to sage-grouse were assessed relative to trailing disturbance and trampling. Disturbance was only measured with bedding activities because trailing would comprise livestock moving at least three miles per day so any impacts to sage-grouse would include very short-term periods (1-2 hours) of nest displacement and any effects from that displacement would be minute. Sage-grouse may be affected by multiple trailing events during the nesting period but even repeated short-term nest displacement would not result in nest abandonment or harm to any eggs or young. Conversely, trampling would occur from both trailing and bedding activities. Although these impacts would decrease with the distance from the routes (i.e. cattle would be more concentrated along the roads they traverse), impacts were not adjusted and all acres within the route corridor were counted. Furthermore, impacts to sage-grouse, and the sagebrush-obligate, neotropical migrant birds it represents, would be afforded some protection from livestock movement given that all of these species generally nest at the base of or in the branches of shrubs and livestock would mostly traverse areas in shrub interspaces where travelling is easiest. Because OHV use would be restricted to existing roads and trails, effects from OHV use would be minimal on sage grouse nesting habitat.

In Alternative A, 34,703 acres of trailing would occur within 4.0 miles of occupied or undetermined sage-grouse leks. Since some nests could be displaced from shrubs or trampled during trailing, impacts could occur to sage-grouse nesting success. However, due to the protective placement of nests by sage-grouse and the overestimation of areas that will actually be trampled by cattle (see previous discussion), the entire 34,703 acres would not be removed as productive sage-grouse nesting habitat. Some reduction in fitness could be realized, but given that the area that could potentially be trampled comprises less than 4% of the priority and general habitat in the affected area and that actual impacts would be less, sage-grouse productivity in the field office would only minimally be impacted and not enough to measurably affect the population using the affected area.

Changes that could increase the habitat for the mosquito that carries WNV could potentially affect sage-grouse. Perennial streams and springs traversed by trailing represent areas that could be enhanced for mosquito larvae via pugging. In Alternative A, 13 impacted springs and 22.4 linear miles of impacted streams are within the affected area. Given that trailing has occurred historically in these areas, grazing will continue to occur in these areas, and these riparian habitats represent a miniscule fraction of what exists in the affected area (~ 348 miles of perennial streams and 300 springs) any possible increase to mosquito habitat from implementing Alternative A would be minute.

Considering the impacts to lekking activities, nesting success, and enhancement of habitat for WNV, actions associated with trailing would be minimal but could incur a slight decrease in the fitness of sage-grouse across the affected area.

3.4.2.1.2 Alternative B

There would be no disturbance impacts to sage-grouse lekking activities with Alternative B because no trailing would occur between the hours of 6:00 p.m. - 10:00 a.m. within the 0.62 mile lek buffer. These hours are in conformance with BLM Information Bulletin ID-2010-039, Seasonal Wildlife Restrictions and Procedures for Processing Requests for Exceptions on Public Lands in Idaho (BLM 2010a).

As opposed to mitigating potential impacts to lekking activities, removing trailing activities from nesting habitat (areas within 4.0 miles of active or undetermined leks) in the abundant habitat found in the affected area would be difficult while still meeting the purpose and need of this project. In Alternative B, 152 acres of overnighting areas and 27,337 acres of trailing overlapped with sage-grouse nesting habitat. As discussed under Alternative A, nest placement and an overestimation of areas that could be impacted within the trailing corridor means that impacts to nesting would be even less than the potential impacts incurred by Alternative A.

In Alternative B, possible enhancement of mosquito habitat would be the same as under Alternative A. As mentioned previously, trailing has occurred historically in these areas, grazing will continue to occur in these areas, and these riparian habitats represent a miniscule fraction of what exists in the affected area (~ 348 miles of perennial streams and 300 springs) so possible increases to mosquito habitat from this alternative would be minute.

Even more so than Alternative A, impacts resulting from Alternative B would be minimal and would only potentially incur a slight decrease in the fitness of sage-grouse across the affected area.

3.4.2.1.3 Alternative C

The only impact to sage-grouse that could occur from Alternative C would be disturbance impacts to lekking activities from trucking and trailing on maintained roads. Roads that intersect the majority of the leks include Flint Creek and Bachman Grade. Increased vehicle traffic could incur impacts to lekking sage-grouse (Blickley et al. 2010). However, this traffic would have to occur between March 1 and May 15 and between sunrise and 10:00 a.m. for these impacts to be realized. Given that trucking routes already experience vehicle traffic and that the increased traffic during the aforementioned dates and hours will represent a small fraction of all of the trucking that might occur in lieu of trailing, impacts to lekking sage-grouse would be negligible. Because trucks would operate on existing roads, there would also be no impacts to nesting sagebrush-obligate birds. Any stream crossings would occur on a bridge, a culvert, or a hardened streambank, reducing direct physical stream impacts and creating no additional mosquito breeding habitat. Overall, there would be little direct or indirect impacts to populations of sage-grouse or other sagebrush-obligate birds from any trucking resulting from Alternative C.

3.4.2.2 Environmental Consequences – Columbia Spotted Frog

Since spotted frogs are not widely distributed across the affected area (IFWIS 2011), only streams and springs adjacent to or within areas where frogs have been observed were considered for potential impacts.

3.4.2.2.1 Alternative A

With Alternative A, 16.8 linear miles of streams and 13 springs are located within the trailing corridor that either do, or could potentially, support Columbia spotted frogs. There are 27 Columbia spotted frog observations recorded within this same trailing corridor (Ibid).

Even though light to moderate grazing impacts may not negatively impact spotted frogs (Adams et al. 2009), trailing represents a more intensive, short-term, trampling impact than general grazing. Trailing in the aforementioned areas would not alter vegetation noticeably but the potential to cause direct mortality to adults, juveniles, and egg masses is possible. Overall, the potential impact to spotted frogs from this alternative would be the loss of a few individuals that would not be able to escape trampling at the few areas being traversed by livestock, but no measureable impacts to the spotted frog population in the affected area would be expected.

3.4.2.2.2 Alternative B

Impacts from Alternative B would be less than those from Alternative A, with 12.9 linear miles of streams and 13 springs located within the trailing corridor that either do, or could potentially, support Columbia spotted frogs. Within this trailing corridor, 26 Columbia spotted frog observations are also recorded (IFWIS 2011). Anywhere from zero to a few individuals could be trampled in localized areas but there would be no measurable alteration to the population in the affected area.

3.4.2.2.3 Alternative C

There would be no impacts to spotted frogs from the implementation of Alternative C. Trucks used to move livestock would stay on roads and bridges and no riparian habitat would be altered or entered. Consequently, neither individual spotted frogs nor their habitat would be affected.

3.4.2.3 Environmental Consequences – Pygmy Rabbit

An analysis of associations of pygmy rabbit locations with four ESDs showed a correlation with deep loamy soils (see discussion in Affected Environment). Therefore, these ESDs were chosen as surrogates for potential habitat for pygmy rabbits in the subsequent analysis. Additionally, only trailing events that would occur from March 1 to July 15 were considered for the impacts analysis because this represents when natal burrows would be in use and when collapsing pygmy rabbit burrows could result in mortalities.

3.4.2.3.1 Alternative A

Within trailing corridors in Alternative A, 7,919 acres of potential habitat would be traversed by livestock and their herders between March 1 and July 15. This represents roughly 2% of the 309,274 acres of potential pygmy rabbit habitat within the affected area. Most of these potential impacts would occur on South Mountain Road, Flint Creek Road, Triangle Road, and some scattered routes in the southern portion of the affected area.

As mentioned earlier, these impacts would decrease with the distance from the routes (i.e. cattle would be more concentrated along the roads they traverse) but impacts were not adjusted and all acres within an eighth of a mile from the routes were counted. Impacts to pygmy rabbits would

further be lessened since burrows would be afforded some protection from livestock movement given that pygmy rabbits generally dig burrows in clumps of sagebrush, while livestock would mostly traverse areas in shrub interspaces where travelling is easiest. Considering the declining impacts with distance from routes, the protective nature of the burrow systems, and the scarcity of active burrows at any one time, the likelihood of mortalities resulting from trailing activities are small. At most, only a few individuals could experience mortalities from collapsed burrows with no measureable impacts to the pygmy rabbit population residing within the affected area.

3.4.2.3.2 Alternative B

Impacts from Alternative B (6,803 acres of potential pygmy rabbit habitat within trailing corridors used from 3/1-7/15) would be similar but slightly less than with Alternative A. Potential impacts would also occur on South Mountain Road, Flint Creek Road, Triangle Road, and some scattered routes in the southern portion of the affected area. However, restrictions for constricting trailing activities on either side of a portion of the route on Triangle Road would decrease the amount of area impacted. The overall difference with Alternative B (vs. Alternative A) is a decrease of 1,116 acres of traversed potential pygmy rabbit habitat. At most, only a few individuals could experience mortalities from collapsed burrows with no measureable impacts to the pygmy rabbit population residing within the affected area.

3.4.2.3.3 Alternative C

There would be no direct or indirect impacts to pygmy rabbits from Alternative C because trucking and trailing would occur along maintained roads where rabbits would not excavate burrows and would likely transpire during the day when pygmy rabbits would likely be most concealed within dense shrub cover.

3.4.2.4 Environmental Consequences – California Bighorn Sheep

Disturbance to BHS lambing activities from 4/15 to 6/15, vegetation disturbance in potential BHS habitat, and disease transmission were assessed relative to impacts to BHS from the activities covered within this EA.

3.4.2.4.1 Alternative A

None of the trailing corridors included in Alternative A overlaps with BHS lambing habitat identified by IDFG (Jake Powell, pers. comm.) during the 4/15 to 6/15 BHS lambing period. Critical lambing habitat occurs on the upper portions of canyons where slopes are less steep, especially in the lower elevation portions of canyons used by BHS. Although the lambing habitat identified by IDFG is not comprehensive, it does delineate areas where BHS lambing is likely to occur.

Potential habitat quality and quantity in the Owyhee Front PMU (~ 420,800 acres of potential BHS habitat in the PMU, all land ownerships included) does not appear to be the limiting factor for BHS numbers in the PMU (IDFG 2010). Within trailing corridors, 27,796 acres of potential BHS habitat would be traversed by trailing livestock and their herders. This represents approximately 7% of the potential BHS habitat within the Owyhee Front PMU. Widespread forage competition with livestock is unlikely because BHS tend to graze on steeper slopes than cattle (Toweill 1999).

Because domestic sheep trailing will occur within potential BHS habitat inside the affected area, there is the possibility of contact and disease transmission between limited numbers of BHS and domestic sheep. While the potential risk of interaction and disease transmission between domestic sheep and BHS was rated as very high within the majority of evaluated allotments, the chances of contact occurring along domestic sheep trailing routes is low. This reduced contact risk is due to domestic sheep trailing in potential BHS habitat lasting no more than six days in the spring and two days in the fall, the use of a herder, wagon, and herding dogs by the permittee when trailing domestic sheep, the high degree of site fidelity observed in BSH herds within the Owyhee Front PMU, and the implementation of a BLM SRP and IDFG BMPs. The mandatory term and condition for confining sheep inside an electric fence when overnighting in the Poison Creek allotment, the use of additional herders and ensuring no sheep are left behind would further reduce the risk that domestic sheep could come in contact with BHS. The permittee is aware of the contact concern and has cooperatively worked with the BLM and IDFG through this process.

The noise caused by humans, wagons, and dogs would limit contact between domestic sheep and BHS when trailing within potential BHS habitat. Wild sheep view humans and dogs as predators and the physical presence and noise caused by either species are known to cause wild sheep to leave or entirely avoid an area (Sime 1999). Also, domestic sheep would be trailed through open areas, along roads, and in areas where there is other human disturbance caused by OHV, agricultural, and additional livestock use. In addition, the domestic sheep trailing event is in close proximity to other activities that would result in BHS disturbance, such as major highway traffic and recreation use at the Jump Creek Recreation Area. Because of the localized disturbances along the domestic sheep trailing route, and other disturbance activities in close proximity to the route, it is unlikely that BHS would be present near the route. This would further reduce the chance of contact between BHS and domestic sheep.

The highly concentrated nature of BHS observations within the Owyhee Front PMU is evidence that resident BHS show a high degree of site fidelity to the Reynolds and Castle Creek areas of the PMU and do not appear to travel extensively to other areas. While individual BHS observations cannot represent every BHS within the Owyhee Front PMU, the scarcity of BHS observations between the Reynolds Creek area of the PMU and the adjacent Castle Creek area (18 observations recorded from 1971-2011) and Lower Owyhee River Herd (11 observations recorded from 1971-2011) indicates that BHS sheep movement outside of the Reynolds Creek area is minimal (~ 0.7 % of all recorded BHS observations within or adjacent to the affected area boundary). Due to the minimal amount of BHS movement between the Reynolds Creek area of the Owyhee Front PMU and the Lower Owyhee River Herd, the risk of BHS coming in contact with domestic sheep during the eight days of domestic sheep trailing within the OFO is further reduced.

In addition, the existence of the BLM SRP and IDFG BMPs and the permittees' adherence to those plans and practices further reduces the risk of potential interaction and disease transmission to BHS. The factors previously discussed, combined with the small number of BHS that exist within the Owyhee Front PMU (estimated as 75 BHS, IDFG 2010), reduces the risk of BHS and domestic sheep contact to low levels along domestic sheep trailing routes. Therefore, there will

be no measurable direct or indirect effects to BHS populations from the implementation of Alternative A.

3.4.2.4.2 Alternative B

As in Alternative A, Alternative B would also not have any routes that traverse designated BHS lambing areas during the 4/15 to 6/15 BHS lambing period. Impacts from Alternative B (19,523 acres or approximately 5% of potential BHS habitat within trailing corridors) would be similar but slightly less than with Alternative A. The grazing management practices followed by the domestic sheep permittee in Alternative A, as well as IDFG BMPs, the BLM SRP and terms and conditions, would continue to be implemented under Alternative B. The overall difference with Alternative B (vs. Alternative A) is a decrease of 8,273 acres of traversed potential BHS habitat. Therefore, there will be no measurable direct or indirect effects to BHS populations from the implementation of Alternative B.

3.4.2.4.3 Alternative C

There would be no direct or indirect impacts to BHS from Alternative C if sheep were trucked because domestic sheep would not be able to come in contact with BHS. If domestic sheep were trailed entirely on maintained roads the direct and indirect impact to BHS would be the same or similar to Alterative A and B, because domestic sheep would be trailing in potential BHS habitat.

3.4.2.5 Environmental Consequences – Raptors

Because the impact from trailing includes potential disturbance to nest sites and reproductive failure, restriction buffers around raptor nests outlined in ID IB2010-039 were used to assess impacts. These buffers comprise the following for the various species:

- Ferruginous Hawk – 1.0 mi.
- Prairie Falcon – 0.5 mi.
- Peregrine Falcon – 1.0 mi.
- Bald Eagle – 1.0 mi.
- Golden Eagle – 0.5 mi.
- Red-tailed Hawk – 0.33 mi.
- Western Burrowing Owl – 0.25 mi.

The analysis only considered trailing impacts limited to the February 1 through July 31 timeframe to account for the variety of nesting periods for all of the raptors analyzed.

3.4.2.5.1 Alternative A

Activities associated with Alternative A would include trailing by one recorded red-tailed hawk, two burrowing owl, eleven prairie falcon, and twenty six golden eagle nest locations (IFWIS 2011), all of which are in the northern Owyhee Front portion of the affected area. No other raptors are known to nest along any of the routes but systematic surveys for these species have not been conducted in the majority of the affected area.

Because raptor occupancy in the affected area has not been thoroughly catalogued, existing sightings likely underestimate the true occupancy. However, the affected area does not contain plentiful suitable habitat for some of the species reviewed (e.g. bald eagle). Most of the other species (except for burrowing owls and ferruginous hawks) utilize canyons or cliffs for their nesting activities. Since trailing events would entail movement of livestock of at least five miles

per day and raptors with nests alongside pre-existing trailing routes have likely become habituated to short-term human and livestock disturbance (Karen Steenhof, pers. comm.), disturbance to cliff nesting birds would be negligible. Burrowing owls could incur impacts from trailing since suitable habitat for this species is abundant in the affected area but disturbance would be temporary and likely not cause adults to abandon nests. Overall impacts to nesting raptors would be small from Alternative A trailing, with potential for temporary displacement of individuals but the likelihood of nest failure or abandonment is minimal, and no impacts are expected to affect the populations of any of these species.

3.4.2.5.2 Alternative B

With Alternative B, routes would pass by the same raptor nests as with Alternative A except for two fewer impacted prairie falcon nests. Therefore, there would be lessened impacts to prairie falcons if any chose to use any of the aforementioned nests. The impacts to burrowing owls would also likely be less because routes have timing restrictions for sage-grouse and pygmy rabbits that protect nesting burrowing owls. In addition, constricting trailing buffers along many of the routes for other resources would mean that less area would be affected on those routes. Effects to raptors would be slightly less with Alternative B but could also result in temporary displacement of a few nesting raptors but with an unlikelihood of nest failure or impact to any population of raptors using the affected area.

3.4.2.5.3 Alternative C

Because the trucking associated with Alternative C is along routes that currently experience vehicle traffic, any nesting raptors along those routes would have become habituated to any short-term disturbance caused by vehicle traffic. Consequently, there would not be any direct or indirect impacts to nesting raptors from Alternative C.

3.4.2.6 Environmental Consequences – Redband Trout

Streams identified as redband trout habitat are widely distributed across the affected area, equaling roughly 1,436 stream miles with all land ownerships included (BLM 2002); only streams on BLM land within trailing corridors were considered for potential impacts. Because minimal direct effects would occur due to livestock trailing to riparian and water quality, indirect effects to redband trout habitat would be negligible outside the direct effects area.

In-channel fish habitat could be affected by physical disturbance from cattle trampling in the following ways: Cobble, gravel, undercut banks, and aquatic plants such as aquatic buttercup (*Ranunculus aquatilis***)** would be trampled and altered to varying degrees, reducing the habitat quality for redband trout and other fish species that use these habitats for cover. Short-term water quality impairment would include an increase in turbidity levels at stream crossings and for varying distances shortly downstream until dissipation returned to background levels. At redband trout spawning sites that could occur at a specific ford, juvenile fish or ova that had not emerged from the stream bottom gravel could also be negatively affected by several means, which are described in the effects of Alternatives A and B.

3.4.2.6.1 Alternative A

With Alternative A, 16.8 linear miles of streams (~ 8% of potential redband habitat, BLM land only) are located within trailing corridors that potentially support redband trout. As explained in Section 3.4.2.6, the direct effects to redband trout habitat at cattle crossings consists of habitat

alteration (both in-channel and to bank-stabilizing riparian vegetation), and the potential to disturb redds with juvenile fish or eggs present, if cattle crossed at a site where a redd or redds were present.

Indirect and long-term impacts at crossing sites used repeatedly over the years could include any of the previously listed effects on physical habitat and water quality (turbidity/fine sediment) and would vary in condition level based on the intensity and seasonal timing of crossing events and how often in the future the crossings continued to be used. In addition, short-term turbidity/fine sediment pulses downstream and away from an actual cattle crossing site could indirectly affect redband trout as turbidity settled out of the water column and into a redd. This could reduce oxygen or smother eggs or developing fry if a crossing site was used during redband spawning and incubation season. Due to widely varying stream and riparian zone conditions at each crossing site, it is not possible to predict how many feet downstream of the site the turbidity would travel before dissipating. Variables include the number of cattle passing through the site, the flow rate and volume at the time of each crossing event, and the turbidity concentration generated at the different crossings from differences in the type of streambank soils and stream substrate at each crossing. Crossing sites and stream lengths within the trailing corridors represent a very small percentage of the length of any streams containing redband, and the consequences to redband populations due to livestock trailing would be negligible.

3.4.2.6.2 Alternative B

Impacts from Alternative B would be similar but less than those from Alternative A, with 12.9 linear miles of streams (~ 6% of potential redband habitat, BLM land only) located within trailing corridors that potentially support redband trout. Crossing sites and stream lengths within the trailing corridors represent a smaller percentage of the length of any streams containing redband than in Alternative A, and the consequences to redband populations due to livestock trailing would be negligible.

3.4.2.6.3 Alternative C

There would be no impacts to redband trout from the implementation of Alternative C. Trucks used to move livestock would stay on roads and bridges and no riparian habitat would be altered or entered. Consequently, neither individual redband trout nor their habitat would be affected.

3.5 Cultural Resources

3.5.1 Affected Environment – Cultural Resources

Cultural resources are physical remnants of human activities or traditional lifeway values that are identifiable through field inventory, document research and ethnography. Cultural resources include objects that show evidence of human manufacture, modification or use, such as portable artifacts and non-portable features. The sites where such remains are located can provide insight into past human behavior, help maintain group identity, and establish historic and cultural context for environments.

The affected area for this analysis (Map 2) generally extends over the northern half of the Owyhee Field Office area and includes 733,000 acres of public lands. Approximately 32,000 acres of that area (4.37%) have been systematically surveyed (additional acres have been surveyed, though not to modern standards) and 929 sites and isolated finds are reported. These

include 661 prehistoric sites, 163 historic sites, 28 sites with both prehistoric and historic components, two isolated historic artifacts and 75 isolated prehistoric artifacts. More than two-thirds of the prehistoric sites are open lithic scatters lacking features, though 65 contain rock shelters and at least 30 were lithic procurement areas. Only a few known sites contain rock art or other features like rock alignments. Approximately half of the historic sites in the area are trash scatters, with slightly fewer mining sites, and smaller numbers of sheep and cattle camps, graves, cabins, homesteads, dams, and other sites. Although most of these are not within trailing corridors, taken as a whole, they are important to our understanding of regional history and prehistory.

The direct effects analysis area for the trailing permits is a 0.25-mile wide corridor all along all proposed routes and any overnighting areas. It is understood that not all permits would actually require or use the total quarter mile width, but that width is adopted here as a standard for analyses and alternative comparisons. The corridor for trailing would span much of the affected area, though it encompasses relatively few acres. Alternative A corridors cover 45,295 BLM acres, with only 33,681 BLM acres under Alternative B. Proposed trailing corridors have not been systematically surveyed for cultural resources previously, though approximately 75 cultural resource inventories have been conducted within areas of proposed trails in the past with just over 1,024 acres systematically surveyed within the corridors. Of the sites discussed above, only 90 are in Alternative A trailing corridors, and only 76 of those are included in Alternative B corridors. These sites are discussed under Alternatives A and B (Sections 3.5.2.1 and 3.5.2.2) below.

In order to evaluate current trailing permits in relation to their potential effect on cultural resources, (under the State Protocol Agreement between the Idaho BLM and the Idaho State Historic Preservation Office (SHPO) concerning grazing permit renewals), a Class I literature search was conducted for BLM lands. A GIS layer of each applicant's proposed trailing route was created to conduct an ID Team analysis of the cultural resources that are located within the area of potential effect for the proposed trailing corridors using BLM and Idaho State Historic Preservation Office (SHPO) database which contains point data for site locations and polygons showing previously surveyed areas. Original site forms, maps, and reports were consulted when additional clarity was needed. Site locations were examined in relation to existing water sources, range improvements, topography, roads, and other relevant factors. For the cultural resource analysis, each trip along the corridor with a group of livestock was considered a trailing event, and each trailing event was considered on its individual attributes. Detailed analyses of each trailing event were captured in the Cultural Resources Management Report to the Idaho SHPO (Report 12-O-03).

3.5.2 Environmental Consequences – Cultural Resources

General Discussion of Impacts

Activities associated with livestock trailing include the movement or trailing; the overnighting or bedding down; watering at stock ponds, troughs, and streams; and just the presence of the livestock. Conditions such as soil moisture, vegetation cover, concentration, and number of livestock will influence their impacts.

For the cultural resource analyses, the following criteria were evaluated:

- Whether the main trailing event would occur on an established road
- Whether overnighting was proposed
- Presence of unfenced springs or other congregation areas
- Presence of canyon rims along buffers of trailing segments
- Season of use and potential for saturated sediments

Sites themselves were evaluated based on:

- National Register eligibility or undetermined eligibility
- Presence of stratified deposits or their potential
- Presence of surface features
- Location in relation to the trail, potential congregation areas, barriers, and roads
- The reported site condition, type, and previously noted impacts

To evaluate the proposed impacts to cultural resources, the following guidelines and protocol were implemented:

- The cultural resource database created and shared by the BLM and the Idaho State Historic Preservation Office (SHPO) would act as a baseline of data.
- Only BLM-administered lands were evaluated for impacts because it was determined that the applicants had other options to accomplish the goals of trailing, so their trailing event was not contingent on obtaining a BLM trailing permit.
- All cultural resource sites are evaluated and assumed to be "Eligible to the National Register of Historic Places (NRHP)" unless evaluated as "Not Eligible to the NRHP".
- The term "historic properties" defines cultural resources as listed or eligible to be listed on the NRHP.
- Sites not eligible for the NRHP are defined as a category of cultural resources, but are not defined as historic properties that require protection from adverse impacts.
- The BLM and Idaho SHPO understand that these trailing events across these corridors have already occurred yearly for many years, and have already impacted the cultural sites along the routes.

3.5.2.1 Alternative A

Based on BLM and SHPO sites databases, a total of 90 cultural sites have been recorded within the 0.25-mile Alternative A trailing corridor. Of these sites, six are NRHP eligible, four are not eligible, and the rest are of undetermined eligibility.

General surface impacts such as artifact breakage and movement can occur from cattle or wildlife, have occurred since site formation, and do not affect the NRHP eligibility of sites. Because there are no trailing restrictions based on wet soils in this alternative, hooves could sink into soils after heavy rains or around springs causing sediment mixing and loss of site integrity at sites where NRHP eligibility is based on the potential for intact subsurface cultural deposits. This is particularly true in areas where livestock would be concentrated for long periods of time, such as overnighting areas. Over time, trailing in areas with a high erosional potential and where stratified sites are present could result in exposure and mixing of cultural levels and loss of site integrity. This can happen as loose soils are displaced, compacted, and de-vegetated in narrow swaths as large numbers of cattle repeatedly follow one another over the same ground, then water collects and flows in the channels that are formed by such action. Under Alternative A,

narrowing of trailing corridors would not be done in order to avoid sites with surface features. Thus, under this alternative, impacts could occur to certain sites with surface features or with fragile soils over time.

3.5.2.2 Alternative B

The number of sites is reduced under this alternative (vs. Alternative A) due to narrowing of some trailing segments and the re-route of another. Overnighting areas would be the same for Alternatives A and B, and overnighting would not occur near NRHP eligible sites in either alternative. Under Alternative B, 76 known cultural sites are within trailing buffers. One of these is NRHP eligible, one is not eligible, and the rest are of undetermined eligibility. Most sites are prehistoric lithic scatters or historic trash scatters where the surface component would not warrant NRHP eligibility and any potential buried component is not at risk from trailing since trailing would be limited to times when the soils are firm enough to support livestock weight without sinking. However, a few sites did warrant further consideration. In Alternative B, one route was moved in order to avoid NRHP eligible sites. Rock shelters were avoided by trail narrowing unless otherwise protected by allotment fencing, etc. One trailing corridor segment was narrowed at a site with features along a road. Trailing is not expected to have additional impacts to the site beyond those already noted upon its recording (grazing, erosion, and road maintenance) since features are situated away from the road, and test trenches done where the road intersected the site did not contain any cultural materials (Senulis 1993). Additional Class III inventories would be conducted at select locations in the project area and some site monitoring would also be done. This alternative would eliminate potential impacts of proposed trailing on cultural resources resulting in there being no historic properties affected under this alternative.

3.5.2.3 Alternative C

Trucking or trailing would be done entirely on maintained roads. Areas of sites that intersect roads are typically impacted to the extent that those portions no longer have relevance to site integrity. Therefore under Alternative C, no direct impacts to cultural resources would occur on public lands.

3.6 Wild Horses

3.6.1 Affected Environment – Wild Horses

The Wild and Free Roaming Horse and Burro Act (PL 92-195) requires the BLM to manage wild free-roaming horses and burros under multiple use management criteria in a manner designed to achieve a thriving natural ecological balance on public lands. The OFO has three Wild Horse Herd Management Areas (HMAs): Hardtrigger HMA, the Black Mountain HMA, and the Sands Basin HMA, all within this EA's affected area (see Table WHB 1 and Map 10). These wild horses compete for forage with livestock and wildlife by eating a mixture of grasses, forbs and some shrubs. However, since trailing livestock are generally not eating, competition for forage is not considered an issue.

Table WHB 1: Herd Management Areas (HMA) with associated grazing allotments, acreage and Appropriate Management Level (AML).

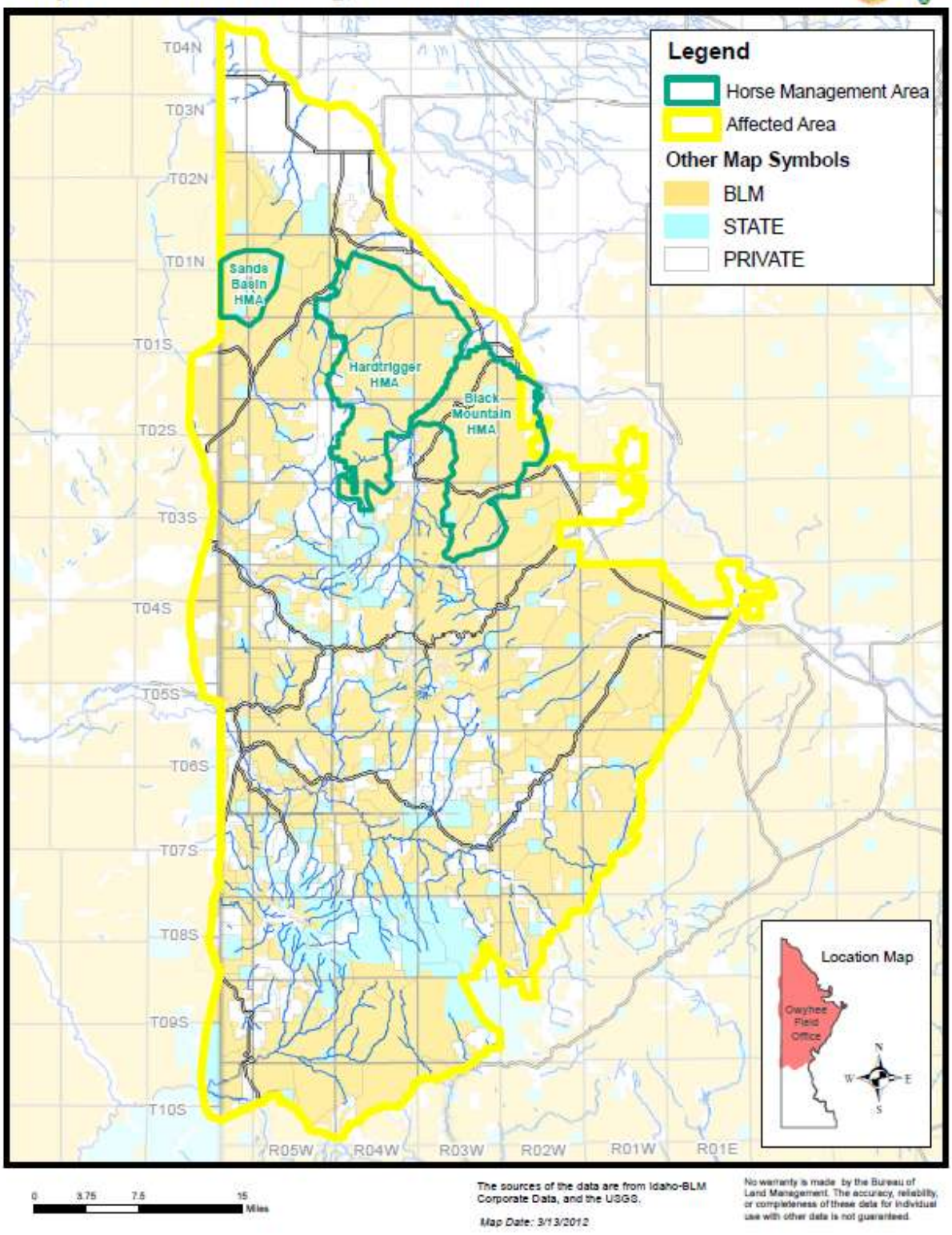
HMA	Allotments Included in HMA	Acreage*	AML**
Hardtrigger	Elephant Butte, Rats Nest, Shares Basin, Reynolds Creek, and Hardtrigger (excluding the Hemingway Butte Pasture)	68,705	66-130
Sands Basin	Sands Basin (excluding the East Sands Pasture)	11,715	33-64
Black Mountain	East Reynolds Creek, Rabbit Creek/Peters Gulch, and Hardtrigger (excluding the Hemingway Butte Pasture)	50,279	30-60

*Acreage represents Idaho state lands, private, and public ownership.
**AML=The AML is the number of wild horses to be managed within a designated herd management area (HMA) which results in a thriving natural ecological balance and avoids deterioration of the range

Wild horses are maintained in these HMAs by fencing which restricts impacts from wild horses to these specific areas. The Owyhee RMP identifies wild horse forage allocation for the three HMAs as follows:

(1) Hardtrigger Herd Management Area 1,176 AUMs
(2) Black Mountain Herd Management Area 540 AUMs
(3) Sands Basin Herd Management Area 588 AUMs

Map 10 - Horse Management Areas



3.6.2 Environmental Consequences – Wild Horses

3.6.2.1 Alternative A

Alterative A would allow for trailing of livestock within a 0.25-mile corridor. Trailing and overnighting of livestock would occur in all three HMAs. The effects of livestock trailing on wild horses would include temporary displacement of individuals and disturbance of herd activities such as breeding, foal rearing, etc. Alterative A would affect 8,346 acres of habitat, which is 6% of the total area of all three HMAs, most of which are along roads.

Under this alternative, the short (< 2 years) and long-term (> 10 years) trailing effects would be minimal to wild horses because most of trailing is occurring along maintained roads and horses usually do not congregate along well-traveled roads.

3.6.2.2 Alternative B

This alternative would also allow for trailing and overnighting of livestock in all three HMAs. However, the trailing activities would have Terms and Conditions that reduce effects on resources used by horses. For example, certain routes within these HMAs would be narrowed due to sensitive plant populations, reducing by more than half the overall affected acres (8,346 acres Alternative A versus 4,080 acres in Alternative B) in these HMAs. This would, in the short term (< 2 years) and long term (>10 years), minimally affect habitat needs for wild horses by fewer acres trailed through. Impacts due to displacement of wild horses would be similar to Alterative A because wild horses tend to avoid regularly used roads and horses usually do not congregate along well-traveled roads.

3.6.2.3 Alternative C

Applications received for crossing permits to trail livestock on public lands would be denied. Because four maintained roads cross through the HMAs there may be some trailing or trucking occurring on roads through these HMAs. This would affect a smaller percentage of the total HMAs compared to Alternative A and C. Trailing or trucking on roads would result in minimal impacts to wild horses because horses usually do not congregate along roads.

3.7 Livestock Grazing and Socio-Economics

3.7.1 Affected Environment – Livestock Grazing and Socio-Economics

For the last 100 years, livestock owners (sheep and cattle) have generally trailed their livestock from private land in spring to their permitted BLM allotment(s). Once they have completed grazing within their permitted allotment(s), the livestock are then trailed back to private land, typically in the fall. In the past this was only completed by using horses. More recently livestock owners are not only using horses to move livestock, but are also using ATVs and other OHVs because they are more efficient. Trucking livestock to grazing allotments has generally not been used (currently or in the past) due to the poor condition of BLM roads. However, if there is a need, BLM does not prohibit hauling of livestock as long as the permittee stays on existing roads.

Many of the past trailing routes have been chosen (by the applicant) based on distance and time to complete the trailing, location of overnight corrals, location of gates, and ease of travel (steepness, roughness, water crossings, etc.). Livestock operators also consider range readiness (soil and weather conditions) and whether the destination allotments are open to use upon arrival.

3.7.2 Environmental Consequences – Livestock Grazing and Socio-Economics

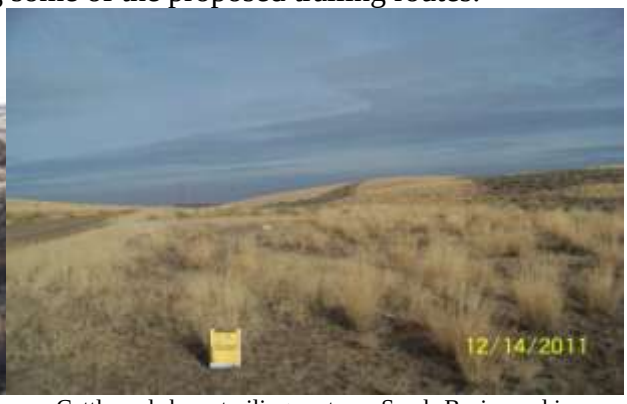
3.7.2.1 Alternative A

3.7.2.1.1 Impacts to Permittees (Alterative A)

Under Alternative A, the crossing permit applications would add a maximum of 2,303AUMs to the approximate 98,300 AUMS from Actual Use data collected in 2011. The total of the trailing and actual use AUMs would be less than the 105,899 AUMs recommended in the Owyhee RMP's 20-year projection. The forage amount authorized under this alternative (2,293AUMs) reflects the standard calculation of 43 CFR 4130.8-1(c), …" In calculating the billing the grazing fee is prorated on a daily basis and charges are rounded to reflect the nearest whole number of animal unit months," which creates a bill for a minimum of one day regardless of the actual amount of forage consumed or the actual time expended in crossing through a particular allotment or group of allotments. The amount of grazing likely to occur while livestock are moving along a trailing route is small enough (<20%) that it is unlikely to reduce forage available within the trailed through allotments. However, a fee must be administered for livestock crossing public lands at a specified rate per AUM as per BLM regulations. Where trailing involves overnight bedding, the AUMs calculated would be closer to actual forage consumption because livestock would have more time to consume forage.

Impacts from the proposed trailing routes (sheep and/or cattle) under this alternative are not expected to impact forage within these allotments in the short (<2years) or long term (>10 years), because cattle and sheep are not actively grazing. In addition, utilization of vegetation should be less than 20% along these routes. This is based on BLM staff personal knowledge and is illustrated in the following photographs along some of the proposed trailing routes.

Sheep trailing route and location near overnight area in Graveyard Point Allotment



Cattle and sheep trailing route on Sands Basin road in the Poison Creek Allotment

Cattle trailing route on road in Juniper Springs Allotment

Cattle trailing route on road in Elephant Butte Allotment

Cattle trailing route in Hardtrigger Allotment

Cattle trailing route in East Reynolds Creek Allotment

Livestock overnighting impacts to the Shares Basin, Juniper Springs, Squaw Creek FFR and Graveyard Point Allotments in unfenced areas would be minor because the majority of the livestock would be in a small area for one night. This would result in a small amount of forage consumed relative to the total forage within these allotments. Overnighting in corrals would result in a slight improvement to forage quantity within the Corral FFR, Reynolds Creek, Poison Creek and Browns Creek Allotments because livestock would be confined to smaller areas, resulting in fewer acres grazed compared to unfenced areas.

Livestock trailing has some potential to disrupt cattle that have already been turned out in an allotment. This may result in cattle being mixed up for a short amount of time. Cattle overnighting in pastures (where permitted) have more potential to mix and disrupt operations than cattle trailing because of opportunity to move around without a herder present. Because there is only one permitted sheep operator, there would be no sheep mixing conflicts. There would also be no sheep and cattle conflicts because the species generally do not co-mingle. However, there may be conflicts between cattle and sheep dogs resulting in minor displacement of cattle within the allotment.

Alternative A would not place restrictions on how livestock are trailed, except that they are kept within a 0.125-mile buffer on either side of the road. For example, limitations on trailing through closed areas, riparian pastures, allotments not scheduled for use, and timing would not be required. This may result in localized impacts to resources not present under the planned permitted use. Also, this alternative would not restrict the number of AUMs per applicant. This could result in all 400 AUMs used by one applicant within one or two allotments, which may result in impacts to resources not present under the planned permitted use.

3.7.2.1.2 Impacts to Crossing Permit Applicants (Alternative A)

This alternative does not require Terms and Conditions that would limit how the trailing activity is occurring except livestock would be required to stay within a 0.125- mile buffer on either side of the route. It also does not restrict the number of additional AUMs on these routes. It is anticipated that cattle and sheep would generally stay within this designated width. The crossing permit(s) in this alterative would describe the route, permitted season, duration, numbers, and overnight locations that have proven feasible and successful for the livestock operations that use trailing to access their allotments. The applicants consider variations among years in weather conditions, range readiness, and operational needs in describing flexibility in dates, numbers, number of trips, and distances per day traveled along the routes. Long-term knowledge about

feasible stream crossings, watering points, gate locations, and fences that aid livestock movement are incorporated into their estimates of days needed per group of livestock and proposed overnight locations. Under this alternative the livestock applicant would not be authorized to use OHVs off roads in order to comply with the Owyhee RMP. In the short term (<2 years) and long term (>10 years), this alternative would have minimal impacts to the applicant because there are few restrictions or modifications to the trailing activity.

3.7.2.1.3 Socio-Economic Effects (Alternative A)

Under Alternative A the economic impact to the trailing applicant would be minimal because the cost of moving livestock by trailing is built into the overall ranch operation. If the applicant did hire a day laborer, it would cost about $100 per day per person.

3.7.2.2 Alternative B

3.7.2.2.1 Impacts to Permittees (Alterative B)

Impacts from the proposed AUMs (2,303) under Alternative B would be similar to the impacts in Alterative A in both the short (< 2 years) and long term (>10 years). This is because livestock would be affecting the same general footprint as Alternative A and the additional AUMs would be limited to no more than 60 per application. The limit to 60 AUMs per application, which is below the average 83 AUMs per trailing application, reduces potential-unplanned impacts within the permittees' allotments compared to allowing all 400 AUMs on one route. Also, Alternative B would allow for fewer acres to be trailed on compared to Alternative A (45,295 acres in Alternative A vs. 33,681 acres in Alternative B). Trailing on fewer acres should reduce trampling impacts to vegetation thus having potentially less affect to forage available for the permittees' livestock.

Under Alternative B, the disruption to permitted cattle within an allotment from trailing cattle would be the same as Alternative A. This is because the kind of livestock, season, trailing routes and duration are the same as Alternative A. Because of this, the short and long-term effects would also be the same as Alternative A.

Alterative B would implement Terms and Conditions and design criteria that should minimize site-specific resource (riparian, wildlife, special status plants, etc.) livestock trailing impacts compared to Alternative A in the short (<2 years) and long terms (>10 years). For example, the applicant would be required to keep 90% of the trailing livestock out of the riparian areas. This should limit trailing effects to riparian areas within these allotments.

3.7.2.2.2 Impacts to Crossing Permit Applicants (Alterative B)

Alternative B, includes Terms and Conditions that would limit how the trailing activity could occur. In some instances this may result in the need for additional riders or herders to keep livestock within a narrowed trailing corridor. For example, Alternative A would authorize 0.125 mile (660 feet) on either side of the route, while Alternative B would require a 120-foot buffer on either side of the route in pastures that contain special status plants. In these areas, the applicant may need to hire additional people to keep livestock in the smaller buffer. Another Term and Condition may require the applicant to only trail livestock from 10:00 AM to 6:00 PM within 0.62 miles of a lek. Because most trailing activities start at sun up this may affect how the applicant normally accomplish the trailing. Limiting future applications to 60 AUMs would

reduce the number of trailing livestock per individual application compared to Alterative A. This would limit applicants who may want to trail large numbers of livestock at one time. Also, this alternative would not authorize use of OHVs off established roads, the same as in Alternative A.

In the short and long terms, this alternative would reduce flexibility for the applicant compared to Alternative A. However, the impacts to the applicants would be less than Alternative C because the applicants would not need to truck or trail livestock on roads.

3.7.2.2.3 Socio-Economic Effects (Alternative B)

Under Alternative B, the socio-economic effects to the trailing applicant would be greater than Alternative A, but less than Alternative C because of the Terms and Conditions that restrict or alter livestock trailing based on sage-grouse, riparian, special status species, or other resource concerns. In these areas, the addition of more day riders or help may necessary. If the applicant did hire a day laborer, it would cost about $100/day per laborer above his normal operation cost. Assuming all 23 applicants hired one additional cowboy for the duration of each trailing event(s) the cost would be about $9,700 more per year based on estimates of one rider for each day applied for. For the sheep applicant he may need to hire an additional herder for the season. This could cost up to $1,000/month. However, the cost for each applicant is variable because each operator may have alternate means of labor (e.g. friends and family members) to address additional riders/herders.

3.7.2.3 Alternative C

3.7.2.3.1 Impact to Permittee

Under Alternative C, there should be no impact to resources (riparian, wildlife habitat, etc.) within their permitted allotments because the trailing permits would be denied which would result in livestock being trucked or trailed on road surfaces. Trailing on maintained roads during wet conditions may result in surface damage to roads. If the trailing applicants truck livestock on roads there may be minor short and long-term impacts because large heavy vehicles making numerous trips could fill up cattle guards with mud or bend grates and wings. If there was damage to the cattle guards, the permittee may be responsible to maintain these structures in order to continue grazing in the allotment as per cooperative agreements.

3.7.2.3.2 Socio-Economic and Impacts to Crossing Permit Applicants

Impact to Crossing Permit Application Trailing Sheep

If the applications were denied and the sheep applicant chose to trail his sheep on maintained roads, the BLM estimated that only 1 of the 4 destinations could be accessed, assuming sheep could trail up to 3-5 miles/day. However, because the BLM assumed that all 1,600 sheep could not stay on the maintained road surface at all times it is likely that all 4 destinations would still need to be trucked to.

Number and estimates explained below were obtained through personal conversation with Tim Mackenzie who is the sheep applicant and representative for the Poison Creek Grazing Association LLC. The closest trucks to this area would come from Twin Falls, approximately 170 miles from the affected area. In order for Mr. Mackenzie to move all of his sheep in the spring (2 bands of 800 sheep) it would require him to hire four trucks to come from Twin Falls. He estimated it would take one day to move one band of 800 sheep (assuming the trucks could

haul two loads each). Because the bands do not run together, but travel the same route about a week apart, the trucks would have to return to Twin Falls, and then come back for the next band. Coming from Twin Falls, the cost was estimated at $1,500 per trip per truck for a total cost of $6,000 to move one band and $12,000 to move both bands.

If sheep were to be hauled in the spring the ewes with lambs must be loaded loosely (200 ewes) as lambs are extremely vulnerable and life expectancy decreases as animals are crowded onto the truck. Despite loading pairs loosely, there is still a death loss involved in trailing and trucking pairs. Also, as animals are overcrowded, it becomes difficult for ewes to keep track of lambs, especially twins, in transit. Lambs may not be able "mother-up" when they are unloaded at their destination, increasing the death loss of lambs.

Poison Creek Grazing Association would need to haul four times in the spring or early summer to either private ground or an allotment for which it has grazing preference. The spring trips would be hauling ewes with lambs costing roughly $12,000 for both bands for one trip or an estimated cost of $48,000. Cost estimates for fall trucking range from $7,500 to $9,000. This estimate may fluctuate depending on the number of trucks and the distance to move all of the sheep back to his private land around Homedale. The total cost of trucking the bands for one grazing season ranges from $56,500 to $57,000. The short (<2 years) and long-term impacts (>5 years) may result in the permittee being unable to utilize his permit due to the high cost of trucking.

Impacts to Crossing Permit Applicants Trailing Cattle

If the applications were denied and livestock applicants chose to trail livestock on maintained roads, the BLM estimated that 16 or less destination could be accessed; assuming livestock could trail up to 10 miles/day. However, because cattle are not assumed to stay on the maintained road surface at all times and some livestock, especially young calves, may not travel that far in one day, it is likely that most of the destinations would still need to be trucked to.

Trucking cattle is estimated to cost approximately $4.00 per mile round trip. That estimate is subject to increase with adverse road and weather conditions. The price of diesel strongly influences trucking cost and based on recent fuel prices the cost is anticipated to go up. Typical capacity for a cattle truck is 40 cows or 32-35 cow/calf pairs. (Information gained from personal conversation with Tim Miller, livestock operator and trailing applicant). On average it may take nine truckloads to move 300 cows.

If the applications were denied and the applicant trucked livestock the BLM identified that 36 of the 58 trailing destinations could be accessed by using approximately 450 miles of roads. This would cost about $930,000 and would truck about 50% of the cattle that were applied for. Because not all cattle could be trucked, 22 destinations could not be accessed. This may place a financial burden on operators that have traditionally used those destinations that are BLM grazing allotments because they would be required to buy hay at a cost of $200-300/ton and/or rent pasture. In cases where private land is concerned, it may mean that the owner cannot use their private land. In the short term (< 2 years) this may not affect some applicants. However, in the long term (>10 year) the cost of trucking, hay, and renting private pasture may render it unrealistic and require applicants to find other locations for their livestock.

3.7.2.3.3 Impact to Crossing Permit Applicants (Cattle and Sheep)

If the permits were denied, portable facilities would need to be erected prior to shipping because limited shipping facilities (corrals and chutes, etc.) exist, especially on public lands, where trailing events may be initiated. In addition to creating additional cost in logistics, time, and labor for the permittee, the BLM would also be required to complete the appropriate clearances for wildlife, cultural, plant, and other resources.

Trucks capable of hauling livestock require minimum road conditions for safe and efficient travel. Loaded trucks (80,000 to 90,000 lbs.) require maintained roads that are bladed and graveled periodically. Maintained roads are typically firm and dry enough to support the loaded truck without sinking or sliding off the road surface. However, even maintained roads may be impassible with adverse weather conditions.

Situations exist that affect the ability to use maintained roads. Specifically, general spring climatic patterns lead to wet and muddy road conditions. Greater damage to road surfaces may occur during this time. Road conditions may be such that they are impassible or present a safety hazard because of weather. Availability of trucks may be limited if all applicants are required to truck livestock during the same time period. Securing a truck and driver may also be challenging due to the driving hazards on many of these roads, especially in adverse weather conditions. Some roads, even though they are well-maintained, may not be accessible to livestock hauling trucks because of their length and clearance. Tight turns that can't be navigated (due to length of the trailer), deep dips that could cause the truck or trailer to high center or uneven ground conditions that could damage low trailers often occur on maintained roads. As with trucking, trailing on wet, muddy maintained roads may result in hazards to livestock and herders due to horses or livestock falling down and being injured. Vehicle and livestock truck collisions and road damage may also occur during these conditions.

Most roads suitable for heavy truck use would require some annual maintenance, which would result in an additional cost. Increasing heavy truck traffic on these roads may also necessitate more frequent maintenance. However, with the BLM facing declining budgets, less frequent maintenance of roads travelled by livestock trucks is possible; this could ultimately lead to roads becoming unusable for the livestock operators as well other public users. Effects from increased trucking would result in greater adverse impacts to the roads, livestock operators, and general public as compared to Alterative A or B.

3.8 Cumulative Effects

3.8.1 Scope of Analysis – Most Resources

The cumulative effects analysis area encompasses four hydrologic sub-basins (Middle Snake-Succor, upper Owyhee, Middle Owyhee, and Jordan) and extends from Idaho into Oregon, but does not include Nevada (Map 11 – Cumulative Effects Analysis Area). The cumulative effects analysis area is 4,301,307 acres; the direct/indirect effects analysis area makes up about 40% of the cumulative effects analysis area. Within the cumulative effects analysis area, land ownership or management acreages are shown in Table CE 1.

Table CE 1: Land Ownership or Management within Cumulative Effects Analysis Area

Owner or Agency	Acres	Percent of Area
BLM – Idaho	1,971,716	46%
BLM – Oregon	1,105,276	26%
Private – Idaho	547,851	13%
Private – Oregon	213,186	5%
State – Idaho	215,260	5%
State – Oregon	89,968	2%
Duck Valley Indian Reservation – Idaho	123,790	3%
Indian Reservation – Oregon	562	<0.1%
Other agency (BOR, NWR) – Idaho	18,089	0.4%
Other agency (BOR, DOE, NWR) – Oregon	17,492	0.4%
Total:	4,301,307	100%

The cumulative effects analysis area was selected because it covers a landscape scale large enough to capture watershed and ecological processes relevant to the proposed livestock trailing, such as water quality and weed movement. In particular, the cumulative effects analysis area is an appropriate scale to analyze effects to sage-grouse populations, given known local and published information on sage-grouse movements. The sub-basin area analyzed incorporates the 28-km greatest annual BLM sage-grouse range determined from 2002-2011 IDFG telemetry data. It also encompasses the 18-km area recommendation for protection of breeding habitat for migratory sage-grouse from Connelly et al. 2000 and the 24-km movement area of males from Wik 2002.

3.8.2 Past, Present, and Reasonably Foreseeable Future Activities and Effects

Table CE 2 includes recent (since about 1995) activities relevant to the current environment where quantitative information is available. For analysis purposes, the impacts of past activities (pre-1995) within the project area were considered to be reflected in existing resource conditions. The impacts of any specific past action may be difficult or impossible to individually quantify and disclose due to issues like inconsistent data collection methodology in the past, data that have become lost or missing over time, and the lack of data in the case of unplanned events (wildfire). Therefore, this analysis does not attempt to quantify specific impacts (pre-1995) for each past activity within the project area, but rather uses the most current and scientifically accurate data available to identify the existing condition of each resource. Reasonably foreseeable actions are those that have been scoped for NEPA and are generally planned for the next three years. Recent past, present, and reasonably foreseeable future actions within the analysis area are included in Table CE 2 and addressed in the cumulative impacts analysis for each resource.

Table CE 2: Cumulative Actions

Project/Activity	Date	Agency	Description of Activity
Recent Activities Within the Analysis Area			
Livestock Grazing	1999-2002	Private land	Idaho: 1999 45,000 Cattle in Owyhee Co. Oregon: 2002 Oregon: 18,000
Livestock Grazing	1999	BLM Oregon	Idaho: 135,000 Permitted AUMs Oregon: Approximately 140,000 AUMs
Range Improvements	2005-2012	BLM	Idaho: Approximately 40 miles of new fence projects including 16 new water developments Oregon: Approximately 2 miles of fences, 1 water development
Energy Infrastructure	1999	All	Idaho: 1 500Kv transmission line 1 buried pipeline 10 communication sites Swan Falls Oregon: 17.1 Miles of 500Kv 2 MET tower sites 2 radio repeaters 3 RAWS stations
Dams	1999	Private/BLM	C.J. Strike, Swan Falls, Owyhee Reservoir
Road Construction and Maintenance	1999	All	Estimate 700 miles of road
Special Recreation Permits	1999	BLM	OFO: 5 land based and 6 rivers/year

Project/Activity	Date	Agency	Description of Activity
Wilderness & Wild and Scenic River Designations	2009	BLM	OFO: 2 Wilderness: 310,741 acres Wild and Scenic River Designation: Deep Creek 13.1 N Fork Owyhee 20 miles Owyhee 67.3 miles Red Canyon 4.6 miles South Fork Owyhee 31.4 miles Oregon: 153 Miles
Wildfire and Fuels Projects	2001-2011	BLM	OFO: BLM 2001 to 2011 110,000 wildfire 2007-2011 109, 0000 acres of fuels Oregon: Approximately 5,000,000 acres since the 1970s (this includes areas that have been treated multiple times)
Developed Recreation & Administrative Sites	1999	BLM	OFO: 11 recreation areas Oregon: 15 recreation areas
Hunting, Trapping, OHV Non-motorized, Camping, Water, and Winter Sports	1995	All	Over 220,000 Visitor days in a year
Weed Treatments	2000	BLM	Oregon and Idaho: 500-700 acres/year
Wild Horses	1999	BLM	OFO: Approximately 300 head Oregon: 75-150 horses on the Three Fingers HMA; however, only 1,261 acres are in the cumulative analysis area
Present and Reasonably Foreseeable Future Activities Within the Analysis Area			
Livestock Grazing	Ongoing	BLM	Idaho: Estimated Active Use 120,264 AUMs Oregon: 140,000 AUMs Future decisions will include management to meet or move toward Standards & LUP objectives which may reduce these levels
Livestock Grazing	Ongoing	Private and State	Owyhee County: 34,500 Cattle Oregon: 20,000 cattle (approximate)

Project/Activity	Date	Agency	Description of Activity
Fuels Projects/ Land Treatments	2012-2014	BLM	Idaho: 50,000 acres for 3 years: 500 acres Silver City 25,643 acres Trout Springs 18,623 acres Pole Creek Oregon: 50,000 acres for 3 years
New Range Improvements (Construction)	2012-2014	BLM	Idaho and Oregon: Trend is for about 3-7 ponds, 3-7 water developments, 3-10 miles of new fence/year. However, 0 projects may be constructed due to funding.
Range Improvements (Maintenance)	2012-2014	BLM/ permittee	Idaho and Oregon: 20-40 miles of fence maintained, 5-10 water developments maintained, 2-3 cattle guards cleaned out.
Energy Infrastructure	ongoing	BLM	Idaho: Gateway West/B2H, FM Tower Oregon: Boardman to Hemmingway
Dams	2012-2014	All	Idaho: 0 Oregon: 0
Road Maintenance	Ongoing	County/BLM	County: 500-800 miles/year of blading, mowing and potholes BLM: 100-200 miles/year of blading
Habitat Projects	2012-2014	Private/State lands	Idaho and Oregon (estimated) 500-1000 acres /year
Special Recreation Permits	Ongoing	BLM	15-25 upland SRPs/year
Travel Management Planning	2012-2014	BLM	Idaho: 260,000 miles limited to designated routes and the rest is limited to existing routes till TMP is completed. Oregon: All routes open
New Wilderness and Wild and Scenic River Designation	2012-2014	BLM	OFO: None Oregon: None
Wild Horses	Ongoing	BLM	Idaho: approximately 200-300 head total AML Oregon: Oregon: 75-150 horses (AML) on the Three Fingers HMA, however only 1,261 acres are in the cumulative analysis area

Project/Activity	Date	Agency	Description of Activity
New Developed Recreation/ Administrative Sites	2012-2014	BLM	2 recreation areas
Weed treatment	Ongoing	BLM	Idaho and Oregon 500-700 acres/year

3.8.3 Cumulative Effects –Watershed/Soils, Riparian Areas, and Water Quality

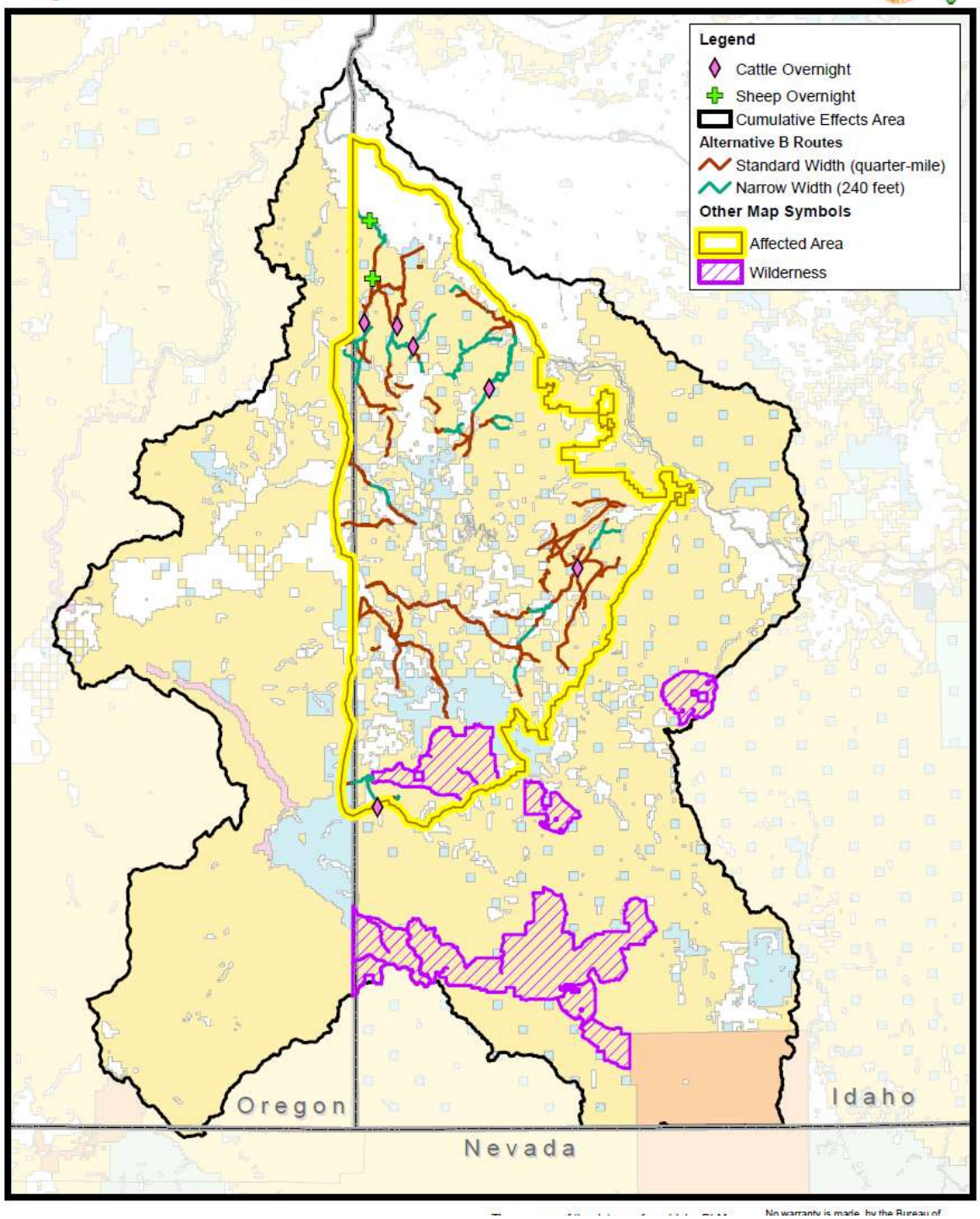
Scope of Analysis

The cumulative effects analysis area (four hydrologic sub-basins) was selected appropriate for analyzing effects to watershed/soils, riparian areas and water quality because of the size of the affected environment. These resources are usually analyzed on a watershed basis due to their physical and ecological linkage to upstream and downstream areas. However, the four sub-basins would be an appropriate analysis area because sub-basins encompass the analysis area, retaining watershed/soils, riparian area and water quality connectivity; and disturbances such as fire and livestock grazing affecting landscape scale ecological processes are relevant within this area.

Current Conditions

The cumulative analysis area includes Middle Snake-Succor, Jordan, Middle Owyhee, and Upper Owyhee sub-basins with 1,752 miles of perennial streams, 11,392 miles of intermittent streams and 2,000 springs (USDI 2010). There are approximately 900 stream miles meeting their beneficial uses and assigned water quality standards, 2,900 stream miles that are water quality impaired or only partially meeting their beneficial uses, and 2,600 stream miles have not been assessed (Map 12; IDEQ 2011; ODEQ 2012). Analysis timeframes include past activities that have created the present conditions, present or ongoing activities and future activities planned within the next three years, including the expected duration of effects from current and future activities (generally up to 20 years).

Map 11 - Cumulative Effects Area



Activities such as agriculture, road construction, energy infrastructure footprints, water developments, mineral developments, and many low elevation wildfires have eliminated vegetation by replacing native plant communities, altered soil functions and processes due to

vegetation removal/replacement and surface removal, altered hydrology due to vegetation/soil impacts and dewatering due to water developments, and affected water quality and beneficial uses by introducing pollutants either directly or indirectly into waterways, within each activity's area of impact for the short (<20 years) and long (>20 years) terms. All of these impacts affect the individual watershed's function and collectively the sub-basin's function. This has affected about one-fifth of the cumulative effects analysis area.

Activities such as livestock and wild horse grazing, weed treatments and recreation activities affect vegetation (both riparian and upland), soils, stream channel morphology, and water quality across a larger footprint, close to the remaining four-fifths of the cumulative effects area for these activities collectively. These activities produce a lower level of disturbance that affects upland and riparian plant community composition and structure which, in turn, directly affects soil processes (i.e. nutrient cycling, erosion), channel form, and water quality. Water quality is of particular concern because many of the perennial streams in the cumulative effects analysis area are not meeting Idaho and Oregon Department of Environmental Quality water quality standards, primarily due to high water temperatures and/or sediment. Both water temperature and sedimentation are influenced by a variety of factors such as stream morphology and vegetation, both of which have been affected by livestock grazing. Other activities such as mid and higher-elevation wildfires, fuels projects, and powerline construction, have high-intensity but short-term effects on vegetation and soils. Vegetation is set back to an earlier, native seral stage for a few years, and soils are moved and/or compacted; however, these areas usually grow back and become stable with a mature native plant community.

Reasonably foreseeable activities such as fuels projects (gross almost 45,000 acres planned in Idaho and about 50,000 acres planned in Oregon), future decisions on grazing allotments (which are likely to result in similar or lower AUM numbers compared to current levels in order to meet Rangeland Health Standards and Guidelines), and travel management implementation would potentially affect vegetation (both riparian and upland), soils, stream channel morphology, and water quality similarly to what was described in the previous paragraph. However, these activities would produce short-term disturbances that would affect small areas, but over the long term, would be expected to result in stable or improved vegetative and soil conditions as juniper encroachment is reversed, livestock management practices are improved, and noxious weeds are controlled. Travel management plans would also improve vegetation and soils in the long term by reducing impacts from vehicle travel off of designated travel routes. However, these expected improvements in vegetation and soil conditions may be offset by the continuing increases in invasive species (particularly at lower elevations as more weeds become locally adapted and spread), increased recreation visitor use, and potential effects from climate change (such as increased carbon dioxide levels potentially favoring juniper and/or cheatgrass, for example).

3.8.3.1 Alternative A and B - Cumulative Effects

Cumulative effects to watershed/soils, riparian areas, and water quality from implementing trailing as proposed in Alternative A and B combined with the incremental effects of all the other identified (past, present, reasonably foreseeable future) activities would be minor. The acres directly affected by trailing make up only 1% of the cumulative effect analysis area in Alternative A. Alternative B would potentially impact 33,681 acres, 26% fewer acres than in Alternative A; this is less than 1% of the cumulative effects analysis area. Riparian and water

quality impacts, when considering past, present and reasonably foreseeable future activities (previously identified) are additive, but would be minor. Sedimentation (directly by hoof action and/or indirectly by increased dust) would add to sedimentation levels produced from agriculture and fire (wild or planned). Streams potentially affected within the cumulative analysis area are Succor Creek, Jordan Creek, and North Fork Owyhee River. However, trailing effects are limited in both time (short duration per year) and space, so the cumulative effects of trailing, when combined with the short-term (a few months) disturbance but long-term (≥ 5 years) improvements anticipated from foreseeable activities as described above, is expected to be only slight because the improvements would offset much if not all of the disturbance, they affect a relatively small proportion of the landscape, are of very short durations. Consequently, the cumulative impacts are not expected to have lasting watershed/soils, riparian areas, and water quality effects for the long term.

3.8.3.2 Alternative C – Cumulative Effects

Livestock would be trailed or hauled on non-BLM roads, State managed lands, or on private lands. Because there are no watershed and soil direct or indirect effects, there would be no cumulative impacts when considered with past, present and reasonably foreseeable future activities. However, riparian and water quality impacts, when considering past, present and reasonably foreseeable future activities (previously identified) are additive, but would be minor. Sedimentation due to increased dust from vehicle traffic (from hauling livestock) and from trailing would add to the current streams' sedimentation levels from other activities (fire, grazing, and agriculture). That specific sediment amount is expected to be small due to the short duration of the trailing events, the relatively small area that is trailed upon (only roads), and offset by improvements anticipated from foreseeable activities as described above. The overall cumulative effects would be only slightly less than what was described in Alternatives A and B.

3.8.4 Cumulative Effects – Upland Vegetation

Scope

The cumulative effects analysis area (four hydrologic sub-basins) is appropriate for analyzing effects to upland vegetation (including special status plants and noxious/invasive weeds) because relevant disturbances, such as fire, livestock grazing, and weed movement, affect ecological processes at a landscape scale within this area.

Current Conditions

Upland Vegetation Groups

Within the cumulative effects analysis area, the most abundant current vegetation is sagebrush and other shrub types, followed by juniper/conifer woodlands, as shown in Table CE 3 Upland Vegetation Groups. Disturbed lands, such as the exotic annual grassland of the semi-natural herbaceous group, along with developed and agricultural lands, make up approximately one-fifth of the cumulative effects analysis area. Descriptions of these groups are found in Section 2.6.1.1.

Table CE 3: Cumulative Effects Analysis Area Upland Vegetation Groups (all ownerships)

Vegetation Group	Percent of Cumulative Effects Analysis Area
Salt Brush Scrub	2%
Inter-Mountains Basins Big Sagebrush Steppe	26%

Vegetation Group	Percent of Cumulative Effects Analysis Area
Inter-Mountains Basins Mountain Sagebrush Steppe	13%
Owyhee Plateau Low Sagebrush Steppe	8%
Juniper and Conifer Woodlands	25%
Semi-natural Herbaceous	14%
Other (Developed, wetlands, riparian, sparse vegetation, alpine)	12%

The figures in vegetation groups in Table CE 3 are based on LANDFIRE existing vegetation mapping, rather than the PNNL mapping used in Table Veg-1 for the affected area, because LANDFIRE data are available across a wider area (including Idaho and Oregon). Vegetation classification names are similar, although not exactly the same, but when grouped at this coarse level are comparable.

Past actions to be considered include livestock grazing, range improvements, energy infrastructure, roads, wildfires, fuels projects, mineral developments, weed treatments, and wild horses (See Table CE 2 Cumulative Actions). Current and reasonable foreseeable future activities include most of the same activities (Table CE 2).

Past and present actions have affected the upland vegetation in a variety of ways. High-intensity activities, such as agriculture, road construction, energy infrastructure footprints, water developments, mineral developments, and many low elevation wildfires have eliminated vegetation by entirely replacing native plant communities within each activity's area of impact for the short (<20 years) and long (>20 years) terms. Most of these activities have been in place for decades. These activities have affected about one-fifth of the cumulative effects analysis area. Lower-intensity activities, such as livestock and wild horse grazing, weed treatments, and some recreation activities, often affect vegetation across a larger footprint, close to the remaining four-fifths of the cumulative effects area for these activities collectively. These activities produce a lower level of disturbance, which affect species composition and structure within the plant community, but normally do not eliminate the native plant community. Other activities, such as mid and higher-elevation wildfires, fuels projects, and powerline construction, have high-intensity but short-term effects on vegetation, as vegetation is set back to an earlier, native seral stage for a few years; over time, these areas grow back into a mature native plant community. For example, the estimated five million acres that have been treated for fuels or burned by wildfires since the 1970s within the cumulative effects analysis area in Oregon have a much smaller cumulative effect than that number suggests, because many of those areas were treated multiple times (such as a juniper cutting followed by burning, followed by seeding, followed by juniper sapling control, for example) which individually and collectively result in improved vegetative conditions over time (more similar to reference bunchgrass/sagebrush plant communities, in this case), rather than substantial negative impacts to vegetation.

Reasonably foreseeable large-scale projects (dependent on available funding) that would affect vegetation in the cumulative effects analysis area include fuels projects (gross almost 45,000 acres planned in Idaho and about 50,000 acres planned in Oregon) and future decisions on grazing allotments (which are likely to result in similar or lower AUM numbers compared to

current levels in order to meet Standards). Localized activities that affect relatively small acreages within the cumulative effects analysis area include range or wildlife habitat improvement, energy projects, and noxious weed treatments. These large- and small-scale activities would affect vegetation in the cumulative effects analysis area by producing short-term disturbances that would kill individual plants and affect small areas, but over the long term would be expected to result in stable or improved vegetative conditions as juniper encroachment is reversed, livestock management practices improve, and noxious weeds are controlled. Travel management plans would also improve vegetation in the long term by reducing impacts from vehicle travel off of designated travel routes. These expected improvements in vegetation conditions may be partially counteracted by continuing invasive species increases (particularly at lower elevations as more weeds become locally adapted and spread), increased recreation visitor use, and potential effects from climate change (such as increased carbon dioxide levels potentially favoring juniper and/or cheatgrass, for example).

Special Status Plants

Within the cumulative effects analysis area, occurrences of 68 different BLM Idaho or Oregon special status plants are recorded. Approximately 734 occurrences of these special status plants have been recorded, mapped within about 179,779 acres. (Note that much of this acreage figure is due to imprecise mapping from old, non-specific location records, which means that total acres occupied are overestimated.) These special status plants consist of annuals and perennials, and they occur in a variety of habitats. These plants have been designated special status because of rarity (either across the species' range or within the state), threats, and/or declining trends. Occurrences of special status plants have been affected by the same types of past actions that have affected general vegetation groups, with varying high and low intensity activity effects. However, little specific information on impacts to many of these species is available.

Effects to special status plants from reasonably foreseeable activities are expected to be similar to those described for upland vegetation. As in upland vegetation, planned fuels projects may have short-term impacts, but long-term improvement for special status species habitat due to general upland vegetation improvement. Short-term impacts from construction or treatment projects are likely to be minimal because avoiding special status plant occurrences is typically a standard design feature for these projects. Also, grazing permit renewals typically consider grazing systems that minimize impacts (trampling and grazing) to special status plants, by adjusting the timing and intensity of cattle use in occupied habitat. Invasive weed spread is likely to continue to be a threat in many special status plant occurrence areas.

Noxious Weeds and Invasive Plants

Within the cumulative effects analysis area, 3,437 infestation records of 21 species of noxious weeds have been mapped. Most noxious weed infestations are under an active treatment program, treating approximately 600-900 acres per year across the area, by a variety of chemical, mechanical, and biological methods. Although complete eradication of noxious weeds is highly unlikely, given budget and staffing levels for both federal and state weed control agencies, control effects are expected to keep noxious weed infestations from increasing in the short (<20 years) and long (>20 years) terms.

Invasive plants not designated as noxious are widespread to scattered across the cumulative effects analysis area, similar to as described for the affected area (above). These weeds are not under an active eradication program and are expected to be stable to gradually increasing in the future due to the competitive nature of these species.

Reasonably foreseeable activities are likely to have little effect on noxious weeds and invasive plants. Noxious weed eradication efforts are expected to continue at similar levels as current efforts (600-900 acres per year across the cumulative effects analysis area), resulting in stable to decreasing noxious weed acreage. Invasives are expected to increase across the landscape because these species are extremely competitive, despite otherwise improving vegetation conditions (as described above), potentially affecting native plant communities and special status plants. The short-term disturbances associated with the planned activities are expected to favor invasives in localized areas, leading to small areas with a flush of weeds. However, with expected stronger native perennial vegetation (as a result of planned fuels projects and grazing management change), invasive weeds are not expected to show rapid, large-scale increases due to these activities.

3.8.4.1 Alternative A – Cumulative Effects

Cumulative effects on upland vegetation from implementing trailing as proposed in Alternative A would be slight. Alternative A would authorize 2,303 AUMs annually for trailing, and potentially trample approximately 45,000 acres in short-term trailing events. The AUMs amount to an increase of 0.8% in the permitted AUMs for the cumulative effects area, which is unlikely to have a measurable effect on upland vegetation. The acres directly affected by trailing in Alternative A make up only 1% of the cumulative effect analysis area, and not all of these acres would actually be trailed upon. About one-fifth of the cumulative effects area has lost its native vegetation and the much of the other four-fifths has ongoing impacts from grazing and other activities; Alternative A's trailing would add a very slight increment to previous and other ongoing disturbances. Reasonably foreseeable projects are expected to have short-term disturbance but long-term improvements to vegetation (such as fuels projects affecting about 100,000 gross acres or 2% of the cumulative effects analysis area, or grazing permit adjustments which may affect roughly a third of the allotments), or affect a very small portion of the landscape (such as noxious weed treatment affecting about 500-700 acres/year which is 0.016% of the cumulative effects analysis area, or energy infrastructure construction, which would also affect small acreages). Trailing effects are limited in both time (short duration per year) and space, and so the cumulative effects of trailing on upland vegetation, when combined with the short-term disturbance but long-term vegetation improvement anticipated from foreseeable activities described above, is expected to be only slight.

Cumulative effects on special status plants from implementing Alternative A trailing would also be slight, for the same reasons as described for upland vegetation. Trailing would potentially affect occurrences of 23 special status plant species, or 34% of the special status species known in the cumulative effects analysis area. The proportion of occurrences (rather than number of species) of these special status plants affected is even lower, with only 7% of the occurrences in the cumulative effects analysis area potentially affected. Trailing typically would affect only part of an occurrence because of the limited area involved; in Alternative A, potentially affected occurrence acres within the corridors are only 3% of the mapped acreage within the cumulative effects area. Thus, the overall extent of effects on special status plants is limited. In addition,

because trailing effects are short duration and generally low intensity (usually one pass on a given piece of ground per trip), direct effects are low. The effect of past activities on special status plants is difficult to quantify because long-term monitoring data are not available. Current and reasonably foreseeable future activities are not expected to have substantial negative effects on special status plants because design features are generally applied to mitigate effects to these species. When combined with past, present, and reasonably foreseeable activities' effects on special status plants, the trailing proposed in Alternative A is likely to have slight cumulative effects, and is not expected to lead towards listing under the Endangered Species Act for any special status plant.

Cumulative effects on noxious weeds and invasive plants from implementing trailing as proposed in Alternative A are expected to be low. Because noxious weed treatment is ongoing on infestations within the trailing corridors, trailing is not expected to significantly contribute cumulatively along with other past, present, and reasonably foreseeable future activities to noxious weed acreages in the cumulative effects analysis area. Trailing as proposed in Alternative A would contribute to cumulative effects on the spread of other invasive plants because livestock would be moving through untreated infested and non-infested areas across various distances, serving as seed vectors, and these effects would be additive to effects from other activities (grazing, recreation travel, vegetation treatments, along with the competitive nature of invasives) that contribute to the spread of invasive non-native plants. However, these cumulative effects are expected to be low because of the limited time and acreage involved within the cumulative effects analysis area.

3.8.4.2 Alternative B – Cumulative Effects

Because Alternative B has nearly the same trailing routes as Alternative A, except with narrowed corridors in some pastures, cumulative effects from Alternative B are virtually the same as those described for Alternative A, but slightly reduced. Alternative B would have the same number of days, animals, and AUMs as Alternative A, so the magnitude of cumulative effects would be the same as described in Alternative A, but the extent of impacts is less. Alternative B would potentially trample 33,681 acres, or about 26% fewer acres than in Alternative A; this is less than 1% of the cumulative effects analysis area. The direct trampling effects on these acres (see Section 3.2.2), when combined with effects of past, present, and reasonably foreseeable activities as described in Alternative A, would have negligible cumulative effects on upland vegetation for Alternative B.

Because corridors would be narrowed through pastures containing special status plants in the otherwise 0.25-mile wide corridors, Alternative B would affect fewer occurrences of special status plants than Alternative A, so cumulative effects in Alternative B would be similar but lower than those described in Alternative A. Trailing as proposed in Alternative B would potentially affect only 4% of the number of occurrences, and less than 1% of the acres for those occurrences within the cumulative effects area. The cumulative effects on special status plants from Alternative B would be very slight when combined with the effects of past, present, and reasonably foreseeable future activities (as described for Alternative A), and would not lead towards listing under the Endangered Species Act for any special status plant.

Likewise, cumulative effects from Alternative B on the spread of noxious weeds and invasive plants, when considered with past, present, and reasonably foreseeable future activities (as

described above) would be similar to but slightly lower than those described in Alternative A, because of the reduced amount of acres impacted.

3.8.4.3 Alternative C – Cumulative Effects

No livestock trailing permits would be issued. Livestock could be trailed on State managed lands or on private lands, as they are currently, or trucked or trailed on maintained roads. No permit for trailing on BLM lands would be issued, so no direct and negligible indirect effects to vegetation are expected from trucking or trailing on maintained roads; thus, Alternative C would have no cumulative impact when considered with past, present and reasonably foreseeable future activities.

3.8.5 Cumulative Effects – Wildlife and Fisheries

Scope

The cumulative effects analysis area for all analyzed wildlife species, excluding BHS, encompasses four hydrologic sub-basins (Middle Snake-Succor, Upper Owyhee, Middle Owyhee, and Jordan) and extends from Idaho into Oregon, but does not include Nevada. The cumulative effects analysis area is 4,301,307 acres; the direct/indirect effects analysis area makes up about 40% of the cumulative effects analysis area. The cumulative effects analysis area is appropriate for analyzing effects to wildlife and fisheries (including special status animals) because relevant disturbances, such as fire, livestock grazing, and weed movement, affect ecological processes at a landscape scale within this area.

The cumulative effects analysis area for BHS encompasses the Lower Owyhee River Herd in OR, Owyhee Front PMU in the BLM OFO and Bruneau Field Office (BFO), and Jack's Creek PMU in the BFO (see Figure CE 1). The cumulative effects analysis area is 3,403,238 acres (all land ownerships included); the direct/indirect effects analysis area makes up approximately 50% of the cumulative effects analysis area. The cumulative effects analysis area is appropriate for analyzing effects to BHS because currently available data indicates that BHS movement between other herds and PMUs adjacent to the affected area boundary (Upper Owyhee River Herd, Owyhee River PMU, and Bruneau-Jarbidge PMU) occurs only minimally, if at all. In addition, relevant disturbances, such as fire, livestock grazing, and weed movement, affect ecological processes at a landscape scale within this area.

In the Bruneau and Owyhee Field Offices, telemetry data for sage-grouse have been collected by Idaho Department of Fish and Game and the University of Idaho (UI). Data collected by the UI (Wik 2002) described average movements by sage-grouse of approximately 15 miles for males and 11 miles for females. Additionally, recent analysis by BLM of sage-grouse tracked by IDFG from April 2002 through December 2011 (IDFG 2011) showed that birds travelled approximately 17 miles annually (sexes, ages, and years combined; BLM 2011). The aforementioned IDFG data represents the greatest straight line distance from the earliest location during the breeding period to all subsequent locations within an annual cycle and only data from birds characterized with information spanning breeding through winter seasons were used. Having calculated these distances originally in metric units, this larger value was rounded to 28 km (17.4 miles). The sub-basins area analyzed incorporates the 28-km greatest annual BLM sage-grouse range determined from 2002-2011 IDFG telemetry data. It also encompasses the 18-km area recommendation for protection of breeding habitat for migratory sage-grouse from Connelly et al. (2000) and the 24-km movement area of males from Wik (2002).

Current Conditions

Past and present actions have affected wildlife and fisheries populations and their associated habitat in a variety of ways. High-intensity activities, such as agriculture, road construction, energy infrastructure footprints, water developments, mineral developments, and many low elevation wildfires have either entirely eliminated existing habitat or have replaced native plant communities with exotic plant communities within each activity's area of impact for the short (<20 years) and long (>20 years) terms, reducing suitable wildlife habitat throughout the cumulative effects area. This habitat conversion has affected about one-fifth of the cumulative effects analysis area. Lower-intensity activities, such as livestock and wild horse grazing, weed treatments, and some recreation activities, often affect habitat across a larger footprint, close to the remaining four-fifths of the cumulative effects area for these activities collectively; these activities produce a lower level of disturbance which affects species composition and structure within the plant communities that make up wildlife habitat, but normally do not entirely eliminate the native plant community. Other activities, such as mid and higher-elevation wildfires, fuels projects, and powerline construction, have high-intensity but short-term effects on habitat, as vegetation is set back to an earlier, native seral stage for a few years; over time, these areas grow back into a mature native plant community, providing suitable wildlife and fisheries habitat for a variety of species.

Table CE 4: Cumulative Effects Analysis Area Wildlife Habitat

Vegetation Group	Percent of Cumulative Effects Analysis Area
Sage-grouse Potential Priority Habitat	43%
Sage-grouse Potential General Habitat	36%
Sage-Grouse 4 mile Nesting Habitat Buffer	63%
California Bighorn Sheep Potential Habitat	26%

Reasonably foreseeable large-scale projects that would affect wildlife and fisheries and their associated habitat in the cumulative effects analysis area include fuels projects (gross almost 45,000 acres planned in Idaho and about 50,000 acres planned in Oregon) and future decisions on grazing allotments (which are likely to result in similar or lower AUM numbers compared to current levels in order to meet Rangeland Health Standards and Guidelines). Localized activities that affect relatively small acreages within the cumulative effects analysis area include range or wildlife habitat improvements, energy projects, and noxious weed treatments. These large- and small-scale activities would affect wildlife habitat in the cumulative effects analysis area by producing short-term disturbances that would kill individual plants and affect small areas, but over the long term would be expected to result in stable or improved wildlife habitat as juniper encroachment is reversed, livestock management practices improve, and noxious weeds are controlled. Travel management plans would also improve wildlife habitat in the long term by reducing impacts from vehicle travel off of designated travel routes. These expected improvements in habitat may be counteracted by continuing invasive species increases (particularly at lower elevations as more weeds become locally adapted and spread), increased recreation visitor use, and potential effects from climate change (such as increased carbon dioxide levels potentially favoring the spread of juniper and/or cheatgrass, for example).

Greater Sage-Grouse

Past actions and their contribution toward existing conditions have been described. Ongoing and future actions that will be considered for how alternatives for this project could interact to cumulatively affect sage-grouse include the following from Table CE 2:

- Livestock Grazing
- Livestock Trailing
- Range Improvements
- Recreational Hunting
- Fuels Projects, Land Treatments
- Wildfire, Suppression, Emergency Stabilization and Rehabilitation

Columbia Spotted Frog

Past actions and their contribution toward existing conditions have been described. Ongoing and future actions that will be considered for how alternatives for this project could interact to cumulatively affect spotted frogs include the following from Table CE 2:

- Livestock Grazing
- Wildfire, Suppression, Emergency Stabilization and Rehabilitation

Pygmy Rabbit

Past actions and their contribution toward existing conditions have been described. Ongoing and future actions that will be considered for how alternatives for this project could interact to cumulatively affect pygmy rabbits include the following from Table CE 2:

- Livestock Grazing
- Range Improvements
- Silver City Fuels Project
- Trout Springs Fuels Project
- Wildfire, Suppression, Emergency Stabilization and Rehabilitation

California Bighorn Sheep

Past actions and their contribution toward existing conditions have been described in regards to the cumulative effects analysis area for all other wildlife species. The past actions and their contribution toward existing conditions to BHS would be similar to those described in the cumulative effects analysis area for all other wildlife species (see Table CE 2), but would affect fewer acres (3,403,238 BHS analysis acres vs. 4,301,307 wildlife analysis acres). Ongoing and future actions that will be considered for how alternatives for this project could interact to cumulatively bighorn sheep include the following from Table CE 2:

- Livestock Grazing
- Livestock Trailing
- Range Improvements
- Recreational Hunting
- Fuels Projects, Land Treatments
- Wildfire, Suppression, Emergency Stabilization and Rehabilitation

Raptors

Past actions and their contribution toward existing conditions have been described. Ongoing and future actions that will be considered for how alternatives for this project could interact to cumulatively affect nesting raptors include the following from Table CE 2:

- Silver City Fuel Project
- Trout Springs and Pole Creek Fuels Projects
- Wildfire, Suppression, Emergency Stabilization
- Special Recreation Permits (i.e. motorcycle races in competitive use area)

Redband Trout

Past actions and their contribution toward existing conditions have been described. Ongoing and future actions that will be considered for how alternatives for this project could interact to cumulatively affect redband trout include the following from Table CE 2:

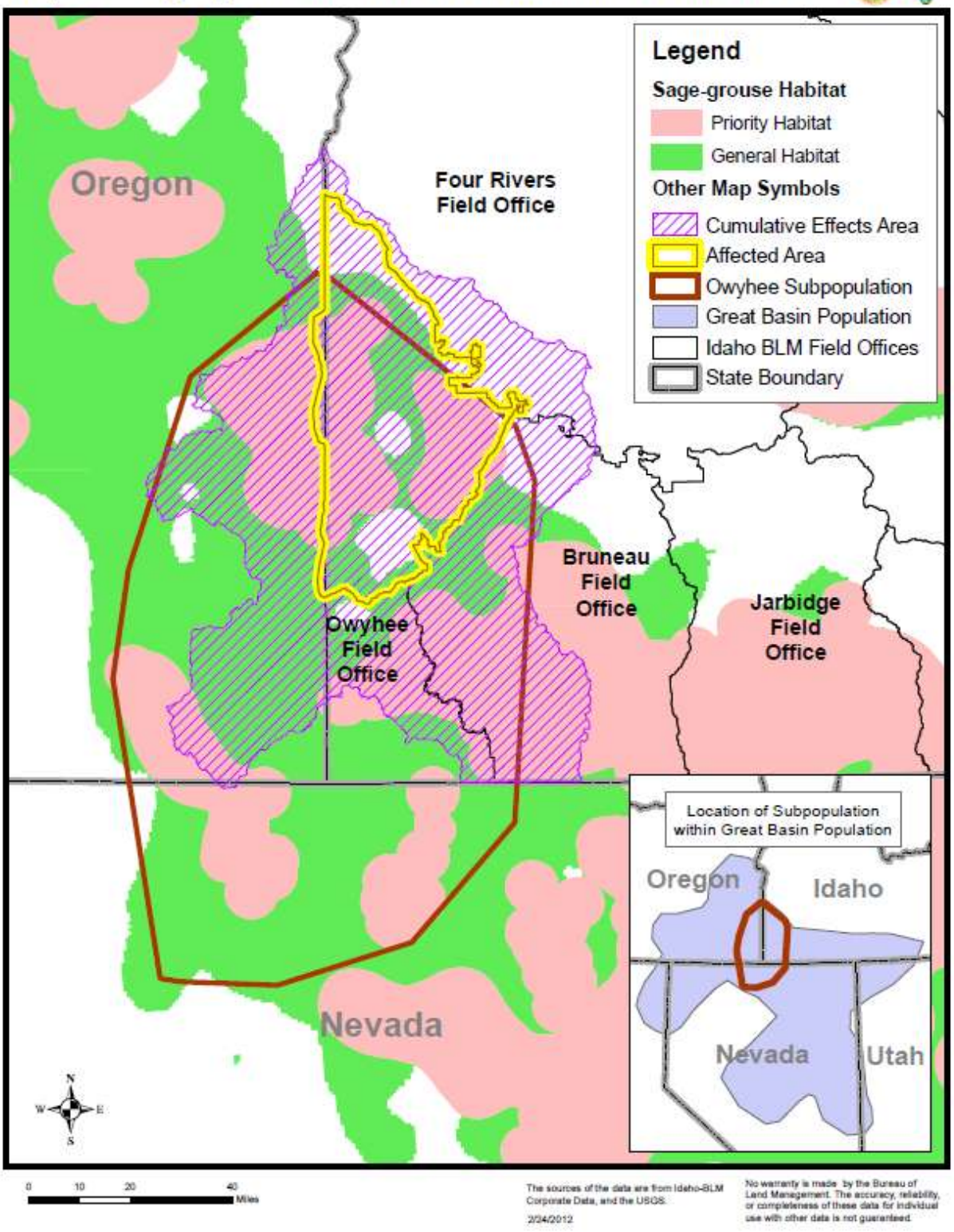
- Livestock Grazing
- Wildfire, Suppression, Emergency Stabilization and Rehabilitation

3.8.5.1 Alternative A – Cumulative Effects

Greater Sage-Grouse

The area assessed for cumulative impacts to sage-grouse includes the affected area and portions of Idaho BLM's Bruneau FO, Four Rivers FO, and Oregon BLM's Vale DO (see Map 13). Direct and indirect impacts from Alternative A were deemed minimal but could include a small impact to sage-grouse. The projects selected for cumulative effects analysis included those that could synergistically interact with the lekking, nesting, and WNV impacts resulting from Alternative A.

Map 13 - Sage-grouse Habitat and Cumulative Effects Area



Livestock grazing, trailing, and range improvements on federal lands would continue to move toward Standards that would either enhance areas for sage-grouse that are in poor condition or maintain those areas currently in good condition. Additionally, livestock management on private lands is expected to continue similar to current management so these lands are not expected to worsen and contribute toward increasingly negative impacts to sage-grouse. Additionally, sage-grouse local working groups (e.g. Owyhee County) support juniper removal on private lands in Owyhee County presently and in the future. These projects are concentrating efforts in wet meadow areas as a means to improve late brood-rearing habitat for sage-grouse.

The impacts of recreational hunting on sage-grouse populations are unclear, but current harvest management is not considered a significant threat to sage-grouse populations (ODFW 2011). Recreational hunting of sage-grouse would continue to occur in authorized areas on public lands within the cumulative effects analysis area. IDFG and Oregon Department of Fish and Wildlife (ODFW) biologists are actively evaluating the effects of hunting on sage-grouse within those areas. Existing data support the conclusion that the current Idaho sage-grouse season structure is well within suggested hunting guidelines (Connelly et al. 2000, ISAC 2006, ODFW 2011).

Three proposed fuels reduction projects comprising conifer/juniper removal on over 44,000 acres of BLM land in Idaho alone have the potential to affect sage-grouse habitat. All of these projects would ultimately provide beneficial impacts to sage-grouse by restoring sage-grouse habitat that has become unsuitable due to conifer/juniper encroachment.

Lastly, wildfire suppression and emergency stabilization activities will occur in the future but locations and amounts of impacted habitat are impossible to determine. Given the interim guidance that the BLM is currently under (IM 2012-043, which mandates compliance with IM 2011-138, "Sage-grouse Conservation Related to Wildland Fire and Fuels Management"), protection of sage-grouse habitat is viewed as highly important. Consequently, it is unknown how much sage-grouse habitat may be affected but possible impacts will be minimized as a result of the aforementioned guidance.

Because the projects considered in the cumulative effects area are expected to continue, and would benefit sage-grouse via habitat enhancement and protection, the overall combination of the minimal effects from this alternative, when combined with effects from the past, present, and potentially foreseeable future projects within the cumulative effects area, would not cumulatively have a measurable impact on sage-grouse populations at any scale assessed.

Columbia Spotted Frog

Direct and indirect impacts to spotted frogs from Alternative A are so minimal as to be minuscule. When combined with grazing in the affected area, which has not been shown to have a negative impact on spotted frogs if it is at light or moderate levels (Adams et al. 2009), the effects to spotted frogs would not amount to anything greater than that described by direct and indirect effects from Alternative A. Secondly, wildfire suppression and emergency stabilization activities would occur in the affected area, and even though the locations and quantities of impacts cannot be predicted, the Boise District Fire Management Plan (BLM 2011) specifically prescribes for the protection of BLM Special Status Species. Consequently, impacts from this alternative, when combined with effects from any other past, present and foreseeable future

projects in the affected area, would not cumulatively result in measurable consequences to spotted frogs.

Pygmy Rabbit

Direct and indirect impacts from Alternative A could occur if pygmy rabbit natal burrows are collapsed during the natal period. Other projects that could impact pygmy rabbits include livestock grazing and range improvements on federal ownership. These activities would continue to move toward rangeland health standards that would either enhance habitat for pygmy rabbits that are in poor condition or maintain those areas if they currently exist in good condition. Range improvement projects would account for impacts to special status species (including pygmy rabbits) and include designs to minimize or preclude those impacts. Additionally, livestock management on private lands are expected to continue under current management so they are not expected to worsen and contribute toward increasingly negative impacts to pygmy rabbits.

Additionally, the Silver City and Trout Springs Fuels projects could prevent wildfires from consuming large areas of sagebrush habitat and enhance sagebrush habitat via juniper removal, respectively. Both of these projects could ultimately provide beneficial impacts to pygmy rabbits.

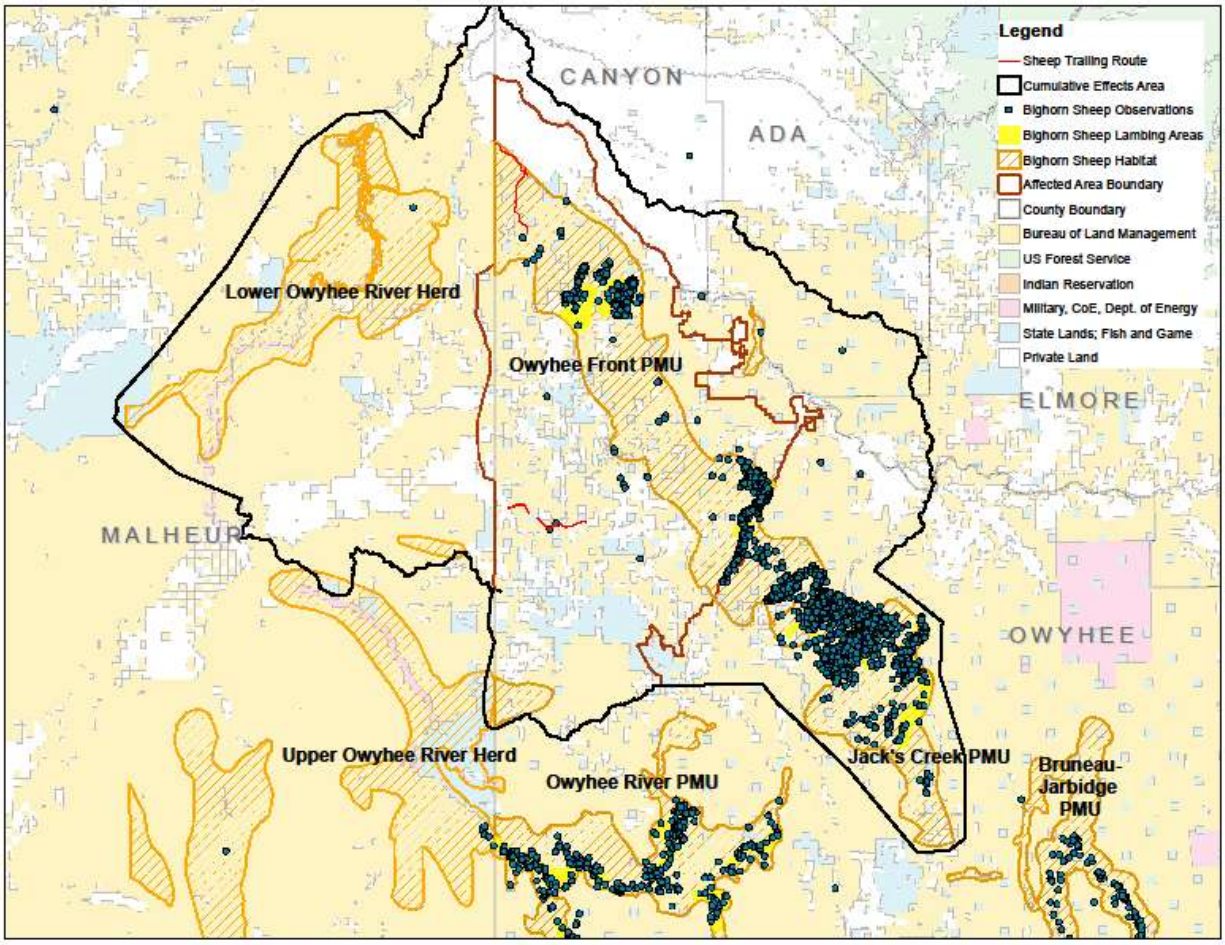
Lastly, wildfire suppression and emergency stabilization activities would occur in the future but locations and amounts of impacted habitat are impossible to determine. Given the interim guidance that the BLM is currently under (IM 2012-043, which mandates compliance with IM 2011-138, "Sage-grouse Conservation Related to Wildland Fire and Fuels Management"), the emphasis on protection of sage-grouse habitat will also benefit pygmy rabbits because they use similar intact areas of sagebrush. Consequently, it is unknown how much sagebrush habitat may be affected but possible impacts would be minimized as a result of the aforementioned guidance.

Projects considered in the cumulative impacts area are expected to continue roughly as they have, or would benefit pygmy rabbits via habitat enhancement and protection. Thus, the overall combination of the minimal effects from this alternative, when combined with any from the past, present, and foreseeable future projects within the affected area, would not cumulatively have a measurable impact on pygmy rabbit populations at any scale.

California Bighorn Sheep

The area assessed for cumulative impacts to sage-grouse includes the affected area and portions of Idaho BLM's Bruneau FO, Four Rivers FO, and Oregon BLM's Vale DO (see Figure CE 1).

Figure CE 1: BHS habitat with the cumulative effects analysis area



Livestock grazing, trailing, and range improvements on federal ownership would continue to move toward Standards that would either enhance areas for bighorn sheep that are in poor condition or maintain areas currently in good condition (see Section 3.8.5 Current Conditions). Additionally, livestock management on private lands is expected to continue similar to current management so private lands are not expected to worsen and contribute toward increasingly negative impacts to bighorn sheep.

Because domestic sheep use will occur on both public and private lands within BHS habitat inside the cumulative effects area, the possibility of contact and disease transmission between limited numbers of BHS and domestic sheep does exist. In Oregon, most domestic sheep allotments in BHS habitat were switched to cattle prior to the ODFW's efforts to reintroduce BHS. Therefore, potential for contact between BHS and domestic sheep in Oregon is considered low (ODFW 2003). While the potential risk of interaction and disease transmission between domestic and BHS in Idaho was rated as very high for areas where BHS habitat and domestic sheep use overlap, the chances of contact occurring during domestic sheep trailing events is considered low (see Section 3.4.1.4). Analysis of permitted domestic sheep grazing on OFO

BLM lands is currently underway, and will be addressed in the EIS document resulting from that analysis.

Recreational hunting of BHS would continue to occur in authorized areas on public lands within the cumulative effects analysis area. IDFG and ODFW biologists are actively evaluating the effects of hunting on BHS within those areas. Existing harvest data support the conclusion that the current BHS season structure will continue to maintain or increase the current BHS population. (IDFG 2010, ODFW 2003).

Proposed fuels reduction projects comprising conifer/juniper removal on BLM lands have the potential to affect potential bighorn sheep habitat. All of these projects would ultimately provide beneficial impacts to bighorn sheep by restoring habitat that has become unsuitable due to conifer/juniper encroachment.

Lastly, wildfire suppression and emergency stabilization activities would occur in the future but locations and amounts of impacted habitat are impossible to determine. Given the interim guidance that the BLM is currently under (IM 2012-043, which mandates compliance with IM 2011-138, "Sage-grouse Conservation Related to Wildland Fire and Fuels Management"), protection of sage-grouse habitat is viewed as highly important. Consequently, it is unknown how much bighorn sheep habitat may be affected but possible impacts would be minimized as a collateral result of the aforementioned guidance.

Projects considered in the cumulative impacts area are expected to continue roughly as they have, or would benefit big horn sheep via habitat enhancement and protection. Thus, the overall combination of the minimal effects from this alternative, when combined with any from the past, present, and foreseeable future projects within the affected area, would not cumulatively have a measurable impact on big horn sheep populations at any scale.

Raptors

Direct and indirect impacts from Alternative A would include temporary displacement of nesting birds. Other projects that could impact nesting raptors would include the Silver City, Trout Springs, and Pole Creek fuels projects, all of which could prevent wildfires from consuming large areas of sagebrush habitat and/or enhance sagebrush habitat via juniper removal. Consequently, all projects could ultimately provide beneficial impacts to raptors that rely on prey species associated with sagebrush habitats. Conversely, even though junipers in the fuels projects represent human-caused encroachment (via fire suppression), reducing the amount of available juniper trees could reduce suitable nesting sites for ferruginous and red-tailed hawks.

Wildfire suppression and emergency stabilization activities would also occur in the future but locations and amounts of impacted habitat are impossible to determine. Given the interim guidance that the BLM is currently under (IM 2012-043, which mandates compliance with IM 2011-138, "Sage-grouse Conservation Related to Wildland Fire and Fuels Management"), the emphasis on protection of sage-grouse habitat would also benefit some raptor species that utilize sagebrush-associated prey species. Consequently, it is unknown how much sagebrush habitat may be affected but possible negative impacts to raptors associated with sagebrush-dependent prey species would be minimized as a result of the aforementioned guidance.

Motorcycle races that typically occur during February and March each year also have the capacity to impact nesting raptors. However, the races normally occur before most raptors begin nesting in the affected area and areas near vulnerable golden eagle nesting territories are affected by seasonal trail closures.

Impacts from Alternative A include a potential to briefly disturb nesting raptors, while projects considered in the cumulative impacts area are expected to benefit prey species for some raptors (fuels reduction and fire suppression/stabilization), have no discernible impact (motorcycle races), or reduce nest sites for some species (Pole Creek and Trout Springs fuels projects). Given that the juniper being removed would not normally exist in the two fuels project areas (if natural fire processes had been maintained) and an abundance of juniper would remain proximate to the project, impacts to raptors will be minimal. Overall, the combination of the minimal disturbance effects from this alternative, when combined with any from the past, present, and potentially foreseeable future projects within the affected area, would not cumulatively have a measurable impact on any population of raptor species.

Redband Trout

Direct and indirect impacts to redband trout from Alternative A are so minimal as to be minuscule. When combined with grazing in the affected area, the effects to redband trout would not amount to anything greater than that described by direct and indirect effects from Alternative A. Secondly, wildfire suppression and emergency stabilization activities would occur in the affected area, and even though the locations and quantities of impacts cannot be predicted, the Boise District Fire Management Plan (BLM 2011) specifically prescribes for the protection of BLM Special Status Species. Consequently, impacts from this alternative, when combined with effects from any other past, present and foreseeable future projects in the affected area, would not cumulatively result in measurable consequences to redband trout.

3.8.5.2 Alternative B – Cumulative Effects

Greater Sage-Grouse

Cumulative impacts from Alternative B are less than those described for Alternative A. Although both alternatives would have only minimal direct and indirect effects and there would be no measurable impacts to sage-grouse populations, Alternative B would have even less consequences to sage-grouse due to the imposed timing and location restrictions.

Columbia Spotted Frog

Cumulative impacts resulting from the implementation of Alternative B would be the same as Alternative A. Since direct and indirect impacts are so small as to be negligible and other projects that could occur in the affected area would have no predictable negative consequences to spotted frogs, there would be no cumulative impacts to spotted frogs from this alternative beyond the aforementioned direct and indirect impacts.

Pygmy Rabbit

Direct and indirect effects from Alternative B are slightly less than those resulting from Alternative A. Therefore, the minimal direct and indirect effects to pygmy rabbits resulting from Alternative B would interact similarly with other ongoing and future projects in the area and there would be no measurable impacts to pygmy rabbit populations in the affected area.

California Bighorn Sheep
Direct and indirect effects from Alternative B would be the same as those resulting from Alternative A. Therefore, the minimal direct and indirect effects to bighorn sheep resulting from Alternative B would interact similarly with other ongoing and future projects in the area and there would be no measurable impacts to bighorn sheep populations in the affected area.

Raptors
Although impacts from Alternative B are similar to Alternative A, they would be smaller because Alternative B impacts two fewer prairie falcon nests and the constriction of some routes would reduce the total amount of acres being trailed. Consequently, the minimal direct and indirect effects to raptors caused by Alternative B would interact similarly with other ongoing and future projects in the area and there would be no measurable impacts to raptor populations in the affected area.

Redband Trout
Cumulative impacts resulting from the implementation of Alternative B would be the same as Alternative A. Since direct and indirect impacts are so small as to be negligible and other projects that could occur in the affected area would have no predictable negative consequences to redband trout, there would be no cumulative impacts to redband trout from this alternative beyond the aforementioned direct and indirect impacts.

3.8.5.3 Alternative C – Cumulative Effects

Greater Sage-Grouse
There would be no measurable direct or indirect impacts to sage-grouse from Alternative C. Consequently, there would be no cumulative effects to sage-grouse resulting from the implementation of Alternative C.

Columbia Spotted Frog
The lack of direct and indirect effects to spotted frogs in Alternative C means that there would be no incremental effects to contribute to cumulative effects to this species.

Pygmy Rabbit
Since there will be no direct or indirect effects to pygmy rabbits in Alternative C, there will be no incremental effects to contribute to cumulative effects to this species.

California Bighorn Sheep
There would be no measurable direct or indirect impacts to bighorn sheep from Alternative C. Consequently, there would be no cumulative effects to bighorn sheep resulting from the implementation of Alternative C.

Raptors
Since there would be no direct or indirect effects to raptors in Alternative C, there would be no incremental effects to contribute to cumulative effects to any of these species.

Redband Trout

The lack of direct and indirect effects to redband trout in Alternative C means that there would be no incremental effects to contribute to cumulative effects to this species.

3.8.6 Cumulative Effects – Cultural Resources

Scope

The cumulative effects analysis area is the same as the affected area boundary, encompassing both public and private lands, and is appropriate for analyzing effects to cultural resources because the area does not dissect relevant historically known cultural boundaries.

Current Conditions

Both historic and prehistoric sites in the affected area are generally represented by open artifact scatters of resilient materials, some of which have the potential for buried components containing more perishable materials that could be of scientific and cultural interest. Within the area, such sites have sometimes been impacted by roads, transmission lines, and fences that have been built through them, generally without affecting their NRHP eligibility. Bull-dozing, mining, dam construction and other ground-disturbing activities that took place before NEPA clearance had a much greater potential for impacts, including total site destruction. These earlier ground-disturbing activities were more likely to have caused harm to the elements of sites that made them NRHP eligible; current BLM policy and federal regulations require mitigation of impacts for more recent activities. More generalized and lower impact activities such as ATV use, grazing, and prescribed fires might influence surface artifacts to some extent, but their impacts will be similar to wildfires, trampling by wildlife, and other natural changes that happened to site surfaces in the past and will not affect site eligibility. As long as vegetation and soils at these sites are allowed to recover after major disturbances, significant erosion at sites from these activities will not occur. As new range improvements, recreation projects, and radio towers are proposed, cultural resources will be considered, and any potential impacts will be mitigated on a case-by-case basis. Larger projects such as the Gateway West energy infrastructure project undergo Class III sample surveys and mitigation of reported sites, and Class III surveys are also done before fuels treatment projects so that sites warranting protection can be avoided during prescribed burns.

General Discussion of Impacts

The majority of trailing routes currently proposed follow established roads or trails, many of which were in existence long before NEPA requirements. Grazing has had a long history in the study area. Local Native American tribes obtained horses around 1700 A.D. and soon controlled vast herds. By 1840s, the Oregon Trail was bringing thousands of people, horses, mules, oxen, and cattle through Idaho. These stock animals depleted a wide ribbon of vegetation along the Oregon Trail (Vale 1975, Yensen 1982). After gold was discovered in Idaho in 1862, miners and the businesses that supported them created mining districts and towns like Silver City and drovers like Con Shea began moving herds numbering into the thousands across Idaho to feed miners and for markets elsewhere (Hanley and Lucia 1973, Yensen 1982). As early as the 1860s, settlers removed acres of sagebrush to make fields for crops (Yensen 1982). By the mid-1860s, several bands of sheep had been trailed to Idaho from California and Nevada, and the 1890 census listed 357,712 sheep in Idaho (Yensen 1982). Ranchers also raised thousands of horses for work, transportation and freighting. These industries have resulted in both site impacts and in the presence of related historic sites.

Both site factors and spatial factors were considered when determining whether future impacts could occur from trailing and what mitigation measures should be applied. Site factors include NRHP eligibility, site type, presence of features or other surface remains that could potentially be damaged during trailing, potential for buried deposits, and presence of visible trail remnants along historic trails. Spatial characteristics include distance from the proposed trail and placement of natural and artificial barriers between trails and sites such as fences or major drainages, and location in relation to potential congregation areas such as unfenced springs, watering areas or overnighting areas. Sites where NRHP eligibility is undetermined were treated as if they were eligible. Surface scatters with potential buried deposits were not usually considered to be in need of special protection because trailing would not be allowed when soils are saturated and thus livestock should not sink into and mix sediments beyond a few centimeters. Generally the upper 10 centimeters of a site can be considered already disturbed, so trailing would not cause further impacts. Within Alternative B, no overnighting would be allowed within 0.25 miles of sites with rock shelters, rock art, standing structures, or other features that could be at risk from animals rubbing against them, sheltering in them, etc., since the concentration of hundreds of cattle for longer periods of time during overnighting would increase de-vegetation and soil disturbance in those areas. Individual sites must be considered based on their unique attributes and at the cumulative impact scale discussed in this document because unique data from individual sites can be used to understand regional prehistory and history.

3.8.6.1 Alternative A – Cumulative Effects

If the applicants' trailing routes were permitted without modification, trailing through sites with high erosional potential or fragile features would not be avoided. Although similar impacts have likely occurred to these sites in the past; potential impacts of trailing, if any, could continue and possibly increase at some sites. However, the limited spatial and temporal nature of trailing and its main focus on existing roads would limit or eliminate those impacts. Even when considered with cumulative impacts from natural erosion, weathering, fires, and human-caused activities such as season-long livestock grazing for many years, use of existing roads by cars, trucks, and OHVs, construction of range improvements, and energy infrastructure projects, our ability to understand regional history and prehistory would not be affected and sites relating to important events or individuals would not be damaged. Thus the additive effects of trailing would have no significant impacts when combined with these activities in the cumulative impact area.

3.8.6.2 Alternative B – Cumulative Effects

Alternative B represents trailing routes requested by the applicants with modifications or Terms and Conditions required by the BLM to minimize impacts to natural and cultural resources caused by the proposed trailing events.

Trailing effects would be lessened due to trailing restrictions required by the Terms and Conditions and measures taken to avoid site impacts on a case-by-case basis. Cumulative effects would be similar to but less than those described in Alternative A and the additive effects of trailing would have no significant impacts when combined with these other activities in the cumulative effects area.

3.8.6.3 Alternative C – Cumulative Effects

Trucking or trailing would be done entirely on maintained roads. Therefore under Alternative C, no direct impacts and therefore no cumulative effects to cultural resources would occur on public lands.

3.8.7 Cumulative Effects – Wild Horses

Scope

The cumulative effects analysis area is the three HMAs within the affected area. This represents 130,608 acres of private public and state land. This is appropriate because wild horses are confined to these three areas due to fencing.

Current Conditions

Currently 450 horses graze within the three HMAs. Fencing has confined horse movement to a predetermined area. Due to few predators, horse populations regularly increase, so to maintain AMLs, horses have periodically been removed from these areas. Overall 131,960 acres are available for wild horses.

Other activities like weed infestations, livestock grazing, recreation, and range improvement activities have and are occurring within the area. In the future the BLM plans to spray weeds, allow for continued livestock grazing that meets or is making significant progress towards meeting the Standards, and develop or maintain range improvements to improve livestock grazing management. Also, the BLM plans to remove additional horses in the near future (next three years) to maintain appropriate populations.

3.8.7.1 Alternative A – Cumulative Effects

Cumulative effects on wild horses from implementing trailing as proposed in Alternative A combined with the effects of all the other identified (past, present, reasonably foreseeable future) activities would be slight. In Alternative A, 9,281 acres would be authorized for trailing within 130,699 acres of the three HMAs in which trailing occurs in. The acres affected by trailing in this alternative make up less than 7% of the cumulative analysis area. Because the trailing effects are short duration and are limited in size, the cumulative effects of trailing on wild horses, when combined with treating weed infestations, allowing for livestock grazing, removal of horses, and range improvement activities, are anticipated to be minor.

3.8.7.2 Alternative B – Cumulative Effects

Cumulative effects on wild horses from implementing trailing as proposed in Alternative B would similar to Alternative A except the BLM would require Terms and Conditions for the trailing applicant. In Alternative B, 4,730 acres would be authorized for trailing within 130,699 acres of the three HMAs found in the cumulative effects area. The acres directly affected by trailing in this alternative make up less than 4% the cumulative analysis area. Because the trailing effects are short duration and are limited in size, the cumulative effects of trailing on wild horses when combined with other actions would be the same as Alternative A.

3.8.7.3 Alternative C – Cumulative Effects

Alternative C would deny crossing permits on public lands. Livestock may be hauled or trailed on BLM, State managed lands, or private lands. The impact to wild horses from hauling or trailing on maintained roads would be insignificant because horses should not be found along these roads. The cumulative effects are anticipated to be the same as Alternatives A and B.

3.8.8 Cumulative Effects – Livestock Grazing and Socio-Economics

Scope
The cumulative effects analysis area (four hydrologic sub-basins) is appropriate for analyzing effects to livestock grazing and socio-economics because relevant livestock grazing, weed movement, wildlife and revenue generated from (livestock grazing, OHV, hunting, fishing and mining) would apply at a this scale. However, within this cumulative effects area the OFO has no authority to regulate livestock trailing outside of the OFO boundaries, but because some of the trailing applicants live outside of the affected area boundary, it is important to capture the larger cumulative effects.

Current Conditions
Livestock grazing and livestock trailing in the region dates back to the late 1800s and remains the major component of the cumulative effects area. Livestock trailing has been and is an important need for livestock producers in the area because this is how they move their livestock between lands (private to private or private to federal). Recent trailing authorizations in OFO that were not analyzed in this EA include 50 AUMs through Pole Creek Allotment along the same route proposed in this EA. The 50 additional AUMS added to the 2,303 AUMs proposed in this EA would be below the 20-year projection for 105,899 AUMS identified in the RMP

Throughout history, ranching remains a dispersed activity characterized by rural communities and it provides important income to the area. These rural communities also have unique social networks that are generally only found in these smaller communities compared to the urban areas like Boise, Idaho. These smaller towns generally have lower incomes compared to average of their respective states. For example, in Marsing, Idaho and Jordan Valley, Oregon median household income was below the average of Idaho and Oregon for 2009. Unemployment in Jordan Valley, Oregon was about the same as all of Oregon (10%) while in Marsing, Idaho it was estimated to be 5% compared to 10% in Idaho.

Since the late 1900s, the numbers of livestock in cumulative impact area have dropped by approximately 20,000 cattle. Some of the reduction in livestock has been due to changes in grazing practices, federal regulations and the loss of people who are interested in ranching. It is foreseeable that less grazing and ranching would dominate the landscape in this area due to changing social and economic values.

Other activities like agriculture, road construction, energy infrastructure footprints, water developments, mineral developments, and many low elevation wildfires have eliminated vegetation by entirely replacing native plant communities, altering soil functions and processes due to vegetation removal/replacement and surface removal, altering hydrology due to vegetation/soil impacts and dewatering due to water developments within each activity's area of impact for the short (<20 years) and long (>20 years) terms. This has affected about one-fifth of the cumulative effects analysis area. Lower-intensity activities, such as livestock/trailing and wild horse grazing, weed treatments, and some recreation activities, often affect vegetation across a larger footprint, close to the remaining four-fifths of the cumulative effects area for these activities collectively. These activities produce a lower level of disturbance which affects species composition and structure within the plant community, but normally do not eliminate the native plant community. Other activities, such as mid and higher-elevation wildfires, fuels projects, and powerline construction, have high-intensity but short-term effects on vegetation, as

vegetation is set back to an earlier, native seral stage for a few years; over time, these areas grow back into a mature native plant community. For example, the estimated five million acres that have been treated for fuels or burned by wildfires since the 1970s within the cumulative effects analysis area in Oregon have a much smaller cumulative effect than that number suggests, because many of those areas were treated multiple times (such as a juniper cutting followed by burning, followed by seeding, followed by juniper sapling control, for example) which individually and collectively result in improved vegetative conditions (more similar to reference bunchgrass/sagebrush plant communities, in this case).

Reasonably foreseeable large-scale projects that would affect grazing management in the cumulative effects analysis area include fuels projects (gross almost 45,000 acres planned in Idaho and about 50,000 acres planned in Oregon) and future decisions on grazing allotments (which are likely to result in similar or lower AUM numbers compared to current levels in order to meet Rangeland Health Standards and Guidelines). Localized activities that affect relatively small acreages within the cumulative effects analysis area include range or wildlife habitat improvement, energy projects, and noxious weed treatments. These large- and small-scale activities would affect vegetation in the cumulative effects analysis area by producing short-term disturbances that would kill individual plants and affect small areas, but over the long term would be expected to result in stable or improved vegetative conditions as juniper encroachment is reversed, livestock management practices improve, and noxious weeds are controlled. Travel management plans would also improve vegetation in the long term by reducing impacts from vehicle travel off of designated travel routes. These expected improvements in vegetation conditions may be counteracted by continuing invasive species increases (particularly at lower elevations as more weeds become locally adapted and spread), increased recreation visitor use, and potential effects from climate change (such as increased carbon dioxide levels potentially favoring juniper and/or cheatgrass, for example).

3.8.8.1 Alternative A – Cumulative Effects

Permittee

The actions and process discussed above, when considered with Alternative A, would result in overall cumulative impacts to livestock trailing that are minor across the entire cumulative impact analysis area. Alternative A would authorize 2,303 AUMs for livestock trailing on approximately 45,294 acres of BLM land across 52 allotments. Trailing in these same events would also occur on 121 acres of Bureau of Recreation, 4,181 acres of Idaho State lands, and 9,868 acres of private lands. The acres directly affected by trailing make up less than 1% of the cumulative effect analysis area in Alternative A. Trailing effects are limited in both time (short duration per year) and space, so the cumulative effects of trailing, when combined with the short-term disturbance (a few months) but long-term (>5 years) improvements anticipated from foreseeable activities such as improved livestock grazing management on 85 grazing allotments expected to be completed in the next 2-3 years, implementation of travel management and proposed fuels projects in the Pole Creek, Trout Springs and Silver City area, are expected to be only slight because of the limited amount of time and acreage involved within the cumulative effects analysis area.

Applicant and Socio-Economic Impact

The lack of trailing restrictions and Terms and Conditions under Alternative A would allow for the most flexibility for the applicant compared to any other alternative. Specifically, the cost to

hire additional riders, use of pastures and availability of water and forage would not affect their crossing permit applications as this is generally built into their ranch operation. This would not result in any added change to income or expenses within the cumulative analysis area.

3.8.8.2 Alternative B – Cumulative Effects

Permittee

The actions and process discussed above in the current condition, when considered with Alternative B, would result in overall cumulative impacts to livestock grazing that are similar to Alternative A. Alternative B would authorize 2,303 AUMs for livestock trailing on approximately 33,884 acres of BLM land across 52 allotments along 241 miles of two-track roads. These same trailing events also cross 40 acres of Bureau of Reclamation, 4,189 acres of Idaho State land and 8,671 acres of private lands. The acres directly affected by trailing make up less than 1% of the cumulative effect analysis area. Trailing effects are limited in both time (short duration per year) and space, so the cumulative effects of trailing, when combined with the short-term disturbance but long-term improvements anticipated from foreseeable activities as described in Alterative A, is expected to be only slight because they affect a relatively small proportion of the landscape and are of very short durations. Consequently, the effects are not expected to have lasting impacts to livestock grazing.

Applicant and Socio-Economic Impact

Alterative B would require Trailing restrictions and Terms and Conditions that may require more effort by the applicant but would generally not impact the trailing applicant because the Terms and Conditions would only alter the location of one route. This alternative may cost $9,700 above the expected cost for Alternative A, because the applicant may need to hire additional riders or herders to avoid resource. However, there should be no reduction in livestock numbers or the need for additional hay or pasture. When considered with the past, present and reasonably foreseeable projects such as energy infrastructure projects, revenue generated from OHV use, mineral development and other recreational activities in the area there would be no measurable impact to Socio-economics in the area.

3.8.8.3 Alternative C – Cumulative Effects

Permittee

Since no trailing by trailing applicants would be authorized across permittees' allotments, there would be no cumulative impacts to permittee livestock operations or ability to comply with permit Terms and Conditions, as there would be no direct or indirect impacts to permittees. If the crossing permit applicants can and do elect to substitute trucking for trailing, immeasurably small cumulative impacts from cattle trucks traversing suitable roads would result.

Applicant and Socio-Economic Impact

Comparing Alternative C to Alternatives A and B (table CE 5), denial of the crossing permit applications would result in the highest additional costs; trucking would be limited to where suitable trucking routes exist, and Alternative C would hinder necessary livestock movements under existing permits where maintained roads do not exist. This would undermine BLM's management of the affected allotments. In some cases, the permit denial may increase work in the short term for truck drivers for livestock. However, due to the trucking cost incurred by the applicant, this may ultimately result in fewer cattle for the applicants, less public land grazing and less work for truck drivers. In addition, operational costs may also increase due to the

increasing demand for hay as more people may be required to feed their livestock. The additive cost to haul livestock when combined with reasonable foreseeable effects from improved livestock grazing, increased revenue generated from OHV use, other recreational uses, livestock grazing and mining would not cumulatively have an adverse effect on socio-economics in the area because these effects should diminish the cost of hauling livestock.

Table CE 5: Cost comparison

Alterative A Estimated Costs		Alterative B Estimated Costs		Alterative C Estimated Costs	
Sheep	Cattle	Sheep	Cattle	Sheep	Cattle
Built into ranch operations	Built into ranch operations	$1,000/ month	$9,700	$56,500-$57,000	$930,000

4.0 Consultation and Coordination

4.1 List of Preparers

Peter Torma – Acting Owyhee Assistant Field Manager; Rangeland Management Specialist
Beth Corbin – Ecologist/Botanist
Rich Jackson – Riparian/Hydrology/Soils
Kelli Barnes – Archaeologist/Cultural
Brad Jost – Wildlife Biologist
Ryan Holman – Outdoor Recreation Planner/Wilderness
Crista Braun – GIS Specialist
Melissa Cameron – Rangeland Management Specialist
John Biar – Resource Coordinator

4.2 List of Agencies, Organizations, and Individuals Consulted

Livestock grazing permittees
Idaho Department of Fish and Game
United States Department of the Interior Fish and Wildlife Service
Owyhee Cattlemen's Association
Owyhee County Commissioners
Shoshone – Paiute Tribes
Owyhee Field Office Permittees
Western Watersheds Project
Idaho State Historical Society

4.3 Public Participation

Comments were received from the following Agencies, Organizations, and Individuals:

- W7 Ranch

- Owyhee County Commissioners
- United States Department of the Interior Fish and Wildlife Service
- Owyhee Cattlemen's Association
- Idaho Department of Fish and Game
- Baltzor Cattle Company
- Richard and Connie Brandau
- Rohl W. Hipwell
- Chipmunk Grazing Association - Jaca Livestock Company
- Bob and Carol Bruce Grazing Assoc., LLC
- Doug Burgess
- Idaho State Historical Society
- Western Watersheds Project – Katie Fite

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6.0 Appendices

Appendix A - Response to Comments
Appendix B - Individual Permit Maps
Appendix C - Special Status Animals

7.0 Maps

Map 1 - OFO Allotments
Map 2 - Alternative A Affected Area and Proposed Trailing Routes
Map 3 - Alternative B Trailing Overview
Map 4 - Alternative B Hour Limitation
Map 5 - Streams and Springs
Map 6 - Water Quality
Map 7 - Affected Streams and Springs
Map 8 - Sage-grouse Habitat and Leks
Map 9 - Big Game
Map 10 - Horse Management Areas
Map 11 - Cumulative Effects Area
Map 12 - Water Quality Cumulative Effects Area
Map 13 - Sage-grouse Habitat and Cumulative Effects Area

Appendix A – Response to Comments

In response to the December 2011 scoping letter, approximately 14 comment letters on livestock trailing were received.

The interdisciplinary team reviewed each comment, and evaluated whether it was relevant to the current decision. Relevant comments were considered and responded to in one of the following ways:

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

Following are specific comments (C:) received from public scoping, and the IDT's response

- C: Major inconsistencies between the three field offices in Owyhee County in the design criteria, best management practices, width of trailing corridors, and terms and conditions that would be included on the crossing permits.
    - R: Although we strive for consistency between field offices when possible, differing resource conditions, topography, elevations, etc. result in some differences in design criteria.

- C: Additional alternatives should be considered.
    - R: Three alternatives were analyzed in detail (including the no action alternative), plus one additional considered but not in detail. We consider this an adequate range of alternatives to meet the purpose and need of moving livestock on, off, and between allotments.

- C: How would AUMs be determined if a crossing event takes less than a day or in some cases minutes? Also how or by what method would BLM use to determine forage use by actively trailing livestock?
    - R: A minimum of one day per animal unit, for each trailing route, was used for the AUM calculations for trailing. BLM AUM calculations cannot be subdivided further than one day.

- C: When a crossing permit is actually required and how far in advance would the operator need to make the trailing request?
    - R: A crossing permit is required for trailing on public lands outside of a permittee's allotment or outside of the permitted dates for the allotment. Trailing applications were requested by December 2011 for March 2012 and later trailing.

- C: Impacts to trucking should be analyzed as an alternative.

- R: Trucking rather than trailing was considered in Alternative Considered by Not Analyzed in Detail. Also, the BLM has no authority to allow trucking of livestock on public land.

- C: Need to evaluate the effects of orderly administration and management of the range when a trail route is or is not approved and the effects of approval or denial of a trailing permit would have on proper grazing management.
  - R: Those effects are discussed in the Livestock Grazing and Socio-Economics section.

- C: Mandatory standards should be considered as resource guidelines.
  - R: Alternative B includes a combination of mandatory terms and conditions and more flexible design criteria, depending on the specific resource issue. Alternative A did analyze no mandatory terms and conditions.

- C: Historic trailing routes in WSR corridors should be compatible with the Owyhee legislation.
  - R: None of the proposed trailing routes are within Wild and Scenic River corridors, so this issue was not analyzed in detail.

- C: Disease transmission between overlapping populations of bighorn sheep and domestic sheep and recommending livestock trailing will not occur within 0.5 miles of canyon rims from February 1 to July 31 to avoid impacts to nesting golden eagles and also for bighorn sheep lambing habitat.
  - R: None of the proposed trailing routes are within bighorn sheep lambing habitat during lambing season. Effects to bighorn sheep and nesting golden eagles are discussed in the wildlife section.

- C: Recommendation that livestock trailing events near occupied sage-grouse leks should not begin prior to 10:00 AM.
  - R: A term and condition is applied in Alternative B to avoid occupied leks, or delay trailing until after 10:00 AM.

- C: Differences in time for trailing dry cows versus cows with calves and the differences between trailing sheep versus cattle.
  - R: The specific route identifies the duration of trailing (minimum one day) for each route, as per the permittee's estimate of typical trailing events. AUM calculations and analysis of effects used these numbers.

- C: Trailing permit should be issued for 10 years to coincide with the permittee's grazing permit.
  - R: The CFR 4130.6-3 states that "A temporary use authorization for trailing livestock..." Because crossing permits are temporary permits, the BLM believes crossing permits issued for 10 years would generally not met this requirement. In rare instances 10 year permits may be appropriate; however, within the OFO there are no multiple year permits authorized.

- C: Public health and safety in regards to trailing/crossing.
    - R: Public health and safety issues as a result of trailing were identified or analyzed in Section 3.0 of this EA.

- C: BLM should establish strict sideboards – including denying use of any routes and require hauling/trucking.
    - R: Alternative B includes specific terms and conditions and design criteria to mitigate environmental effects. Trucking was considered in the Alternatives Considered but not Analyzed in Detail.

- C: BLM should define what is a road and the RS-2477 issue.
    - R: Trailing is independent of the RS-2477 issue, so this issue was not discussed in the EA. The EA did define what two-track and maintained roads are in the Methodology and Assumption section.

- C: Trailing effort should be re-scoped as an EIS.
    - R: The environmental analysis showed no potential significant effects (See FONSI), so the proposed action does not require an EIS.

- C: Inadequacy of sage-grouse and other BMPs for trailing and consider a proposed action of no livestock crossing/trailing in native sagebrush habitats to protect birds from disturbance and help prevent weed expansion and other habitat degradation.
    - R: Terms and conditions and design criteria for sage grouse and other resources were included in Alternative B, and the effects analyses determined that trailing under this alternative would have minimal impact on sage grouse, habitat degradation, and weed expansion.

- C: Motorized use (ATVs) for trailing/herding versus the use of horses
    - R: Motor vehicles are required to stay on existing roads and trails, while horses can be used anywhere. Therefore, use of motor vehicles for trailing is expected to have no effect off of existing roads and trails, while horse effects would be virtually the same as discussed under livestock trailing for each resource.

- C: Will permits be amended to include the extra AUMs from trailing and will there be decisions reducing AUMs for regular grazing in areas trailed through?
    - R: AUMs associated with trailing will only be on the crossing permit. The allotments trailed through will not be adjusted to reflect trailing AUMs.

- C: Infestation of cheatgrass and medusahead from trailing activities.
    - R: Effects of trailing on invasive plants (including cheatgrass and medusahead) are discussed in the Upland Vegetation section.

- C: Intensive trampling effects and pocking in moist riparian edge or roadsides or other ponded waters creates conditions for West Nile virus and avian disease promoting mosquitoes to thrive.

- R: Trailing effects on the potential for West Nile virus are discussed in the Wildlife section, and were determined to be minute.

- C: Trailing impacts on water quality, proposed areas for ACECs, erosion (both wind and water).
  - R: Trailing impacts on water quality and erosion are discussed in the Water Quality and Watershed sections, and were determined to be not significant. No Areas of Critical Environmental Concern would be trailed through, so no effects to these areas would occur.

- C: Will livestock trails become fuel breaks?
  - R: The short duration of each trailing event is expected to have only short-term effects on vegetation (See Upland Vegetation section). Livestock trails will not be managed for fuel breaks.

- C: Concentrations of livestock waste on roads and the significant dust that will be inhaled by passersby and concerns with Q fever.
  - R: Livestock waste on roads due to trailing is a short-term impact, creating a minor nuisance but insignificant compared to continuing impacts from vehicle traffic. The risk of contracting Q fever from road dust as a result of trailing is extremely low; less than 180 cases of the disease per year have been reported in the entire United States, and most of these are in livestock handlers (http://www.cdc.gov/qfever/stats/index.html accessed 3/7/2012).

- C: The spread of weeds from trailing events and treatments, herbicide use issues related to weeds and invasive grasses/plants, and livestock quarantine to allow for weed seed passage.
  - R: The effects of livestock trailing on weed spread are discussed in the Upland Vegetation section. Livestock quarantine to allow for weed seed passage before trailing was not included as a term and condition or design criteria because the potential cost would outweigh the potential benefit of preventing weed spread.

- C: Water hauling concerns involved in the trailing activity along with identifying the allotments and pastures/use areas that are being used for each route proposed.
  - R: Water haul sites for sheep and cattle were identified and analyzed. Each crossing permit identifies which allotment(s) the trailing route crosses.

- C: How will climate change amplify adverse impacts in regards to livestock trailing activities?
  - R: Effects of trailing on climate change, as well as effects of climate change on impacts from livestock trailing, would be insignificant at the limited time scale and small proportion of land area affected by proposed trailing. Therefore, climate change effects are not discussed further.

- C: Trailing/crossing impacts and disturbances to migratory birds mating behavior, nest, and eggs that will be harmed by this action.

- R: Effects of trailing on migratory birds are discussed in the Wildlife section.

- C: BLM should consider identifying and approving all possible cross country trailing routes and any road, trail, or way open to public use. Corridor widths should be ¼ mile on either side of the proposed trail route.
  - R: Alternatives A and B identify specific trailing routes, based on the applications received. The corridor widths are 0.125 miles or narrower on either side of the route. This width was identified as a reasonable width for moving animals, while confining impacts to a limited area, given the general topography of the OFO.

- C: Scoping document needs to define the following: any applicant; proper and lawful purposes; trailing livestock, crossing BLM managed lands, and qualified applicants.
  - R: **Applicant**: could be any person who needs to trail livestock
  - **Proper and Lawful purpose**: is for a legitimate reason, like needing to trail livestock to allotments on which an applicant may have grazing preference.
  - **Livestock trailing**: Livestock Crossing, sometimes referred to as trailing, is the deliberate ambulatory movement of livestock controlled by one or more herders from one location to another along a defined route, either outside of or within a stock driveway or a designated trail.

    - For the purposes of regulation by BLM, trailing does not include:
    - a. Movement between pastures in accordance with a grazing permit
    - b. Movement of livestock along publicly maintained roads
    - c. Crossing/trailing of livestock on private/state lands

  - **Crossing BLM managed lands:** Includes BLM lands or other lands under Bureau of Land management Control, for proper and lawful purpose.
  - **Qualified applicant** is not part of trailing but must meet specific requirements outlined in 4110.1 of the CFRs.

- C: The need to cross public lands is a mandatory necessity.
  - R: Crossing public lands is recognized as a tool for facilitating livestock grazing administration. However, like all management actions on public lands, it is subject to analysis and decision, and is not mandatory.

- C: There could be economic impact to individual business operations if a permittee is denied a trailing permit for proper and lawful purposes. In some cases denial of a trailing permit could result in the death of livestock and destruction of a multi-generational business.
  - R: Socio-economic effects of trailing alternatives (including denying trailing) are discussed in the Socio-economic section.

- C: How will emergency situations be addressed in regards to situations that are beyond the control of the operator?

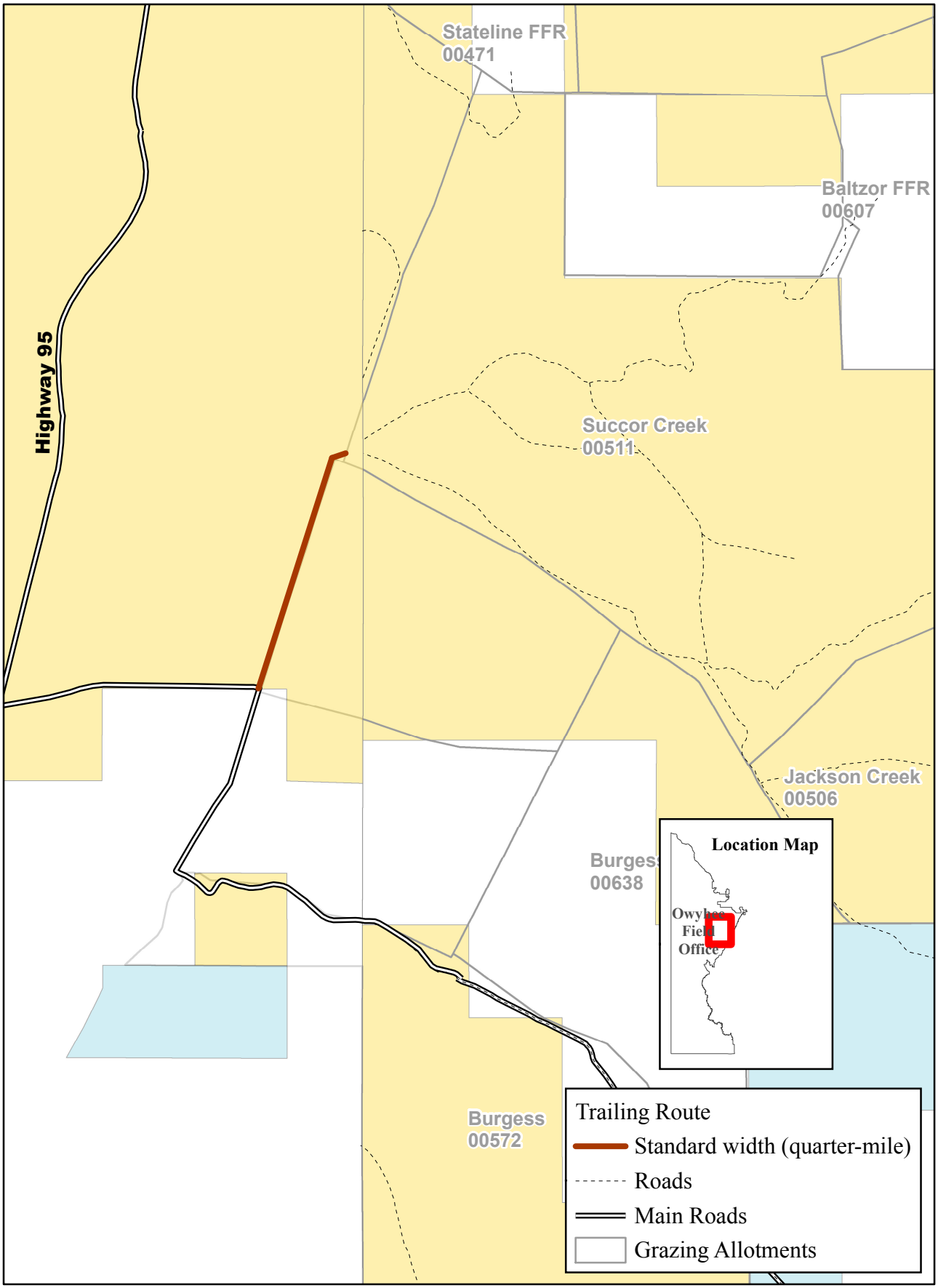
- R: If an emergency (such as a wildfire) requires immediate removal of livestock (ie. the permittee is on the allotment, sees a wildfire moving towards livestock and must move the livestock immediately or they will be overrun by the wildfire), permittees are encouraged to gather and remove to prevent loss of livestock with a wildfire (or similar) situation . The permittee should notify the BLM as soon as possible after gathering/removal and should consider any resource impacts during gathering/removal and mitigate where possible. A post-crossing inventory may be necessary to assess resource impacts.

- C: Livestock trailing constitutes an undertaking that requires compliance with the Section 106 Review process as outlined in the NHPA.
  - R: Trailing effects to archaeological resources are discussed in the Cultural Resources Section. Consultation with SHPO for trailing has been initiated.

- C: BLM must meet any Section 7 requirements of the Endangered Species Act when required.
  - R: No plants or animals listed under the Endangered Species Act would be affected by the proposed trailing, so no consultation with U.S. Fish and Wildlife Service is required. See the Wildlife and Upland Vegetation sections.

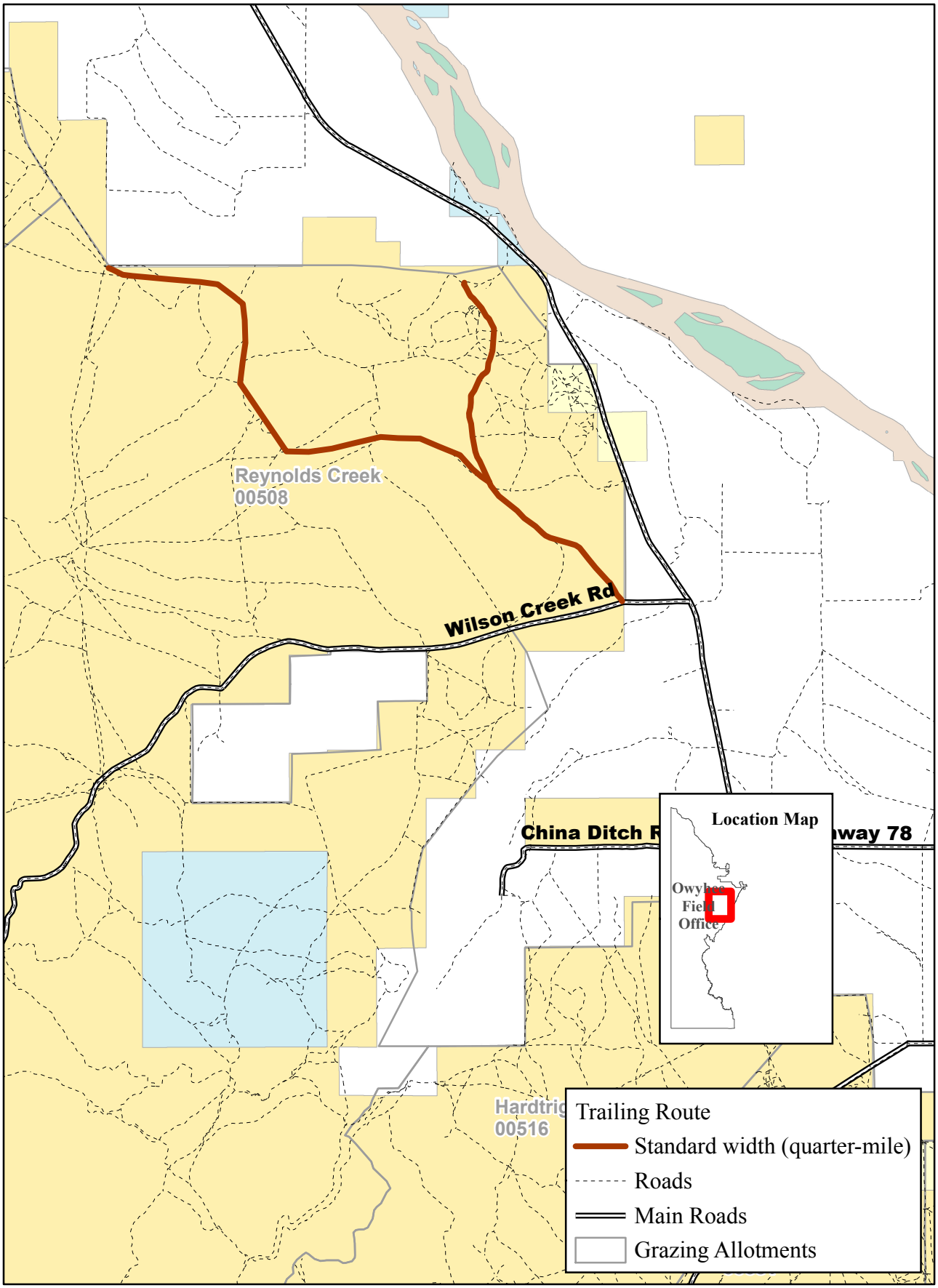
Appendix B - Individual Permit Maps

Baltzor Cattle Company
Trail Route



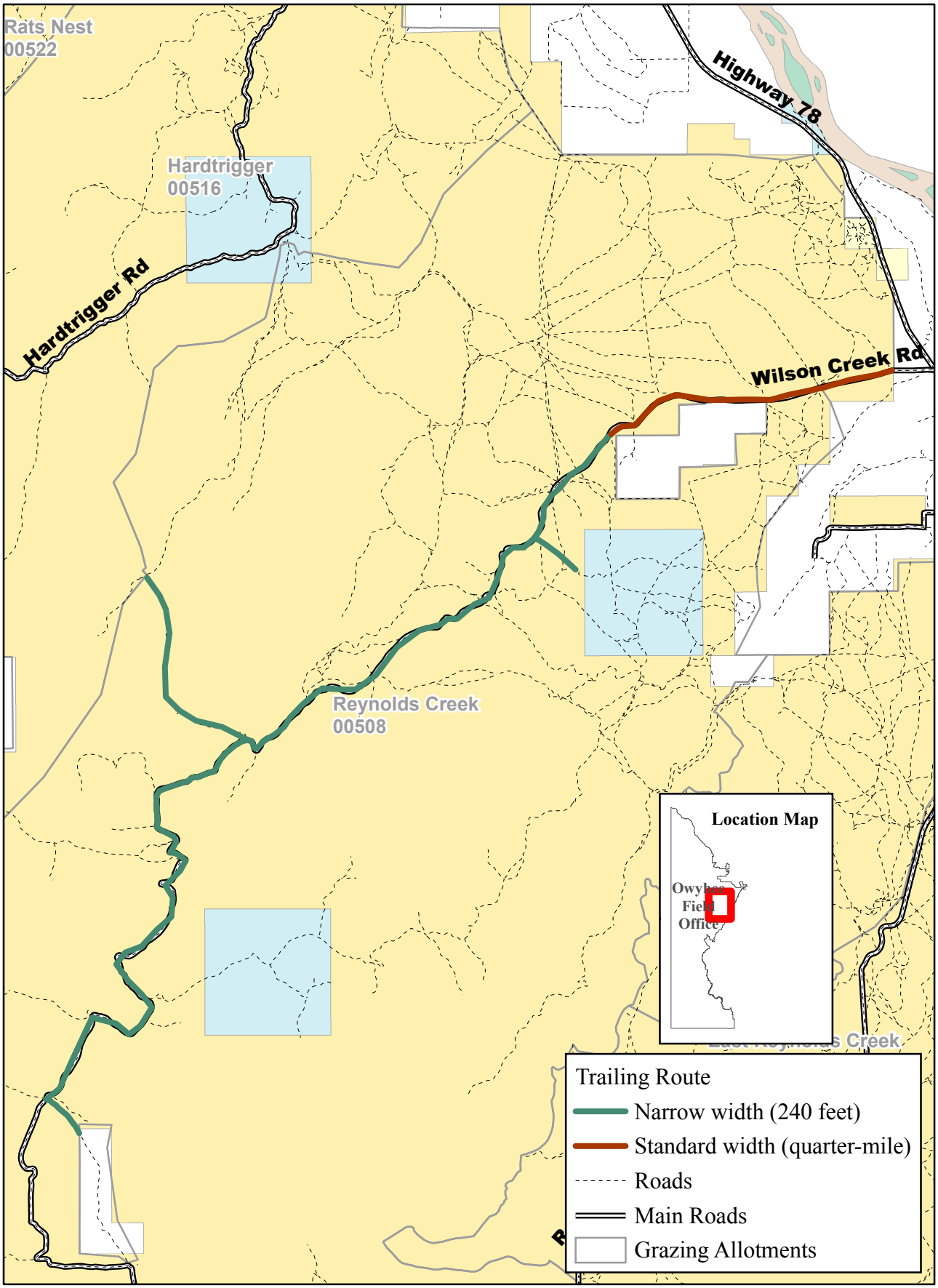
No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Bill Watterson
Trail Route 1



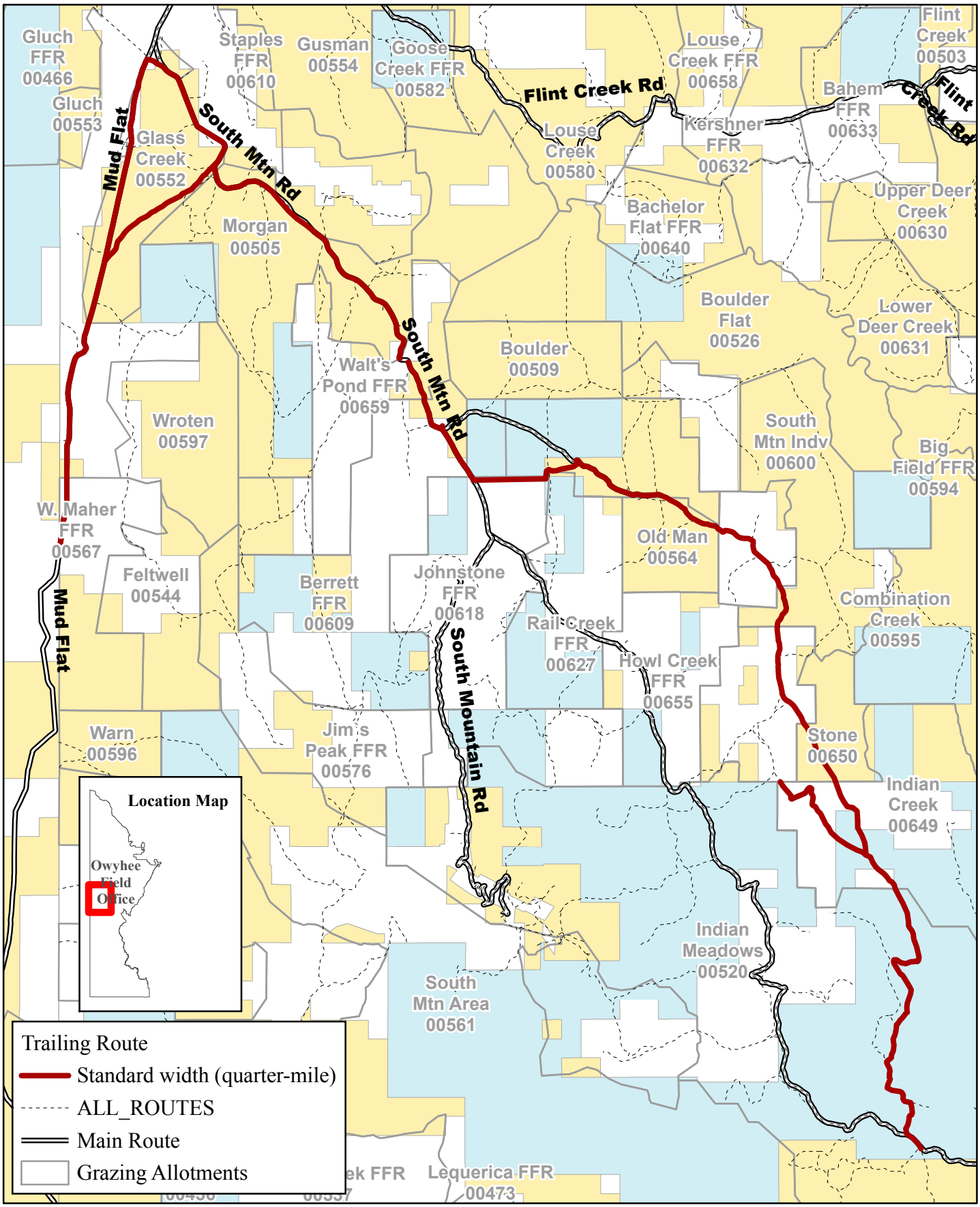
No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Bill Watterson
Trail Route 2



No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Bob and Carol Bruce Grazing Association
Trail Route 1



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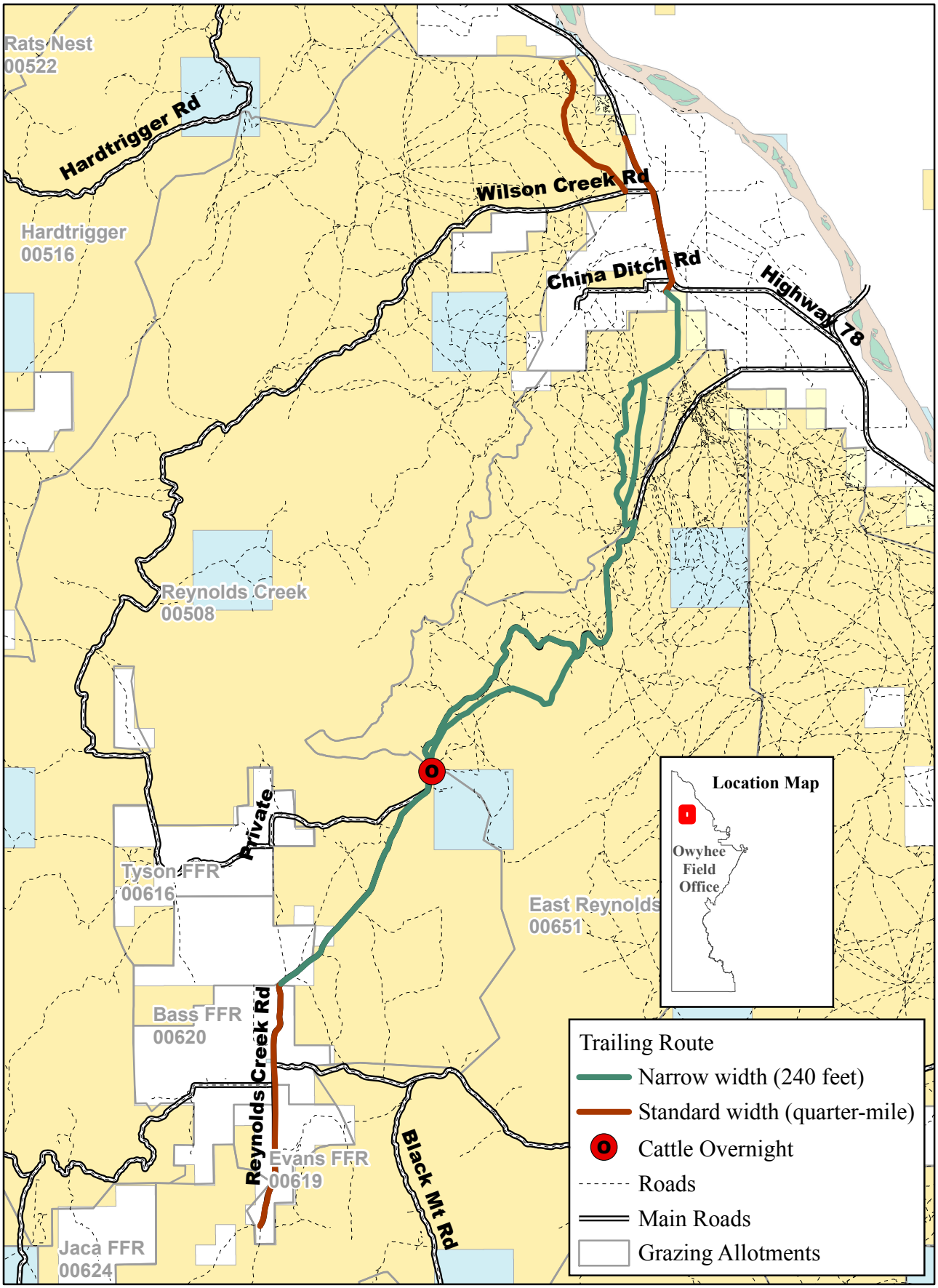
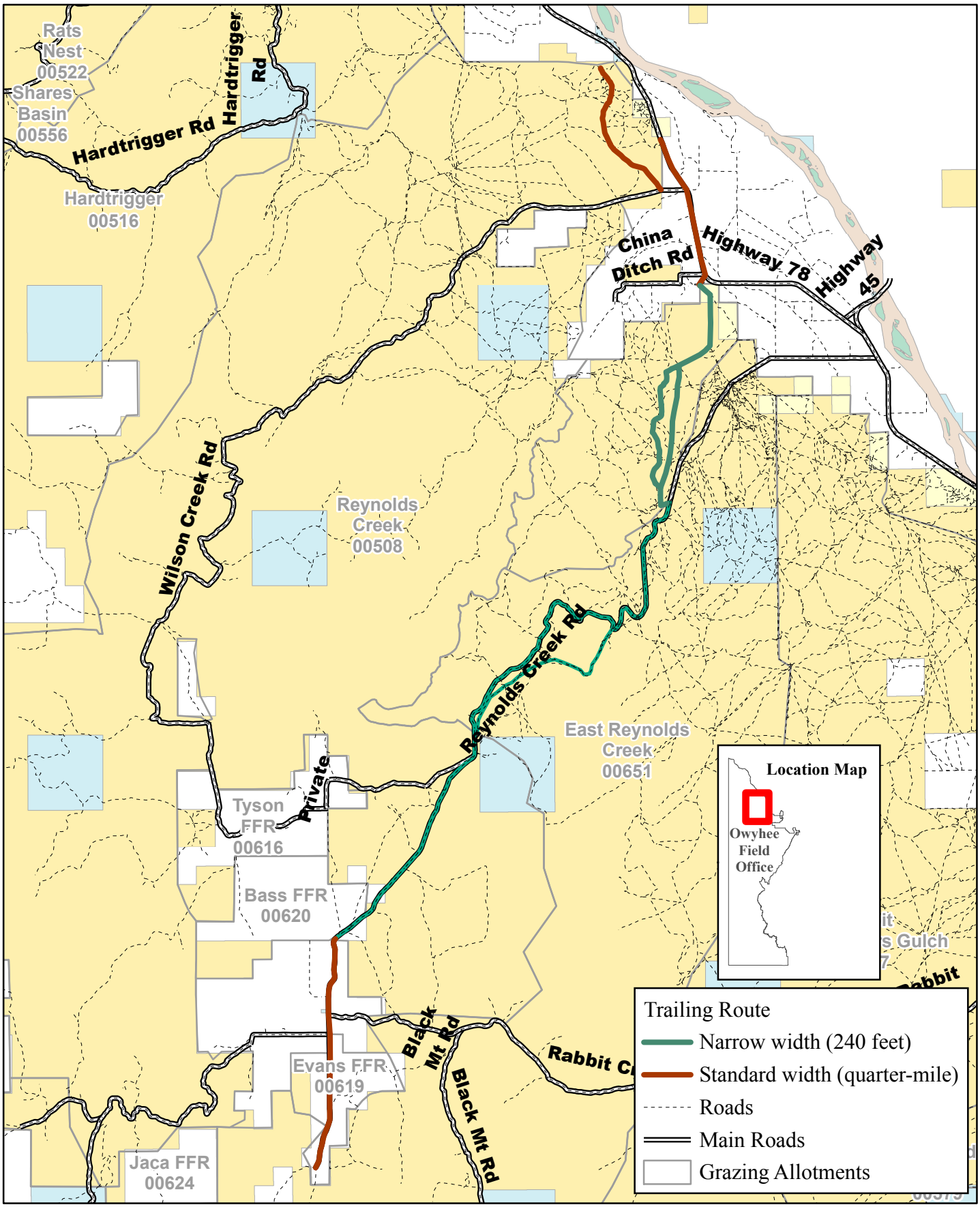
Chipmunk Grazing Association and Jaca Livestock
Trail Route 1

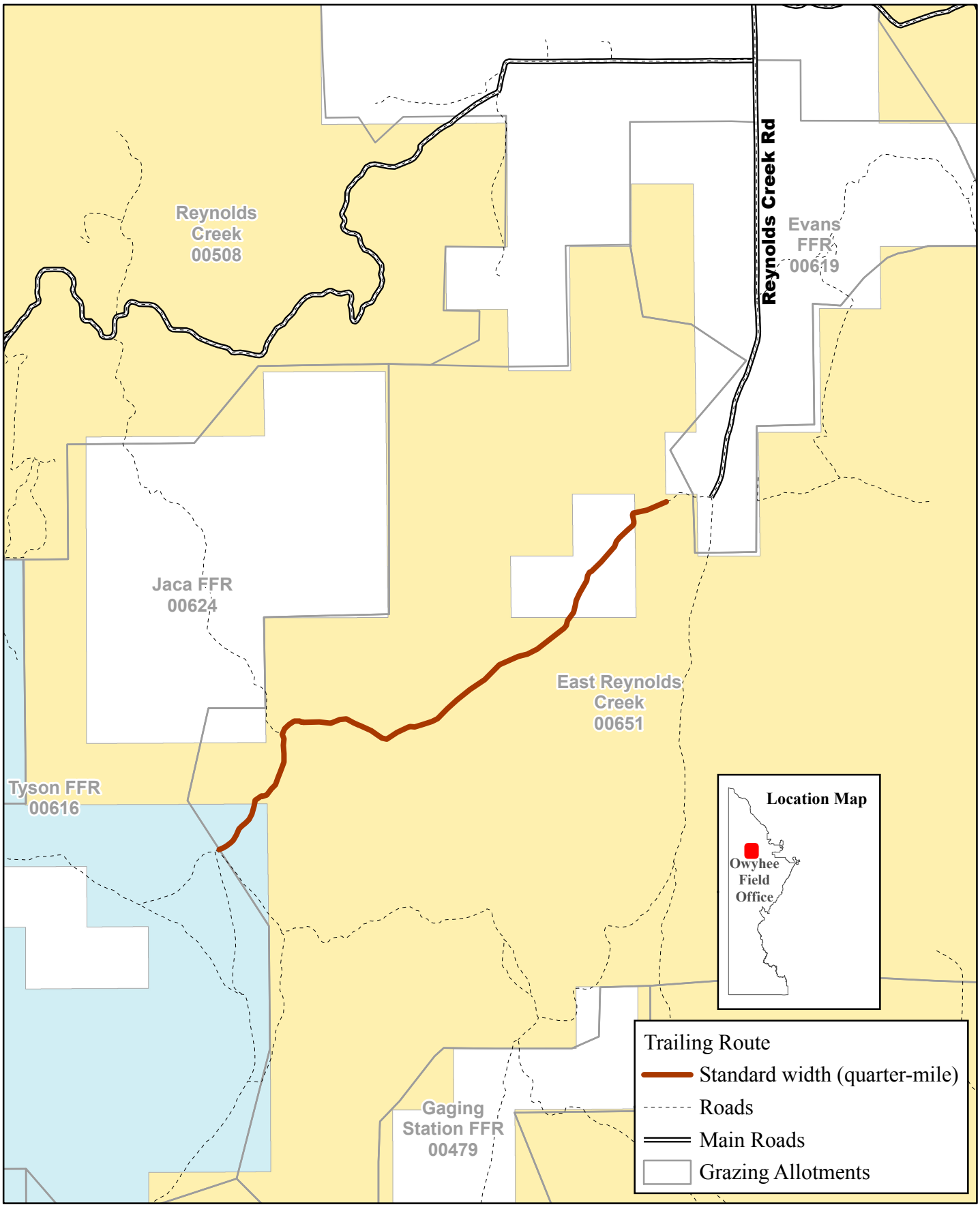


Chipmunk Grazing Association - Jaca Livestock
Trail Route 2

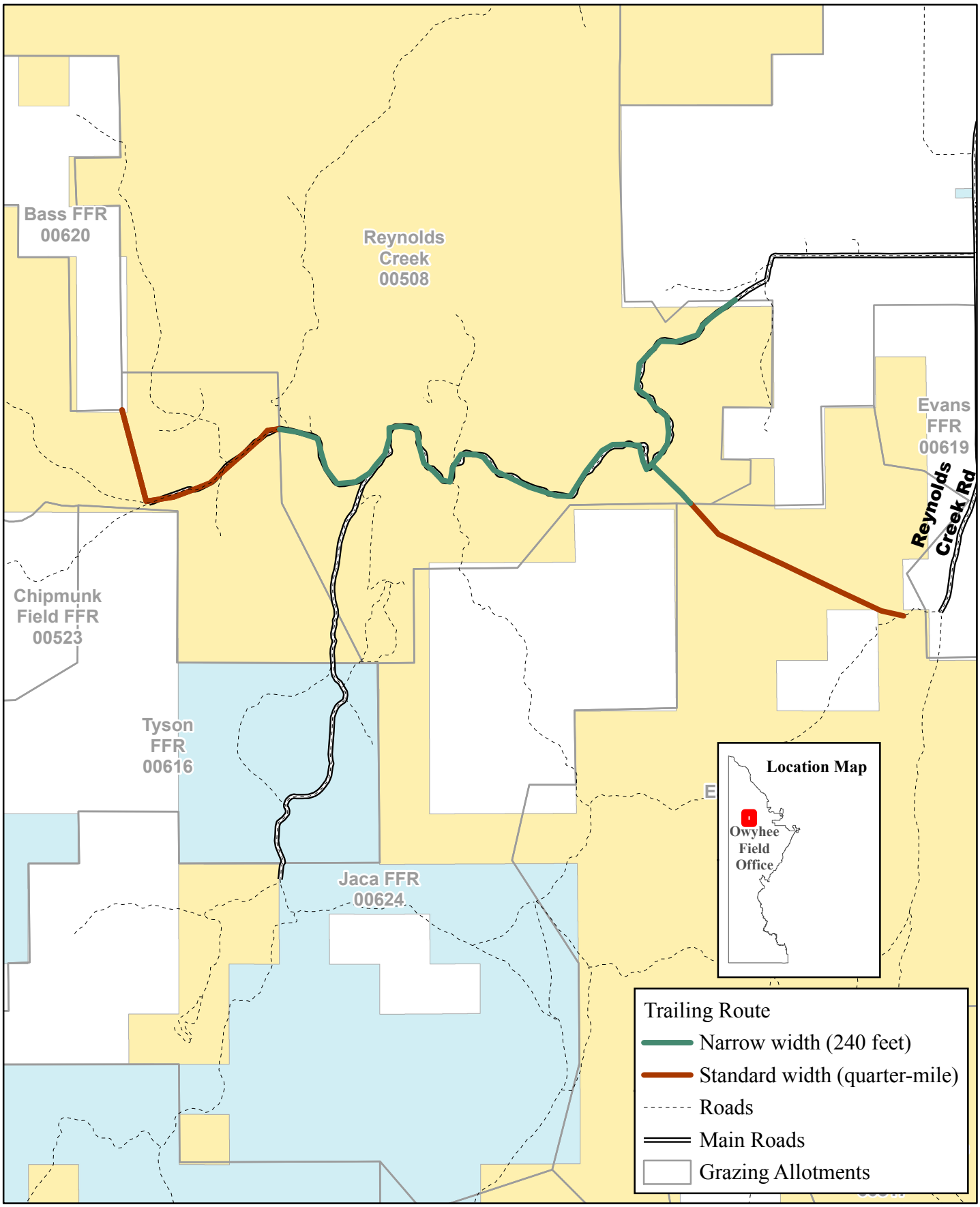


No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Chipmunk Grazing Association - Jaca Livestock
Trail Route 3



Chipmunk Grazing Association - Jaca Livestock
Trail Route 4



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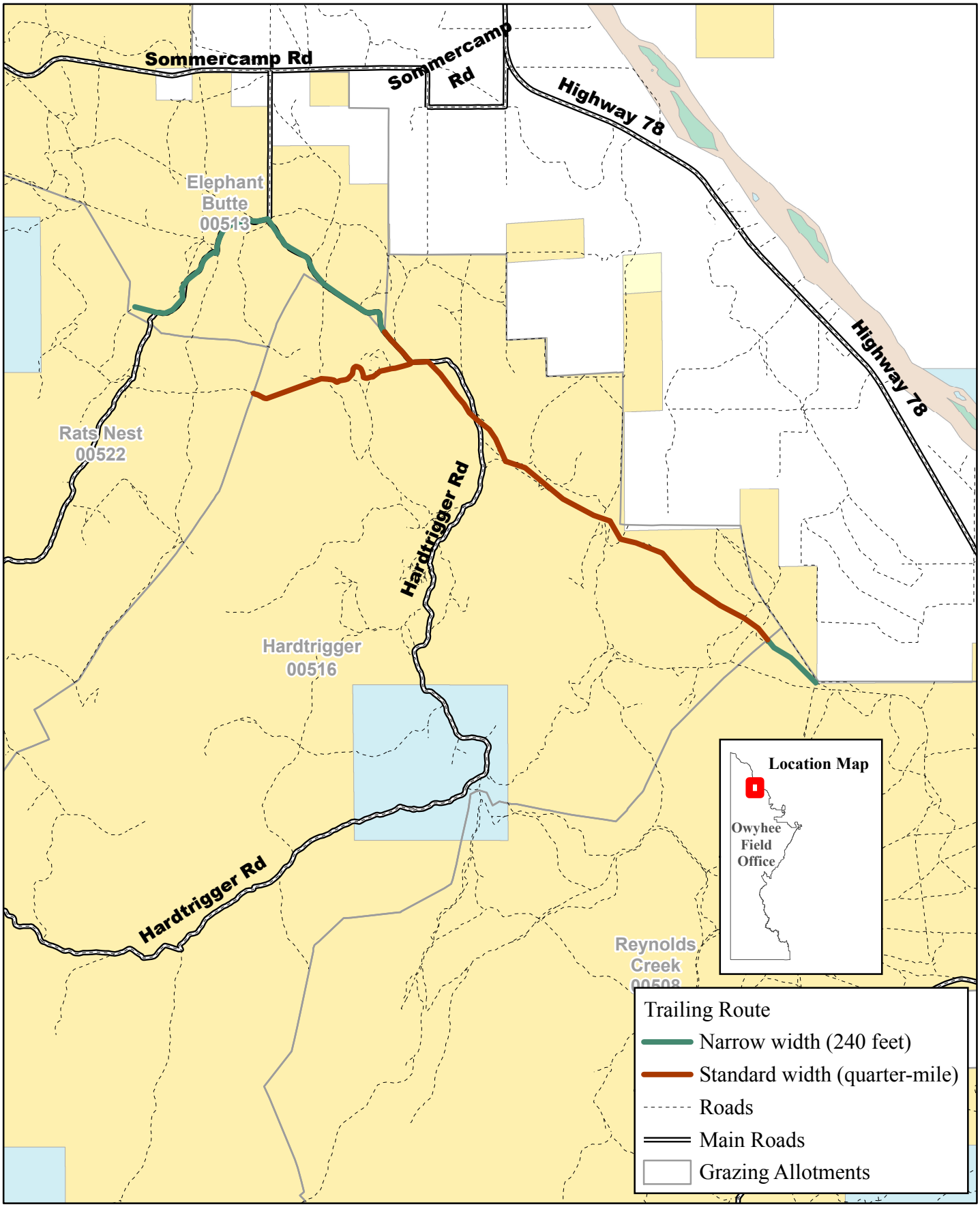
Chipmunk Grazing Association
Trail Route 1



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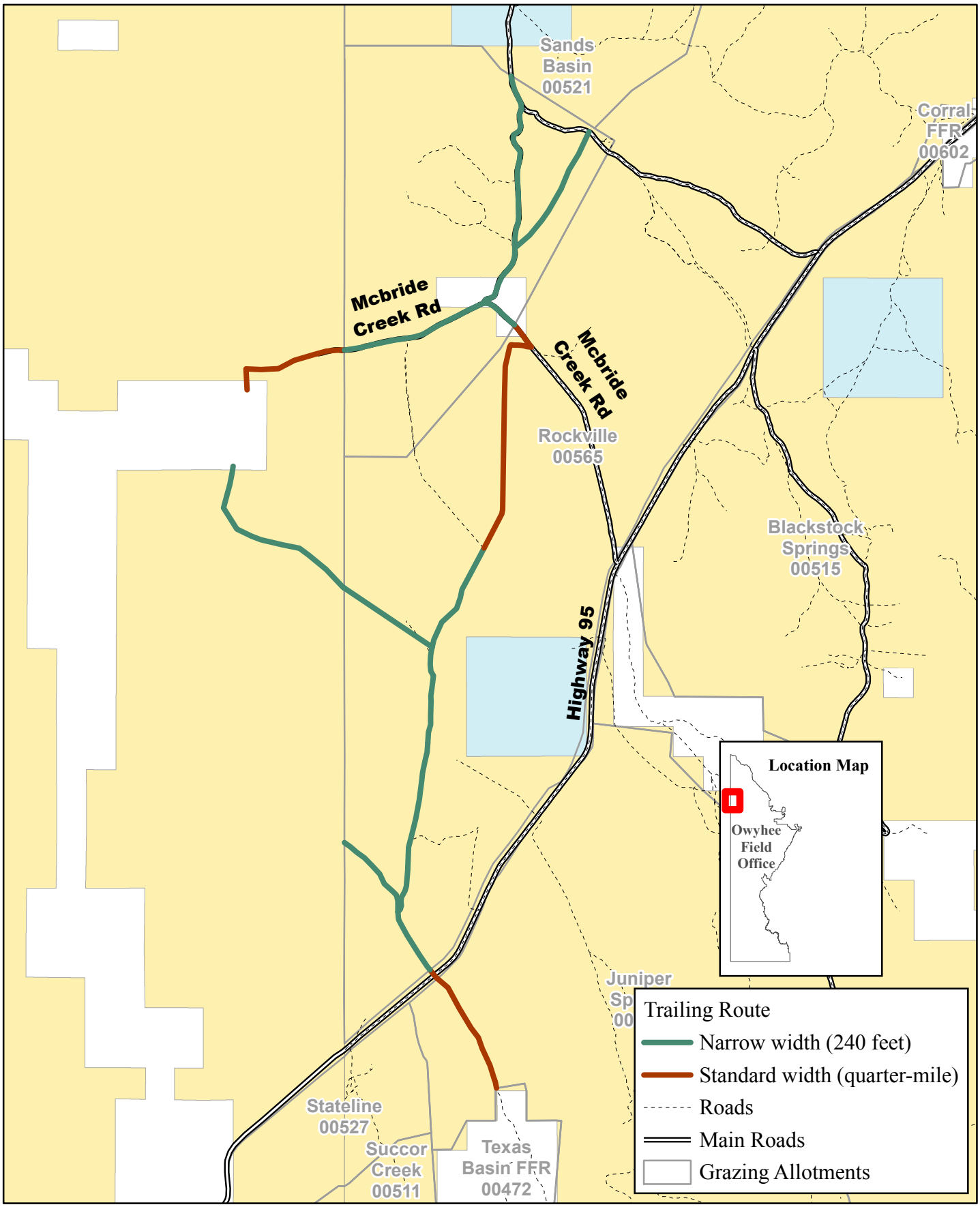
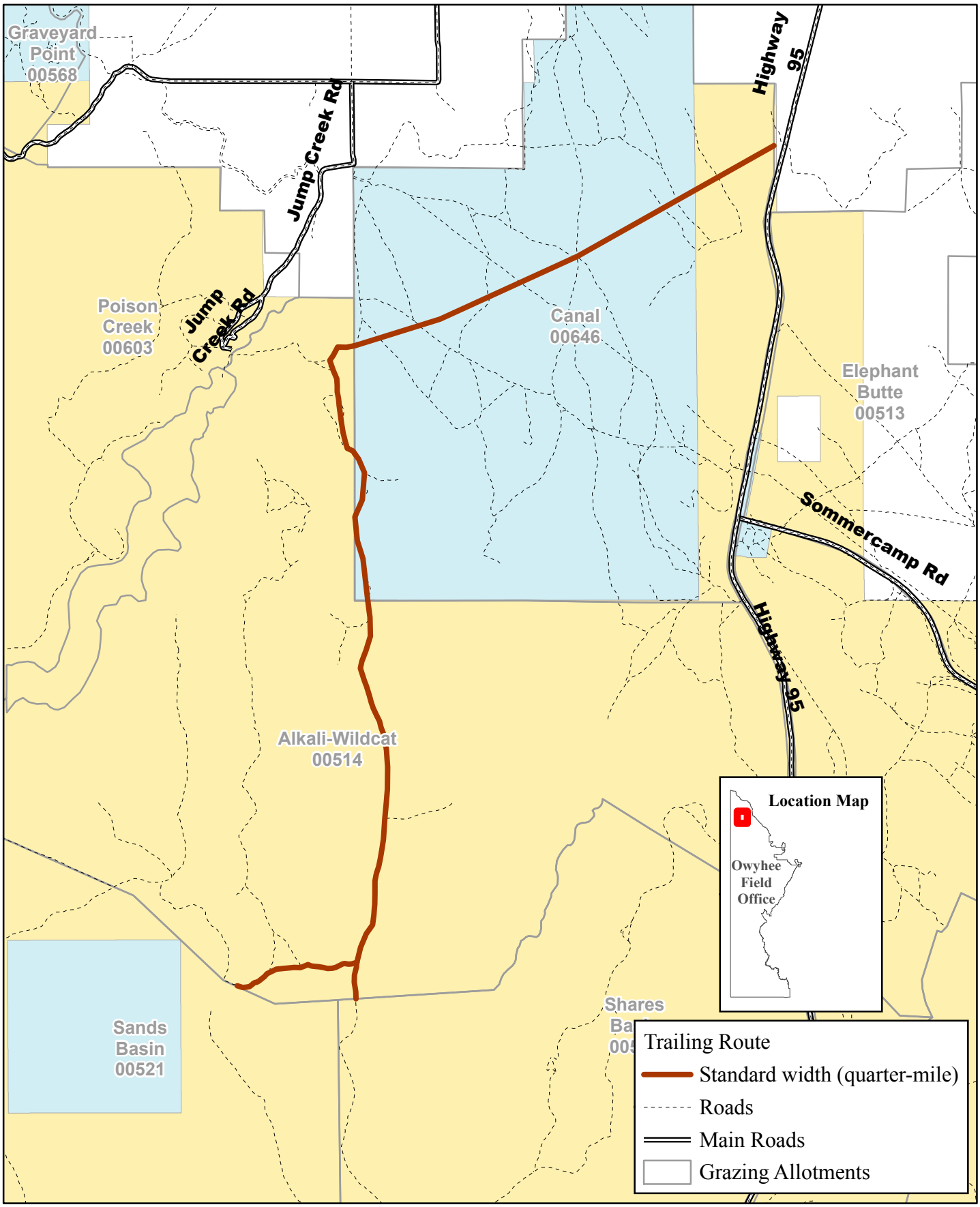
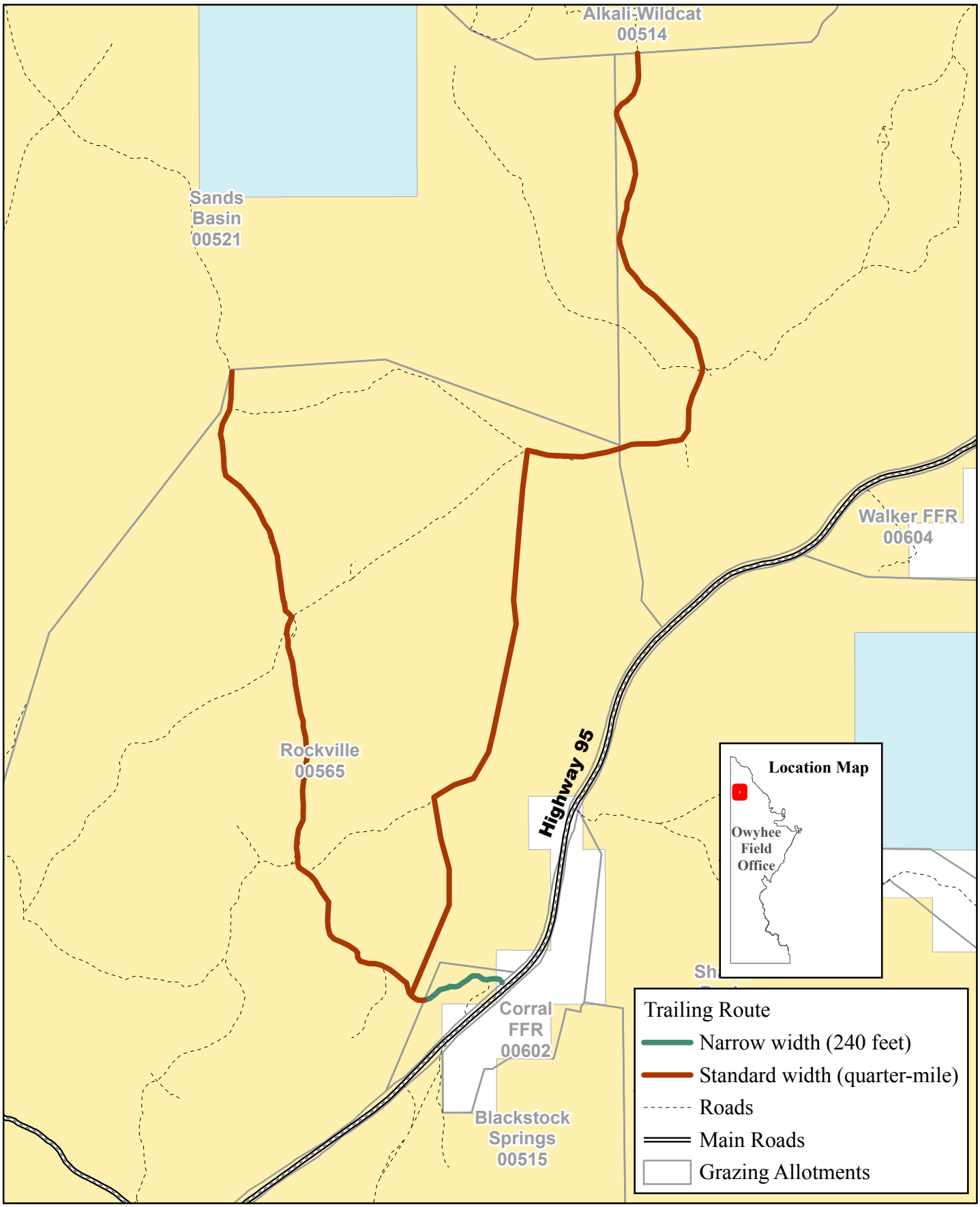
Chipmunk Grazing Association
Trail Route 10



Chipmunk Grazing Association
Trail Route 11



Chipmunk Grazing Association
Trail Route 12



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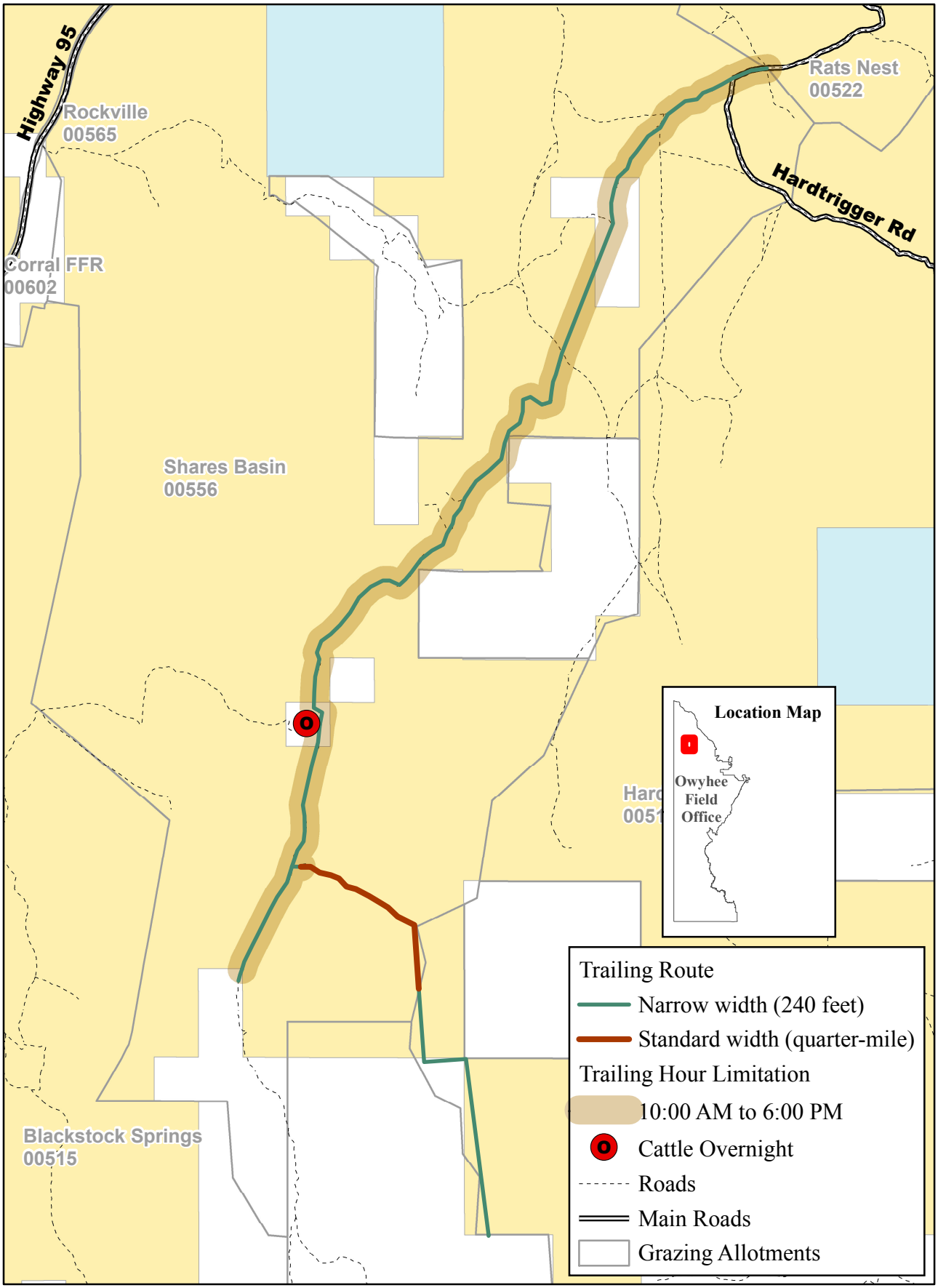
Chipmunk Grazing Association
Trail Route 2



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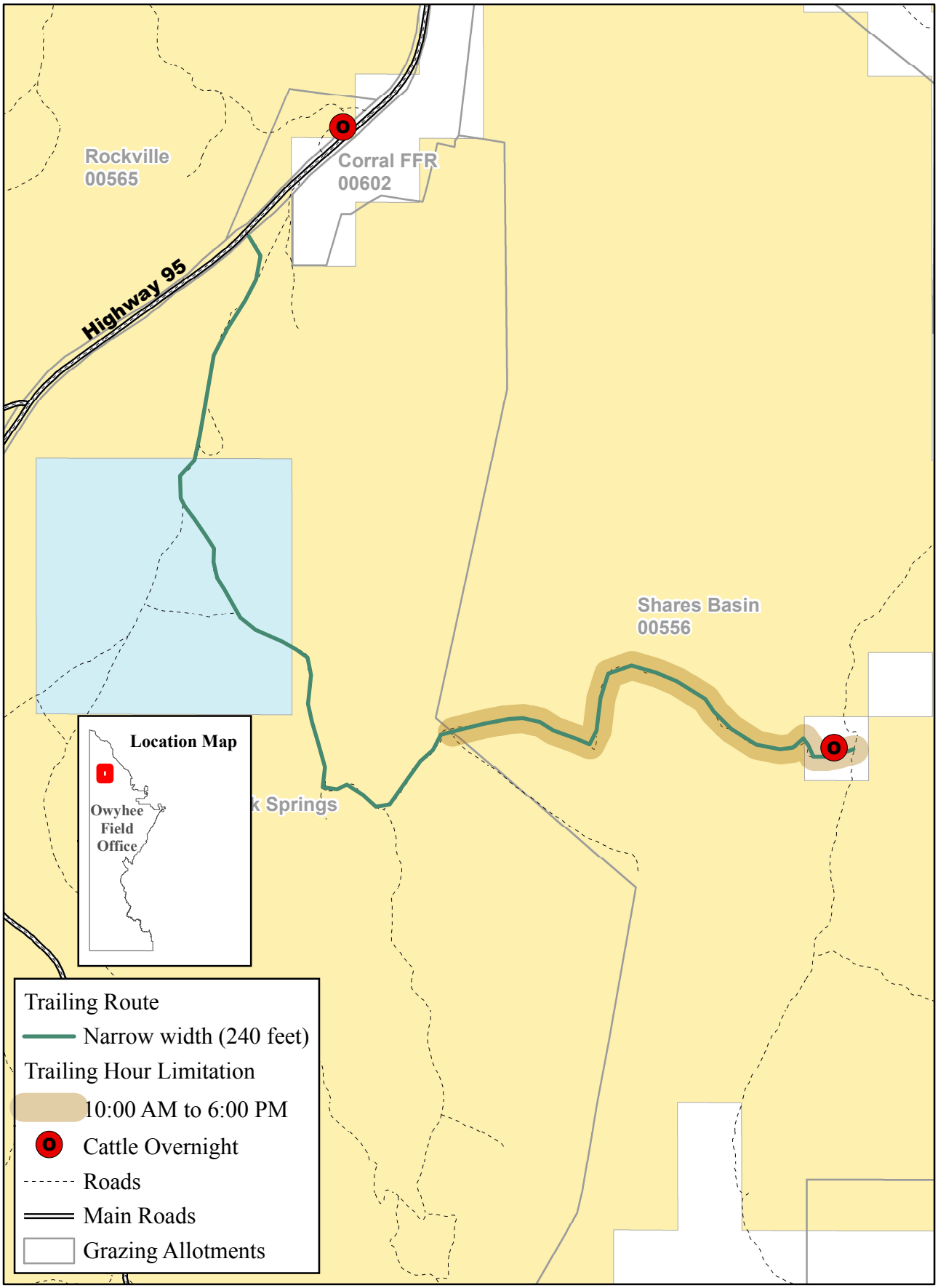
Chipmunk Grazing Association
Trail Route 3



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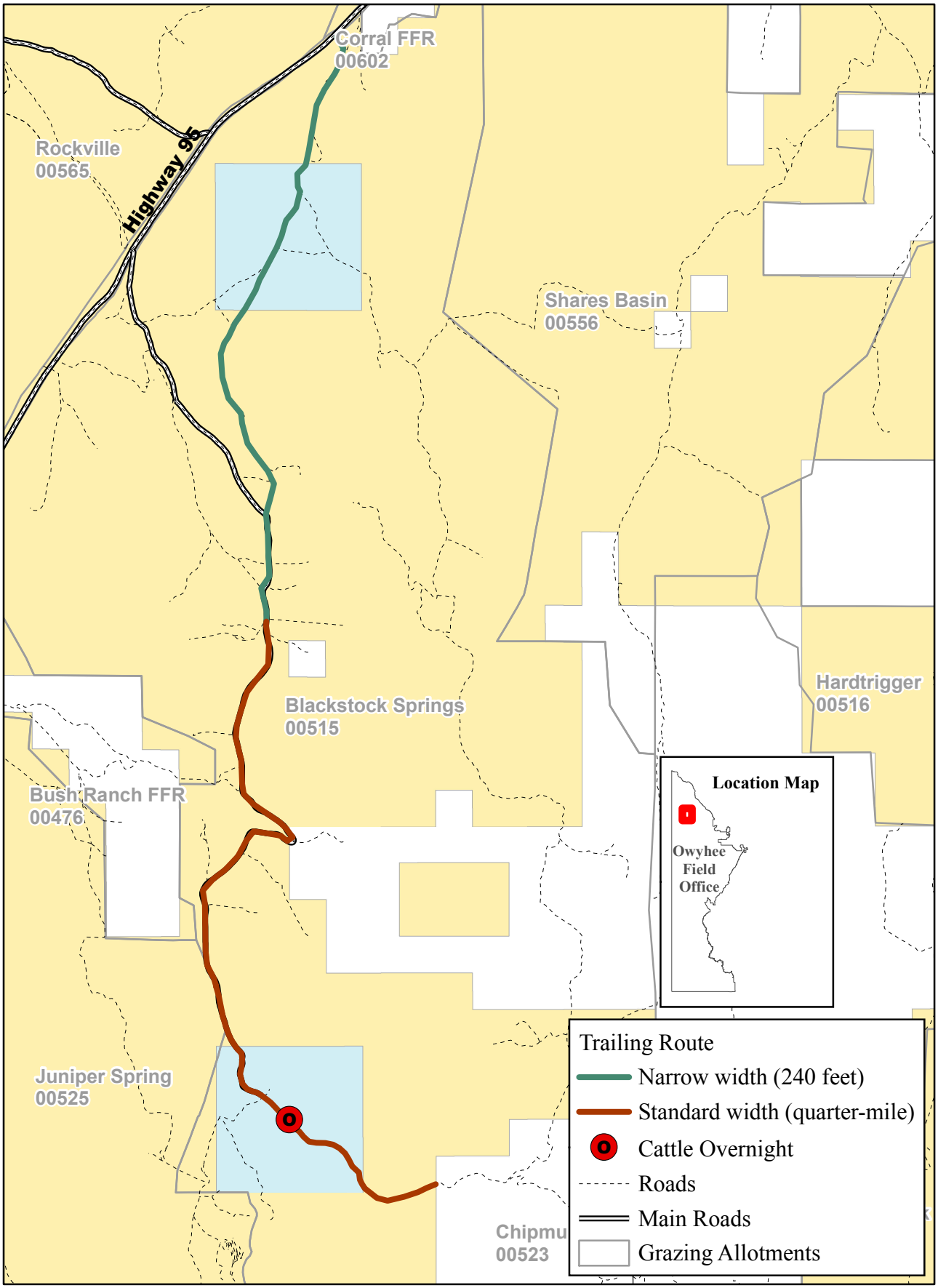
Chipmunk Grazing Association
Trail Route 4



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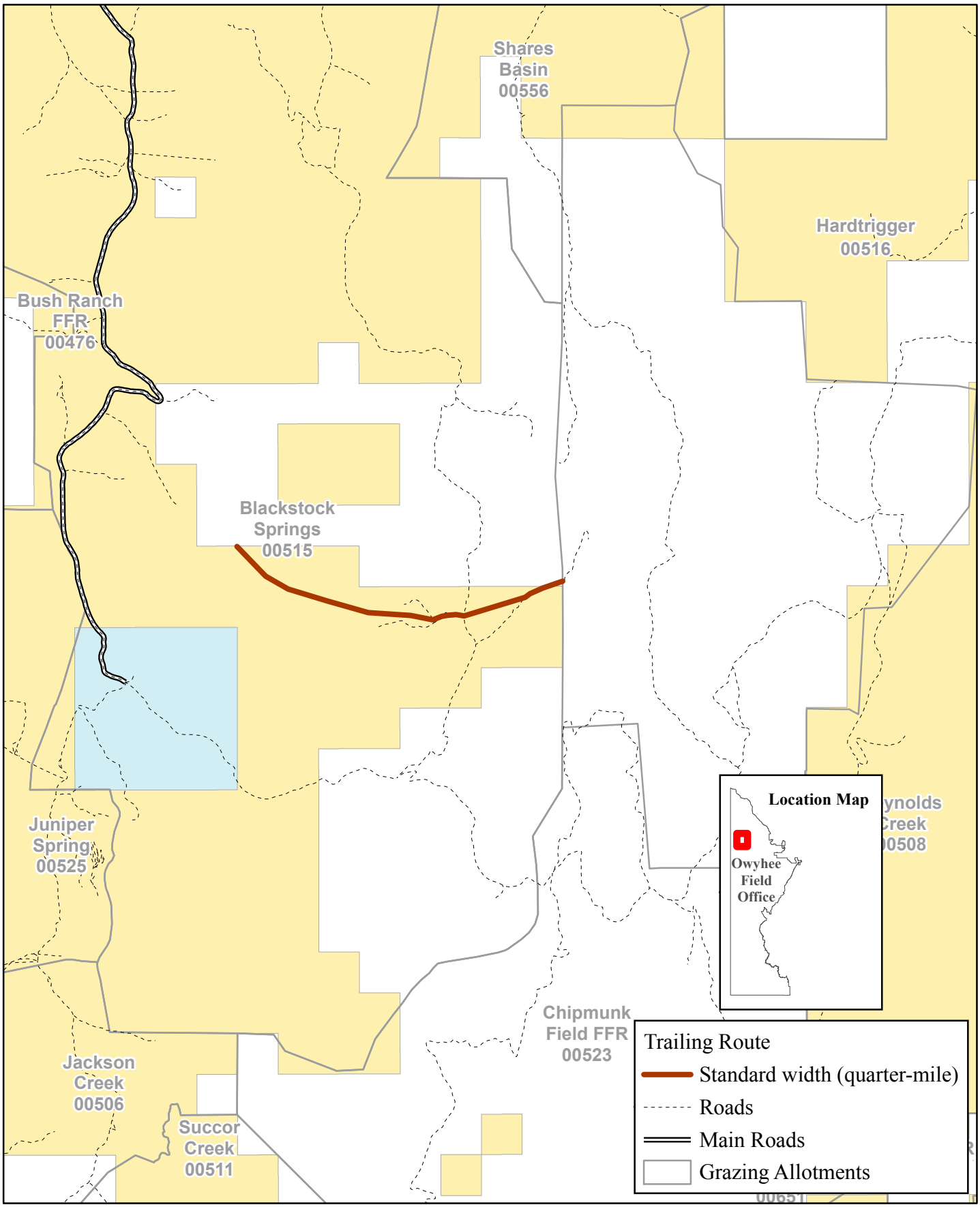
Chipmunk Grazing Association
Trail Route 5



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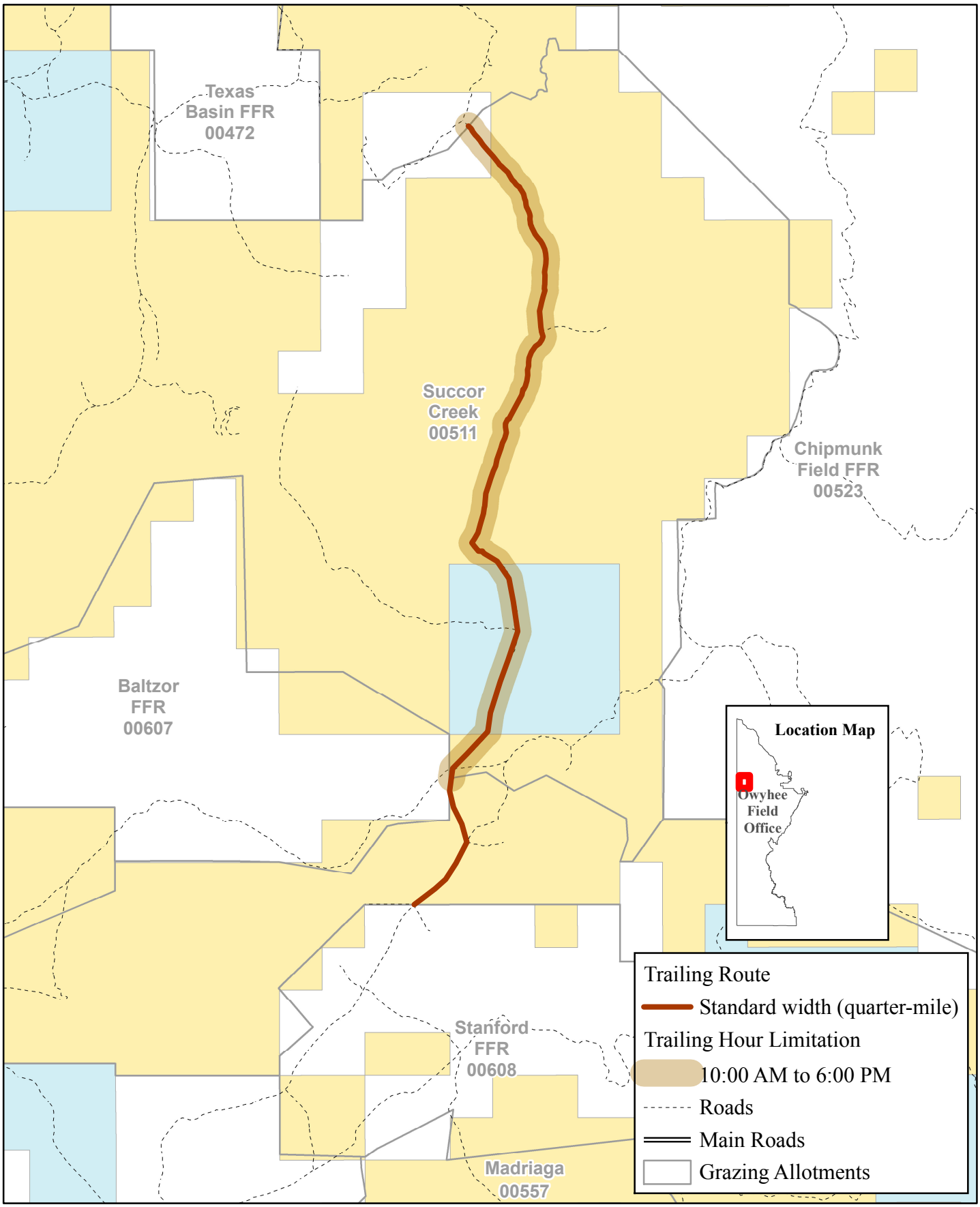
Chipmunk Grazing Association
Trail Route 6



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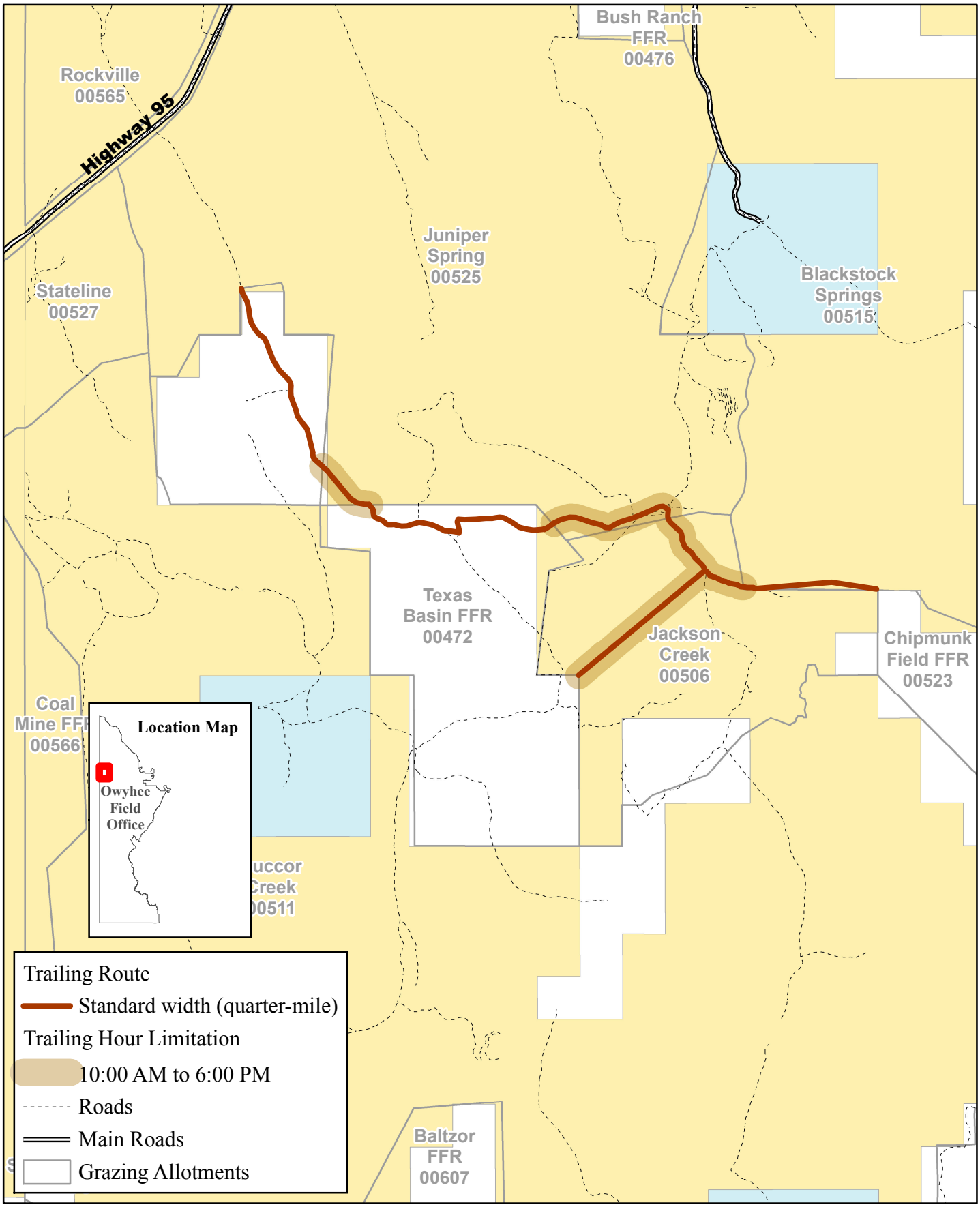
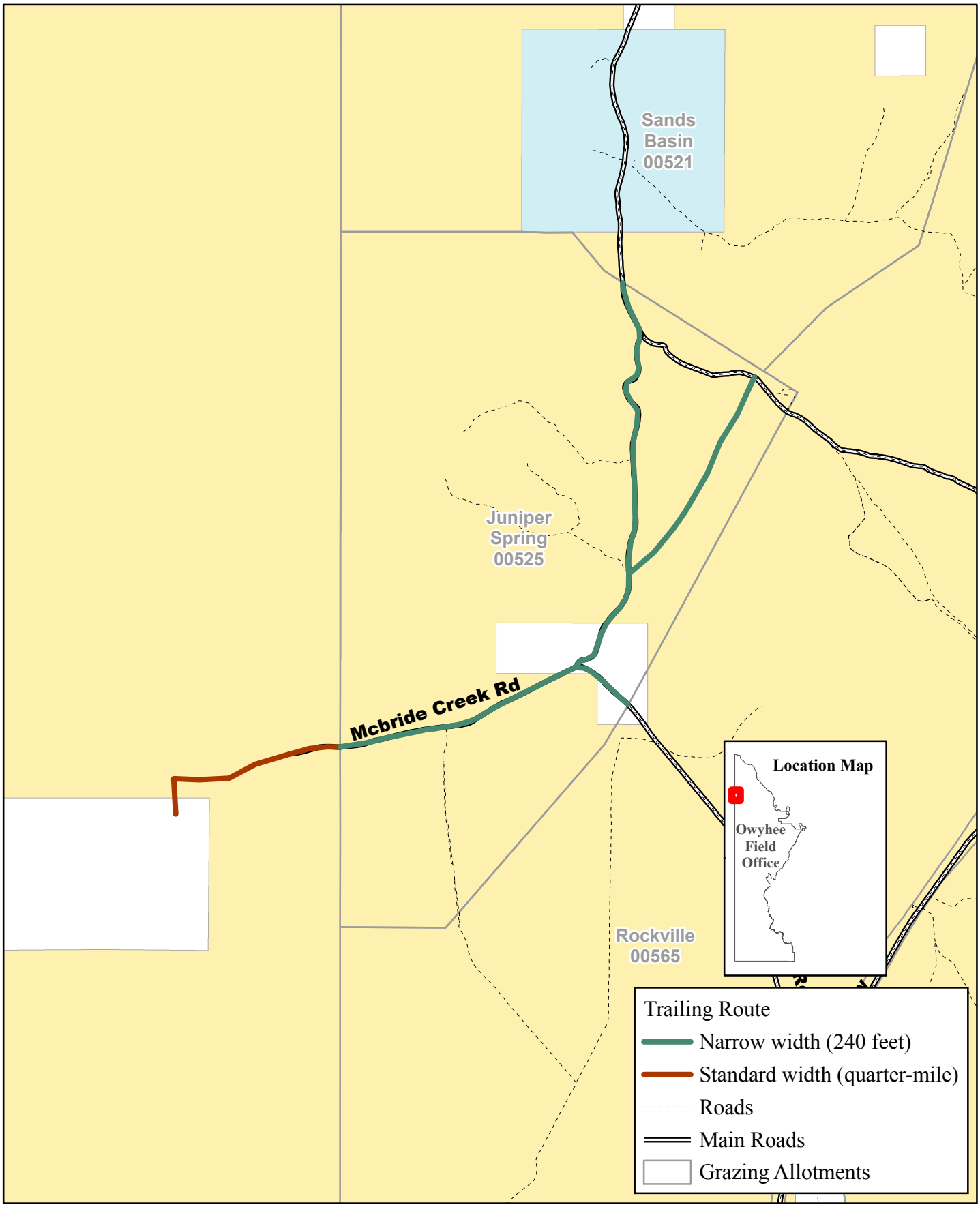
No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Chipmunk Grazing Association
Trail Route 7



Chipmunk Grazing Association
Trail Route 8



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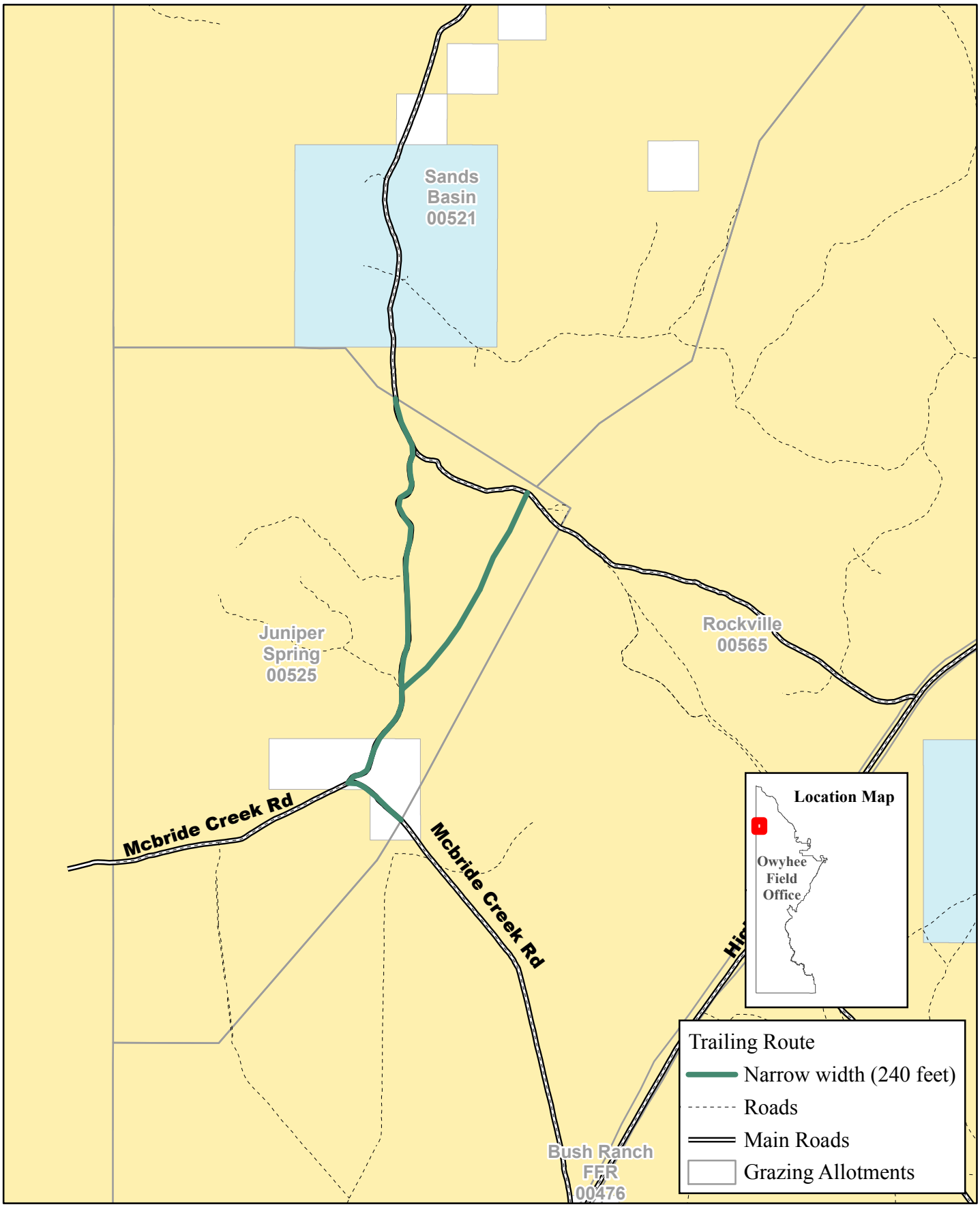
Chipmunk Grazing Association
Trail Route 9



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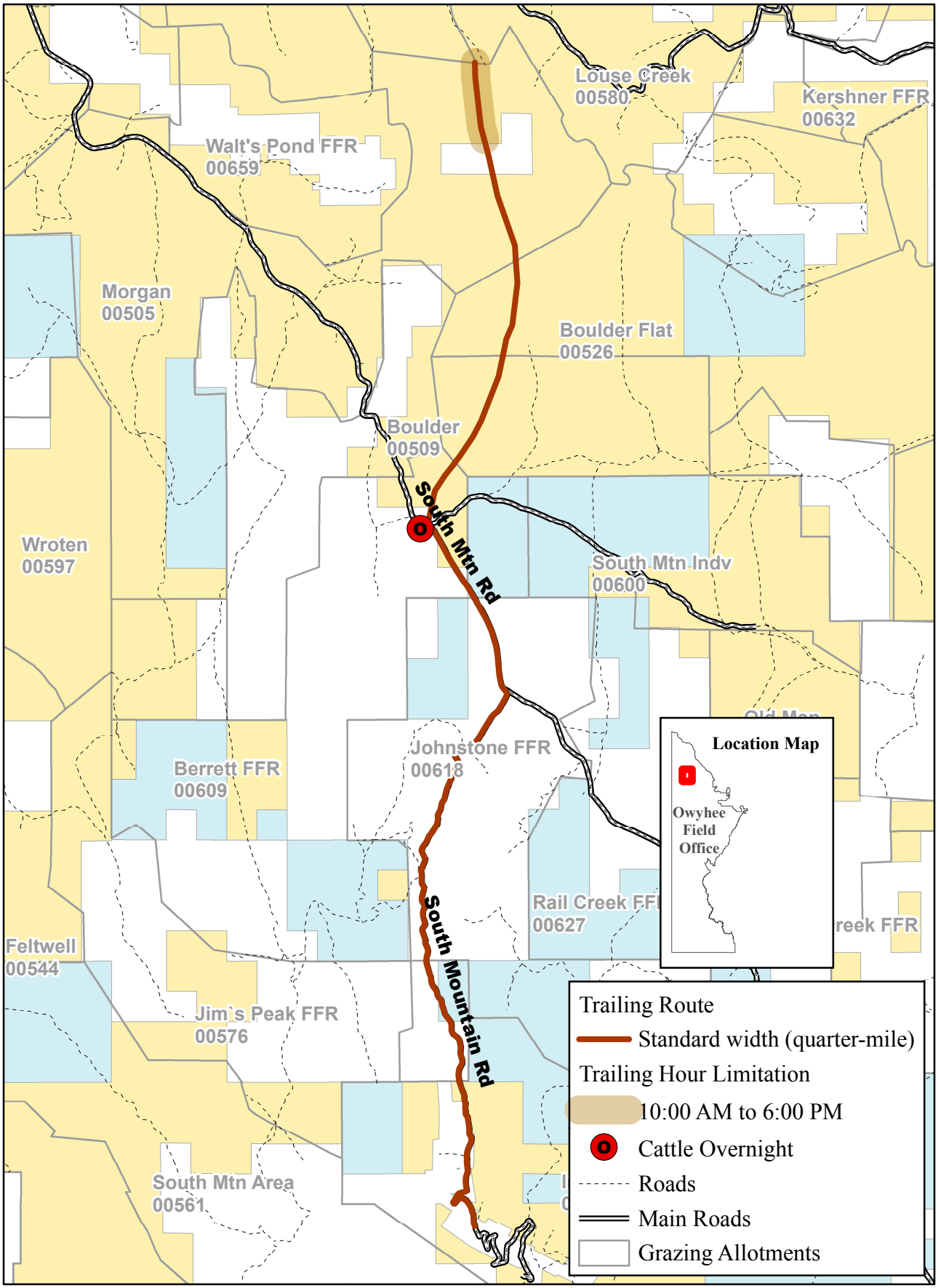
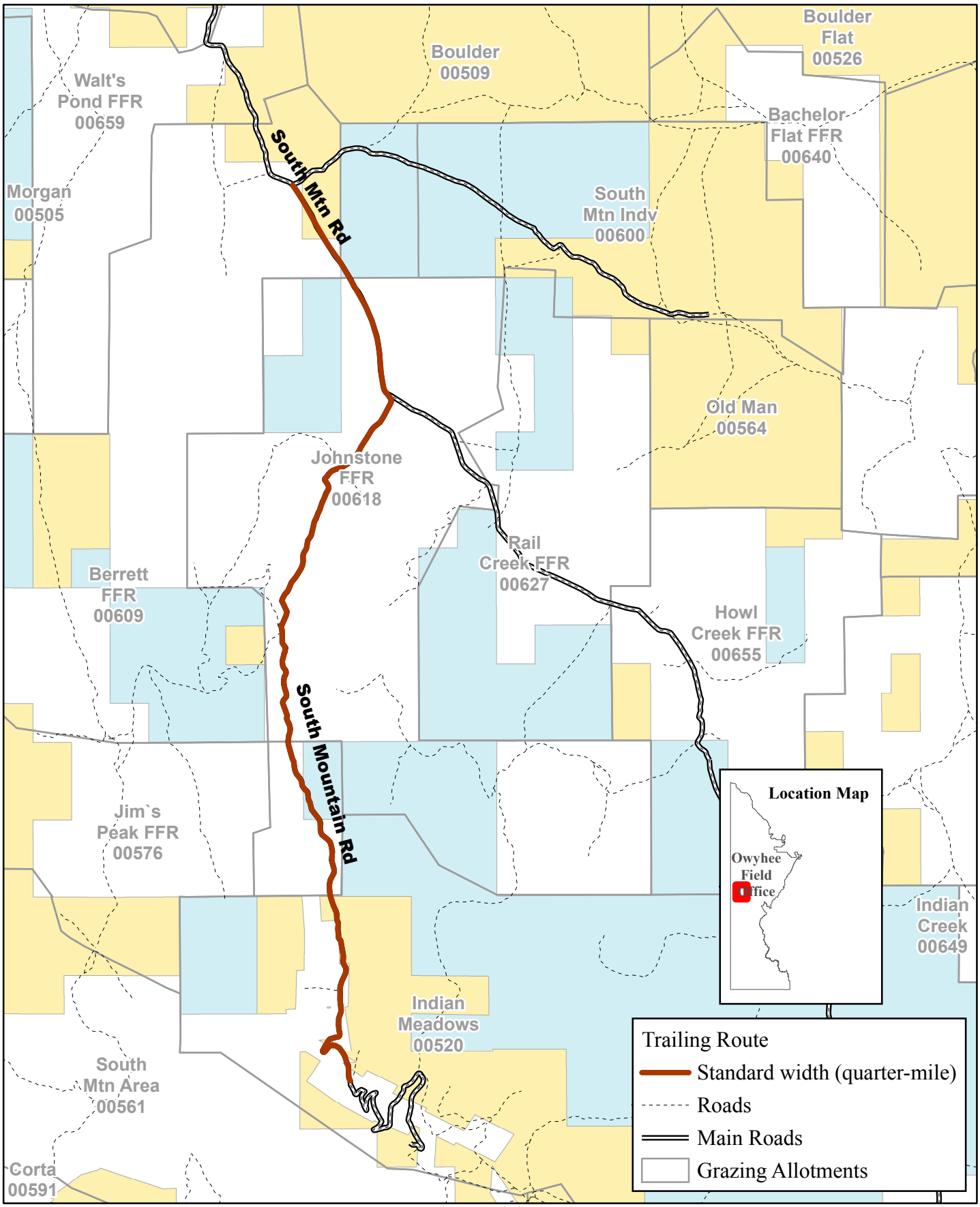
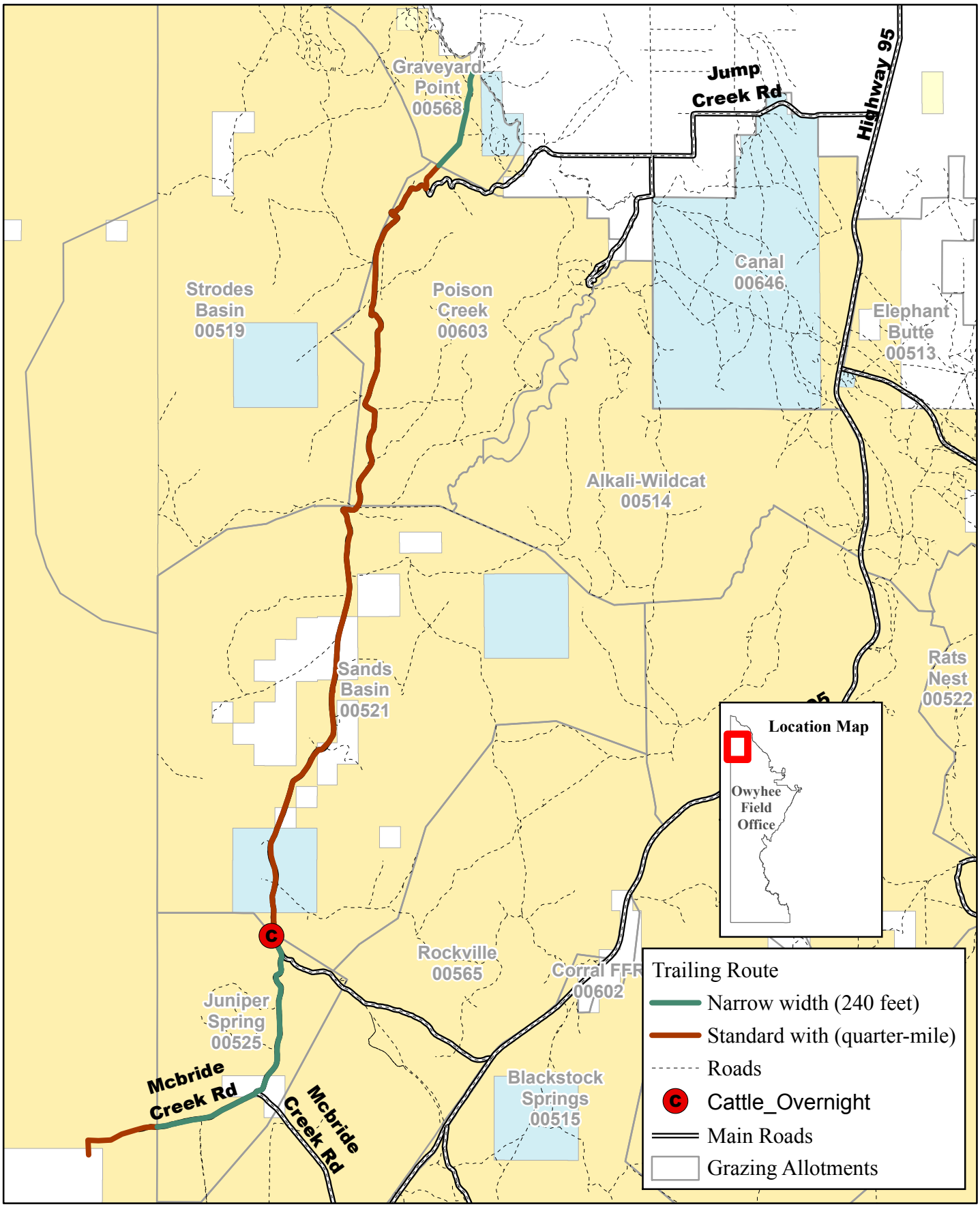
Craig and Rhonda Brasher
Trail Route 1



Craig and Rhonda Brasher
Trail Route 2



Doug Burgess
Trail Route 1



Miles
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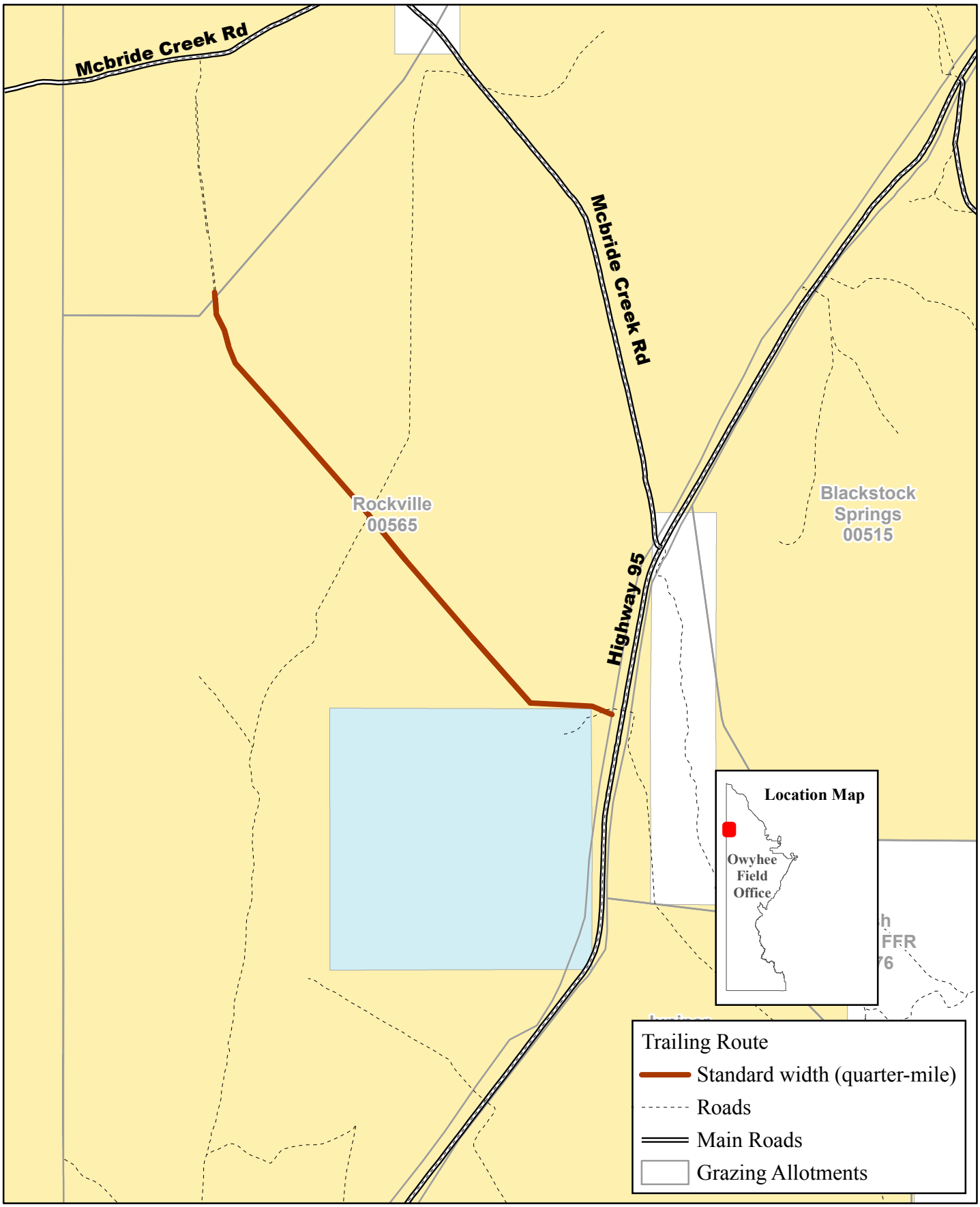
Ed and Debby Wilsey LLC
Trail Route 1



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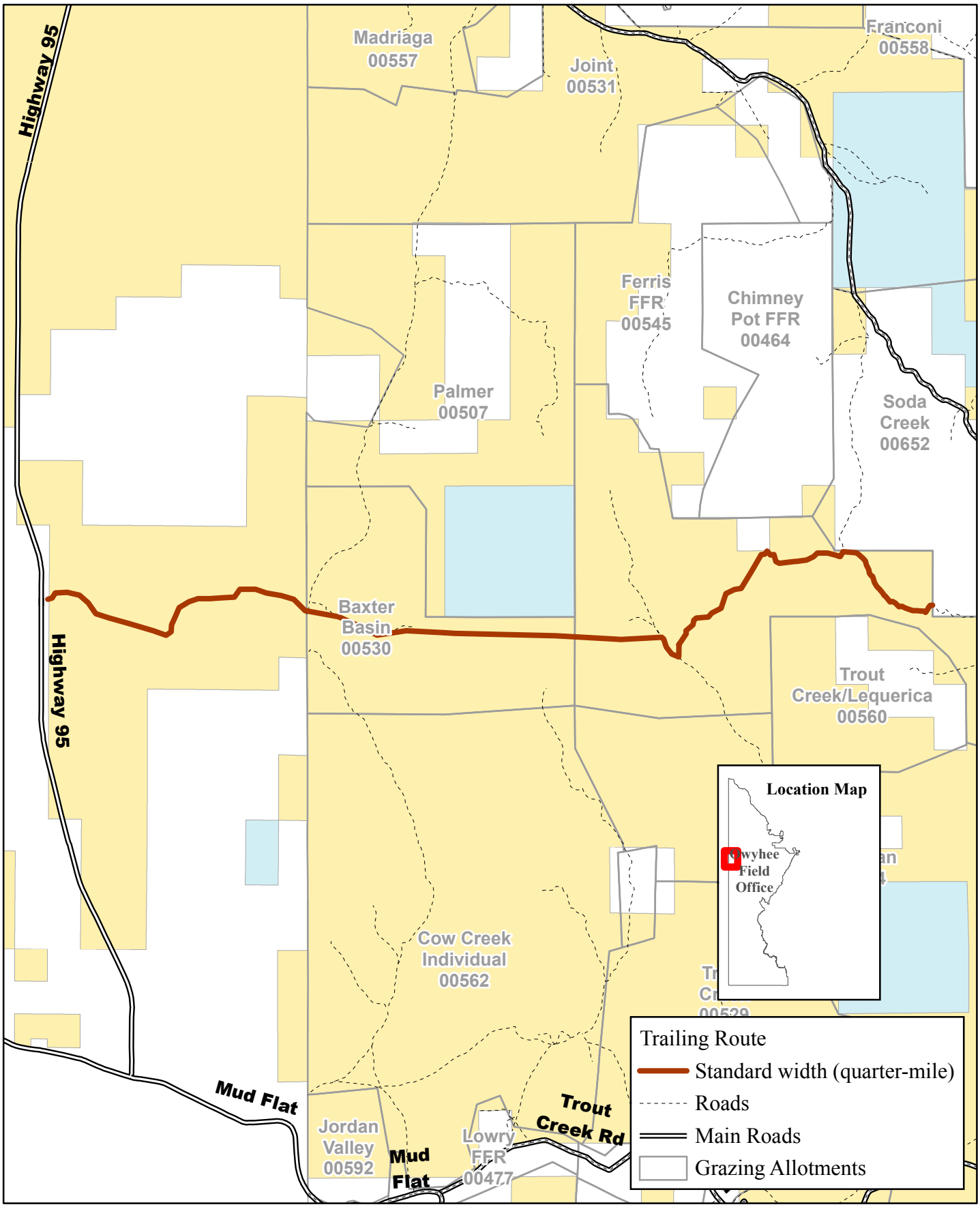
Elordi Cattle Company
Trail Route 1



Miles
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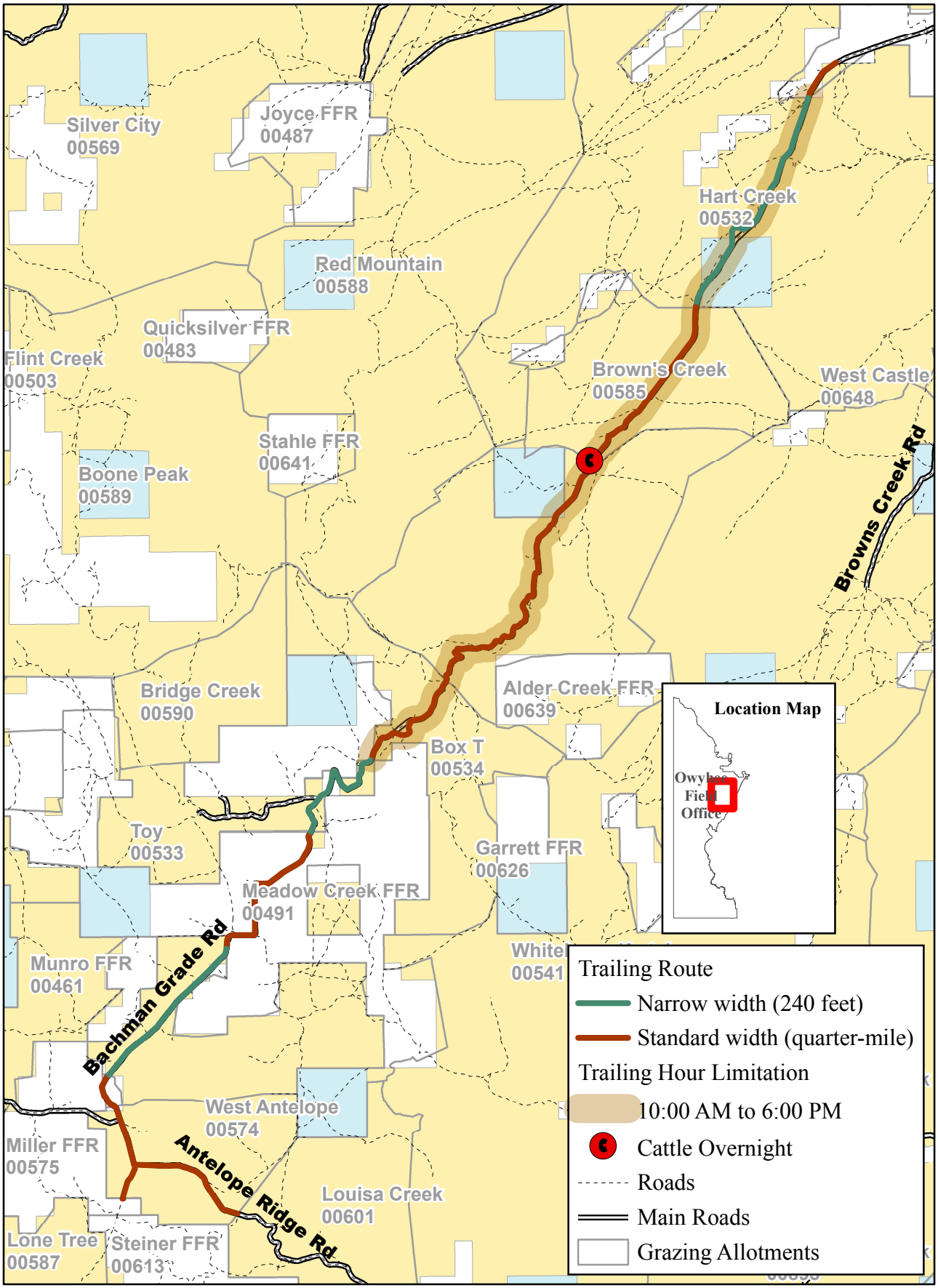
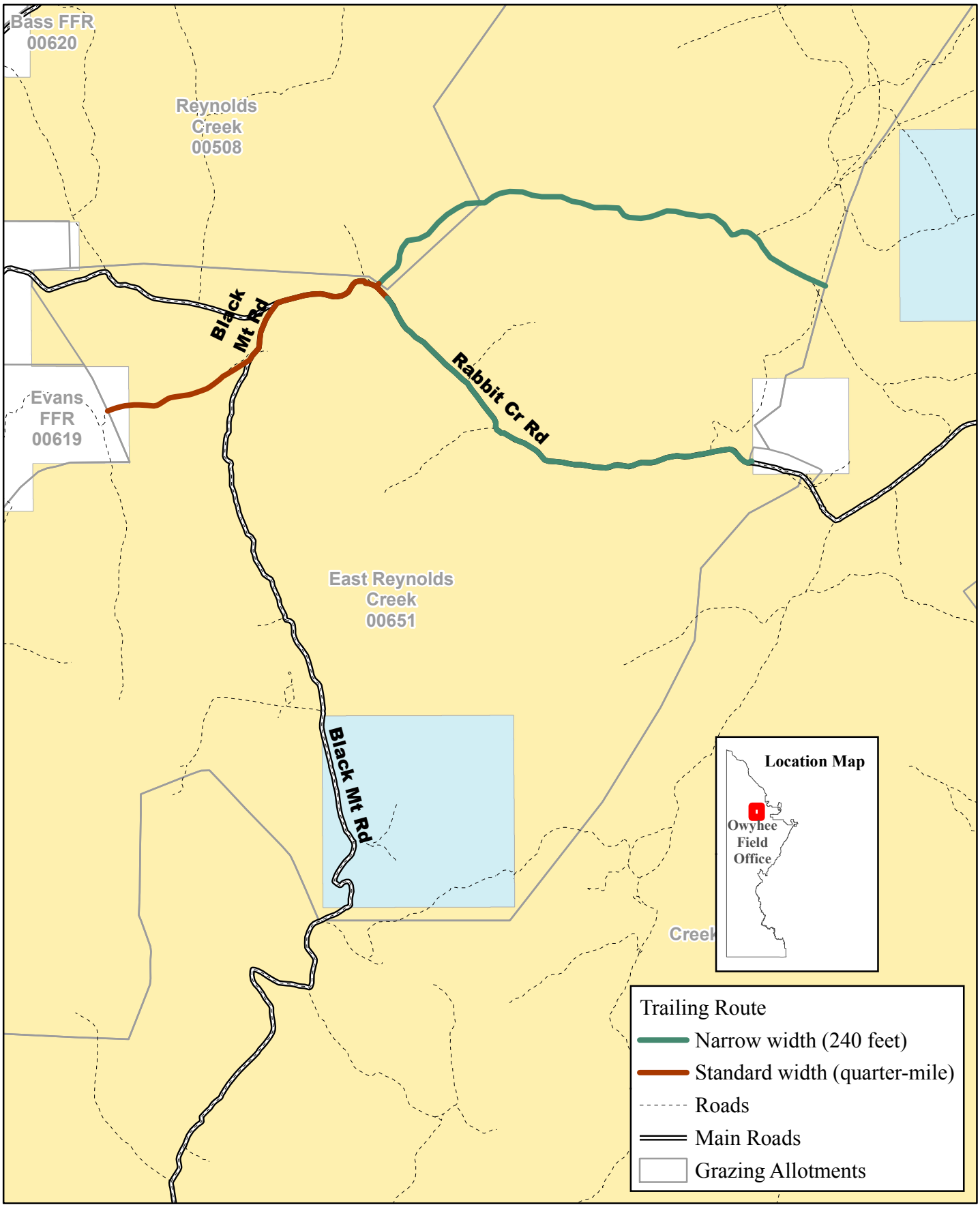
Estate of Charles Steiner
Trail Route



No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Hook Family LLC
Trail Route 1



Hook Family LLC
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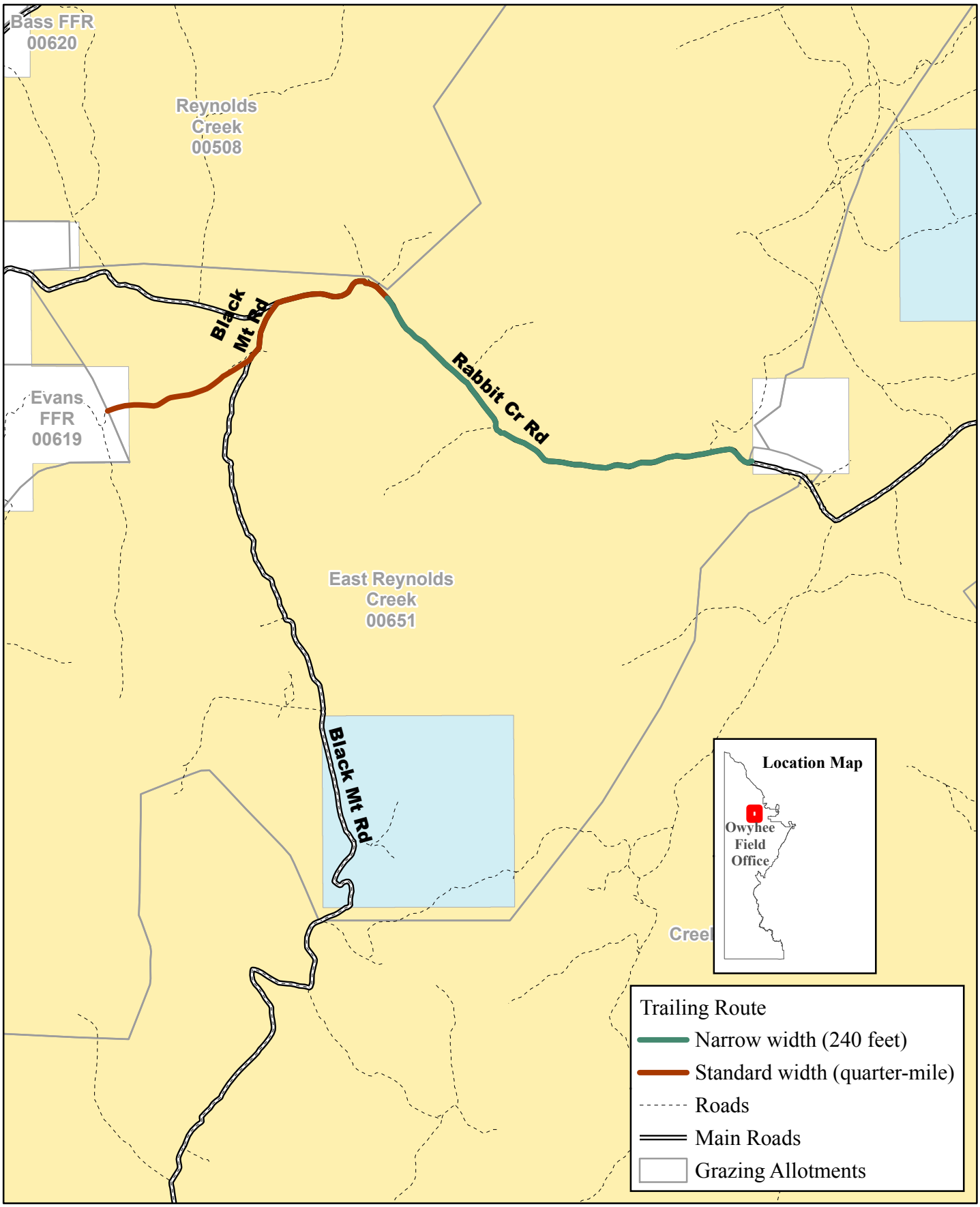
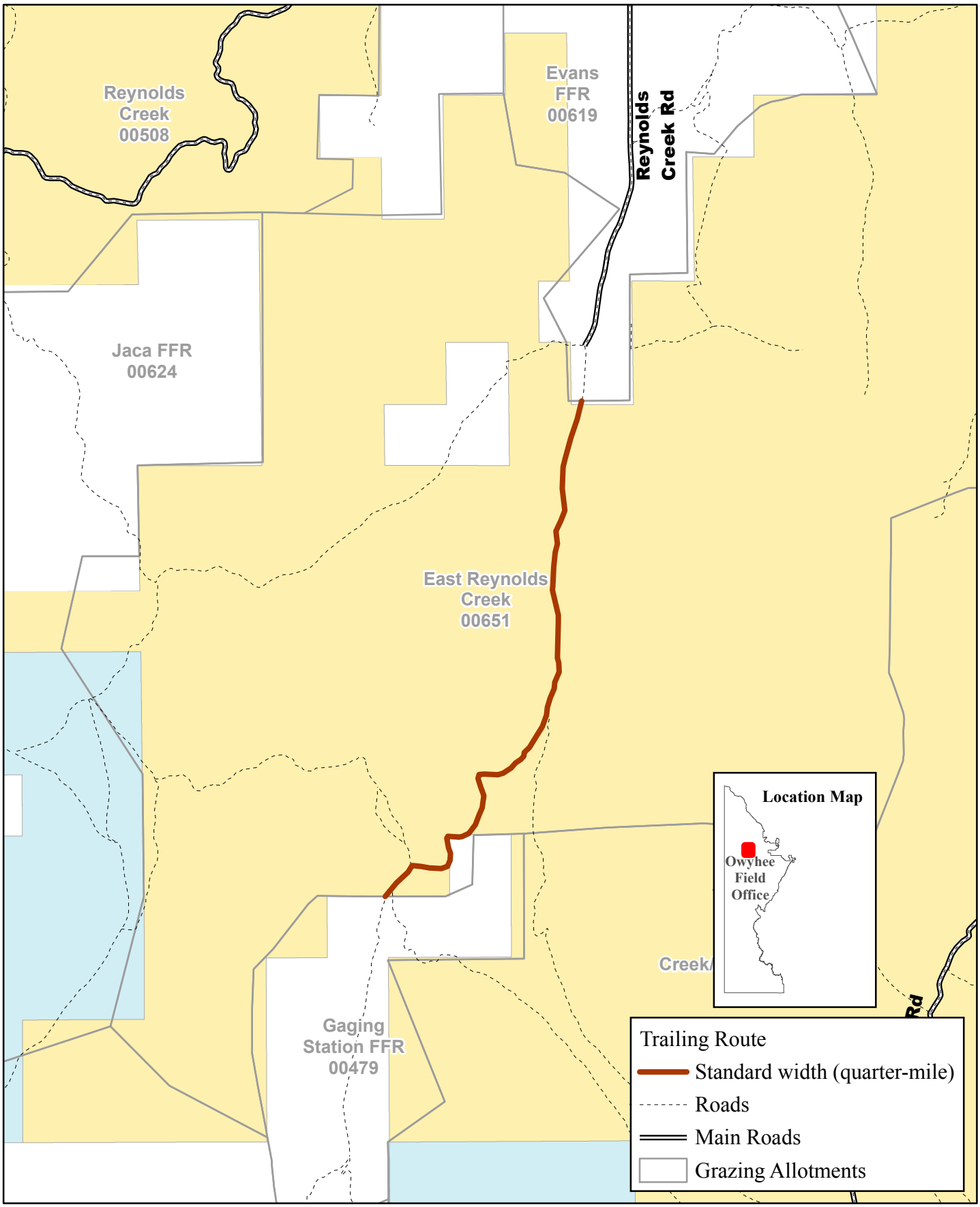
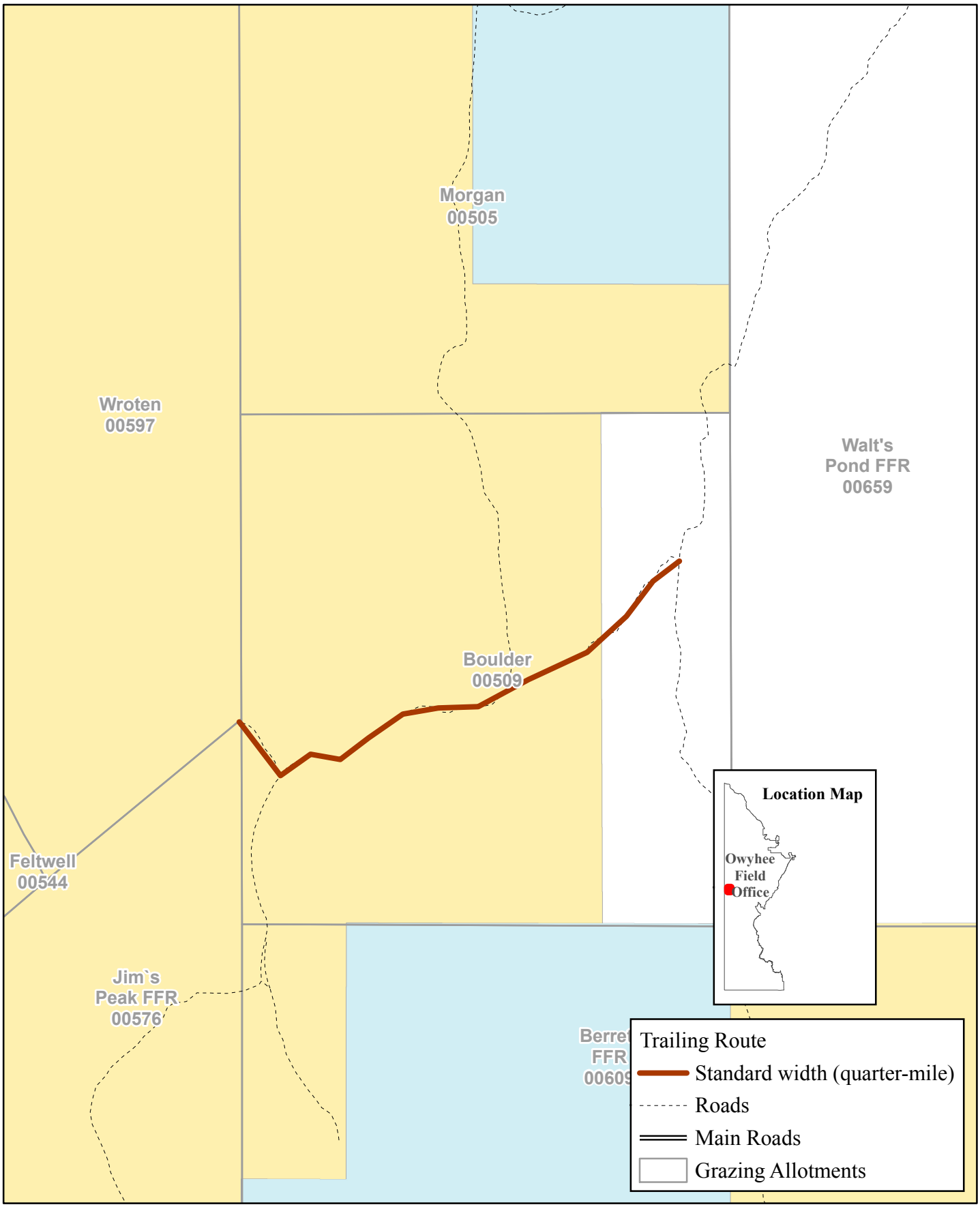


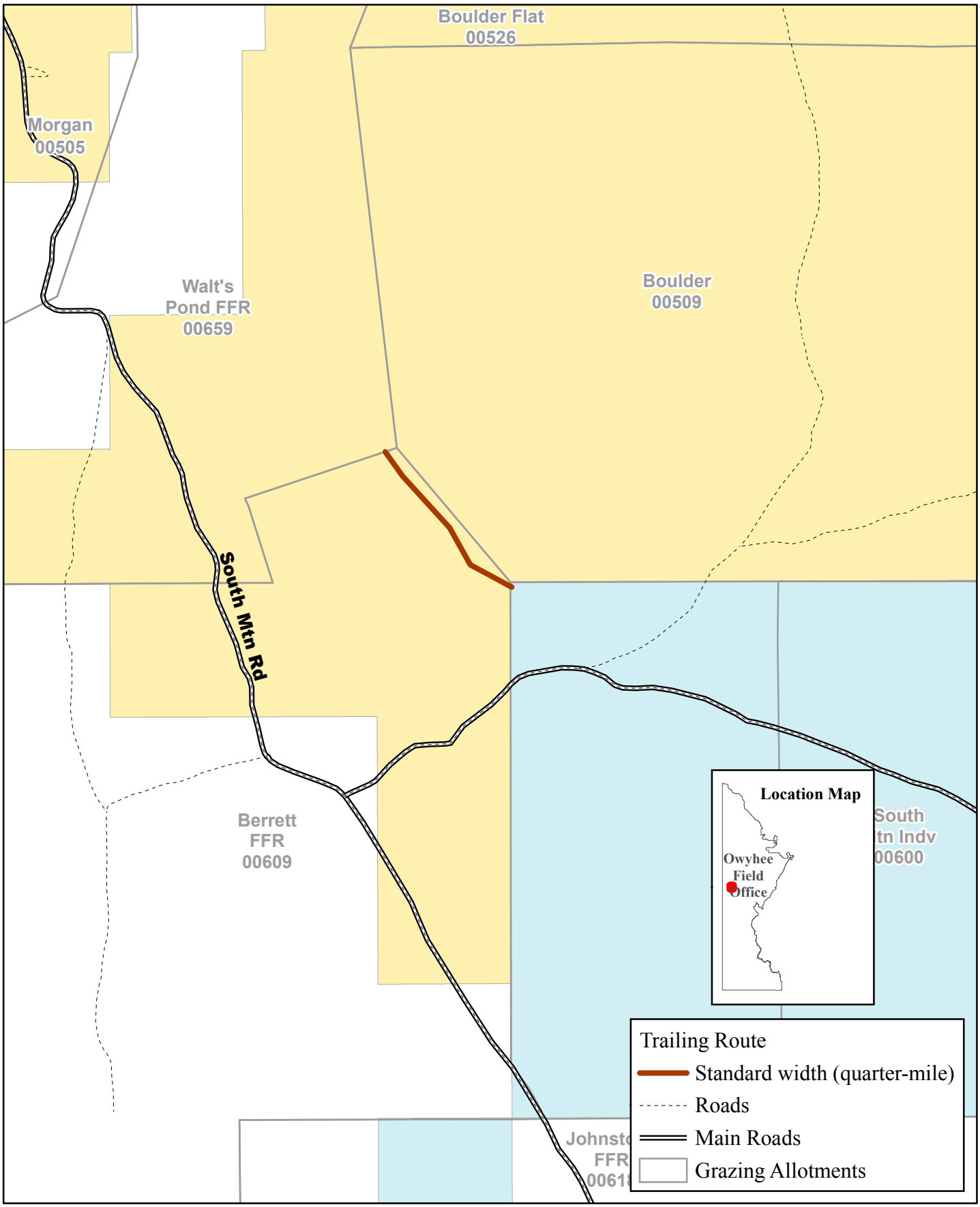
Hook Family LLC
Trail Route 3



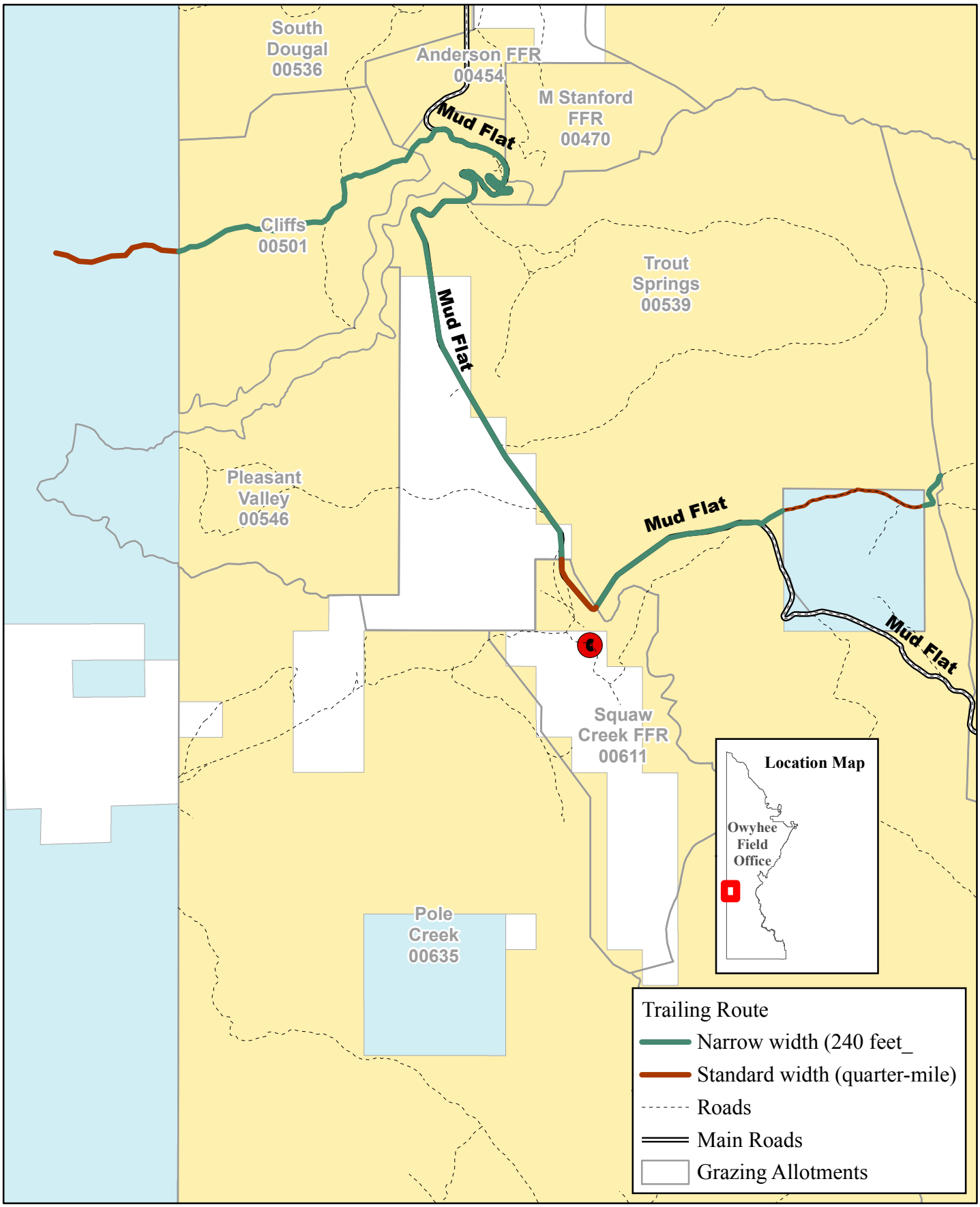
Morgan Properties LP DBA Morgan Ranches
Trail Route 1



Morgan Properties LP DBA Morgan Ranches
Trail Route 2



Payne Family LLC
Trail Route 1



0 0.25 0.5 1 1.5 2 Miles

N W E S

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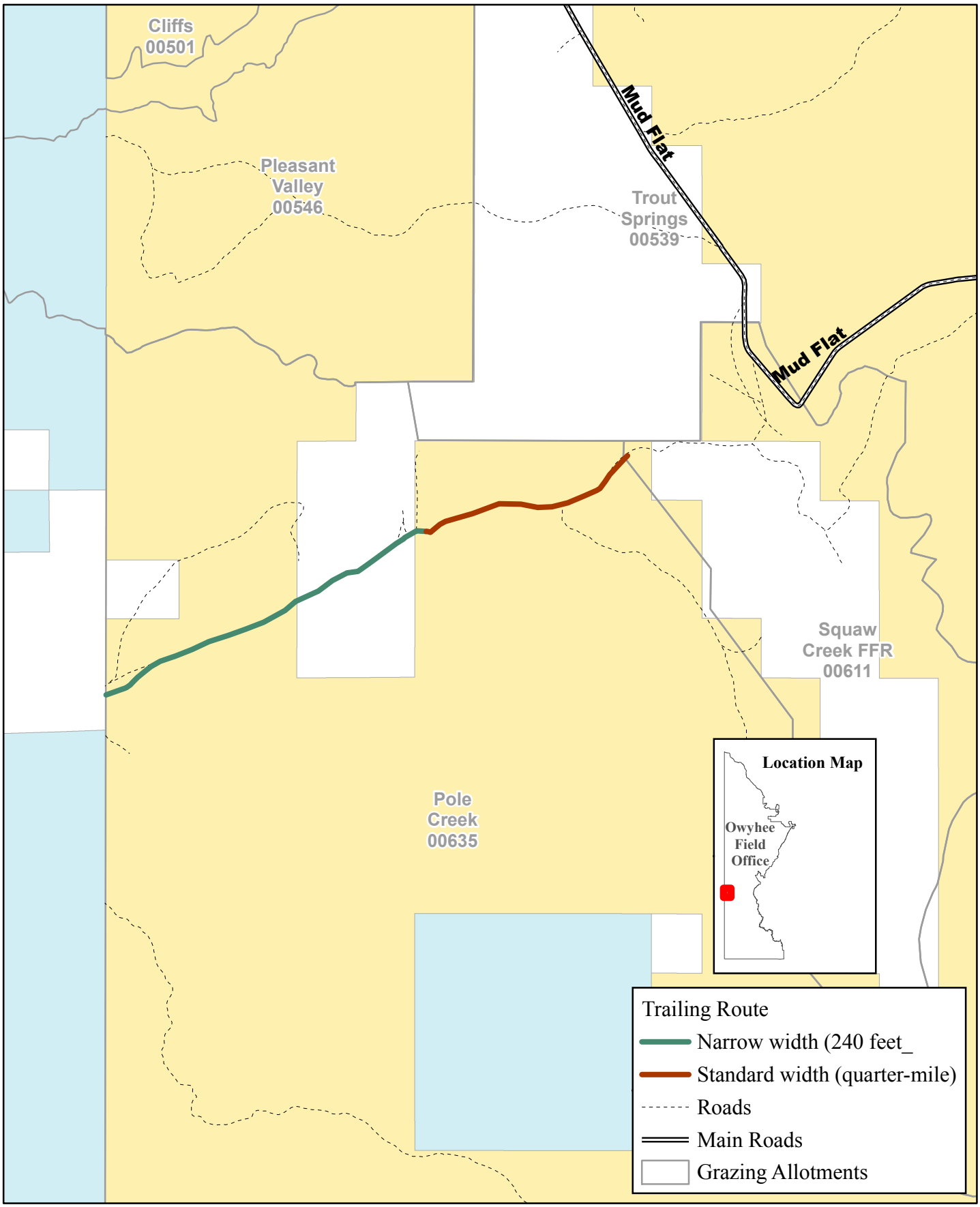
Payne Family LLC
Trail Route 2



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N
W E
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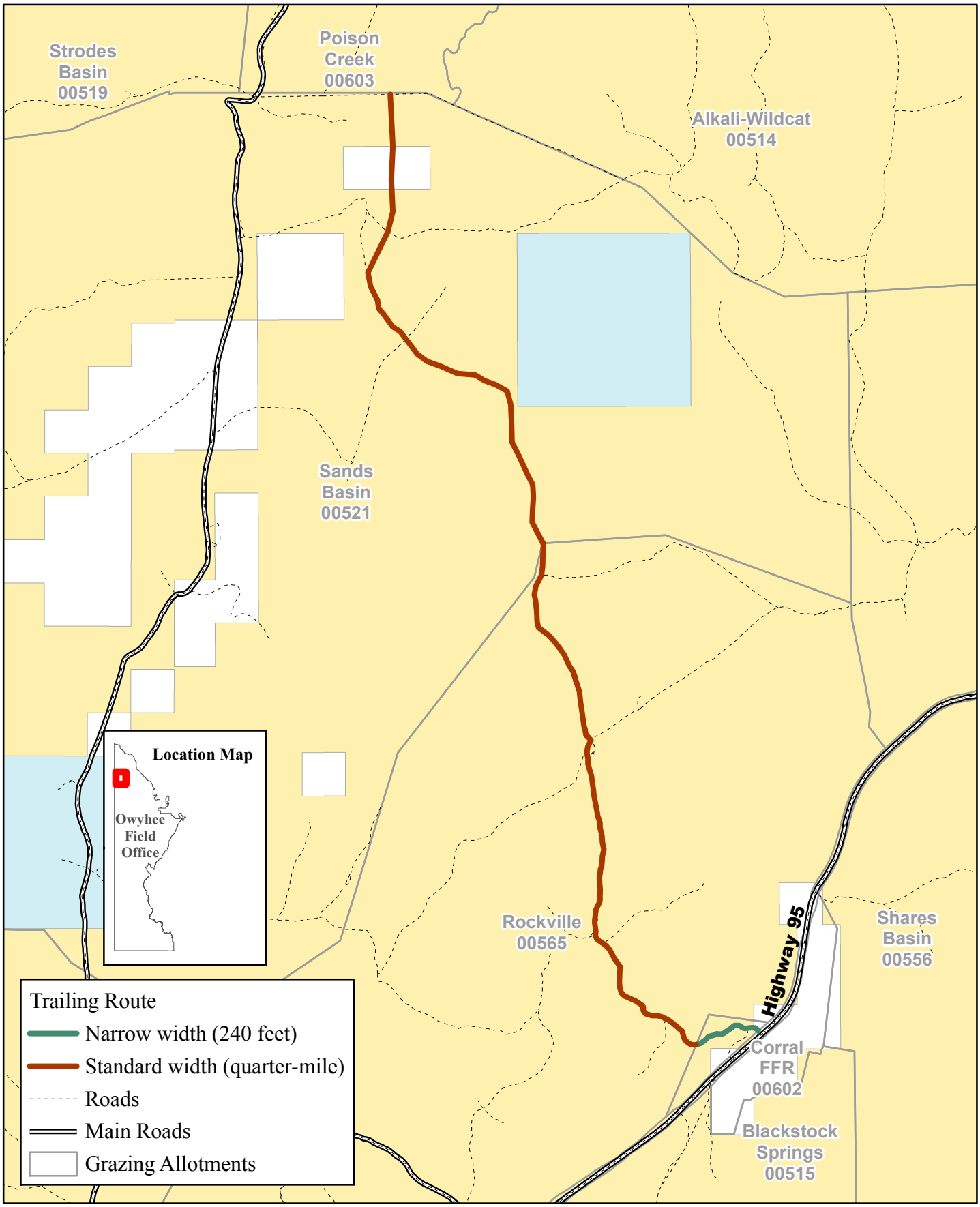
No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Poison Creek Grazing Association LLC (Cattle)
Trail Route 1



No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Poison Creek Grazing Association LLC (Sheep)
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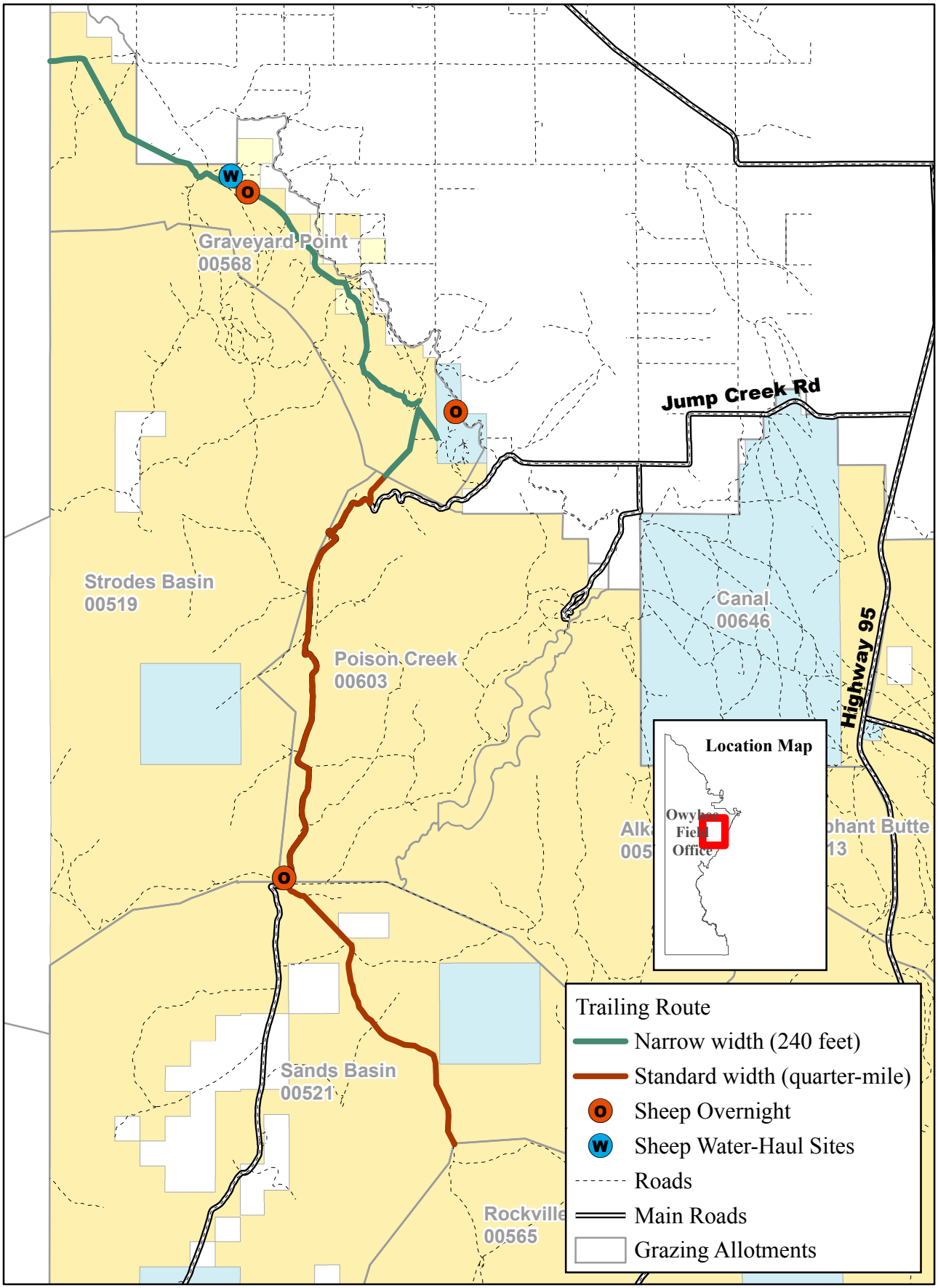

No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

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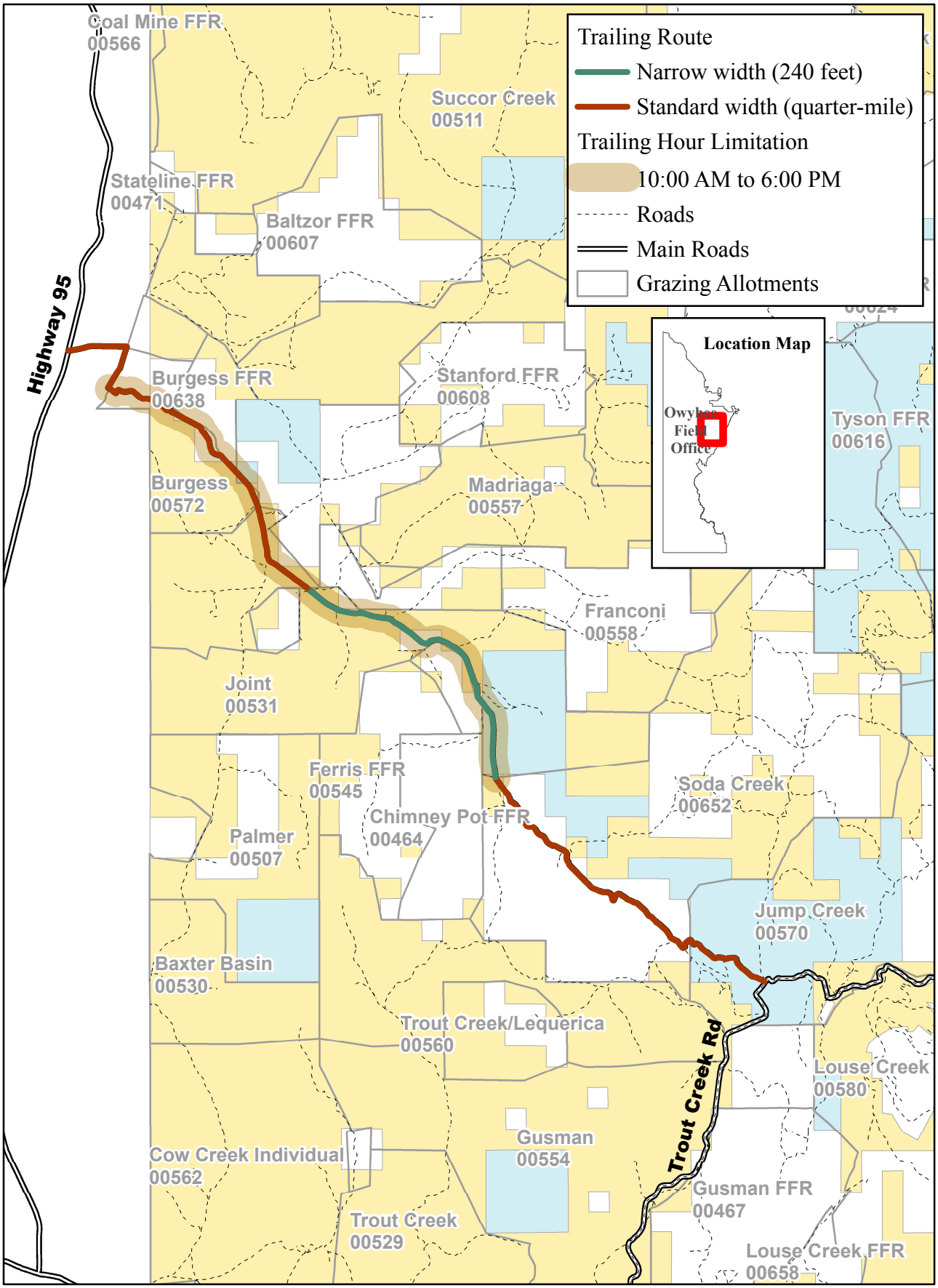

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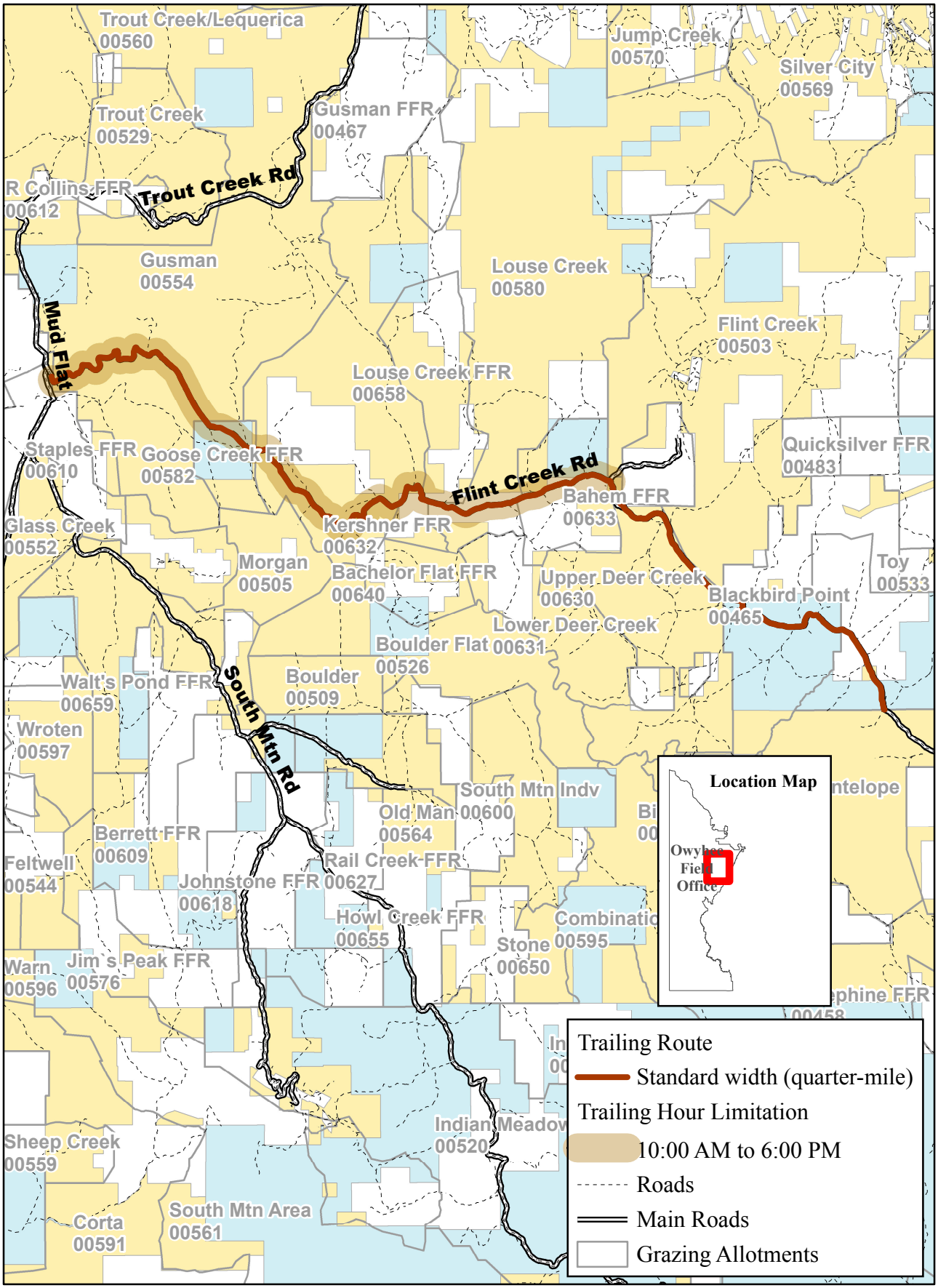
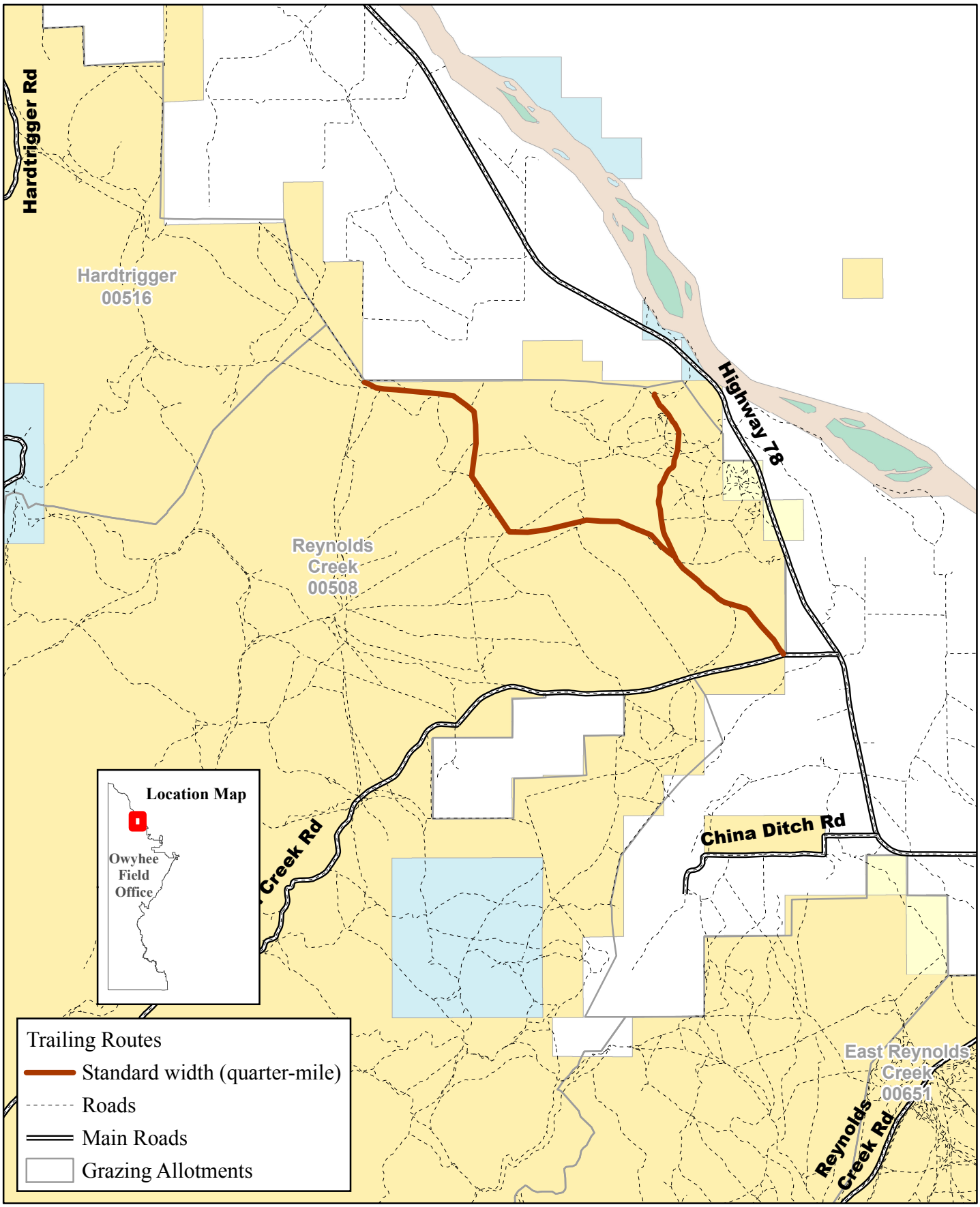


No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Richard and Connie Brandau
Trail Route 1



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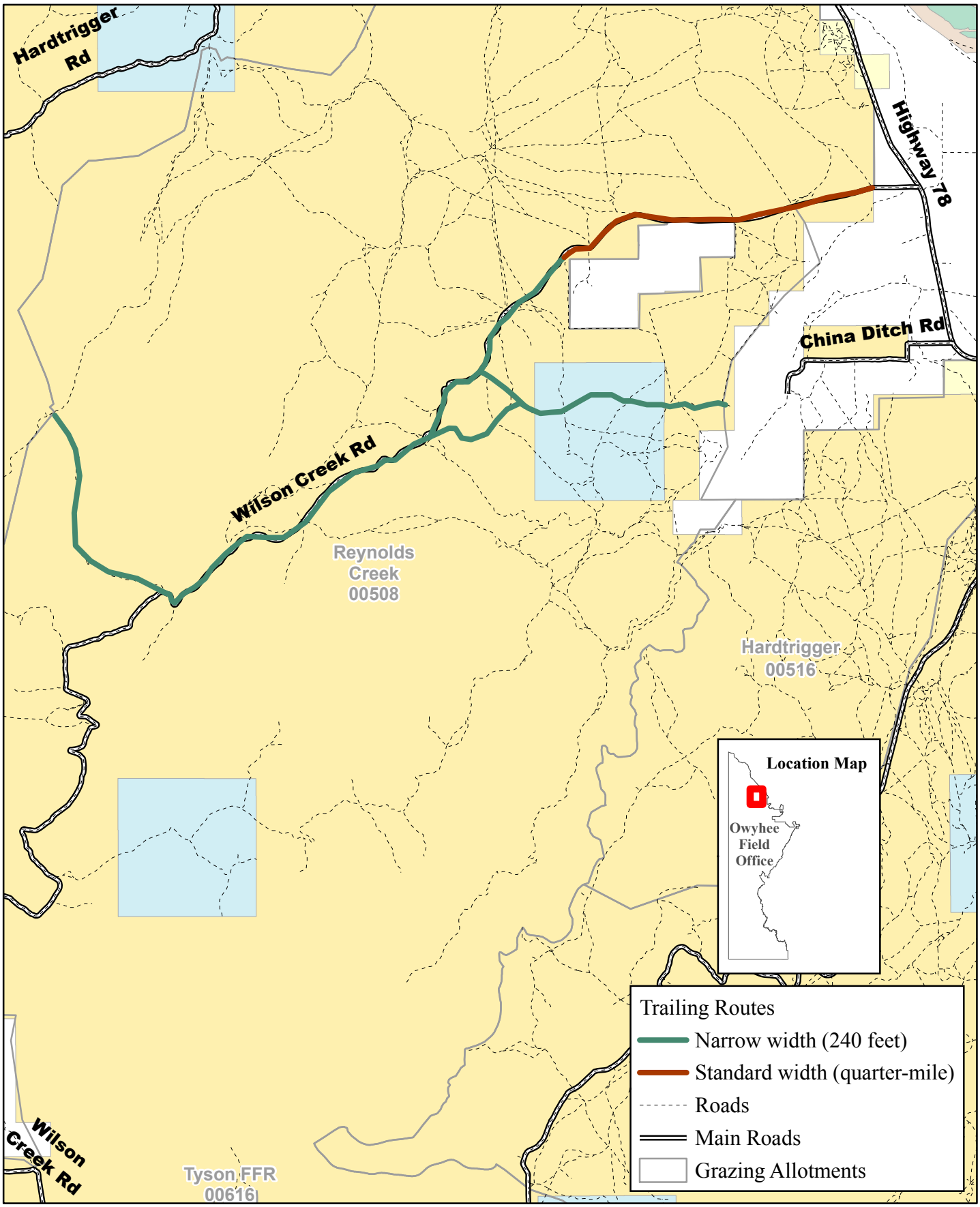

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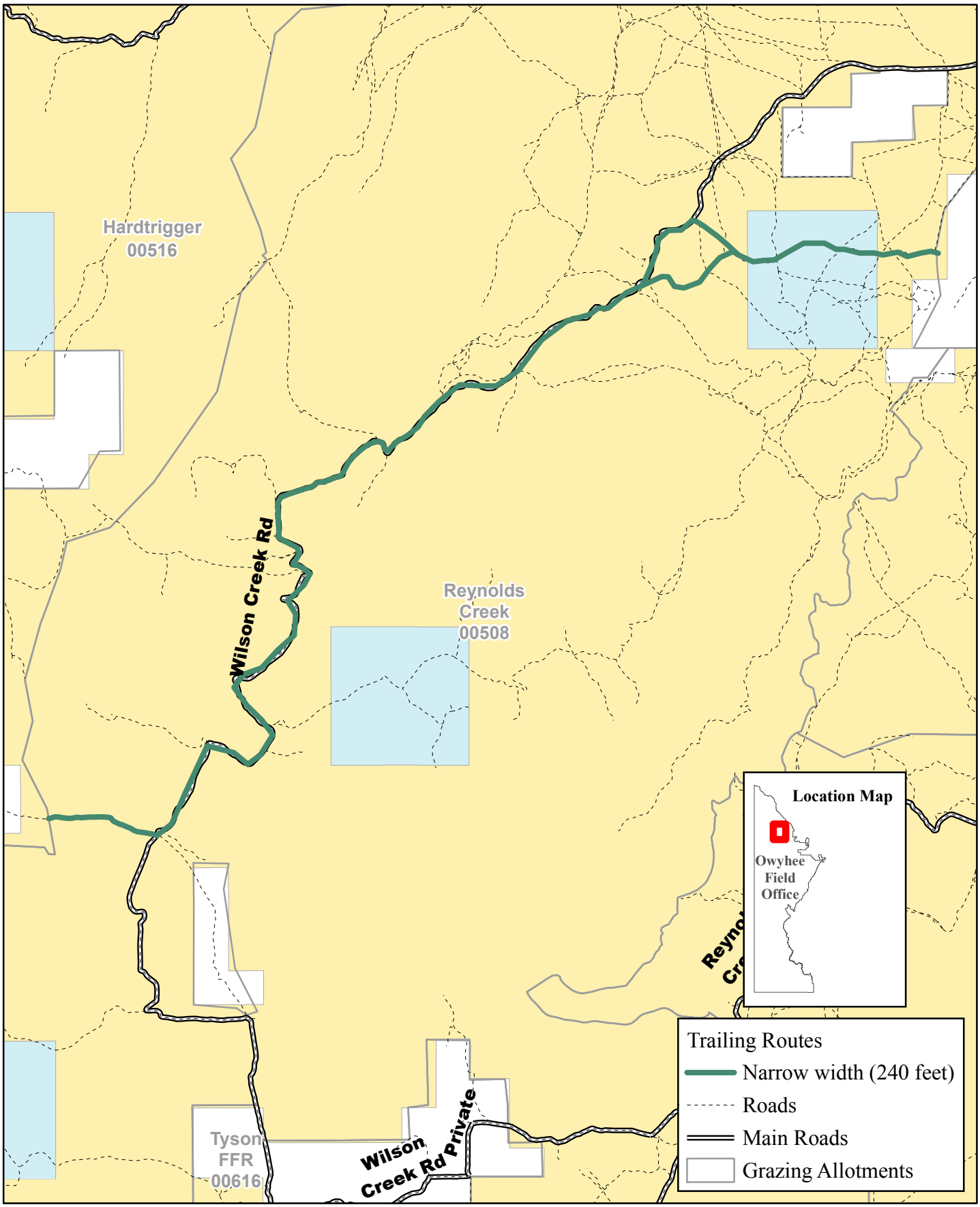
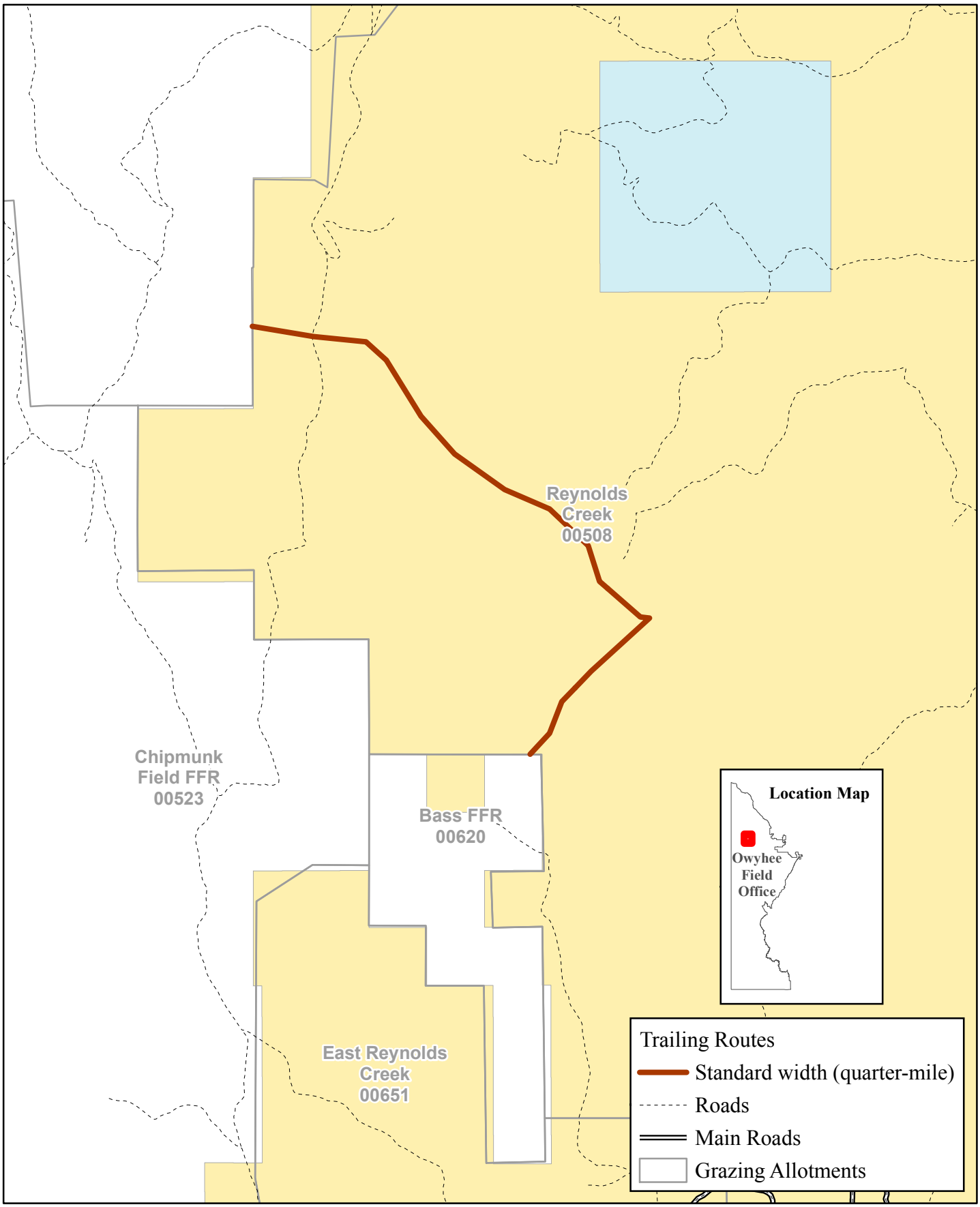


No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Richard and Connie Brandau
Trail Route 4



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Richard and Connie Brandau
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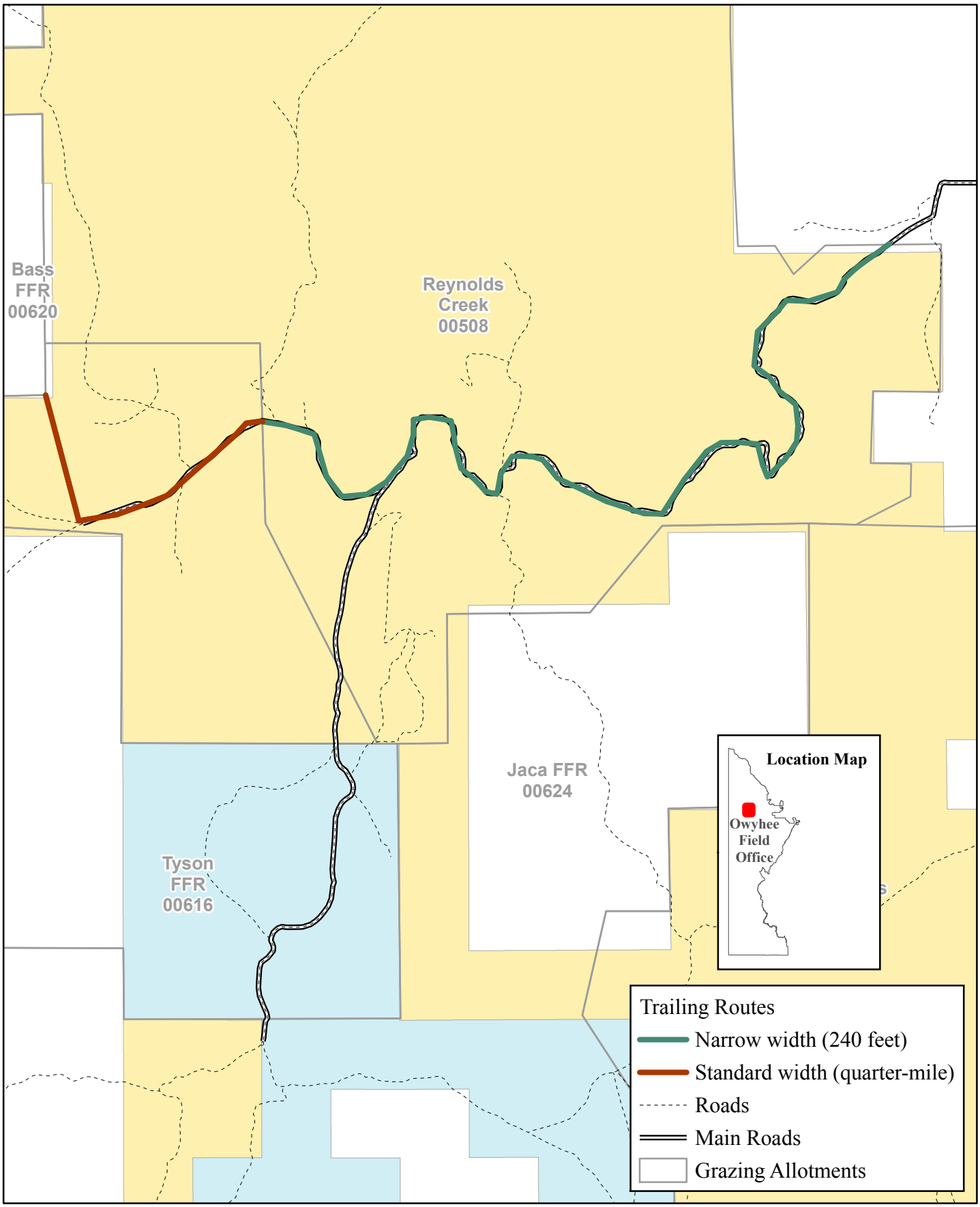
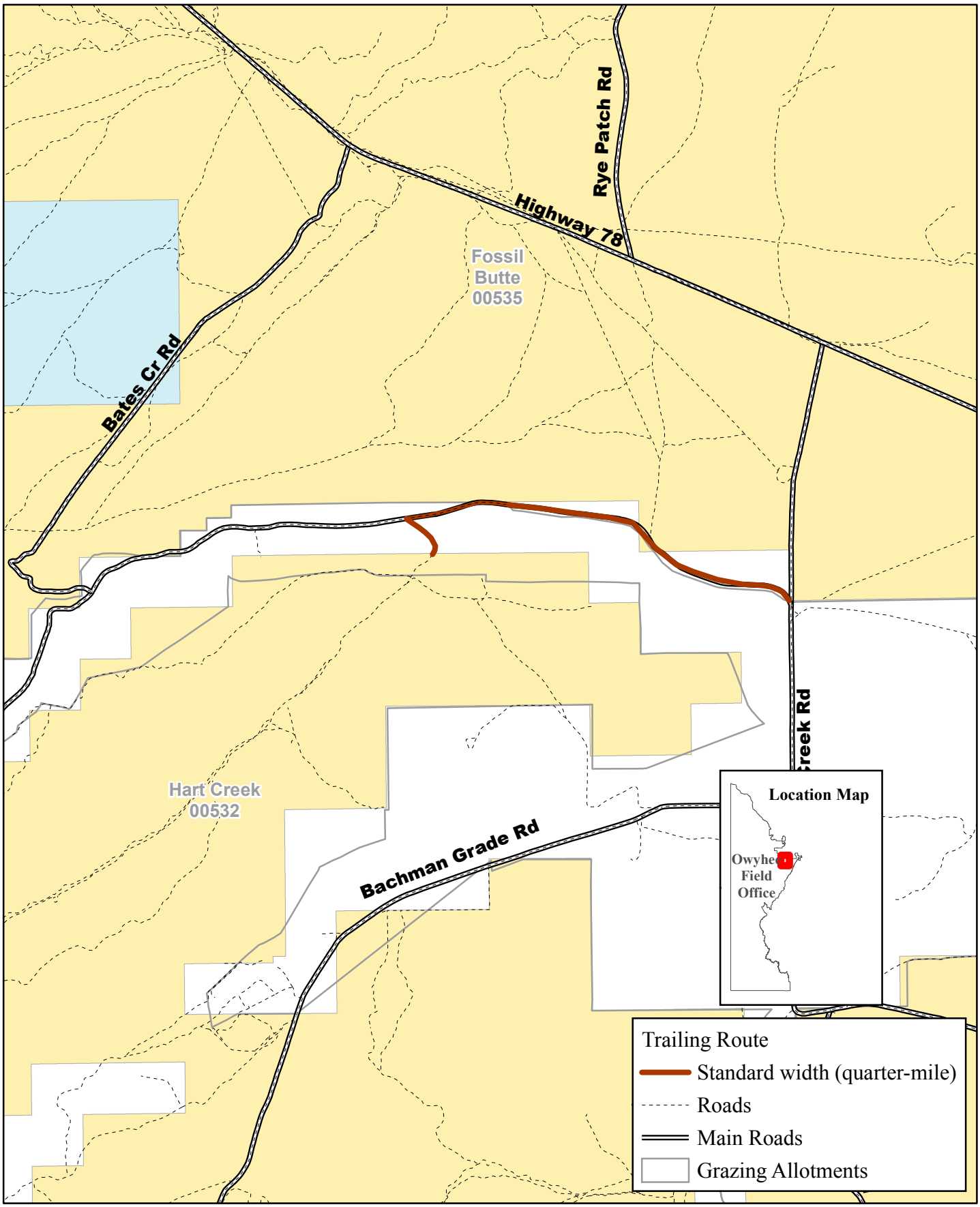


Robert Thomas
Trail Route 1



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Robert Thomas
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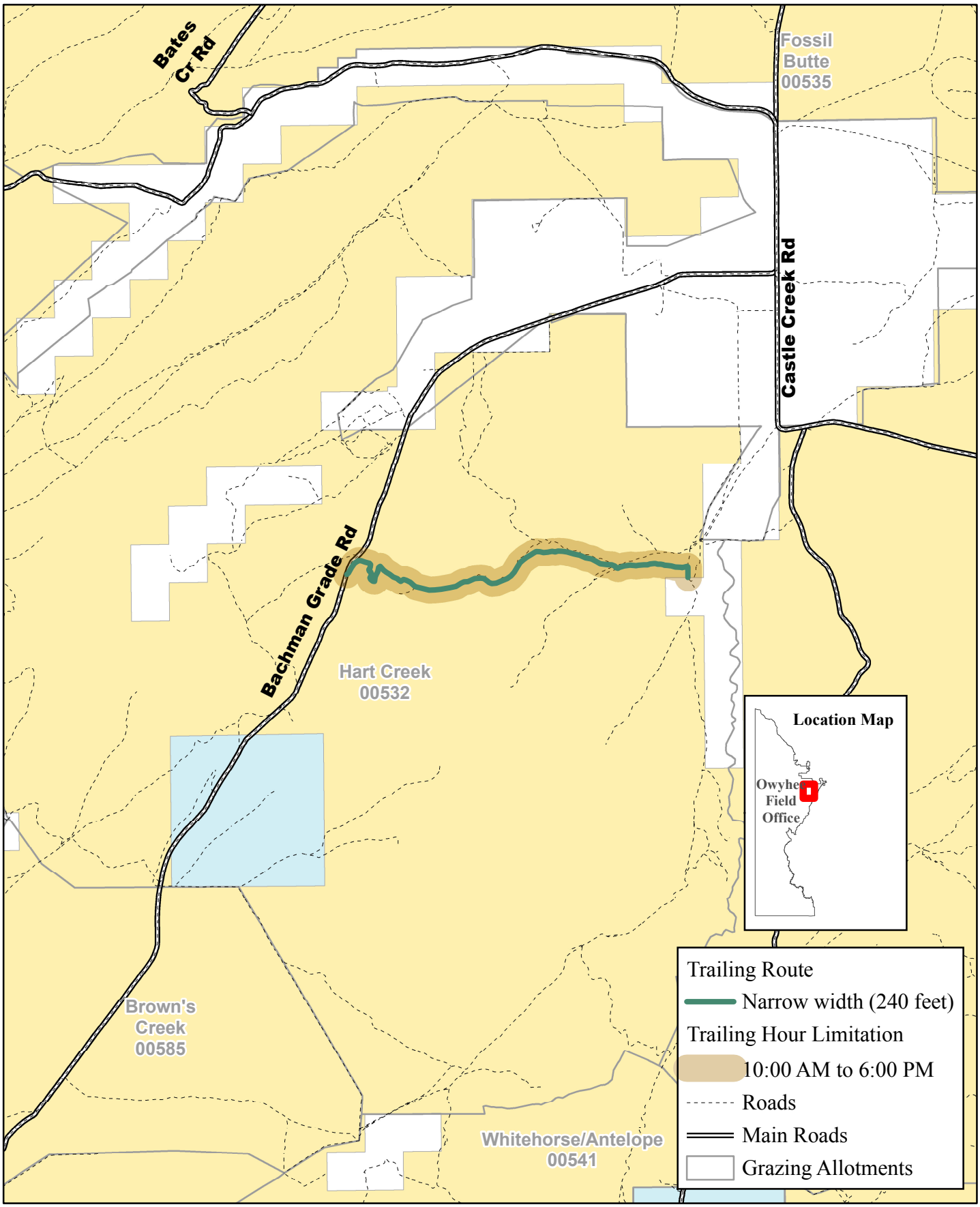

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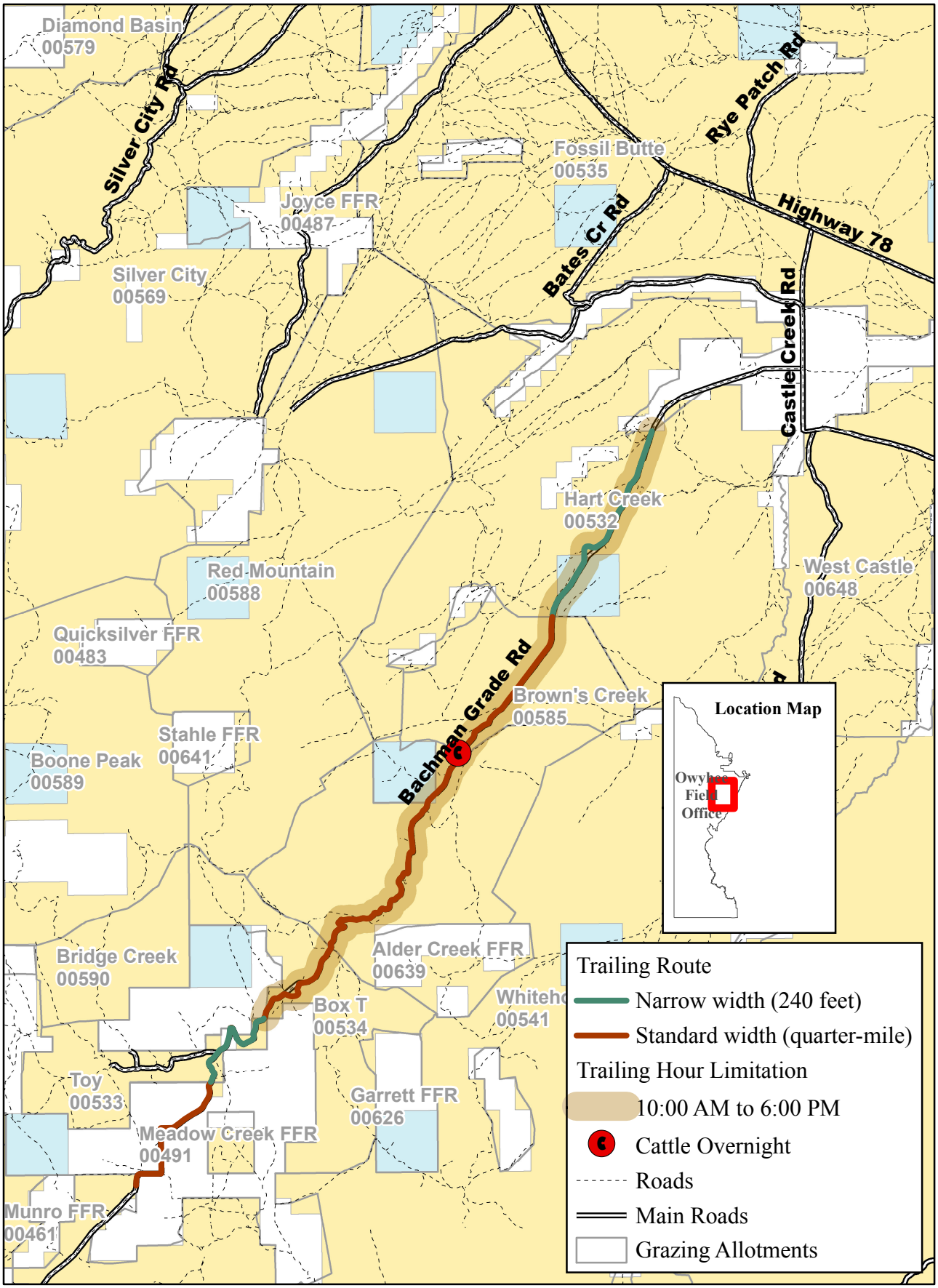

No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Robert Thomas
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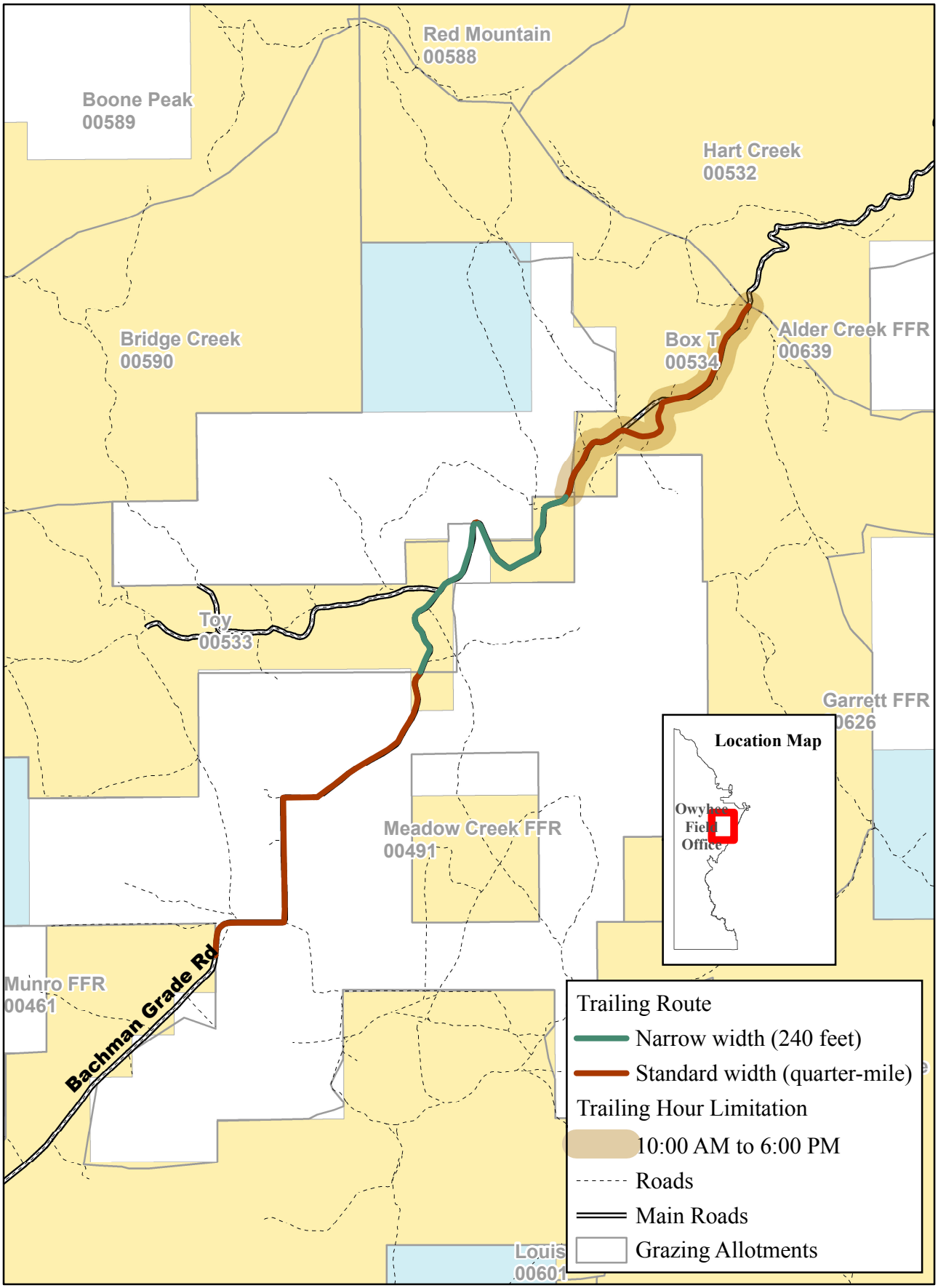

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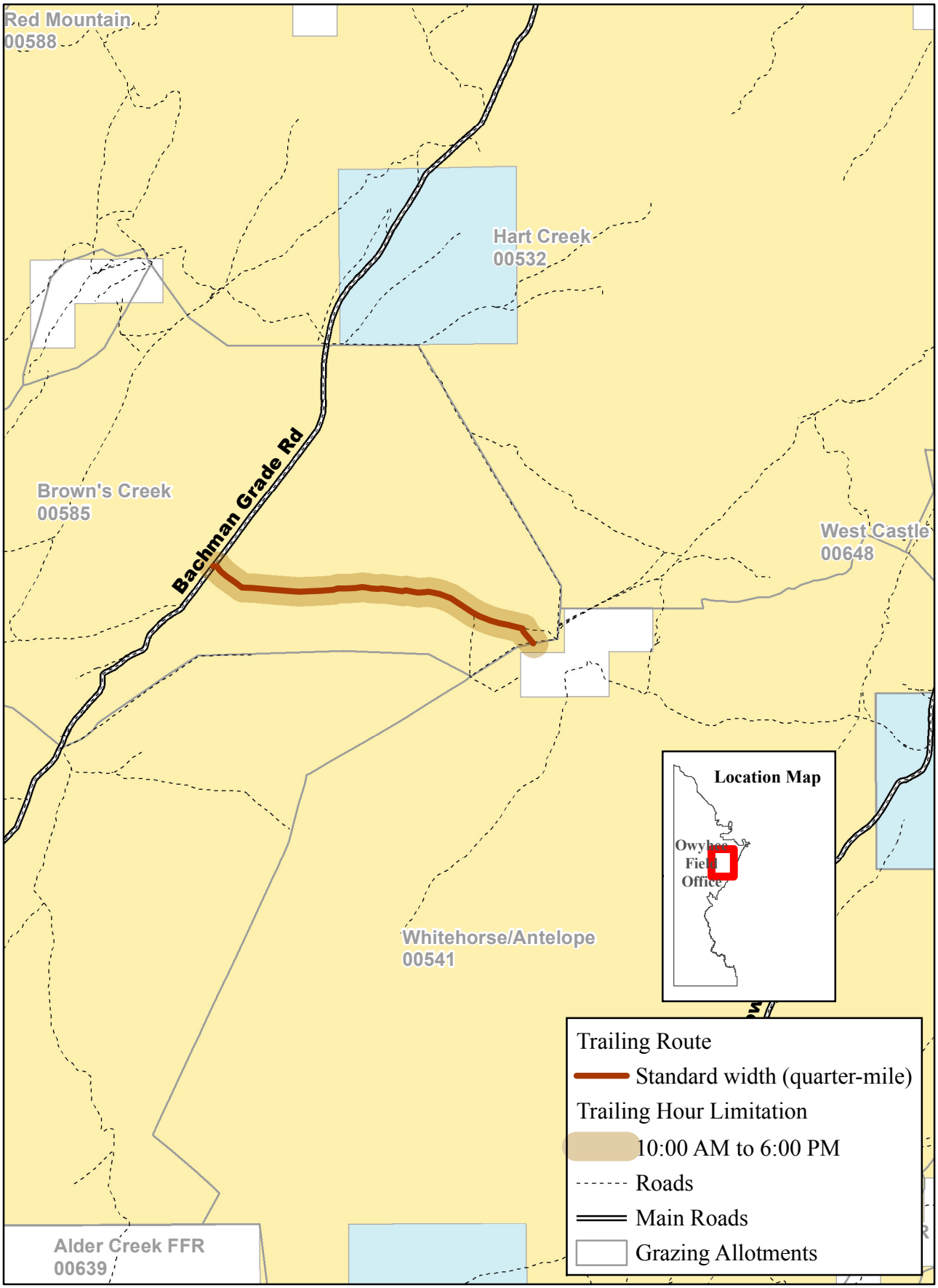
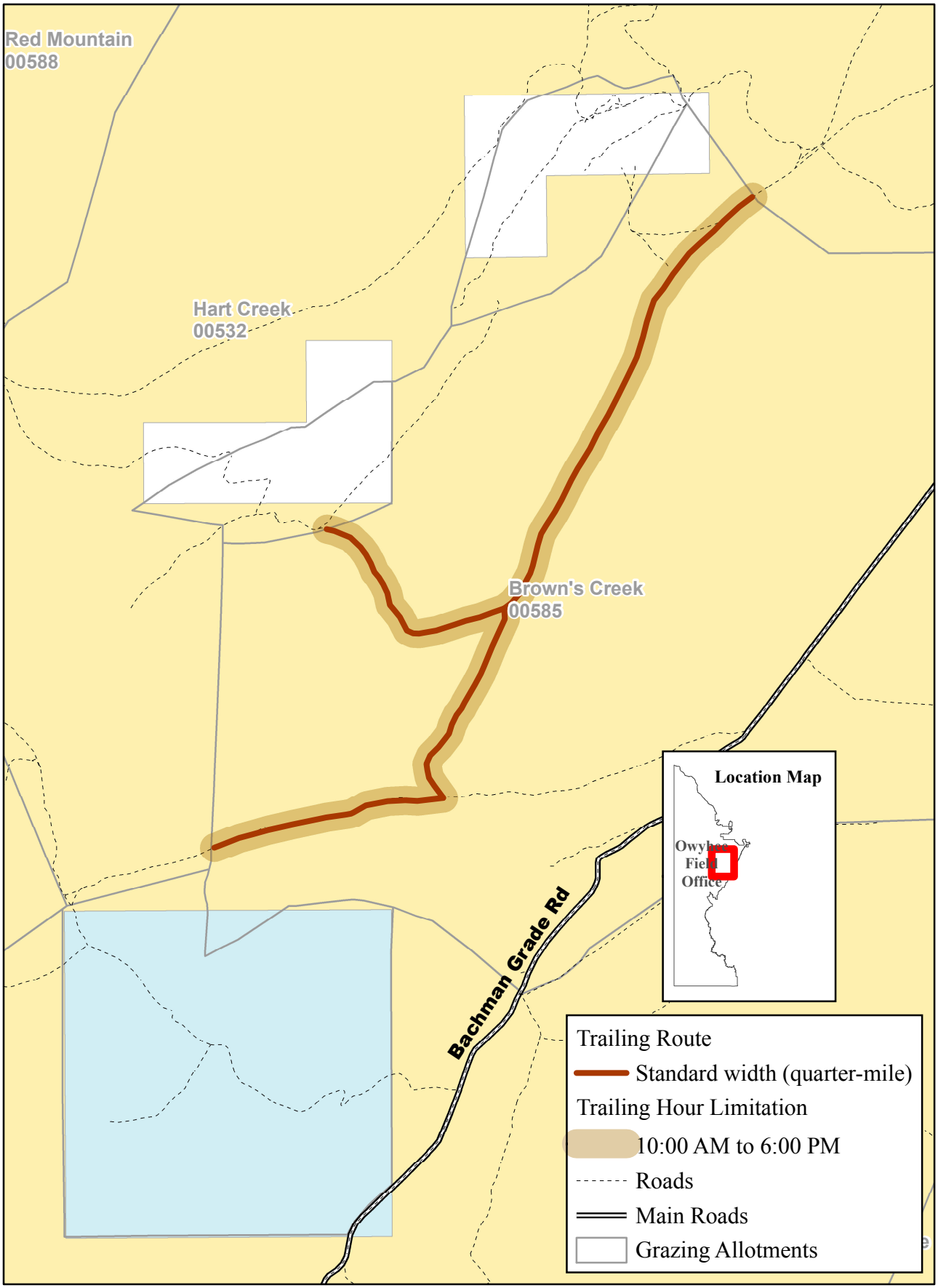


No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Robert Thomas
Trail Route 6



No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Robert Thomas
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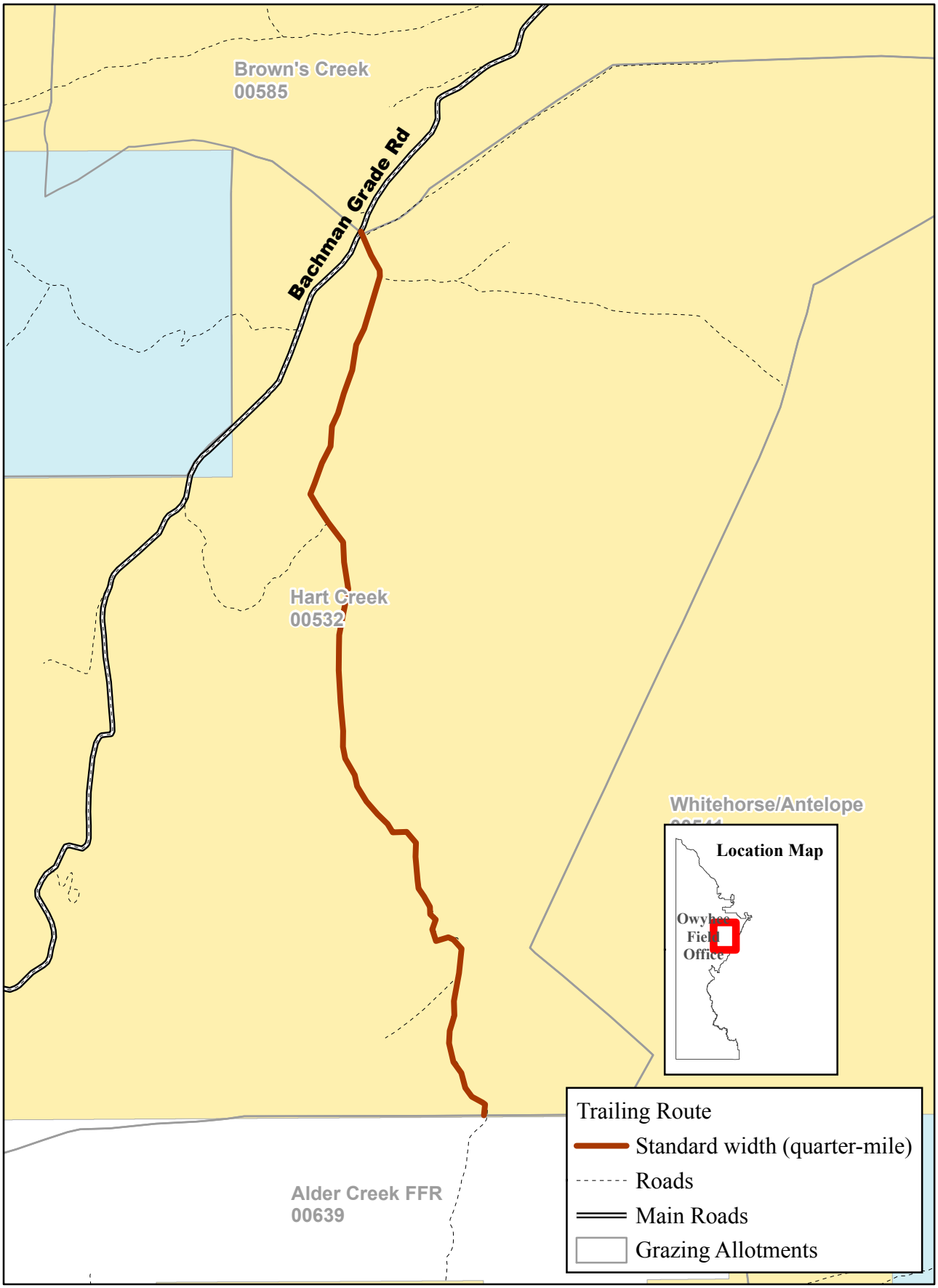

No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Robert Thomas
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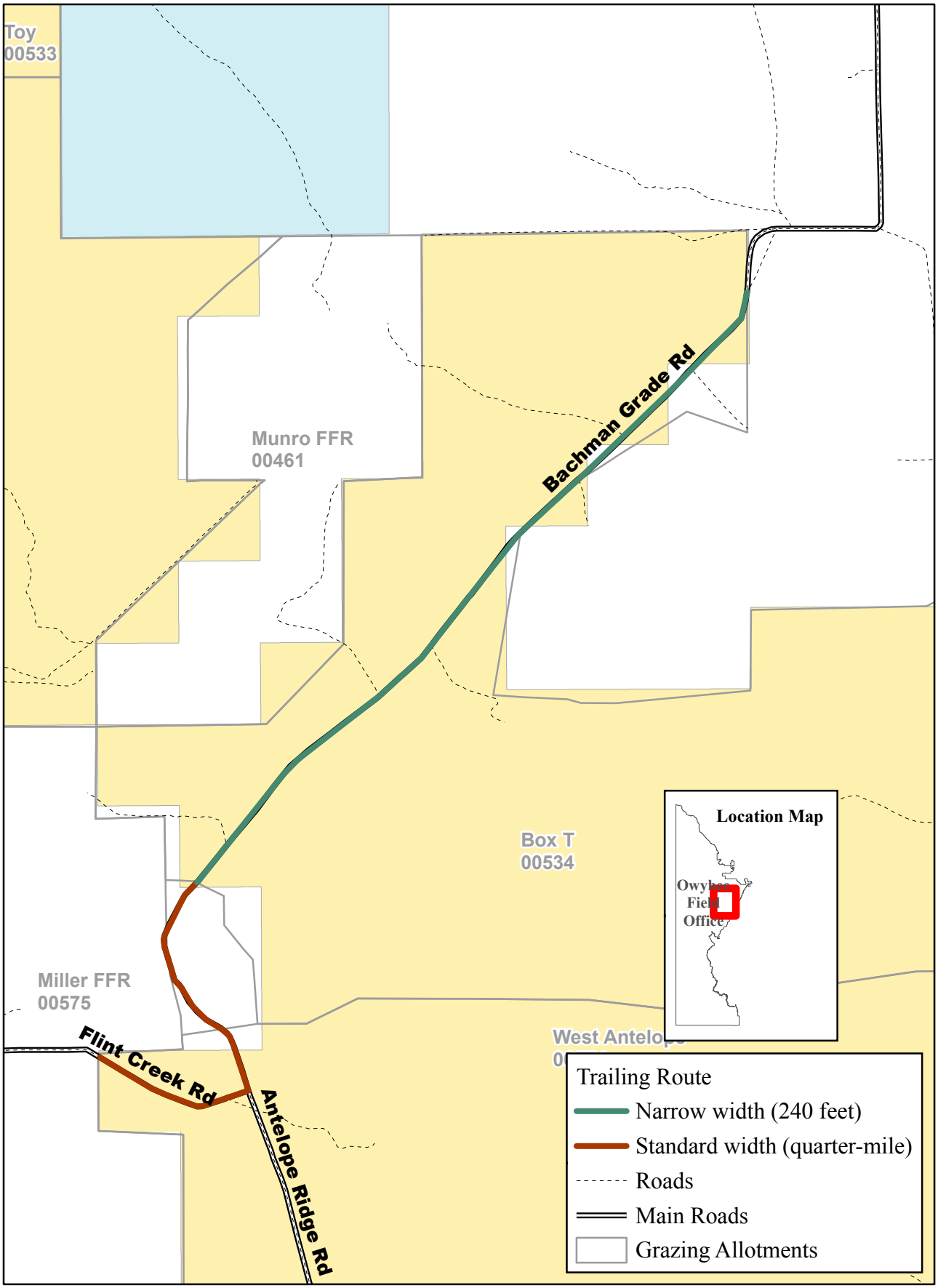
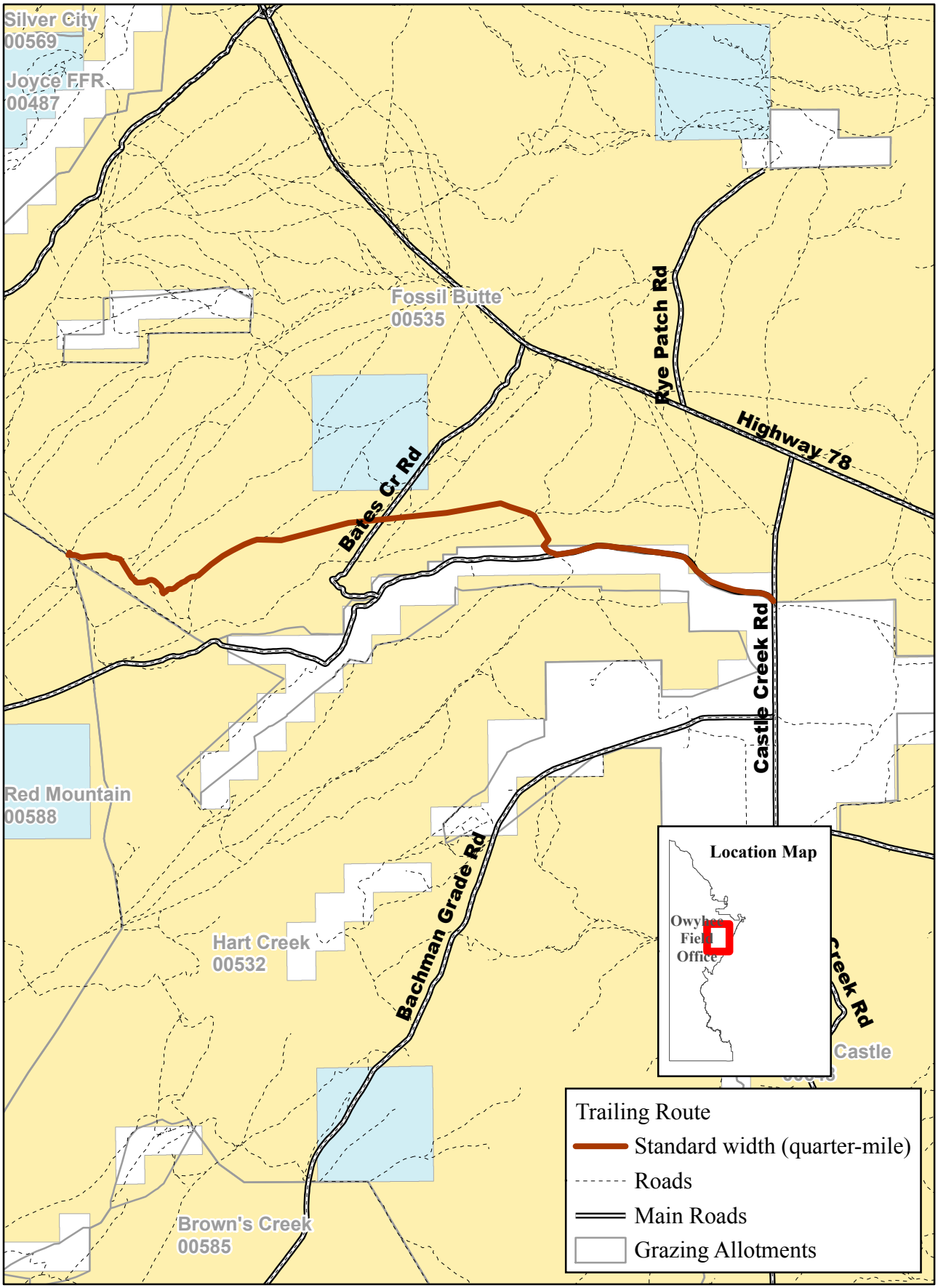


No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use with other data is not guaranteed.

Rohl and Faye Hipwell
Trail Route 1



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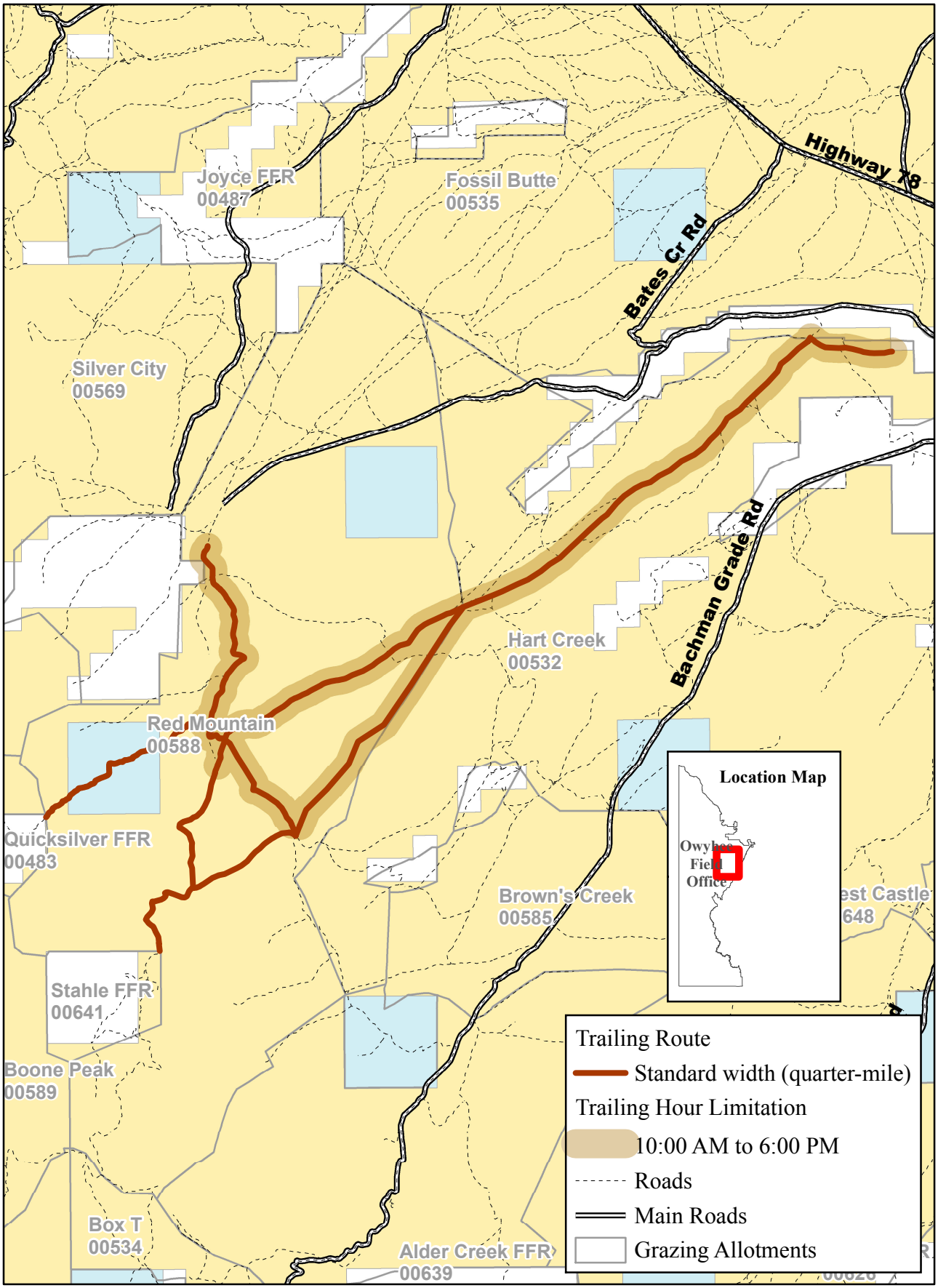

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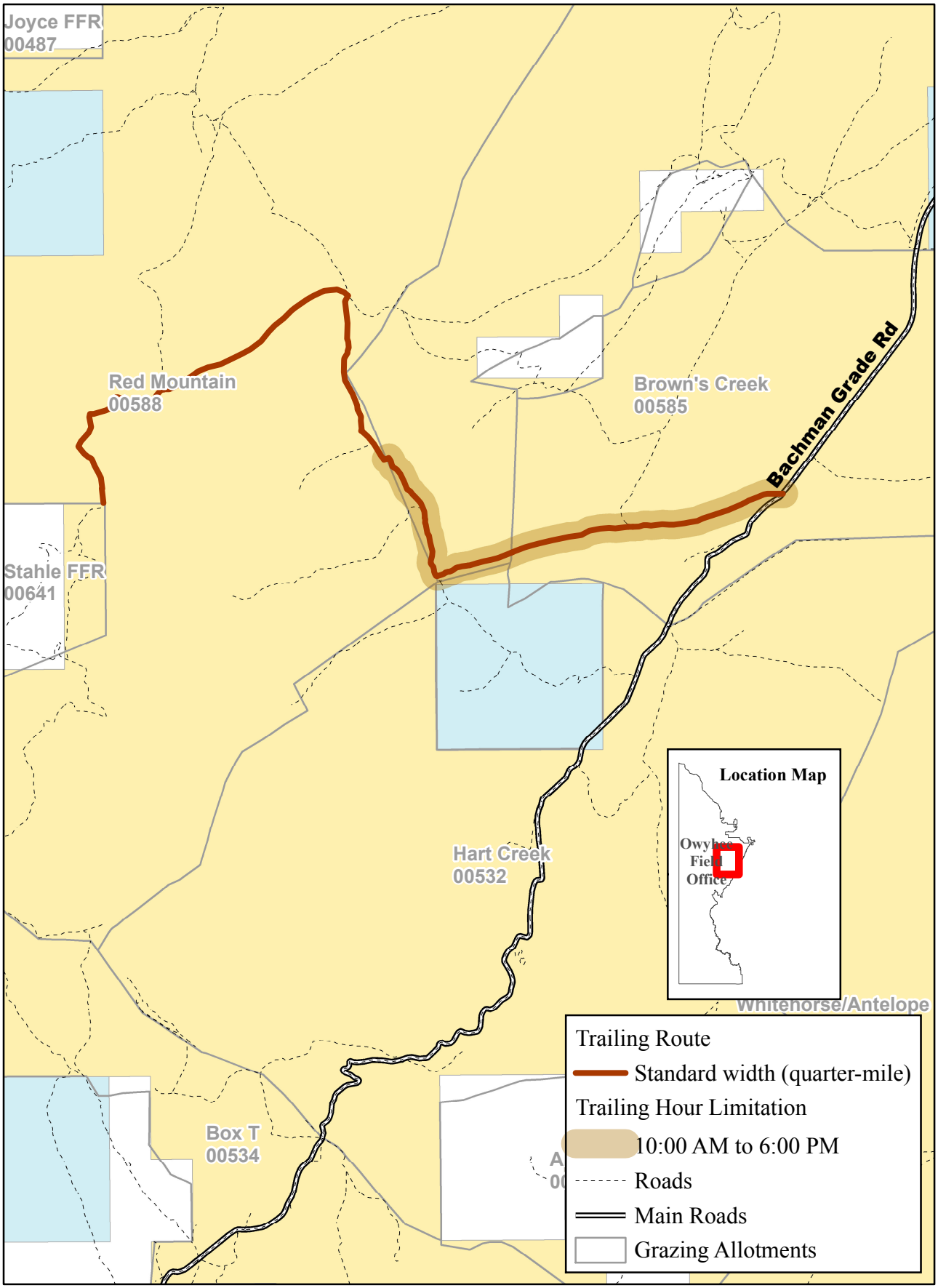

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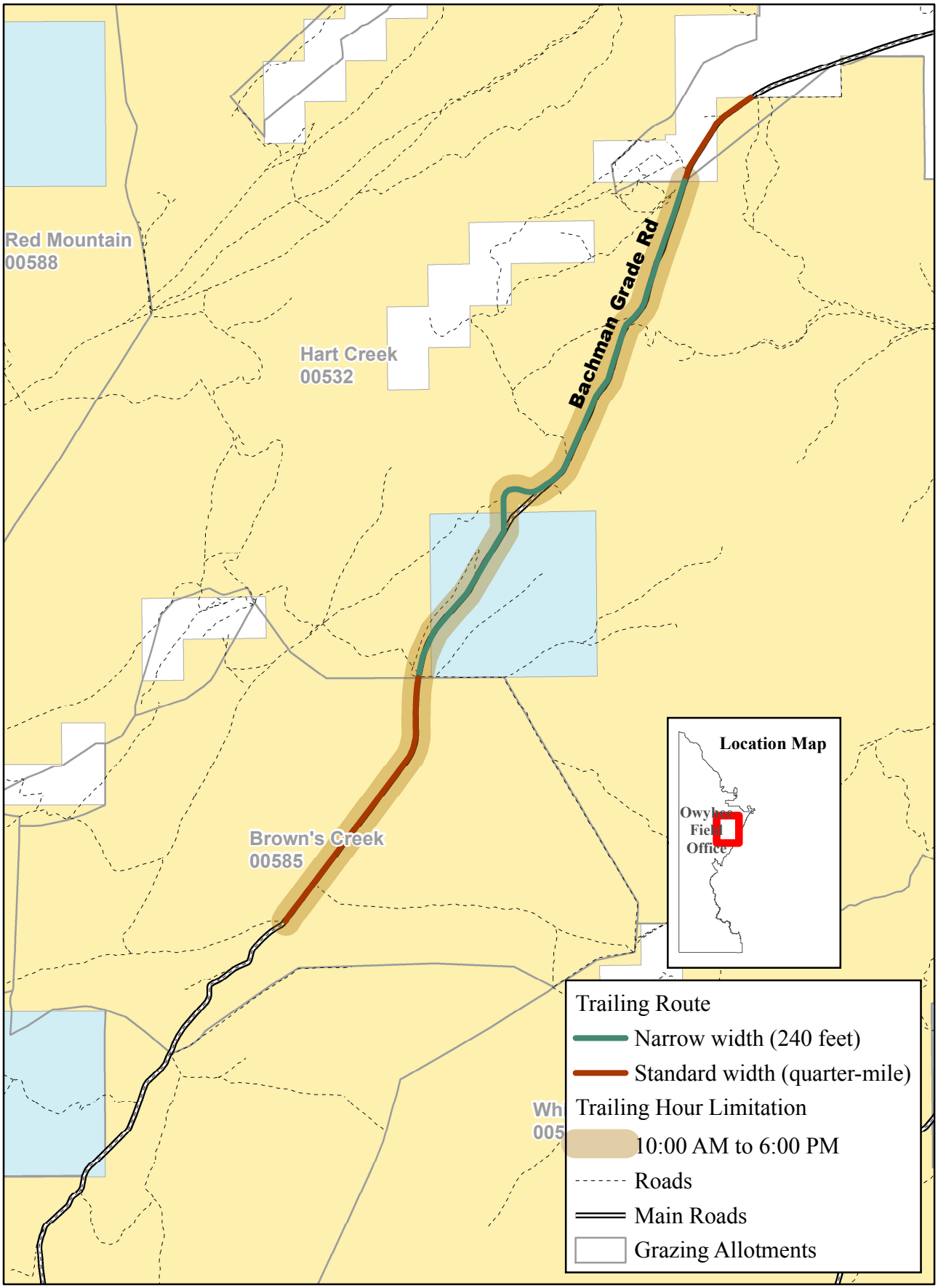

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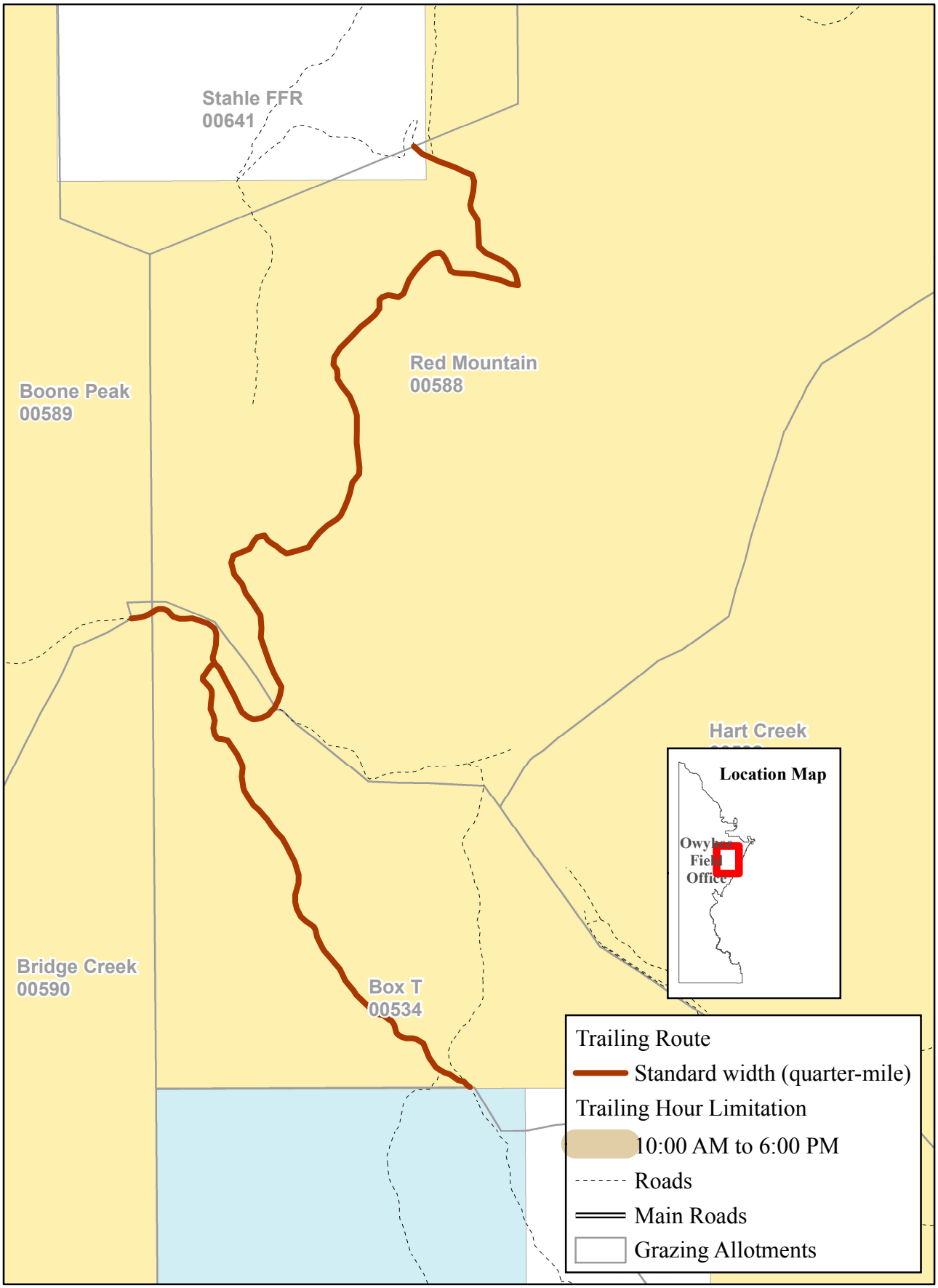

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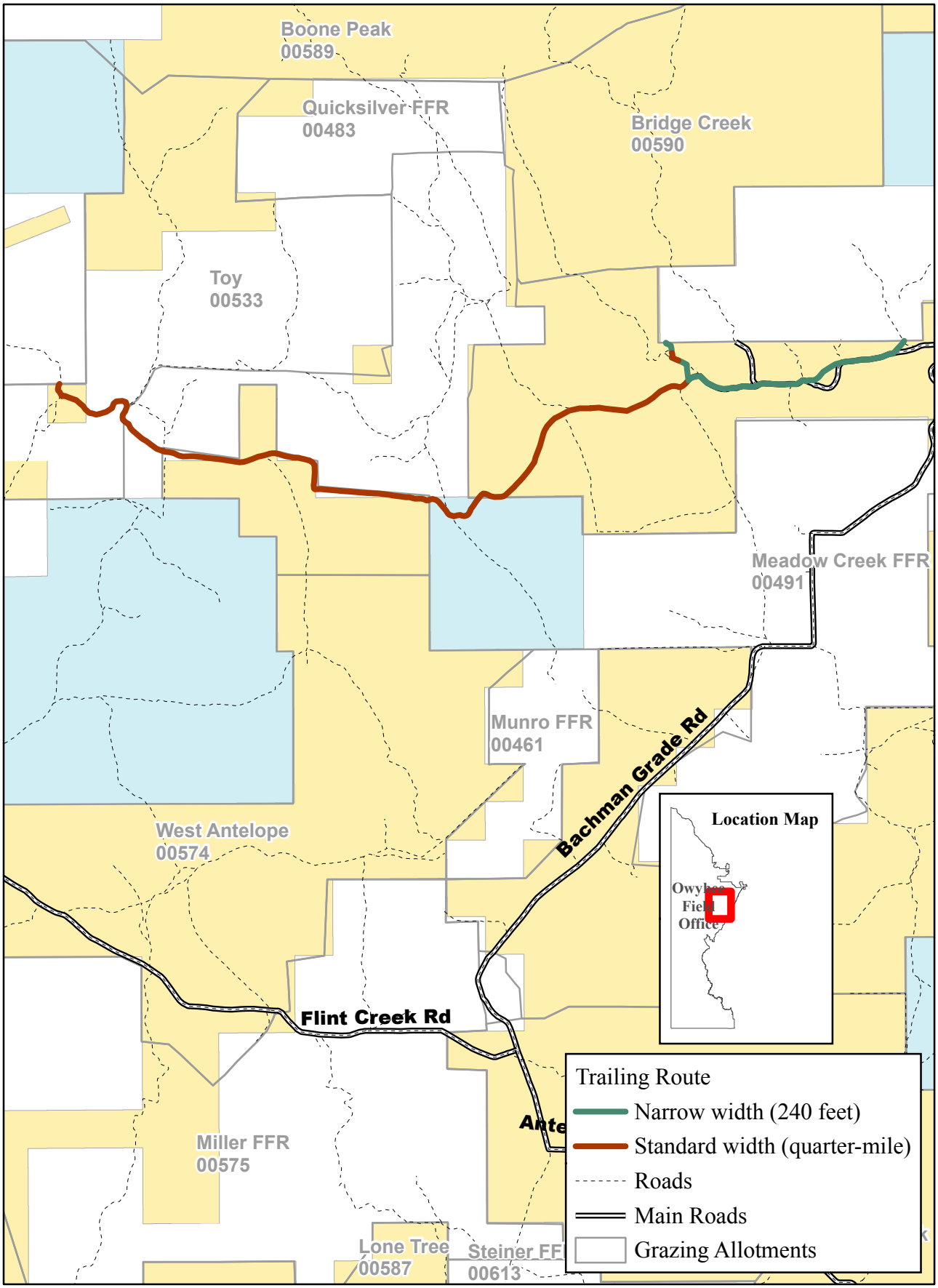
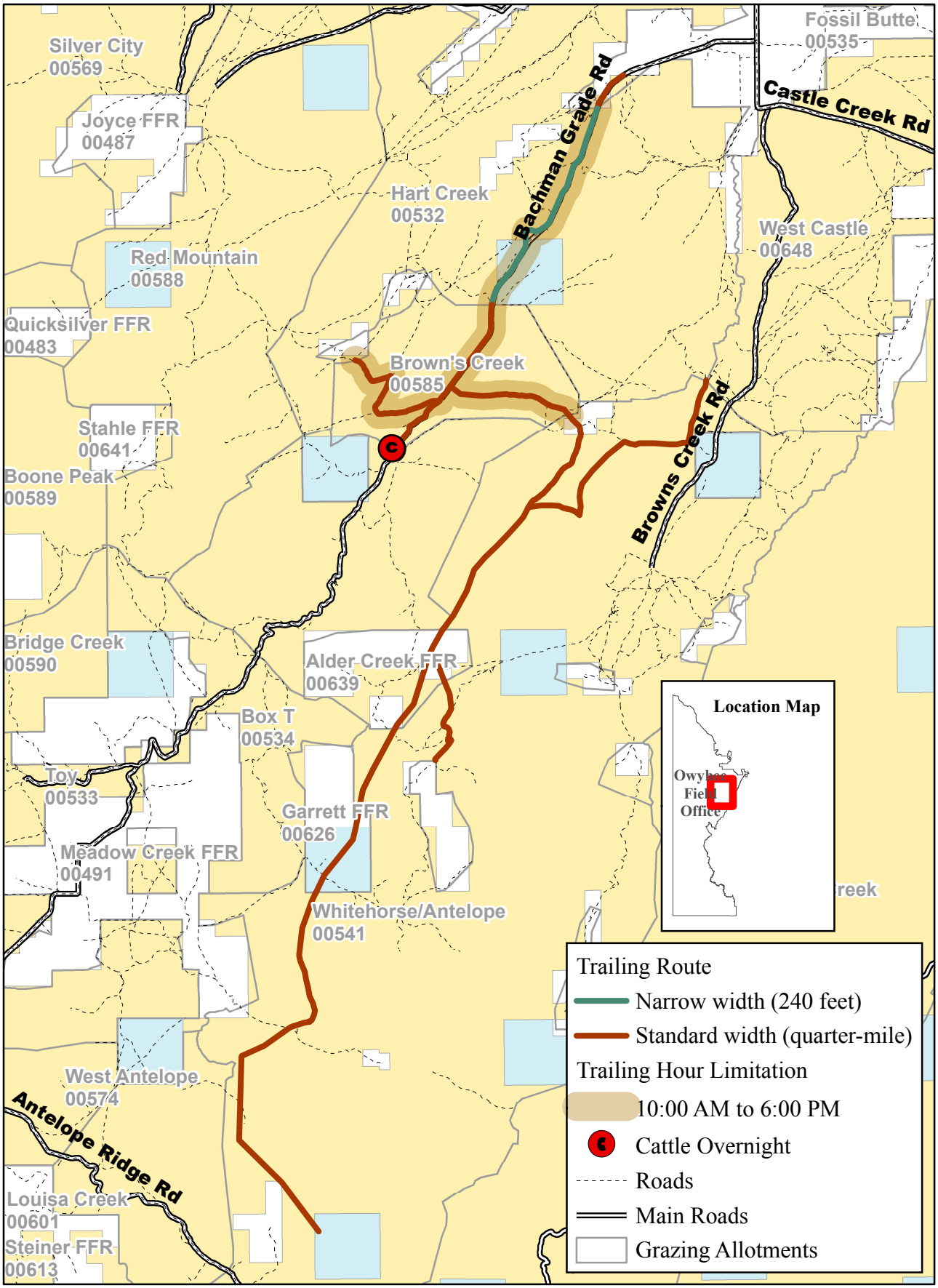


Scott and Sherri Nicholson
Trail Route



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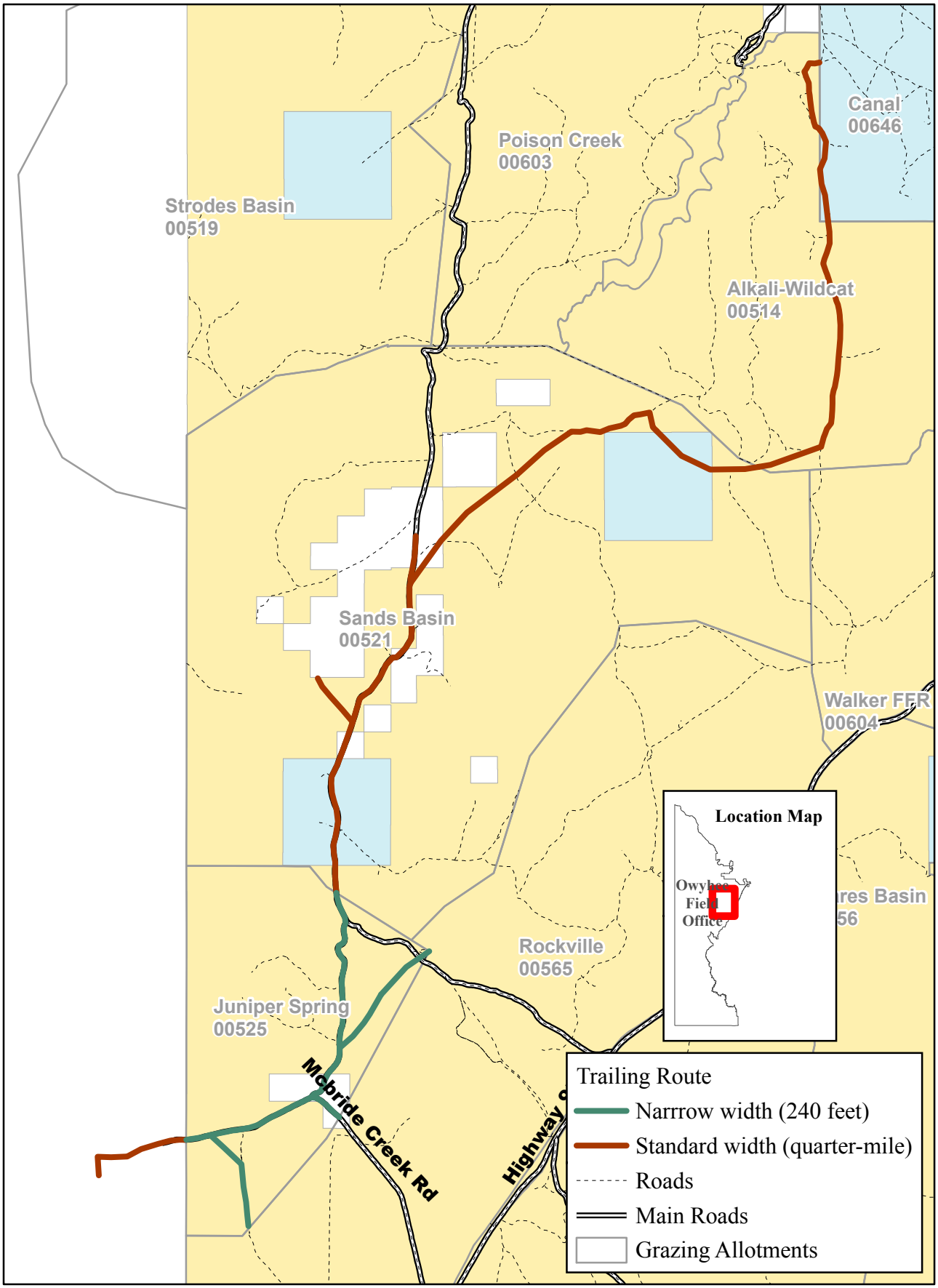

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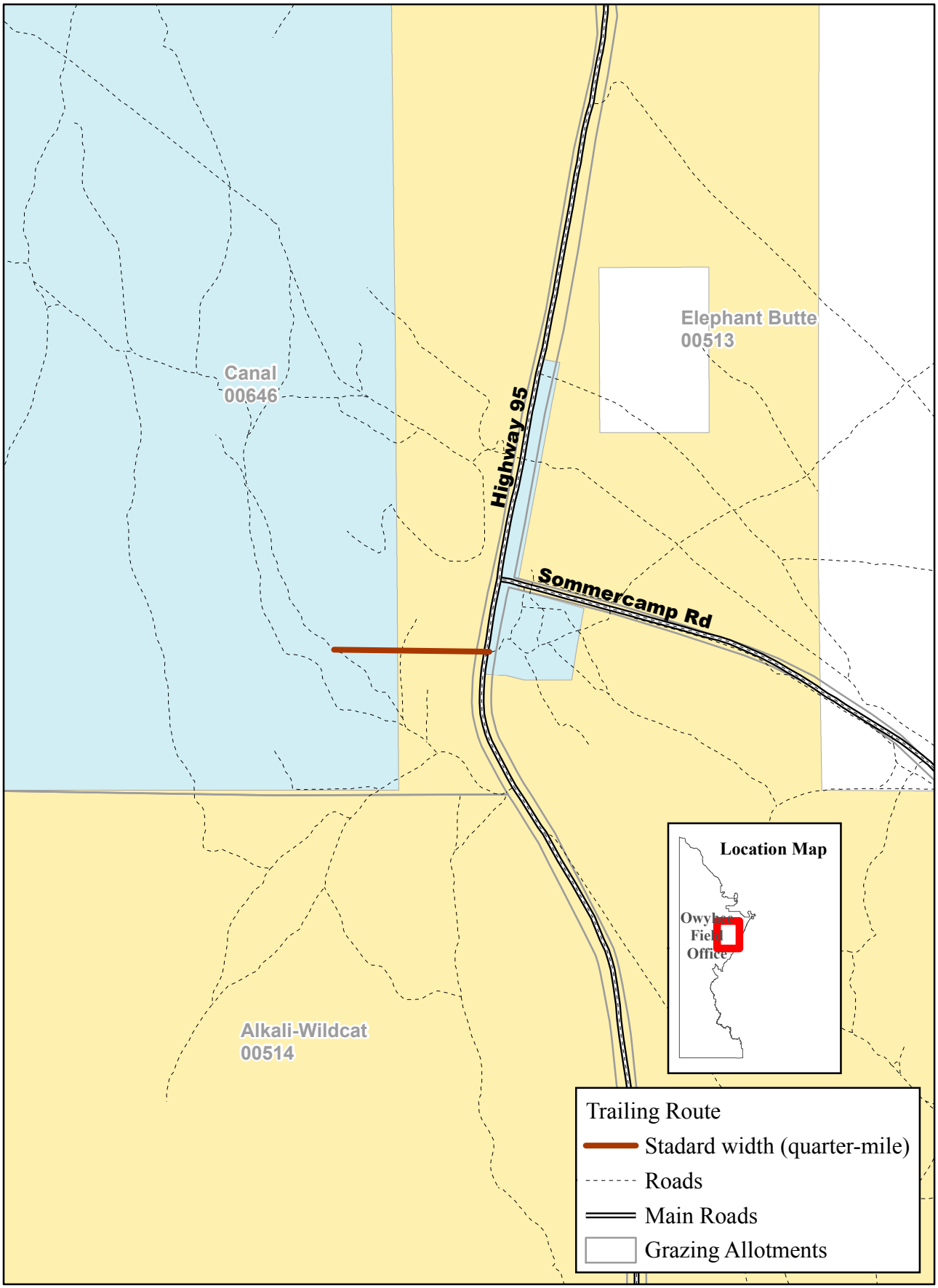
Tim and Gwen Miller
Trail Route



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Tom Gluch
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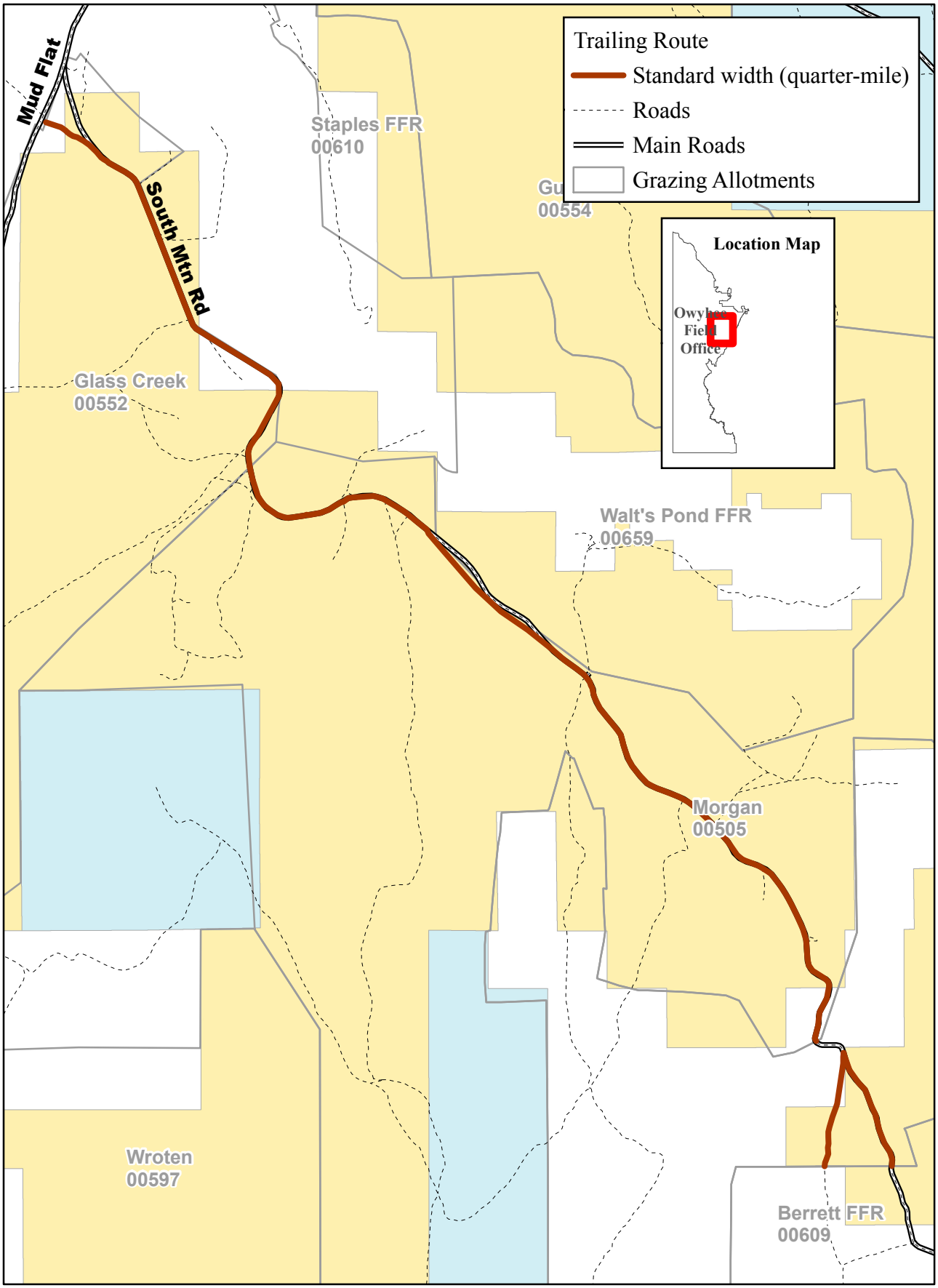
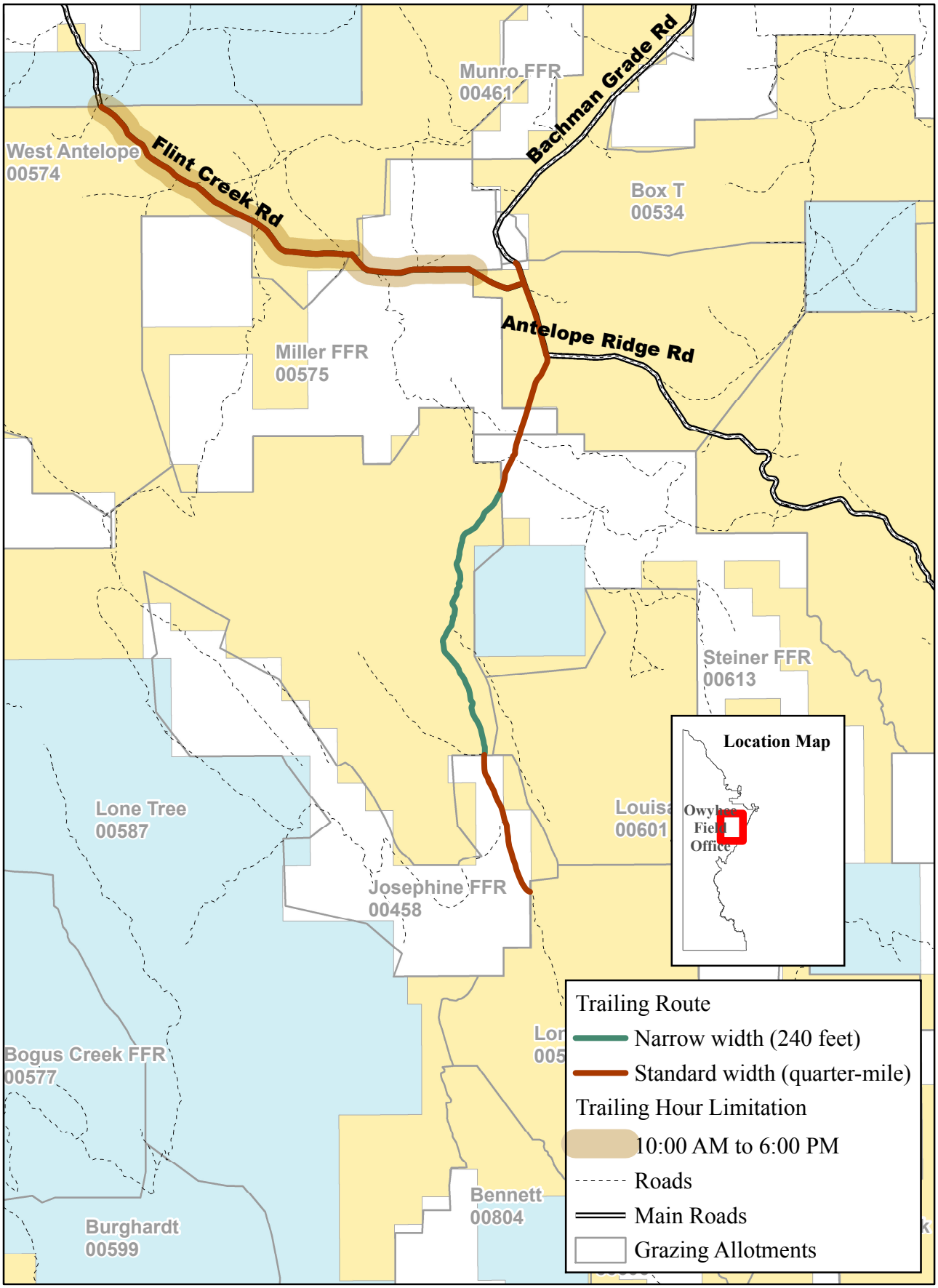


Vernon Kershner
Trail Route



Appendix C. Special Status Animal Species that occur or may occur in the affected area.

Species	Status[1]/ Type[2]	Key Habitat Associations
Greater Sage-grouse *Centrocercus urophasianus*	ESA-C	Sagebrush steppe
Yellow-billed Cuckoo *Coccyzus americanus*	ESA-C	Riparian
Columbia Spotted Frog *Rana luteiventris*	ESA-C	Wetlands, rivers and streams
Bald Eagle *Haliaeetus leucocephalus*	BGEA	Riparian, wetlands
Golden Eagle *Aquila chrysaetos*	BGEA	Cliffs and canyon, shrubsteppe, grasslands
Pygmy Rabbit *Brachylagus idahoensis*	BLM/2	Sagebrush steppe
Redband Trout *Oncorhynchus mykiss gibbsi*	BLM/2	Rivers and streams
Brewer's Sparrow *Spizella breweri*	BLM/3	Sagebrush steppe
Calliope Hummingbird *Stellula calliope*	BLM/3	Riparian, mountain shrub
Lewis' Woodpecker *Melanerpes lewis*	BLM/3	Juniper woodland, forests, riparian
Loggerhead Shrike *Lanius ludovicianus*	BLM/3	Shrubsteppe, mountain shrub, juniper woodlands
Sage Sparrow *Amphispiza belli*	BLM/3	Sagebrush steppe
Willow Flycatcher *Empidonax trailii*	BLM/3	Riparian, mountain shrub, juniper woodland
Ferruginous Hawk *Buteo regalis*	BLM/3	Shrubsteppe, juniper woodlands
Northern Goshawk *Accipiter gentilis*	BLM/3	Forests, juniper woodlands
Prairie Falcon *Falco mexicanus*	BLM/3	Cliffs and canyon, shrubsteppe, grasslands
Flammulated Owl *Otus flammeolus*	BLM/3	Forests, juniper woodlands
California Bighorn Sheep *Ovis canadensis californiana*	BLM/3	Canyons, sagebrush steppe, grasslands
Fringed Myotis *Myotis thysanodes*	BLM/3	Roosting/hibernation: Cliffs, rock outcrops Foraging: Sagebrush, juniper, canyon
Spotted Bat *Euderma maculatum*	BLM/3	Roosting/hibernation: Cliffs, rock outcrops Foraging: Juniper, sagebrush
Townsend's Big-eared Bat *Corynorhinus townsendii*	BLM/3	Roosting/hibernation: Caves, trees Foraging: Juniper, sagebrush, canyon
Black Throated Sparrow *Amphispiza bilineata*	BLM/4	Shrubsteppe, canyons
White-faced Ibis *Plegadis chihi*	BLM/4	Wetlands
California Myotis *Myotis caligornicus*	BLM/4	Roosting/hibernation: Caves, buildings, bark Foraging: Sagebrush, riparian, juniper
Brewer's Blackbird	BLM/5	Sagebrush steppe, wetlands, riparian, grasslands

Species	Status[1]/ Type[2]	Key Habitat Associations
Euphagus cyanocephalus		
Cassin's Finch *Carpodacus cassinii*	BLM/5	Forests, juniper woodlands
Grasshopper Sparrow *Ammodramus savannarum*	BLM/5	Grasslands
Green-tailed Towhee *Pipilo chlorurus*	BLM/5	Mountain shrub
Long-billed Curlew *Numenius americanus*	BLM/5	Grasslands, shrubsteppe
Red-naped Sapsucker *Sphyrapicus nuchalis*	BLM/5	Aspen, riparian
Sage Thrasher *Oreoscoptes montanus*	BLM/5	Shrubsteppe
Wilson's Phalarope *Phalaropus tricolor*	BLM/5	Ponds, wetlands
Swainson's Hawk *Buteo swainsoni*	BLM/5	Grasslands, shrubsteppe, agriculture
Short-eared Owl *Asio flammeus*	BLM/5	Grassland, shrubsteppe, wetlands
Western Burrowing Owl *Athene cunicularia*	BLM/5	Grasslands, shrubsteppe
Long-eared Myotis *Myotis evotis*	BLM/5	Roosting/hibernation: Trees, caves Foraging: Wetland/riparian, juniper, sagebrush
Long-legged Myotis *Myotis volans*	BLM/5	Roosting/hibernation: Rock outcrops, trees Foraging: Juniper, wetland/ riparian
Western Pipistrelle *Pipistrellus Hesperus*	BLM/5	Roosting/hibernation: Caves, rock outcrops Foraging: Juniper, sagebrush, canyon
Western Small-footed Myotis *Myotis ciliolabrum*	BLM/5	Roosting/hibernation: Caves, rock crevices, trees Foraging: Cliffs, rocky slopes
Yuma Myotis *Myotis yumanensis*	BLM/5	Roosting/hibernation: Caves, rock outcrops Foraging: Wetland, riparian, sagebrush, juniper

[1]Special status categories include Endangered Species Act Candidate (ESA-C), Bald and Golden Eagle Protection Act species (BGEA), and BLM Sensitive Species (BLM).

[2]Status Type includes Rangewide/Globally Imperiled Species (2), Regional/State Imperiled Species (3), Peripheral Species (4), and Watch Species not currently considered sensitive but may warrant status change in future (5).