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Four Rivers Field Office
Livestock Trailing Environmental Assessment

U.S. Department of the Interior
Bureau of Land Management
Boise District
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1.0 Introduction

The Four Rivers Field Office (FRFO) is divided into 317 grazing allotments (294 in the FRFO and 23 in the Morley Nelson Snake River Birds of Prey National Conservation Area [NCA]) on 1,352,000 acres of BLM-administered lands. Livestock grazing use occurs year-round and is administered according to management areas (MAs), which generally follow watershed boundaries. The southern and central portions of rangelands within the FRFO generally range from lower elevations on the western portions, to higher elevations on the eastern side, and are grazed in the spring, summer, fall, and/or winter. This area includes the Sunnyside, Mountain Home, Bennett Mountain, Boise River, and Big Willow MAs. The western and northern portions are grazed in the spring, summer, and/or fall. This area includes the Snake River Breaks, Weiser River, Goodrich, Indian Valley, and Payette River MAs.

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.

Trailing is defined as domestic livestock walking from one location to another under the control of one or more herders. A crossing permit is required when livestock are being trailed across BLM-administered land, or other land under BLM control, where the applicant does not have authorized use or the trailing would occur outside their authorized use period. A crossing permit includes a specified timeframe, a defined route, and other terms and conditions to meet resource objectives (43 CFR 4130.6-3). Grazing permittees or other livestock producers needing to trail livestock across BLM-administered lands must submit their applications prior to the proposed trailing. If a crossing permit is issued, it specifies the allotment(s) and/or BLM-administered lands to be trailed across, period of use (dates), and number and kind of livestock.

Trailing of cattle, sheep, and horses occurs at different times throughout the year, in order to facilitate these general seasons of grazing use. Furthermore, timing of needed trailing events can vary 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 have ranged in distance from less than one mile to approximately 60 miles, and in duration from less than one hour to 10 days.

In October 2011, FRFO solicited applications for crossing permits. A total of 24 applications were received for trailing activities by January 31, 2012.

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 permits on BLM-administered lands.

The purpose of the action is to respond to applications for crossing permits by identifying areas and terms and conditions for authorizing livestock trailing across BLM-administered lands.

Authorizing the 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 and the FLPMA.

1.2 Decision to be Made

The FRFO will decide whether to approve applications for crossing permits. If trailing is authorized, the FRFO will decide whether to include routes and trailing conditions that correspond to crossing permit applications received by the FRFO or that have been modified to avoid or reduce impacts to resources of concern.

1.3 Summary of Proposed Action

The BLM proposes to issue 24 crossing permits to qualified applicants, authorizing the trailing of livestock across BLM-administered lands in the FRFO in response to crossing permit applications received, consistent with the routes, terms and conditions, and stipulations described in Alternative C (Section 2.3.3). The permits would be issued for one to 10 years, depending on resource concerns, and would include terms and conditions and stipulations to minimize adverse environmental effects.

1.4 Location and Setting

The FRFO and NCA are located in southwestern Idaho in Ada, Adams, Boise, Canyon, Elmore, Gem, Payette, Valley, and Washington counties (General Map 1.1). It extends north of the Snake River from approximately Glenn's Ferry in the southeast to the Idaho/Oregon border in the west and north to McCall. Elevations range from 1,800 feet along the Snake River to 7,400 feet at Bennett Mountain. The gently rolling Snake River Plain in the south, characterized by grass and shrub communities, transitions into foothills and mountains in the north, characterized by shrub and forest communities.

1.5 Conformance with Applicable Land Use Plan

There are four land use plans that apply to the FRFO (General Map 1.2). Trailing is proposed in each of the planning areas.

Cascade Resource Management Plan (RMP) (USDI 1988) - The Cascade RMP provides for 72,571 animal unit months (AUMs) of active preference for livestock grazing and identified 41,390 acres of stock driveways for livestock trailing. However, the rights-of-way associated with the stock driveways expired in 2003 and 2004. Crossing permits and associated trailing would be in conformance with the following RMP objectives:

Livestock Resources

- Manage 449,059 acres of rangeland to provide forage for livestock and wild horses

Vegetative Resources

- Protect candidate or special status plants
- Protect and manage 13 specific sites containing candidate, sensitive, or uncommon plants or valuable plant communities

Wildlife Resources

- Manage 181,640 acres of elk habitat, 275,250 acres of deer habitat and 4,400 acres of antelope crucial winter habitat and provide forage to support proposed populations of these animals
- Manage 185,860 acres of sage grouse habitat to improve brooding and nesting habitat
- Maintain existing habitats for other wildlife species

Riparian and Aquatic Resources

- Incorporate riparian pastures, grazing systems, and/or special measures in AMPs to improve all riparian and aquatic habitat

Kuna Management Framework Plan (MFP) (USDI 1983) – While the Kuna MFP provides for livestock grazing with an overall allocation of 61,640 AUMs (some of which are now included in the NCA), it does not specifically discuss livestock trailing. However, crossing permits and associated trailing would be in conformance with the following MFP objectives:

- Watershed-1.2: Minimize soil erosion from all surface-disturbing activities through proper timing with regard to soil moisture content. Design all surface-disturbing activities to limit both on- and off-site soil erosion to a reasonable, acceptable level.
- Wildlife-1: Protect and/or improve endangered species habitat within the Kuna Planning Unit (KPU).
- Wildlife-2: Manage sensitive species habitat in the KPU to maintain or increase existing and potential populations.
- Wildlife-2.3: Maintain known ferruginous hawk nest sites and provide additional nest sites on the Snake River Plains.
- Wildlife-3: Manage 207,680 acres of big game habitat in the KPU to obtain good ecological condition.
- Wildlife-5: Maintain and/or enhance unique or special habitats to retain and/or improve their character and value for wildlife, research, and human enjoyment. Protect habitats supporting nongame wildlife with high public and/or biological interest.
- Wildlife-5.4: Manage riparian and meadow habitats to attain and/or maintain a good ecological condition class or reasonable equivalent.
- Cultural Resource Management-2: Protect and preserve historic ruins, structures, and sites for future scientific use and public enjoyment.

Jarbidge RMP (USDI 1987) - While the Jarbidge RMP provides for livestock grazing with an overall allocation of approximately 11,169 AUMs in management unit areas (MUA) 1, 2, and 3. With the exception of MUA 1, it does not specifically discuss livestock trailing. Crossing permits and associated trailing would be in conformance with the following RMP objectives:

MUA 1

- Maintain the current condition of riparian habitat.

MUA 2

- Manage big game habitat to support 3,350 winter mule deer and 350 the rest of the year and 200 elk (existing populations are 3,350 mule deer and 125 elk).

MUA 3

- Continue soil stabilization practices on areas receiving critical erosion damage.

- Maintain existing range vegetative improvements.
- Manage big game habitat to support 350 mule deer in winter and 75 mule deer yearlong and 25 antelope. Improve sage grouse nesting and brood rearing habitat by 2005. Existing populations are 300 mule deer in winter, 60 yearlong and 0 antelope.
- Maintain the current condition of stream habitat and improve 2.2 miles of riparian habitat by 2005.
- Protect and manage all remaining ruts and trail features of the Oregon Trail.

Snake River Birds of Prey National Conservation Area RMP (USDI 2008) - The NCA RMP provides 35,059 AUMs for livestock grazing. Livestock trailing is managed in accordance with the 2003 Candidate Conservation Agreement for Slickspot Peppergrass (*Lepidium papilliferum*) (Appendix 7). Crossing permits and associated trailing would be in conformance with the following RMP objective:

- Livestock grazing would be managed to maintain or enhance prey habitat and reduce competition for forage in perennial pastures between livestock and Piute ground squirrels.

1.6 Relationship to Statutes, Regulations, and Other Requirements

The proposed actions identified in this EA are consistent with other statutes, regulations and other requirements, including the 2012 Appropriations Omnibus Act, Sec. 123. Federal regulations authorize BLM to issue crossing permits, with associated terms and conditions, to any applicant showing a need to cross public land with livestock for proper and lawful purposes (43 CFR 4130.6-3). Permittees may graze livestock on BLM-administered lands that are designated as available for livestock grazing in a land use plan. In addition, the following laws, acts, manuals, policies, and regulations provide the foundation for managing livestock use on the BLM-administered lands.

Livestock Management

The Taylor Grazing Act (TGA) of 1934 as amended: Provides for the orderly use of public land. The goals of the TGA were to stop injury to the public grazing lands by preventing overgrazing and soil deterioration; to provide for their orderly use, improvement, and development; to stabilize the livestock industry dependent upon the public range; and for other purposes.

The Federal Land Policy and Management Act (FLPMA) of 1976: Authorized the following: Inventory and identification of BLM-administered lands, land use planning, public involvement and participation. FLPMA also provides BLM with broad management authority under principles of multiple use and sustained yield. Land use planning resulted in the preparation of the Jarbidge RMP.

The Public Rangelands Improvement Act (PRIA) of 1978: Mandates that livestock grazing be managed to improve range condition and maintain the highest level of productivity.

Title 43 CFR, Subpart 4100 – Grazing Administration, Exclusive of Alaska: The regulations embody the Acts, as amended, listed above. Specifically, 43 CFR 4180.2 is the regulatory requirement that implements Idaho's Standards for Rangeland Health and Guidelines for Livestock Grazing Management, 1997 (USDI 1997).

Fish and Wildlife

Endangered Species Act (ESA) of 1973 as amended (16 USC 1531): Section 7 of the ESA outlines the procedure for federal interagency cooperation to conserve federally listed species and their designated habitats. Section 7(a) (2) of the ESA states that each federal agency shall, in consultation with Secretary, insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of their habitats within the project area.

Alternative C was incorporated into a Biological Assessment (BA) to evaluate the effects of the actions on slickspot peppergrass and its habitat. The BA determined that the proposed action "may affect," but is "not likely to adversely affect" slickspot peppergrass and slickspot peppergrass habitat, or proposed critical habitat in the action area. The BLM requested a Letter of Concurrence (LOC) for the affects to the species and habitat. The BA was transmitted to the USFWS on April 30, 2012.

The BLM Received the USFWS's LOC on May 15, 2012 (

Appendix 1). The Service's concurrence that the activities associated with livestock trailing actions in the FRFO area are not likely to adversely affect the slickspot peppergrass and its habitat is based on the following rationales:

- No livestock trailing would occur within slickspots known to contain slickspot peppergrass; therefore, direct effects of livestock trampling of slickspot peppergrass plants would be avoided.
- Most livestock trailing would occur beyond 0.5 miles of element occurrences unless the trailing occurs within fenced roadways that have been highly disturbed from over 20 years of annual livestock trailing activities, making the presence of slickspot peppergrass or its habitat highly unlikely. Therefore, trampling effects on slickspot peppergrass plants and its habitat within EOs would be discountable.
- Most livestock trailing in proposed critical habitat would occur within fenced roadways that have been highly disturbed from over 20 years of annual livestock trailing activities, making the presence of primary constituent elements (PCEs) of proposed critical habitat highly unlikely. Therefore, direct effects of livestock trampling on PCEs of proposed critical habitat would be discountable.
- All slickspot peppergrass habitat located within trailing routes has been surveyed at least once, and while slickspot microsites are present, habitat quality is low and most of the trailing routes within slickspot peppergrass habitat are distant from EOs, reducing the probability that plants are present; thus, effects on individual plants associated with livestock trailing routes bisecting slickspot peppergrass habitat are highly unlikely to occur and are therefore discountable.
- Quality of the potential habitat overlapping with cross country trailing routes is low to moderate, and most of the trailing routes within potential habitat would be distant from EOs, significantly reducing the probability that slickspot peppergrass plants are present; thus, effects on individual plants associated with livestock trailing routes bisecting potential habitat are highly unlikely to occur and are therefore discountable.
- Livestock trailing and bedding activities would avoid or minimize effects to slickspot peppergrass associated with trailing-related trampling, ground disturbance, and the introduction or spread of invasive nonnative plants.
- Conservation measures such as restricting the majority of trailing activities to existing roadways and not authorizing cross country trailing when soils are saturated would reduce the likelihood of effects in slickspot peppergrass habitat and potential habitat. Effects to habitat parameters important to slickspot peppergrass are expected to be so small that they cannot be meaningfully measured, detected, or evaluated. Therefore, effects to slickspot peppergrass and its proposed critical habitat associated with proposed livestock trailing activities are insignificant.

Special Status Species Management Manual for the Bureau of Land Management (BLM Manual 6840): National policy directs BLM State Directors to designate sensitive species in cooperation with the state fish and wildlife agency. This manual establishes policy for management of species listed or proposed for listing pursuant to the ESA and Bureau sensitive species which are found on BLM-administered lands to conserve sensitive species, including their habitats, and to mitigate adverse impacts. Where relevant to the activities associated with this project, effects to special status species are analyzed in this EA.

Migratory Bird Treaty Act, *Executive Order 13186*, and *BLM Memorandum of Understanding WO-230-2010-04* (between BLM and US Fish and Wildlife Service [USFWS]): Federal agencies are required to evaluate the effects of proposed actions on migratory birds (including eagles) pursuant to the *National Environmental Policy Act of 1969* (NEPA) "or other established environmental review process;" restore and enhance the habitat of migratory birds, as practicable; identify where unintentional take reasonably attributable to agency actions is having, or is likely to have, a measurable negative effect on migratory bird populations; and, with respect to those actions so identified, the agency shall develop and use principles, standards, and practices that will lessen the amount of unintentional take, developing any such conservation efforts in cooperation with the Service. Effects to migratory birds are analyzed in this EA.

Bald and Golden Eagle Protection Act of 1940 as amended (16 USC 668-668d): Provides for the protection of bald and golden eagles by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds. Agencies are required to evaluate: (1) whether take is likely to occur from activities associated with the proposed activity and (2) the direct, indirect, and cumulative impacts the proposal may have on the ability to meet the preservation standard of the Act, which the USFWS has interpreted to mean "compatible with the goal of stable or increasing breeding populations." Effects to bald and golden eagles are analyzed in this EA, along with measures to avoid or minimize effects to these raptors.

Greater Sage-grouse Interim Management Policies and Procedures (BLM Instruction Memorandum WO-IM-2012-043): Provides conservation policies and procedures to maintain and restore habitat for sage-grouse while the agency determines how to incorporate long-term measures into Land Use Plans. These interim measures include direction for grazing management practices that will minimize adverse effects on greater sage-grouse and its habitat. Design features for Alternative C in this EA include measures to minimize impacts to sage-grouse through timing and location restrictions that adhere to the direction in this IM.

Cultural Resources

Idaho BLM has the responsibility to manage cultural resources on public lands pursuant to the National Historic Preservation Act of 1966 (as amended), the 2012 Programmatic Agreement Among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers and the State Protocol Agreement Between the Idaho State Director of the Bureau of Land Management and the Idaho State Historic Preservation Officer (1998) and other internal policies.

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*; and the *Native American Graves Protection*

and Repatriation Act of 1990, as amended. General authorities include: the *American Indian Religious Freedom Act of 1979*; the NEPA; the 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 BLM-administered lands it administers for all tribes that may be affected by a proposed action.

1.7 Scoping and Development of Issues

A scoping document was sent on December 15, 2011 to interested publics. Eight responses were received by the FRFO. Issues identified through internal and external scoping influence the BLM-proposed alternative, along with the impacts analysis conducted later in this document. The scoping document solicited input from the Idaho Conservation League, the Idaho Department of Fish and Game (IDFG), the Idaho Department of Lands, the Idaho State Historic Preservation Office (SHPO), individual citizens & livestock operators, the USFWS, and Western Watersheds Project. Issues identified for this project include the following:

Special Status Plants: How does livestock trailing impact both individual special status plants (such as threatened slickspot peppergrass) and associated habitat?

Sage-grouse: How does livestock trailing impact sage-grouse? Specifically:

- Does it have a potential for breeding disturbance?
- Does it reduce nesting cover or lead to trampling of nests?
- Does it damage sensitive habitats, such as brood-rearing areas, that could result in reduced annual productivity?

Bighorn Sheep: How does livestock trailing of domestic sheep impact bighorn sheep? Specifically:

- How does trailing affect the potential disease transmission from direct contact between domestic sheep and bighorn sheep?

Migratory Birds: How does livestock trailing impact migratory birds during nesting periods?

Cultural Resources: Does livestock trailing cause damage to or loss of archaeological sites and historic trail character/context?

Soils: Could trailing events impact soil erosion in areas recently burned by wildfire? Could trailing events affect soil compaction when soils are saturated?

Vegetation: How would livestock trailing affect plants, mainly via trampling?

Noxious Weeds and Invasive Plants: How does livestock trailing affect the potential spread of noxious weeds and invasive plants?

Wildlife: How does livestock trailing impact big game during fawning/calving and wintering periods?

Water Quality: How does livestock trailing activity around springs and riparian areas affect water quality?

Wild Horses: Is there potential for displacement of wild horses within the Herd Management Area?

2.0 Description of the Alternatives

2.1 Alternative Development Process

Alternative A is the No Action Alternative. The routes and trailing conditions included in Alternative B correspond to the crossing permit applications received by the FRFO, while Alternative C was developed by the FRFO. To develop Alternative C, the FRFO Interdisciplinary (ID) Team reviewed each route and trailing event in Alternative B in relation to resources of concern. Alternative B routes already meeting the design criteria (Appendix 2) were not changed for Alternative C. The design criteria are based on best available science, current policy, and comments received through the scoping process. These design criteria were used to reduce resource conflicts on the remaining routes. For the remaining routes, the ID Team either:

- Adjusted the Alternative B route to conform wholly to the relevant design criteria to eliminate the potential resource conflict,
- Adjusted the Alternative B route to conform partially to the relevant design criteria to reduce the potential for adverse resource impacts while still allowing trailing to occur, or
- Removed the Alternative B route from consideration under Alternative C.

2.1.1 Common Definitions

Bedding – Up to 40-acre area where livestock water and overnight during multi-day trailing events.

Cross-country - Not associated with a road of any sort.

Crossing Permit - A written permit authorizing livestock to trail across BLM-administered land, or other land under BLM control, where the applicant does not have authorized use or the trailing would occur outside their authorized use period. A crossing permit includes a specified timeframe, a defined route, and other terms and conditions to meet resource objectives (43 CFR 4130.6-3).

Improved Road - Roads with applications intended to harden the surface (e.g. gravel, asphalt). Improved roads are maintained for the purpose of motor vehicle travel. These roads typically have a formal name that is widely accepted (e.g., Simco Road, Bennett Mountain Road, and Walker Road).

Project Area - The project area totals 1,352,000 acres and includes all BLM-administered lands located in the FRFO and NCA (General Map 1.1).

Unimproved Road - Roads that could accommodate a motor vehicle but are not surfaced or maintained expressly for motor vehicle travel. These roads are typically not named but often appear on United States Geological Survey (USGS) 7.5 minute quadrangle maps (e.g., jeep trails, two-track routes).

Trailing - Domestic livestock walking from one location to another under the control of one or more herders.

Trailing Corridor - The polygons depicted on the maps showing where livestock could potentially occur along each trailing route. See analysis assumptions for livestock travel.

Trailing Route - The lines depicted on the maps showing where livestock trailing would occur.

2.2 Alternatives Considered But Not Analyzed in Detail

2.2.1 Trucking of Livestock

Trucking livestock to and from permitted allotments was analyzed as a stand-alone alternative. However, as the BLM does not issue permits to authorize the use of roads on BLM-administered lands, an alternative requiring livestock to be trucked was not analyzed in detail.

Impacts associated with trucking livestock were analyzed as part of Alternative A. Under the No Action Alternative, it was assumed that applicants would find alternate means to transport their cattle where trailing across BLM-administered lands would not be permitted. For the purposes of analysis, it was also assumed that where trailing could not occur on non-BLM-administered lands, applicants would truck their livestock to and from their destination grazing areas and analyzed impacts accordingly.

2.3 Description of Proposed Action and Alternatives

2.3.1 Alternative A - No Action

Applications received in accordance with 43 CFR 4130.1-1 and 4130.6-3 for crossing permits to trail livestock on BLM-administered lands would be denied. All applications received would be denied by decision in accordance with 43 CFR 4160. Livestock could be trailed on non-BLM roads, publically maintained roads (on roadway only where road passes through BLM-administered lands), State managed lands, or on private lands. Livestock could be trailed during authorized use periods, without a crossing permit, between pastures within an allotment or between adjacent allotments for which a permittee has authorized use.

Operators could use methods other than trailing to reach BLM-administered lands where they have authorized use or non-BLM-administered lands. BLM-administered allotments accessible only by trailing livestock across BLM-administered lands would not be available for use. It is not feasible to truck ewes with young lambs in the spring because the newborn lambs are highly susceptible to trampling death during trucking. Mortality rates can exceed a 50%. Therefore, it was assumed that sheep use areas accessed during the spring would not be available for use.

2.3.2 Alternative B – Applicants' Proposed Trailing

The FRFO would issue 24 crossing permits, which would allow 95 unique livestock trailing events (i.e. 73 for cattle, 21 for sheep, and 1 for horses) across BLM-administered lands (Table 1). Permits would be effective for up to 10 years; however, resource considerations could result in shorter periods. Applications received represent a total of 627 miles of trailing routes, 340 of which occur on BLM-administered lands (Maps B.1-5). Livestock trailing would be authorized within 0.125 miles on either side of applied trailing routes.

Trailing events for sheep would last from 2 - 12 days, with an average daily movement ranging from 3 – 12 miles. Trailing events for cattle would last from 1 - 4 days, with an average daily movement ranging from 1 – 26 miles. Bedding areas of up to 40 acres would be authorized for trailing events lasting two or more days. Trailing routes on BLM-administered lands would range from 3 - 37 miles for sheep and ≤1 - 16 miles for cattle. Total number of sheep trailed on a crossing permit would range from 800 - 9,000 animals; however, only 800 - 2,400 animals would trail in a single event. Total number of cattle trailed on a crossing permit would range from 50 - 2,000 animals; however, only 50 - 500 animals would trail in a single event. Livestock would be actively moved using non-motorized (e.g. horses, dogs) or motorized (e.g. all-terrain vehicles, motorcycles collectively referred to as off-highway vehicles or OHV) methods. Permits would include authorization for forage use based on the number of animals and number of days trailed, with the minimum being one day of use. A total of 4,446 AUMs would be permitted; however, actual use would likely be lower because actively trailing animals (e.g., cattle on one day trailing event) don't have time to consume forage. For each event, AUMs were calculated using the following formulae:

Cattle or horse AUMs = [(total number of animals) X (number of days/trailing event)]/30.4
Sheep AUMs = [(total number of animals/5) X (number of days/trailing event)]/30.4

2.3.3 **Alternative C – Trailing with Design Criteria**

The FRFO would issue 24 crossing permits, which would allow 95 unique livestock trailing events (i.e. 73 for cattle, 21 for sheep, and 1 for horses) across BLM-administered lands (Table 1). Permits would be effective for a maximum of 10 years; however, resource considerations could result in shorter periods. A total of 629 miles of trailing routes, 338 of which occur on BLM-administered lands would be authorized (Maps C.1-5). Livestock trailing would be authorized within 0.125 miles on either side of designated trailing routes, except where design criteria and permit specific stipulations reduce the width in order to avoid or reduce resource conflicts. The alignment of 62 events would remain as described in Alternative B. Eighteen events would remain in the same alignment as Alternative B, but restrictions would be applied to protect special status plant (SSP) occurrences. Portions of 15 routes would be moved to reduce impacts to SSP or sage-grouse. Five bedding sites would be modified to reduce resource conflicts. Permitted AUMs would be as described in Alternative B.

The following stipulations, based on design criteria used to develop routes (Appendix 2), would apply to all routes:

- Permittee would submit an application to the Authorized Officer describing the trail route to be followed, the number of livestock to be trailed, and the date(s) on which the trailing event(s) would occur at least seven working days prior to the intended date of initiation. Receipt of payment of the ensuing bill would constitute authorization to trail livestock across public land via the designated route.
- Trailing livestock would be authorized within 0.125 miles on either side of designated trailing routes, except where subsequent stipulations apply that reduce the width in order to avoid or reduce resource conflicts.
- Trailing would be active, with livestock moving toward their final destination, except at night.

- Trailing would not be authorized during times when soils are saturated (i.e., there would be no evidence of puddles and soils would be firm).
- Bedding would occur only at designated locations as displayed on permit specific maps.
- No bedding would occur within burned and/or treated areas until ESR or other treatment objectives are met or criteria for opening the area to grazing are met.
- Motorized vehicles would remain on existing vehicle routes. Cross-country use of motorized vehicles would not be authorized.
- Livestock trailing on routes in or adjacent to burned areas would be kept within 50' of the identified route centerline until vegetation recovery objectives are met.
- Livestock trailing on routes in or adjacent to vegetation treatments (e.g., fuels projects, restoration treatments, or noxious weed spraying) would be kept within 50' of the identified route centerline until the treatment objectives are met, unless the specific trailing event would not conflict with treatment objectives.
- Trailing livestock would avoid identified priority noxious weed occurrences or stay within 50' of the identified route centerline.
- Temporary water troughs would not be placed in sagebrush stands; previously disturbed sites would be used, such as areas around stock ponds or troughs, past seedings, or other grassland sites.
- From April 1 to June 15, cattle bedding areas would not be located in sagebrush habitat. If this is not feasible, previously-disturbed sites would be used such as areas around stock ponds or troughs or in past seedings, or other grassland sites.
- Areas used for staging vehicles, horse trailers, fence panels, etc. would avoid sagebrush habitats; if this is not possible, previously disturbed sites would be used, such as areas around stock ponds or troughs, past seedings, or other grassland sites.
- Staging, bedding, or portable trough areas would not be placed on known historic property sites.
- 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.
- Any conflicts that occur due to livestock mixing would be the responsibility of the trailing applicant, in cooperation with the grazing permittee, to mitigate and resolve.
- Trailing applicant would contact all affected grazing permittees at least 24 hours prior to beginning trailing operations.

Route-specific stipulations (Table 1) would be as follows:

<u>Wildlife</u>

- From March 1 to May 15, livestock trailing would be routed at least 0.62 miles from occupied sage-grouse leks where possible. If this is not feasible, trailing events would be timed to occur between 10:00 am and 6:00 pm. (Would apply to routes 08-02, 17-01, 18-01 and 18-06)

Threatened, Endangered, and Special Status Plants

- Livestock trailing would be avoided where it has the potential to affect occupied SSP habitat.
- Trailing in critical/proposed critical habitat and occupied habitat would be authorized only on existing improved roads. Cross-country trailing would not be authorized in critical/proposed critical habitat or occupied habitat at any time.
- Trailing would not be authorized when soils within slickspots are saturated [there would be no evidence of puddles (i.e. standing water) and the soil within slickspots would be firm (i.e. a boot heel would not penetrate >0.5 inches)].
- Bedding would not be authorized within critical/proposed critical habitat and occupied habitat.
- For SSP species, trailing would avoid known element occurrences where possible. If this is not feasible, trailing would be restricted to within 50' of the identified route centerline of improved or unimproved roads.

Recreation

- When conducting livestock trailing on or across designated recreation trails, operators would be required (to the extent practicable) to return trails to pre-trailing conditions, primarily removing rocks or other debris that are knocked down on the trail surfaces. (Would apply to routes 02-01 and 02-04)

Table 1. Proposed crossing permits for alternatives B and C including total number and kind of livestock, trailing window (on, off dates), animal unit months (AUMs), number of groups, trail miles, herding methods, and livestock grazing allotments crossed for the Four Rivers Field Office, Idaho.

Operator	**Id No.**	**Lvstk No.** [1]	**Kind**	**On Date**	**Off Date**	**Days on PL /Group** [2]	**AUMs**	**# Groups**[3]	**Total Miles**	**BLM Miles**	**Herding Method**	**Allot #s Crossed**[4]	**Alternative C – Reroutes from Applied routes & Stipulations**
John Peterson	01-01	800	S	4/1	5/15	5	26	1	10	1	non-motorized	00070[5] 00278	Same as Alternative B.
	01-02	800	S	5/1	5/28	5	26	1	15	3	non-motorized	00278	Same as Alternative B.
	01-03	1,600	S	10/1	12/31	4	42	1	48	20	non-motorized	00003 00037 00114 00115 00181[5] 00192 00197 00211[5] 00376 **00391**	Same as Alternative B.
Frank Shirts	02-01	1,840	S	3/25	4/25	10	121	2	43	23	non-motorized	00028 00125 00176 **00196**[6] 00278 00310 00311 00313 **00391**	Reroutes to avoid special status plant (SSP) habitat. Bedding would occur outside of SSP habitat.

Operator	Id No.	Lvstk No. [1]	Kind	On Date	Off Date	Days on PL /Group [2]	AUMs	# Groups[3]	Total Miles	BLM Miles	Herding Method	Allot #s Crossed[4]	Alternative C – Reroutes from Applied routes & Stipulations
	02-02	3,400	S	4/15	6/15	12	268	2	44	20	non-motorized	00023 00045 00176 00189 00246 **00278** **00310** **00391**	Reroutes to avoid SSP habitat.
	02-03	5,400	S	10/1	11/10	10	355	3	44	20	non-motorized	00023 00045 00176 00189 00246 00278 00310 **00391**	Reroutes to avoid SSP habitat.
	02-04	5,400	S	10/1	1/1	8	284	3	43	23	non-motorized	00028 00125 00176 **00196**[6] 00278 **00310** 00311 00313 **00391**	Reroutes to avoid SSP habitat. Bedding would occur outside SSP habitat.
	02-05	1,700	S	10/1	11/1	8	89	1	56	20	non-motorized	00022 00147 00176 00181 00189 00222 00246 00256 00310 00390	Reroutes to avoid SSP habitat.

Operator	Id No.	Lvstk No. [1]	Kind	On Date	Off Date	Days on PL /Group [2]	AUMs	# Groups[3]	Total Miles	BLM Miles	Herding Method	Allot #s Crossed[4]	Alternative C – Reroutes from Applied routes & Stipulations
												00391	
	03-01	1,800	S	5/1	6/30	10	118	2	3	3	non-motorized	00268 **01365**	Route would be the same as Alternative B. Trailing within SSP habitat would be restricted to within 50' of roads.
	04-01	3,600	S	10/20	12/1	10	237	2	56	13	non-motorized	00059 00061 00063 00074 00106 00107 00191 00240 00295 00312 00361 00365 00366 00370	Same as Alternative B.
W Cada	05-01	200	C	5/15	6/10	1	7	1	3	2	motorized	00010 **00059** 00063	Same as Alternative B.
	05-02	200	C	6/15	6/25	1	7	1	2	1	motorized	00010	Same as Alternative B.
	05-03	200	C	7/5	7/20	1	7	1	1	<1	motorized	00010	Same as Alternative B.
	05-04	200	C	7/7	7/22	1	7	1	3	2	motorized	00010 **00059** 00063	Same as Alternative B.

Operator	Id No.	Lvstk No. [1]	Kind	On Date	Off Date	Days on PL /Group [2]	AUMs	# Groups[3]	Total Miles	BLM Miles	Herding Method	Allot #s Crossed[4]	Alternative C – Reroutes from Applied routes & Stipulations
	05-05	100	C	7/15	7/25	1	3	1	3	2	motorized	00010 **00059** 00063	Same as Alternative B.
	05-06	100	C	10/15	11/15	1	3	1	4	2	motorized	00010 00059 00060 00063	Same as Alternative B.
Soulen Livestock	06-01	8,000	S	6/3	6/20	4	211	7	17	14	non-motorized	**00006** 00007 **00010** **00059** **00060** **00071** **00284**	Route would be the same as Alternative B. Trailing adjacent to SSP habitat (including Sheep Creek) would be restricted to within 50’ of roads.
	06-02	8,000	S	10/10	10/26	3	158	4	17	14	non-motorized	**00006** **00007** **00010** **00059** 00060 00071 **00284**	Route would be the same as Alternative B. Trailing adjacent to SSP habitat (including Sheep Creek) would be restricted to within 50’ of roads
	07-01	9,000	S	10/22	11/6	3	178	4	9	8	non-motorized	**00176** **00391**	Same as Alternative B.

Operator	Id No.	Lvstk No. [1]	Kind	On Date	Off Date	Days on PL /Group [2]	AUMs	# Groups[3]	Total Miles	BLM Miles	Herding Method	Allot #s Crossed[4]	Alternative C – Reroutes from Applied routes & Stipulations
	07-02	9,000	S	12/14	12/18	2	118	4	6	5	non-motorized	00825	Same as Alternative B.
	07-03	9,000	S	2/27	3/2	2	118	4	6	5	non-motorized	**00825**	Same as Alternative B.
	07-04	9,000	S	3/1	3/10	3	178	4	9	8	non-motorized	**00176** **00391**	Same as Alternative B.
Anchustegui	08-01	2,000	S	3/29	4/25	3	39	2	15	13	non-motorized	00826 **00875**	Reroutes to avoid SSP habitat. Bedding would occur outside SSP habitat.
	08-02	2,000	S	5/10	6/7	8	105	2	29	20	non-motorized	**00813** **00816** 00817 **00886**	Route would be the same as Alternative B. Bedding site moved.
	08-03	2,000	S	9/15	10/30	9	118	2	49	37	non-motorized	**00813** 00816 00817 **00825** 00826 **00875** 00886	Reroutes to avoid SSP habitat.
	08-04	2,000	S	10/30	11/15	2	26	2	14	12	non-motorized	00826 **00875**	Partial reroute to avoid SSP habitat in playa.
	08-05	2,000	S	1/10	1/25	2	26	2	14	12	non-motorized	**00826** **00875**	Partial reroute to avoid SSP habitat in playa.

Operator	Id No.	Lvstk No. [1]	Kind	On Date	Off Date	Days on PL /Group [2]	AUMs	# Groups[3]	Total Miles	BLM Miles	Herding Method	Allot #s Crossed[4]	Alternative C – Reroutes from Applied routes & Stipulations
	09-01	150	C	10/30	11/5	2	10	1	12	11	non-motorized	00826 **00875** **00896**	Partial reroute to avoid SSP habitat in playa. Bedding would be at least 0.25 miles from playa.
	09-02	150	C	5/1	7/2	2	10	1	17	16	non-motorized	**00825** 00826 00875 00896	Partial reroute proposed to avoid SSP habitat in playa. Bedding would be at least 0.25 miles from playa.
Aldecoa & Sons	10-01	500	C	11/1	11/15	4	66	1	42	15	non-motorized	**00818** 00819 **00820** **00871** **00876**	Same as Alternative B.
Double Anchor Ranch	11-01	750	C	4/10	5/31	1	25	4	16	12	non-motorized	01045 **01103** **01128** **01130**	Same as Alternative B.
	11-02	750	C	11/15	11/30	1	25	4	16	12	non-motorized	01030 01045 **01103** **01128** **01130**	Same as Alternative B.
Preston Lord	12-01	300	C	4/10	4/25	1	10	1	3	3	non-motorized	**00817**	Same as Alternative B.
Monty Pearce	13-01	125	H	11/1	11/30	3	12	1	25	15	non-motorized	00005 00041 00044	Same as Alternative B.

Operator	Id No.	Lvstk No. [1]	Kind	On Date	Off Date	Days on PL /Group [2]	AUMs	# Groups[3]	Total Miles	BLM Miles	Herding Method	Allot #s Crossed[4]	Alternative C – Reroutes from Applied routes & Stipulations
												00059 00060 00063 00080 00365 00366 00370	
Casey and Pattie Chandler	14-01	418	C	4/1	5/1	1	14	5-8	1	<1	non-motorized	00273	Same as Alternative B.
	14-02	418	C	11/1	11/15	1	14	5-8	11	2	non-motorized	00349 00381 00382	Route would be the same as Alternative B. Trailing within SSP habitat would be restricted to within 50’ of roads.
	14-03	418	C	11/15	12/31	1	14	5-8	26	5	non-motorized	**00174** **00251** 00273 00347 00349 00382 00399	Route would be the same as Alternative B. Trailing within SSP habitat would be restricted to within 50’ of roads.
N Law	15-01	200	C	5/10	5/31	3	20	1	21	9	non-motorized	**00816** 00817 **00818** **00825**	Same as Alternative B.
	15-02	200	C	10/10	10/31	3	20	1	21	9	non-motorized	00816 00817	Same as Alternative B.

Operator	Id No.	Lvstk No. [1]	Kind	On Date	Off Date	Days on PL /Group [2]	AUMs	# Groups[3]	Total Miles	BLM Miles	Herding Method	Allot #s Crossed[4]	Alternative C – Reroutes from Applied routes & Stipulations
												00818 00825	
AL Cattle, Inc.	16-01	350	C	8/1	8/15	1	12	1	4	2	non-motorized	**00284**	Same as Alternative B.
	16-02	350	C	10/1	10/16	1	12	1	4	2	non-motorized	**00284**	Same as Alternative B.
David Owen	17-01	500	C	4/15	8/1	1	16	5	3	3	motorized	**00813**	Same as Alternative B.
	17-02	500	C	5/15	5/26	1	16	4	2	2	non-motorized	01045	Same as Alternative B.
	17-03	500	C	5/26	8/1	2	33	4	9	7	non-motorized	01038 01045	Same as Alternative B.
	17-04	500	C	12/1	2/1	1	16	10	<1	<1	motorized	**01124**	Same as Alternative B.
	17-05	500	C	12/26	2/28	1	16	1	6	4	motorized	Entire route on county road (Fenced on both sides)	Route would be the same as Alternative B. Trailing within SSP habitat would be restricted to within 50’ of roads.
McGrew Ranch	18-01	500	C	5/10	5/30	1	16	1	3	2	non-motorized	**00813**	Same as Alternative B.
	18-02	440	C	10/31	11/30	2	29	1	6	4	non-motorized	**00813** 00817	Same as Alternative B.

Operator	Id No.	Lvstk No. [1]	Kind	On Date	Off Date	Days on PL /Group [2]	AUMs	# Groups[3]	Total Miles	BLM Miles	Herding Method	Allot #s Crossed[4]	Alternative C – Reroutes from Applied routes & Stipulations
	18-03	100	C	11/1	12/15	1	3	1	2	2	non-motorized	**00813**	Same as Alternative B.
	18-04a	150	C	1/1	1/25	2	10	1	2	2	non-motorized	00813	Same as Alternative B.
	18-04b	150	C	1/1	1/25	2	10	1	8	7	non-motorized	00813	Same as Alternative B.
	18-05.1a	100	C	3/15	5/25	1	3	1	1	1	non-motorized	**00813**	Same as Alternative B.
	18-05.1b	100	C	3/15	5/25	1	3	1	1	1	non-motorized	**00813**	Same as Alternative B.
	18-05.2a	100	C	12/15	2/15	1	3	1	1	1	non-motorized	**00813**	Same as Alternative B.
	18-05.2b	100	C	12/15	2/15	1	3	1	1	1	non-motorized	**00813**	Same as Alternative B.
	18-06	50	C	5/5	5/25	1	2	1	15	10	non-motorized	**00813**	Reroute to avoid key sage-grouse habitat.
David Owen	19-01	300	C	11/1	12/15	1	10	1	4	4	motorized	**00813**	Same as Alternative B.
	19-02	300	C	12/26	2/28	1	10	1	4	4	motorized	**00813**	Same as Alternative B.
TFI	20-01	1,000	C	2/15	2/28	2	66	6	13	13	motorized	**00825**	Same as Alternative B.
	20-02	1,000	C	9/15	10/15	1	33	6	9	7	motorized	00825	Route would be the same as Alternative B. Trailing within SSP habitat

Operator	Id No.	Lvstk No. [1]	Kind	On Date	Off Date	Days on PL /Group [2]	AUMs	# Groups[3]	Total Miles	BLM Miles	Herding Method	Allot #s Crossed[4]	Alternative C – Reroutes from Applied routes & Stipulations
													would be restricted to within 50' of roads.
	20-03	1,000	C	6/20	7/20	1	33	6	9	7	motorized	**00825**	Route would be the same as Alternative B. Trailing within SSP habitat would be restricted to within 50' of roads.
Thomas Nicholson	21-01	500	C	3/1	3/31	1	16	3	9	9	motorized	00825	Reroutes to avoid SSP habitat.
	21-02	1,000	C	3/1	3/31	1	33	6	11	10	motorized	00826	Same as Alternative B.
	21-03	500	C	3/31	4/30	1	16	3	2	2	motorized	00826	Same as Alternative B.
	21-04	1,000	C	3/31	4/30	1	33	6	6	6	motorized	00826	Same as Alternative B.
Casa Del Norte	22-01	2,000	C	6/15	7/30	1	66	10	1	1	motorized	**01043**	Same as Alternative B.
	22-02	2,000	C	10/1	11/15	1	66	10	1	1	motorized	01043	Same as Alternative B.
	22-03	2,000	C	6/15	7/30	2	132	10	15	14	motorized	**01036 01103 01130**	Route would be the same as Alternative B. A rider or equivalent would be

Operator	Id No.	Lvstk No. [1]	Kind	On Date	Off Date	Days on PL /Group [2]	AUMs	# Groups[3]	Total Miles	BLM Miles	Herding Method	Allot #s Crossed[4]	Alternative C – Reroutes from Applied routes & Stipulations
													placed in Alkali Creek on the south side of culvert to keep cattle on road.
	22-04	2,000	C	10/1	11/15	2	132	10	15	14	motorized	**01036 01103 01130**	Route would be the same as Alternative B. A rider or equivalent would be placed in Alkali Creek on the south side of culvert to keep cattle on road.
	22-05	100	C	4/1	7/31	1	3	3	3	3	non-motorized	**01036**	Same as Alternative B.
	22-06	100	C	10/1	11/30	1	3	3	3	3	non-motorized	**01036**	Same as Alternative B.
	22-07	2,000	C	4/10	6/30	1	66	10	8	8	motorized	**01036 01103 01130**	Route would be the same as Alternative B. A rider or equivalent would be placed in Alkali Creek on the south side of culvert to keep cattle on road.

Operator	Id No.	Lvstk No. [1]	Kind	On Date	Off Date	Days on PL /Group [2]	AUMs	# Groups[3]	Total Miles	BLM Miles	Herding Method	Allot #s Crossed[4]	Alternative C – Reroutes from Applied routes & Stipulations
	22-08	2,000	C	10/1	12/5	1	66	10	8	8	motorized	**01036 01103 01130**	Route would be the same as Alternative B. A rider or equivalent would be placed in Alkali Creek on the south side of culvert to keep cattle on road.
	22-09	500	C	4/10	6/30	1	16	3	2	2	non-motorized	**01036**	Same as Alternative B.
	22-10	500	C	10/1	12/5	1	16	3	2	2	non-motorized	**01036**	Same as Alternative B.
	22-11	500	C	4/1	6/30	1	16	5	9	8	motorized	**01033 01036**	Same as Alternative B.
	22-12	1,000	C	10/1	12/31	1	33	5	9	8	motorized	01033 **01036**	Same as Alternative B.
	22-13	1,000	C	1/1	12/31	1	33	6	9	9	motorized	**01033 01036 01130**	Same as Alternative B.
	22-14	1,000	C	1/1	12/31	1	33	6	9	9	motorized	**01033 01036 01130**	Same as Alternative B.
	22-15	2,000	C	4/1	5/1	1	66	10	3	3	non-motorized	**01033**	Same as Alternative B.

Operator	Id No.	Lvstk No. [1]	Kind	On Date	Off Date	Days on PL /Group [2]	AUMs	# Groups[3]	Total Miles	BLM Miles	Herding Method	Allot #s Crossed[4]	Alternative C – Reroutes from Applied routes & Stipulations
	22-16	2,000	C	10/1	11/30	1	66	10	3	3	non-motorized	01033	Same as Alternative B.
	22-17	1,000	C	1/1	12/31	1	33	6	10	7	motorized	**01030 01034 01130**	Reroutes to avoid SSP habitat.
	22-18	1,000	C	1/1	12/31	1	33	6	11	7	motorized	**01030 01034 01130**	Reroutes to avoid SSP habitat.
	22-19	300	C	10/1	3/1	1	10	1	2	2	non-motorized	**00821 01035**	Same as Alternative B.
	22-20	300	C	11/1	5/31	1	10	1	2	2	non-motorized	**00821 01035**	Same as Alternative B.
	22-21	2,000	C	1/1	12/31	1	66	10	4	3	motorized	**01128**	Same as Alternative B.
	22-22	2,000	C	1/1	12/31	1	66	10	4	3	motorized	**01128**	Same as Alternative B.
Blackwell, Samuel	23-01	75	C	10/1	11/1	2	5	1	15	12	non-motorized	**01036** 01043 **01103 01130**	Same as Alternative B.
Broken Circle Cattle	24-01	900	C	4/1	12/31	1	30	3	3	3	motorized	**00817**	Route would be the same as Alternative B. Trailing within SSP habitat would be restricted to within 50’ of roads.

Operator	Id No.	Lvstk No. [1]	Kind	On Date	Off Date	Days on PL /Group [2]	AUMs	# Groups[3]	Total Miles	BLM Miles	Herding Method	Allot #s Crossed[4]	Alternative C – Reroutes from Applied routes & Stipulations
	24-02	900	C	5/1	1/31	1	30	3	3	3	motorized	**00817**	Route would be the same as Alternative B. Trailing within SSP habitat would be restricted to within 50’ of roads.
	24-03	900	C	4/1	12/31	1	30	2	1	1	motorized	**00817**	Route would be the same as Alternative B. Trailing within SSP habitat would be restricted to within 50’ of roads.
	24-04	900	C	5/1	1/31	1	30	2	1	1	motorized	**00817**	Route would be the same as Alternative B. Trailing within SSP habitat would be restricted to within 50’ of roads.
	24-05	600	C	3/1	12/31	1	20	1	1	1	motorized	**00817**	Route would be the same as Alternative B. Trailing within SSP habitat would be restricted to within 50’ of

Operator	Id No.	Lvstk No. [1]	Kind	On Date	Off Date	Days on PL /Group [2]	AUMs	# Groups[3]	Total Miles	BLM Miles	Herding Method	Allot #s Crossed[4]	Alternative C – Reroutes from Applied routes & Stipulations
													roads.
	24-06	600	C	4/1	6/1	1	20	3	3	3	motorized	**00817**	Route would be the same as Alternative B. Trailing within SSP habitat would be restricted to within 50' of roads.
	24-07	100	C	2/1	3/1	1	3	3	5	5	motorized	00815	Same as Alternative B.

[1] C = Cattle, H = Horse, and S = Sheep

[2] Indicates how long it would take each group of livestock to travel the length of the trailing route.

[3] Indicates the number of groups in which the total number of livestock would be split for trailing. For example, 500 total cattle being trailed in 2 groups would result in 2 groups averaging 250 cattle each trailing at a time.

[4] For allotments in bold, there would be an overlap in use periods between trailing livestock and permitted grazing use in the allotment. For the remaining allotments, the permitted trailing use terms and conditions would be substantially different from permitted grazing use, and/or the trailing use has been ongoing for such a period of time (decades) that no conflicts with current grazing use have been reported or are occurring. Allotment names are in Appendix 3.

[5] Allotment is not currently being actively grazed.

[6] Allotment would only be affected in Alternative C.

3.0 Affected Environment & Environmental Consequences

This section presents the current condition of resources identified by interested publics or BLM resource staff in the scoping process as potentially being affected by livestock trailing activities. Resources not identified as potentially being impacted are not discussed further. Twelve groups of resources or resource uses were identified in scoping as potentially being impacted by livestock trailing (Table 2).

Table 2. Summary of scoping issues and their disposition for proposed trailing in the Four Rivers Field Office, Idaho.

Resource / Use	Potential Impact or Rationale for No Further Analysis
Soils/Watershed	Present with potential relevant impact that needs to be analyzed in detail (Section 3.3).
Upland Vegetation / Special Status Plants	Present with potential relevant impact that needs to be analyzed in detail (Sections 3.4 and 3.5).
Noxious Weeds / Invasive Species	Present with potential relevant impact that needs to be analyzed in detail (Section 3.6).
Riparian Areas / Wetlands / Water Quality	Present with potential relevant impact that needs to be analyzed in detail (Section 3.7).
Fish and Wildlife	Present with potential relevant impact that needs to be analyzed in detail (Sections 3.7 and 3.8).
Migratory Birds	Present with potential relevant impact that needs to be analyzed in detail (Section 3.8).
Cultural Resources	Present with potential relevant impact that needs to be analyzed in detail (Section 3.9).
Livestock Management	Present with potential relevant impact that needs to be analyzed in detail (Section 3.10).
Recreation	Present with potential relevant impact that needs to be analyzed in detail (Section 3.11).
Area of Critical Environmental Concern (ACEC)	Proposed trailing routes cross Long-billed Curlew Habitat ACEC and Boise Front ACEC (designated for recreation purposes). Long-billed curlews are addressed in Section 3.8 and recreation uses in the Boise Front ACEC are addressed in Section 3.11.
Wild Horses and Burros	Present but not affected because no proposed trailing routes traverse wild horse Herd Management Areas within the FRFO.

3.1.1 Section Organization

The sections below describe the resources and uses affected by the alternatives described in Section 2.0. Each section is organized as follows:

- *Affected Environment:* Describes the current condition of the affected resource or use.
- *Environmental Consequences:* Describes direct and indirect impacts to the resource or use.
  - *General Description of Impacts:* Describes the general types of impacts that could result from the proposed actions.
  - *Comparison of Impacts:* Compares impacts to resource/use indicators under each alternative.
  - *Alternative A:* Describes the direct and indirect impacts of Alternative A.
  - *Alternative B:* Describes the direct and indirect impacts of Alternative B.

    - *Alternative C:* Describes the direct and indirect impacts of Alternative C.
- *Cumulative Impacts:* Describes the cumulative impacts to the resource or use.
    - *Scope of Analysis:* Describes the geographic and temporal scope for each cumulative impacts analysis.
    - *Current Conditions and Effects of Foreseeable Future Actions:* Describes current conditions and past, present, and reasonably foreseeable future actions affecting the resource or use.
    - *Alternative A:* Describes cumulative impacts under Alternative A.
    - *Alternative B:* Describes cumulative impacts under Alternative B.
    - *Alternative C:* Describes cumulative impacts under Alternative C.

Additional information relevant to all sections within *Affected Environment and Environmental Consequences* is presented below.

Common Analysis Assumptions

- Trailing routes for which permittees submitted applications would generally be used every year.
- Livestock would travel within 0.125 miles of identified trailing routes (unless otherwise indicated).
- Livestock would overnight in small groups scattered over approximately 40 acres. Horse trailing would not include bedding.
- The amount of grazing likely to occur while cattle (and horses) are moving is small enough to preclude a quantifiable analysis, regardless of the nature of the trailing route (road vs. cross-country) because animals are actively being moved and don't have the opportunity to graze.
- Grazing by cattle would occur primarily in bedding areas; sheep grazing would also occur in bedding areas.
- The amount of grazing likely to occur when sheep are moving is predominantly only quantifiable for cross-country trailing, to some degree when sheep trail along unimproved roads, and when rate of travel is slow (<4 miles/day for multi-day trails).
- Trampling effects would largely be associated with active trailing/livestock movement; bedding livestock would disperse up to 40 acres, so trampling effects would be more spread out.
- Livestock-hauling trucks (80,000 to 90,000 lbs. loaded weight) would require firm, dry, maintained roads for safe and efficient travel.

Impact Descriptors

Effects can be temporary (short-term) or long lasting/permanent (long-term). These terms may vary somewhat depending on the resource; therefore, each will be quantified by resource where applicable. Generally speaking:

- **Short-term** effects are changes to the environment during and following ground-disturbing activities that revert to pre-disturbance conditions, or nearly so, immediately to within a few years following the disturbance.
- **Long-term** effects are those that would remain beyond short-term ground disturbing activities.

The magnitude of potential effects is described as being major, moderate, minor, negligible, or no effect and is interpreted as follows:

- **Major** effects have the potential to cause substantial change or stress to an environmental resource or resource use. Effects generally would be long-term and/or extend over a wide area.
- **Moderate** effects are apparent and/or would be detectable by casual observers, ranging from insubstantial to substantial. Potential changes to or effects on the resource or resource use would generally be localized and short-term.
- **Minor** effects could be slight but detectable and/or would result in small but measurable changes to an environmental resource or resource use.
- **Negligible** effects have the potential to cause an indiscernible and insignificant change or stress to an environmental resource or use.
- **No effect** equates to no discernible effect.

Magnitude of effects would generally correlate with the following:

- Number of livestock per event (the greater the number the greater the potential impact on a resource/resource use)
- Number of events per route or bedding location (the greater the number, the greater the potential impact on a resource/resource use)
- Amount of previous disturbance or nature of trail – improved roads vs. unimproved roads vs. cross country (Cross-country trailing would result in greater impacts compared to trailing along improved roads, etc.)

Number of trailing livestock has been classified as small, medium, large, and substantial for each animal kind (i.e., cows and sheep). These categories represent the following ranges:

- **Small**: 50-1,000 cows; 800-2,000 sheep
- **Medium**: 1,001-2,550 cows; 2,001-6,000 sheep
- **Large**: 2,551-6,000 cows; 6,001-10,500 sheep
- **Substantial**: 6,001-11,500 cows; 10,501-35,740 sheep

3.2 Cumulative Impacts Analysis Overview

The cumulative impacts analysis area comprises the extent over which the combined direct, indirect, and cumulative effects are assessed for each resource. A direct impact is caused by the actions of the project and occurs at the same time or place, whereas an indirect impact is caused by the project but occurs later in time or is further removed in distance, but is reasonably foreseeable. Cumulative effects are impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

The cumulative effects analysis considers Federal, State, and private activities within the analysis area that affect resources within the FRFO, to the extent those resources would be affected by the alternatives. For purposes of the analysis in this EA, the impacts of all past activities within an analysis area (e.g. all BLM-administered lands located within livestock grazing allotments administered by the FRFO) 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 for each past activity within the project area, but rather uses available data to identify the existing condition of each resource.

Past activities on BLM-administered lands outside the project area or on non-BLM-administered lands within the cumulative impacts analysis area are addressed in the cumulative impacts analysis for each resource, in addition to the impacts of present and reasonably foreseeable future actions within the analysis area.

The spatial scope of cumulative effects analyses varies by resource, each resource section identifies the cumulative impact analysis area for that resource and the past, present, and reasonably foreseeable projects (either individually or by description/proximity) being considered. Unless otherwise indicated, the temporal scope considered will extend to the time identified for long-term impacts by resource. A variety of activities including livestock grazing, energy infrastructure, wildfire, vegetation treatments, and recreation will be considered in those resource-specific analyses (Table 3).

Table 3. Present and reasonably foreseeable future activities occurring in and adjacent to the Four Rivers Field Office, Idaho.

Project	Date	Agency	Description of Activity:
Livestock Grazing	Ongoing	BLM, FS	Future decisions will include management to meet or move toward Standards & LUP objectives. Fully processed decisions on BLM allotments should be maintaining or making progress toward meeting Standards.
Livestock Grazing	Ongoing	State Private	Grazing impacts are variable, but operators are not required to meet BLM Standards.
Military Activities	Ongoing	BLM	The Idaho Army National Guard conducts regular training activities in the 138,000 acres Orchard Training Area. Activities include cross-country travel in non-shrub areas.
Noxious weed and invasive species management	Ongoing	All	Chemical, mechanical, and biological control of noxious weed species primarily occurs on small scales (1-5 acres) for targeted species throughout the FRFO.
Off-highway Vehicle (OHV) Use	Ongoing	All	For BLM-administered lands, approximately 422,600 acres are designated as open to cross-country use, 784,200 acres are designated as limited to existing or designated routes, and 9,100 acres are closed to motorized use. Recreational riding is popular, widespread, and occurs primarily during the spring and fall at lower elevations (<5,500 feet) and during the summer at upper elevations and US Forest Service (USFS) lands.
Paradigm Fuel Break Project	2012 or 2013	BLM	Fuel breaks on 4,365 acres, in the form of greenstrips and roadside mowing, will occur between Boise and Glenns Ferry, which may take 5 years to implement; maintenance is anticipated every 7-10 years. The project would incorporate existing transportation routes to reduce the potential size of wildfires and fire return intervals, protect existing native shrub communities and habitat for slickspot peppergrass, and greater sage-grouse.

Project	Date	Agency	Description of Activity:
Residential Development	Ongoing	Private lands	Numerous planned communities have been approved; however, little work has been done since the recent recession. Some activity has occurred north of Eagle (M3 – approximately 6,000 acres) and near Mayfield (Mayfield Townsite - approximately 5,000 acres). Initial construction work could begin within two years, but build out could take 20-50 years.
Rangeland Management Projects (Construction)	2013-2015	BLM	Projects associated with grazing decisions in the Bennett Mountain Management Area.
Rangeland Management Projects (Maintenance)	Ongoing	BLM	Regular maintenance of existing projects including fences and water developments.
Road Maintenance	Ongoing	All	Approximately 100-300 miles of roads on BLM-administered lands are maintained by the BLM annually. The amount of maintenance on non-BLM-administered lands is substantial, but unknown. Most impacts are associated with the road and previously disturbed areas immediately adjacent to the road.
Wildfire	Ongoing	All	Although wildfire locations and quantities are unknown; approximately 20,000 acres of BLM-administered lands burn annually.
Vegetation Treatments	Ongoing	BLM, State	The majority of large fires (>100 acres) have some degree of Emergency Stabilization and Rehabilitation treatments including: seeding of grasses, forbs, and shrubs; temporary fencing; herbicide applications; and rest from livestock grazing. Fuels treatments and restoration projects have been identified for the NCA that could affect 500-5,000 acres annually.

3.3 Soils and Watershed

3.3.1 Affected Environment – Soils/Watershed

Standards and Guidelines address maintaining and promoting soil stability, watershed health, and biotic integrity by having adequate amounts and types of ground cover to support infiltration, maintain soil moisture storage and transfer, and stabilize soils. They also address proper nutrient and energy cycling that promotes and sustains site productivity. 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. Livestock trailing (both current and historic), may affect soil stability, productivity, and watershed health.

Soils in the FRFO are diverse, as a result of variability in parent materials, climate and vegetative communities. The 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 (Table 4). Soil information was obtained from the Natural Resources Conservation Service's (NRCS) soil survey database.

Table 4. General physical soil properties and erosion potential within the Four Rivers Field Office, Idaho.

Geomorphological Unit	Moisture and Temperature Regimes	Soil Texture	Wind and Water Erosion Potential (K-factor)
Granitic	Xeric moisture/mesic or frigid temperature	Sandy loam to gravelly loam with many rock fragments	Moderate to high[1]
Basaltic	Xeric or xeric bordering aridic moisture/ mesic temperature	Loamy to clay loam with many rock fragments	Low to high[1]
Sedimentary	Aridic, bordering xeric moisture/ mesic temperature	Sandy loam to clay loam	Low to high[1]

[1]Depending on soil texture and slope

Soil erosion potential from water is based on the soil Erosion Susceptibility Factor (K-factor) and slope (Soils Maps 1-5). Soils with a K-factor equal to or greater than 0.43 are classified as high water erosion potential. Soils that occur on slopes exceeding 30% are also classified with a high erosion potential. Soils high in clay have low K-factor values, about 0.05 to 0.15, because they are resistant to detachment. Coarse textured soils, such as sandy soils, have low K-factor values, about 0.05 to 0.2, because of low runoff even though these soils are easily detached. Medium textured soils, such as the silt loam soils, have moderate K-factor values, about 0.25 to 0.4, because they are moderately susceptible to detachment and they produce moderate runoff. Soils having high silt content are most erodible of all soils because they are easily detached and tend to crust which can produce high rates of runoff. Values of K-factor for these soils tend to be greater than 0.4. Soil structures affect both susceptibility to detachment and infiltration. Permeability of the soil profile affects K-factor because it affects runoff (USDA-NRCS 2012).

Biological Soil Crusts

Biological soil crusts are an important component of many ecological sites in the project area. They function as living mulch by retaining soil moisture and discouraging annual weed growth. They reduce wind and water erosion, fix atmospheric nitrogen, and contribute to soil organic matter (Eldridge and Greene 1994, Belnap and Gillette 1997, 1998, McKenna-Neumann et al.1996). Biological soil crusts also protect interspatial surface areas from various forms of erosion. By occupying this area between larger plants, these crusts enhance soil stability, soil moisture retention, and site fertility (by fixing atmospheric nitrogen and contributing organic matter).

In the NRCS "National Range and Pasture Book", biological soil crusts are identified as a critical ecological attribute to be used as an indicator of rangeland health (USDA-NRCS 2003). 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 project area crusts will be less likely to occur in sites that have experienced successive disturbance legacies (e.g. seedings, agricultural sites, and roadsides). In general, the presence of well-developed biological soil crusts in sandy soils is an uncommon occurrence because these types of soils are more prone to disturbance. Biological soil crusts are also more

prevalent at lower elevations compared to higher elevations with greater precipitation where vascular plant growth precludes biological crust development (USDI 2001).

3.3.2 Environmental Consequences – Soils/Watershed

3.3.2.1 General Discussion of Impacts

The general impacts to soils and watersheds by livestock trailing and associated herding with OHVs and horses would depend on:

- Livestock type
- Trailing frequency and timing
- Location of trailing (e.g. improved, unimproved roads versus cross-country travel)
- Percent slope and aspect
- Climatic conditions during and after trailing
- Rate of livestock movement
- Location of concentrated use areas (e.g. bedding)

The magnitude of effects are related to the occurrence of the above mentioned activities in relation to specific soil textures and associated K-factor ratings. For example, soil and watershed impacts associated with trailing on steep, south-facing slopes (>20%), combined with high K-factor (erosion prone) soils and sparse or shallow-rooted vegetation, would be classified as having moderate to major effects. Other impacts to soils from livestock trailing that are considered include a loss of ground cover such as biological soil crusts, litter, and vegetation. Trampling causes soil compaction and pedestals in areas where livestock trailing occurs, especially where ground cover has been reduced or removed. Soil disturbance reduces surface soil resiliency to wind and water erosion especially in shallow-rooted annual-dominated plant communities.

General mechanical impacts include:

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

These mechanical impacts in-turn affect biological crusts specifically because greater than 75% of photosynthetic biomass and productivity is from organisms living in the top 3 mm of soils. 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 include;

- Decreased plant carbon and nitrogen fixation.
- Decreased plant available magnesium, potassium, iron, calcium, phosphorus manganese, and sulfur (Harper and Belnap in press).
- Decreased spatial distribution of nutrients.

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 mechanical

damage compression stresses when dry. Crust components are brittle when dry, and the connections they make between soil particles are easily crushed. Thus, compressional disturbances can severely 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; Marble and Harper 1989) (Table 5).

Table 5. General impact ratings under dry soil conditions, Four Rivers Field Office, Idaho.

Resource Impacts	**Trailing Type (Improved Road)***	**Trailing Type (Unimproved Road) ***	**Trailing Type (Cross-Country)***	**Loamy**	**Sandy**	**Clay**	**Rocky**
Biological Soil Crusts	minor	minor - moderate	moderate-major	major	major	moderate	minor
Erosion [1]	minor - moderate	minor - moderate	moderate-major	moderate - major[2]	moderate - major[2]	minor - moderate	minor
Compaction	minor - moderate	minor	minor-moderate	minor - moderate	minor	moderate - major	minor

[1] increases with slope
[2] depending on frequency

Fine-textured soils or those with inorganic crusts are more vulnerable to compressional disturbance when wet (Webb and Wilshire 1983) (Table 6). On loamy 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 (Belknap et al. 2001) (Table 7). Crusts on clay soils can be an exception, as they are often more vulnerable when soils are wet (Table 7).

Table 6. General impact ratings under saturated soil conditions without design criteria, Four Rivers Field Office, Idaho.

Resource Impacts	**Trailing Type (Improved Road)** [2]	**Trailing Type (Unimproved Road)** [2]	**Trailing Type (Cross-Country)** [2]	**Loamy**	**Sandy**	**Clay**	**Rocky**
Biological Soil Crusts	minor	minor - moderate	moderate	minor - moderate	minor	moderate	minor
Erosion [1]	minor	minor	minor	minor	minor	minor	minor
Compaction	minor	minor - moderate	major	moderate - major	moderate	major	minor

[1] increases with slope
[2] depending on frequency

Table 7. General impact ratings under frozen soil conditions, Four Rivers Field Office, Idaho.

Resource Impacts	Trailing Type (Improved Road) [1]	Trailing Type (Unimproved Road) [1]	Trailing Type (Cross-Country) [1]	Loamy	Sandy	Clay	Rocky
Biological Soil Crusts	minor	minor	minor - moderate	minor	minor	moderate	minor
Erosion [1]	minor	minor	minor	minor	minor	minor	minor
Compaction	minor	minor - moderate	moderate	minor - moderate	moderate	minor - moderate	minor

[1] increases with slope
[2] depending on frequency

3.3.2.2 **Alternative A**

Annual fluctuations in vegetation and litter cover would affect expected rates of soil movement in areas where trailing is no longer occurring. Minor to moderate levels of soil displacement would continue to occur within 23,858 acres (226 miles) associated with high K-factor sites as a function of vehicle use and natural erosional processes. Major effects (e.g., sheet erosion in areas with sparse cover, rill and gully formation where overland water flows concentrate) could occur in localized areas depending on weather events (e.g. high-intensity winds, severe thunderstorms, or rain on snow events). No additional short-term (<3 years) impacts, outside intermittent soil displacement and redistribution by livestock associated with current grazing permits would occur on cross-country routes. Livestock would still be trailed during authorized use periods, without a crossing permit, between pastures within an allotment or between adjacent allotments for which a permittee has authorized use.

Indirect, long term (≥3 years) impacts would consist of moderate to major vegetative recovery (depending on level of disturbance and climatic conditions) of bedding areas, within livestock trailing buffers along unimproved roads, and along cross-country segments. Increased vegetation cover would reduce soil movement and allow recovery of biological soil crust components over time. Key mechanical and biological soil and watershed attributes that would improve include;

- Decreases in soil compaction and increases in water infiltration.
- Decreases in surface runoff.
- Increased soil roughness that affects soil texture, microtopography, and soil temperature.
- Increased plant carbon and nitrogen fixation for biological crusts.
- Increased availability of magnesium, potassium, iron, calcium, phosphorus manganese, and sulfur (Harper and Belnap in press) for biological crusts.
- Increased spatial distribution of nutrients.

Minor to moderate recovery of native perennial vegetation and commensurate decreases in soil displacement would occur on cross-country routes associated with the Central Rocky and Blue Mt. Foothills and Central Rocky Mountain Major Land Resource Areas (MLRAs) (Section 3.4.1), as well as on 32,254 acres of low to moderate soil K-factor sites. Recovery of vegetation and commensurate decreases of soil displacement along 241 miles of the improved and unimproved road buffers would be less than along the 97 miles of the cross-country segments for

all soil K-factor sites due to on-going soil movement and displacement as a result of vehicular use and increased frequency of erosional processes associated with roads in general.

3.3.2.3 **Alternative B**

Direct, short-term impacts would consist of moderate effects of soil displacement on up to 23,858 acres of trailing segments associated with high soil K-Factor soils in general (Table 8). Trailing would occur on 47 miles (39%) of high K-factor soils on 121 miles of improved roads which generally contain low vegetative cover and are already frequently used by vehicles (Table 9). Additive soil displacement along these sections would be moderate and discernible differences based on livestock type would be negligible.

Table 8. BLM acres associated with soil K-factor ratings by alternative for proposed trailing activities in the Four Rivers Field Office, Idaho.

Action Alternative	**Total BLM Acres – Low K Factor Soils (0.02-0.15)**	**Total BLM Acres – Moderate K Factor Soils (0.16-0.4)**	**Total BLM Acres – High K Factor Soils (>0.4)**
Applicant Proposed (B)	6,365	19,715	23,858
BLM Proposed (C)	6,168	19,841	23,509

Table 9. Miles of trailing along associated K-factor sites for proposed trailing activities on improved roads in the Four Rivers Field Office, Idaho.

Action Alternative	**Improved Road – Low K-factor Soils (0.02-0.15)**	**Improved Road – Moderate K-factor Soils (0.16-0.4)**	**Improved Road High K-factor Soils (>0.4)**
Applicant Proposed (B)	14	44	47
BLM Proposed (C)	14	44	49

The 69 miles of trailing in high K-factor sites along unimproved roads (Table 10) would have moderate additive effects due to: 1) extant vegetation closer to the road buffer being potentially trampled or removed, and 2) increased development of soil/vegetation gaps which would expose soil and biological crusts to wind and water erosion. This would occur most frequently on 30 miles of sheep and 4 miles of cattle trailing segments where multiple groups of large or substantial numbers of livestock would occur. The magnitude of effect would be greater with cattle than with sheep based on pounds per square inch of impact. The 44 miles (Table 10) or 39% of the 114 miles of trailing along cross-country routes would have similar effects, but comprise a lower frequency (18%) of use compared to use on other route types. In addition, large and substantial numbers of livestock along cross-country routes occur 0.01% of the time by cattle and 8% of the time by sheep and the impacts are more dispersed versus more concentrated. However, cross-country areas are generally more ecologically intact compared to buffers along unimproved roads. In recent burn areas, moderate to major effects of soil displacement affecting long-term vegetative recovery and watershed health could occur in locations where medium to substantial numbers of livestock trail due to lack of design criteria (Section 3.4.2).

Table 10. Miles of trailing along associated K-factor sites for proposed trailing activities on unimproved roads in the Four Rivers Field Office, Idaho.

Action Alternative	Unimproved Road – Low K Factor Soils (0.02-0.15)	Unimproved Road – Moderate K Factor Soils (0.16-0.4)	Unimproved Road High K Factor Soils (>0.4)
Applicant Proposed (B)	11	40	69
BLM Proposed (C)	10	45	74

Moderate effects to soil biological crusts could occur along cross-country routes associated with low (19 miles) to moderate (45 miles) soil K-factor sites (Table 11) during late summer, early fall (July-September) trailing which occurs 0.06% of the time.

Table 11. Miles of trailing along associated K-factor sites for proposed cross-country trailing activities in the Four Rivers Field Office, Idaho.

Action Alternative	Cross-Country – Low K Factor Soils (0.02-0.15)	Cross-Country Moderate K Factor Soils (0.16-0.4)	Cross-Country High K Factor Soils (>0.4)
Applicant Proposed (B)	19	45	44
BLM Proposed (C)	19	40	34

Soil compaction along cross-country routes where design criteria would be absent would have moderate to major effects on clay soils that occur in low to moderate K-factor sites in spring when soils may be saturated. Compaction would reduce water infiltration and increase surface runoff.

Indirect, long term impacts would consist of negligible to minor vegetative recovery (depending on level or disturbance and climatic conditions) at bedding areas or medium or substantial groups trailing along unimproved roads and cross-country segments. Decreased vegetation cover would moderately increase soil movement and restrict recovery of biological soil crust components over time. Key mechanical and biological soil and watershed effects that would continue to occur include moderate increases in;

- Soil compaction and decreased water infiltration.
- Surface runoff.
- Decreased soil roughness that affects soil texture, microtopography, and soil temperature.
- Decreased plant carbon and nitrogen fixation for biological crusts.
- Decreased availability of magnesium, potassium, iron, calcium, phosphorus manganese. and sulfur (Harper and Belnap in press) for biological crusts.
- Decreased spatial distribution of nutrients.

Minor recovery of native perennial vegetation and moderate commensurate increases in soil displacement would occur on 9,103 acres of recent fires within trailing corridors and along cross-country routes and unimproved roads associated with the Snake River Plain MLRA (Section 3.4.1) where yearly precipitation is less compared to other portions of the project area. Reduced recovery of vegetation and increases of soil displacement along 108 miles of improved roads would have a higher magnitude of effect compared to all soil K-factor sites due to on-

going soil movement and displacement as a result of vehicular use and increased frequency of erosional processes associated with roads.

3.3.2.4 **Alternative C**

Direct, short-term impacts would be similar to Alternative B, but magnitudes of effects would change due to implementation of trailing design criteria. Although actual miles of trailing would increase by two miles this increase is associated with potential resource impact avoidance. Minor to moderate effects of soil displacement would occur on 23,509 acres of trailing segments associated with high soil K-factor soils that occur (74%) on improved and unimproved roads (Table 9 and Table 10). However, the 0.125 mile road buffer would restrict extent of livestock use into adjacent areas. Direct trailing impacts along improved and unimproved roads would be similar to Alternative B, but effects would range from minor to moderate.

Cross-country trailing would be reduced by 17 miles and effects would be similar to Alternative B and comprise 15% of the use compared to use on routes associated with improved and unimproved roads. In recently burned areas, effects would be minor to moderate because trailing would be limited to existing roads (including unimproved) and the trailing buffer would be narrowed to 100 feet (50' to either side of center line) until ESR or other resource objectives are met for re-opening the burned area to grazing.

Moderate effects to soil biological crusts could still occur along cross-country routes associated with low to moderate soil K-factor sites during late summer, early fall (July-September) trailing which would still occur 0.06% of the time. Because trailing would not occur when soils are saturated, soil compaction along cross-country routes would have negligible effects on clay soils that occur in low to moderate K-factor sites in spring.

Indirect, long term impacts would consist of minor to moderate vegetative recovery (depending on level or disturbance and climatic conditions), of bedding areas, within livestock trailing buffers along unimproved roads and along cross-country segments. Decreased vegetation cover would cause a minor to moderate increase in soil movement and restrict recovery of biological soil crust components over time. Key mechanical and biological soil and watershed effects that would continue to occur include minor to moderate increases in:

- Soil compaction and decreased water infiltration
- Surface runoff
- Decreased soil roughness that affects soil texture, microtopography, and soil temperature
- Decreased plant carbon and nitrogen fixation for biological crusts.
- Decreased availability of magnesium, potassium, iron, calcium, phosphorus manganese, and sulfur (Harper and Belnap in press) for biological crusts.
- Decreased spatial distribution of nutrients.

Minor recovery of native perennial vegetation and commensurate increases in soil displacement would still occur on recent fires within trailing corridors, and along cross-country routes and unimproved roads associated with the Snake River Plain MLRA. Reduced recovery of vegetation and commensurate increases of soil displacement along 108 miles of improved roads would be more over all soil K-factor sites due to on-going soil movement and displacement as a

result of vehicular use and increased frequency of erosional processes associated with roads in general.

3.3.3 Cumulative Impacts – Soils/Watershed

3.3.3.1 Scope of Analysis

The scope of analysis for cumulative impacts to soil and watershed extends to the FRFO boundary. Soil and watershed conditions within the trailing routes are influenced by the land management activities associated with the grazing allotments they cross. The FRFO was selected as an outer limit for cumulative impacts because trailing routes cross most grazing allotments in the FRFO and would be used to operate associated grazing systems.

3.3.3.1 Current Conditions and Effects of Foreseeable Future Actions

The collective effect of past actions (Table 3) has contributed to the current conditions of soil and watershed conditions within the project area. In particular, the levels and intensities of anthropogenic activities across all land jurisdictions, especially associated with lower elevation, more populated areas has perpetuated increases of early successional, ruderal landscapes (Leu and Hanser 2011) that are at higher risk for cumulative soil and watershed impacts. In relation to this analysis, the effects of current and foreseeable future activities will include: livestock grazing, road construction/maintenance, fire suppression, ESR and habitat restoration projects, noxious weed management, military activities, and OHV use.

- Permitted livestock grazing affects soils and biological soil crusts by altering mechanical and biological attributes. Appropriate grazing management would limit soil and watershed degradation on a landscape level. However, livestock grazing would likely continue to result in temporally and spatially variable areas of soil surface degradation and plant community alterations that cause minor to moderate effects to soils (e.g. soil compaction, increased surface runoff, damage to biological soil crusts, and reduced nutrient input). These effects would be more frequent in localized areas adjacent to gates, watering, and dietary supplement areas.

- Road construction and ROW maintenance along improved roads would continue to affect soil erosion and displacement within maintained buffers. These effects are spatially restricted to existing locations and occur over a continuous temporal scale.

- Fire suppression activities would vary at both temporal and spatial scales depending on yearly fire severity and extent. Suppression related disturbances would be restricted to dozer-use along linear features and these features are seeded post-fire which would reduce longer-term soil displacement.

- Depending on type of drill equipment (e.g. rangeland and minimum till drills used in association with ESR and restoration projects), short-term increases in soil displacement would occur during seeding operations associated with ESR and habitat improvement projects.

- Noxious and invasive weed treatments could result in localized, short-term exposure of soils to erosion until other species become established in treated areas (USDI 2007). By preventing the loss of native habitats through weed control, it is expected that overall, long-term soil loss from erosion would be reduced.

- Military activities would be confined to existing areas of disturbance and be off-set with on-going and future restoration projects.

- The spatial and temporal extent of OHV activities is difficult to quantify, but this use would affect soils and watersheds by disrupting surface soils and biological crusts and increasing the gaps between vegetation and soils making these sites more susceptible to erosion and weed invasion.

3.3.3.2 **Cumulative Impacts - Alternative A**

Removal of trailing would have a minor long-term cumulative benefit to soils and watersheds primarily where perennial vegetation increases, soil displacement decreases, in low to moderate soil K-factor sites, and in cross-country and unimproved road corridors. Short-term impacts from livestock grazing would occur at a much larger scale through the analysis period. Minor to moderate long-term improvements in soils and watersheds could occur where permits are modified to meet Standards. Road construction, fire suppression, ESR and restoration projects, weed treatments, military activities, and OHV use occur through much of the analysis area and would cause minor to moderate short and possibly long term impacts; however, spatial impacts from individual activities would be fairly restricted and would affect <5% of the analysis area at any time.

3.3.3.3 **Cumulative Impacts - Alternatives B and C**

Trailing livestock would have negligible to minor additional impacts associated with other activities. Cumulative impacts of alternatives B and C would be similar in temporal and spatial scale; however, direct ecological benefits (mechanical and biological soil impacts) associated with resource impact avoidance via re-routing of trailing events in Alternative C would reduce the likelihood of soil related impacts. Specifically, avoiding trailing during saturated soil conditions would reduce the mechanical effects of soil compaction and avoiding recently burned areas would allow soils and watersheds to become stabilized prior to resumption of use. These types of restrictions are in place (e.g., range readiness criteria on grazing permits) or would be implemented (e.g., fire closures to grazing and OHV use) throughout the analysis area which would help limit adverse soil and watershed impacts from authorized activities. As described above, minor to moderate impacts from authorized (e.g., grazing, road construction and maintenance, fire suppression, ESR and restoration, weed treatments, and military activities) and unauthorized (e.g., OHV use) activities would occur over a similar or larger area. Based on observations of historic uses, the cumulative effects of these activities rarely results in moderate to major impacts to soils and watersheds and would affect small, isolated areas for the short term until sites stabilize (e.g., a 100-300’ gully affecting 1-3 acres could form in a burned area where heavy livestock or OHV use occurred prior to the burn). Overall soil and watershed conditions would remain stable over the long term.

3.4 Upland Vegetation

3.4.1 Affected Environment - Upland Vegetation

Trailing events fall primarily within two MLRAs, and a minor portion of the routes occur within a third (Vegetation Maps 1-5). Each MLRA differs in topography, geology, hydrology, substrates, and levels of precipitation. The more southern and western routes/portions of routes occur in the Snake River Plains MLRA, an area considerably lower and flatter than the surrounding regions. The more northern and eastern routes/portions of routes take place mainly in the Central Rocky and Blue Mountain Foothills MLRA, which is characterized by toe slopes and foothills, and generally higher in elevation and precipitation than the Snake River Plain MLRA. A small portion of the trailing routes terminate and/or originate in the forests of the Central Rocky Mountains MLRA.

Soil type (texture, chemistry, etc.), precipitation amount, elevation, past disturbance, and other site characteristics, both biotic and abiotic, dictate the type of vegetation which inhabits an area within an MLRA. The FRFO uplands (i.e. non-riparian areas) are diverse, ranging from low to high elevation (approximately 2,000 to 7,000 feet), low to high precipitation (approximately 7 to 25 inches), and contain shallow rocky soils to deep loamy soils. An array of vegetative communities supporting an array of native and introduced species comprises the FRFO uplands as a result of the factors listed above.

Fourteen general vegetative cover types based on Pacific Northwest National Laboratory (PNNL) data could potentially be affected by trailing (Table 12, Vegetation Maps 1-5). General vegetative cover types along with examples of characteristic vegetation are presented for each MLRA; general descriptions (topography and climate), and soils information are also indicated for each of the three MLRAs.

Table 12. MLRAs, general MLRA descriptions, soils, general cover types and characteristic vegetation within cover types associated with trailing in the FRFO.

MLRA	General MLRA Description[1]	Soil Type	Cover Type	Characteristic Vegetation[2]
Snake River Plains	2,000 to 3,500 feet elevation. Alluvial fans, terraces, and gently sloping bottomlands. Average annual precipitation ranges from 7 to 12 inches. Most precipitation in fall, winter, and spring as rain. Growing season is 110 to 220 days.	Loams	Big Sagebrush & Big Sagebrush Mix[3]	Wyoming big sagebrush
		Loams, Silts, Clays	Exotic Annuals	Cheatgrass Bur buttercup Tumble mustard
		Silts, Sands, Loams	Salt Desert Shrub	Shadscale Winterfat
			Rabbitbrush	Rabbitbrush
			Bunchgrass	Sandberg bluegrass Bottlebrush squirreltail Bluebunch wheatgrass Thurber needlegrass
			Seeding	Crested wheatgrass
Central Rocky and Blue Mountain Foothills	3,500 to 6,000 feet elevation. Gently rolling to steep hills, plateaus, and low mountains. Average annual precipitation is 8	Loams, Clays	Stiff Sagebrush	Stiff sagebrush
			Mountain Big Sagebrush	Mountain big sagebrush
			Low Sagebrush	Low sagebrush
		Loams	Bitterbrush	Bitterbrush
			Mountain Shrub	Mountain mahogany Ceanothus

MLRA	General MLRA Description[1]	Soil Type	Cover Type	Characteristic Vegetation[2]
	to 16 inches, and occurs mainly in fall, winter (snow), and spring. Growing season averages 140 days and ranges from 60 to 220 days.			Snowberry
		Loams, Clays	Exotic Annuals	Cheatgrass Medusahead
			Bunchgrass	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass
			Seeding	Crested wheatgrass
		Loams	Rabbitbrush	Grey and Green rabbitbrush
Central Rocky Mountains	5,000 to 7,000 feet elevation. Mountains, hills, plateaus, and valleys. Average annual precipitation is 9 to 25 inches at lower elevations and 25 to 60 inches at higher elevations. Precipitation mainly falls as snow in fall, winter, and spring. Growing period averages 105 days and ranges from 10 to 200 days.	Clay and Silt Loams	Conifer	Douglas-fir Ponderosa pine Subalpine fir
		Loams, Silts, Various	Aspen	Quaking aspen

[1]General MLRA Description represents the characteristics of the MLRA specifically encompassing the FRFO, particularly where trailing is proposed or anticipated to be proposed.
[2] More in depth discussion of species/communities common to each cover type is provided after Table 13.
[3]Big Sagebrush and Big Sagebrush Mix have been combined because these cover types are similar both in terms of site characteristics and species composition.

Big Sagebrush/Big Sagebrush Mix, Exotic Annual, and Bunchgrass make up 65% of the vegetation cover types in the FRFO and approximately 75% of the cover types in proposed trailing corridors (Table 13). Discussion of species/plant communities commonly associated with cover types is provided below the table. It is important to note that fires affecting 217,819 acres (17%) of the BLM uplands (with some overlap) have occurred since the PNNL data were compiled; the bulk of which occurred in Big Sagebrush & Big Sagebrush Mix and Exotic Annual cover types. Therefore, a few cover types may be somewhat over represented (e.g. Big Sagebrush/Big Sagebrush Mix and Bunchgrass) or underrepresented (e.g. Seeding, Exotic Annual, Rabbitbrush).

Table 13. Total acres and proportion of upland vegetation cover types in the FRFO, and acres and proportion of those cover types in proposed trailing corridors and bedding areas.

Cover Type	Acres[1]	Proportion of Upland Vegetation[1]	Acres in Proposed Trailing Corridors		Proportion of Vegetation in Trailing Corridor (Alts B and C)[2]	Proportion of Cover Type Relative to FRFO (Alts B and C)[2]
			Alt B	Alt C		
Big Sagebrush/Big Sagebrush Mix	411,509	30%	20,058	19,833	39%	5%
Exotic Annual[3]	334,543	25%	13,734	13,450	26%	4%

Bunchgrass	132,205	10%	4,601	4,633	9%	5%
Salt Desert Shrub	80,030	6%	1,703	1,532	3%	2%
Stiff Sagebrush	53,065	4%	1,542	1,534	3%	3%
Conifer	52,655	4%	350	326	<1%	1%
Mountain Big Sagebrush	46,243	3%	3,258	3,072	6%	7%
Rabbitbrush	46,134	3%	2,460	2,424	5%	5%
Bitterbrush	42,651	3%	1,371	1,355	2%	3%
Mountain Shrubs	42,596	3%	820	785	2%	2%
Seeding	29,997	2%	1,134	1,215	2%	4%
Greasewood	9,268	1%	434	391	1%	4%
Low Sagebrush	5,009	<1%	183	178	<1%	4%
Aspen	2,328	<<1%	33	34	<<1%	1%
TOTAL	1,288,233	95% of BLM Managed Land	51,681	50,762	4% of Upland Vegetation	

[1]Acres do not total 100% of BLM land (approximately 1,365,200 acres) because only cover types relevant to upland vegetation are included (which total approximately 1,288,233 acres, 95% of BLM land). Other cover types such as Urban & Other Developed Areas or Open Water, for example, are not represented here.
[2]Proportions are identical (within 0-3 tenths of a percent) due to small differences in acreages between alternatives B and C.
[3]Further detail regarding exotic annual plants considered invasive species is provided in Section 3.6.2.

Big Sagebrush/Big Sagebrush Mix (30% of upland vegetation) - Combined, this is the most common cover type and mainly includes Wyoming big sagebrush communities with Sandberg bluegrass, bluebunch wheatgrass, squirreltail, and/or cheatgrass understories. Crested wheatgrass is present among some communities as a result of seedings. Grass composition and relative abundance varies depending on site-specific characteristics. Inclusions of basin big sagebrush and, to a lesser degree, mountain big sagebrush communities may also be present, as well as other bunchgrasses (see Perennial Grassland: Bunchgrass), depending upon the community's site characteristics.

Exotic Annual (25% of upland vegetation) - Exotic annual forb communities, primarily bur buttercup, mustards (e.g. tumble and tansy mustards, and clasping pepperweed), and exotic annual grasses (e.g. cheatgrass, medusahead, or both) comprise this cover type. These species, particularly cheatgrass, are common invaders of burned and disturbed areas (Pellant 2000). Crested wheatgrass may also be a minor component in cheatgrass communities. Further detail regarding exotic annual plants which are considered invasive species is provided in the Noxious Weeds section below.

Bunchgrass (10% of upland vegetation) - Bunchgrass and cheatgrass within big sagebrush communities, bunchgrass with cheatgrass within various shrub communities, and bunchgrass complexes exemplify this type. Bunchgrasses present in these communities may include, but are not limited to, bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, squirreltail, basin wildrye, needlegrass spp., and Indian ricegrass. Shrubs are a minor component and may include any of those mentioned in this section, and will depend upon site characteristics.

Salt-desert Shrub (6% of upland vegetation) - Shadscale, winterfat, and bud sagebrush are the main shrubs characteristic of this group which is found in lower precipitation zones. Shadscale

tends to occupy more alkaline sites, whereas winterfat is found in less alkaline, silty soils. Others, such as four-wing saltbush, spiny hopsage, and horsebrush spp., may also occur. Typical bunchgrasses include Indian ricegrass, Thurber's needlegrass, squirreltail, and Sandberg bluegrass. Cheatgrass is often common, as well.

Stiff Sagebrush (4% of upland vegetation) - Stiff sagebrush and various bunchgrasses make up this type's vegetative communities.

Conifer (4% of upland vegetation) - Coniferous species in the Evergreen Forest Division include, but are not limited to, Douglas-fir, ponderosa pine, grand fir, and subalpine fir. Communities are mixtures of these species in ratios dictated by site-specific characteristics (e.g. elevation, aspect, and wildland fire history). Douglas-fir is typically the most common species among these communities. Western larch, a deciduous conifer, may be widely scattered across the northern portions of the FRFO. The vast majority of forest communities are in a mid-seral stage. Due to fire suppression over the last 100+ years, some scattered late seral, multi-story stands exist. Little old, single-story forest is present due to a lack of natural under burning and/or effective prescribed under burning, and proximity to populated areas.

Mountain Big Sagebrush (3% of upland vegetation) - This cover type mainly includes communities of mountain big sagebrush with antelope bitterbrush and/or bunchgrass, and mountain shrub complexes. Bluebunch wheatgrass and Idaho fescue are common grasses in these communities. Species that occur within the general type Mountain Shrub (under Mesic Deciduous Shrubland) may also occur here.

Rabbitbrush (3% of upland vegetation) - Green rabbitbrush, bunchgrasses, and cheatgrass are the predominant community elements. Big sagebrush is another typical component. Rubber rabbitbrush may also occur here.

Bitterbrush (3% of upland vegetation) - Antelope bitterbrush, bunchgrass with cheatgrass, and bitterbrush/bunchgrass complexes comprise this type. Primary bunchgrasses include bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, and squirreltail.

Mountain Shrubs (3% of upland vegetation) - Curl-leaf mountain mahogany and ceanothus communities make up this type, along with common snowberry, mountain snowberry, and wax currant.

Seeding (2% of upland vegetation) - Wheatgrass seedings comprised of non-native and native species are the main elements here. Varieties of non-native, crested wheatgrass are most commonly seeded.

Greasewood (1 % of upland vegetation) - Greasewood with or without big sagebrush (most likely basin or Wyoming big sagebrush) makes up this cover type.

Low Sagebrush (<1% of upland vegetation) - Low sagebrush communities include bunchgrasses such as Idaho fescue, bluebunch wheatgrass, and Sandberg bluegrass. Shrubs, such as green rabbitbrush and Wyoming big sagebrush, can also be community components.

Aspen (<<1% of upland vegetation) - This general cover type is comprised of quaking aspen communities. Aspen stands (clones) frequently occur under heavy competition from conifers and some may have inadvertently been included in the Conifer type. Consequently, this group may be under-represented in terms of its distribution.

Condition

Plant community condition varies across the FRFO. Factors influencing condition include natural events (e.g. fire, drought, flood, insect outbreaks) and anthropogenic actions (e.g. vegetation treatments, livestock grazing, OHV use, road construction and maintenance). Historic livestock grazing practices in combination with episodes of drought and fire have altered native species compositions in many areas, particularly in the Snake River Plains MLRA which receives less precipitation and generally harbors less resilient plant communities than those of the Central Rocky and Blue Mountain Foothills or Central Rocky Mountains. More recently, application of Standards and Guidelines have improved livestock grazing management and many degraded vegetation communities have either stabilized or began improving.

Vegetation treatment projects have limited the degradation of vegetation communities by seeding perennial grasses and shrubs in areas disturbed by fire or otherwise degraded. Range improvement projects like fences and livestock water pipelines have improved the distribution of livestock on the landscape, dispersing the effects of grazing and trampling.

Repeated livestock travel and OHV use have created localized trails where vegetation is either absent or less vigorous than surrounding areas. Road construction and maintenance activities have removed or degraded native vegetation communities creating localized, linear features across the landscape. Road corridors frequently harbor weeds due to repeated disturbance including borrow ditches, mowing, spraying, and vehicle travel. Such activities expose soils leaving them vulnerable to weed invasion, and can also be responsible for spreading weed seeds.

3.4.2 **Environmental Consequences – Upland Vegetation**

A general discussion of how vegetation responds to trampling and grazing precedes the discussion of consequences specific to each alternative.

The following assumptions were used for analysis purposes:

- Unless otherwise indicated, environmental consequences to upland vegetation are discussed for BLM-administered lands; however, the consequences identified would be similar for comparable vegetative cover types on State and private lands.
- Short-term effects to upland vegetation would be <3 years; long-term effects would be ≥3 years.

Phenology of herbaceous perennial vegetation (i.e. preferred forage) assumptions:
Factors such as elevation, aspect, and temperature will influence how early or late herbaceous perennials will initiate and terminate growth, but these broad dates capture that spectrum and will be applied for analysis purposes.

- Growing season is generally between March 1 and mid-July (3/1-7/15) (with the exception of warm season perennial grasses, e.g. purple threeawn);

- Dormant season is generally between mid-July to the end of February (7/16-2/28).
- Proposed trailing events with unspecified or broadly overlapping seasons – which could occur during growth or dormancy, or portions of both – will be analyzed as taking place during the growing season.

Utilization as it relates to ingestion or removal of biomass of herbaceous plants (USDI 1996) is as follows:

- Slight = 6% to 20% of biomass removed
- Light = 21% to 40% of biomass removed
- Moderate = 41 to 60% of biomass removed
- Heavy = 61% to 80% of biomass removed

Although animals may not consume measurable amounts of forage during trailing (except for slow moving trailing events or at bedding sites), their physical passage could damage plants to the extent they are unusable by other animals (which is effectively utilization); therefore, AUMs will be used as a relative measure of trailing effects.

3.4.2.1 General Discussion of Impacts

The general discussion of trailing-related effects is common to all action alternatives (B and C). Direct impacts to vegetation include breakage (injury, deformity) via trampling and removal via grazing. Indirect effects include potential degradation of vegetative communities associated with trailing and bedding activities, and the potential spread of weedy species passively and/or by livestock transport (vectors). Trailing-related impacts associated with noxious weeds and invasive species are discussed in Section 3.6.2.

Effects to vegetation are grouped by source (trampling, grazing, and vectors). These sources are addressed where appropriate for broad vegetative types affected by trailing which include: perennial herbaceous vegetation, annual vegetation, and woody vegetation. Perennial herbaceous vegetation includes native and introduced perennial grasses and forbs. Annual vegetation includes native and introduced grasses and forbs. Woody vegetation includes shrubs and trees.

Effects of Trampling

Perennial Herbaceous Vegetation - Trampling of perennial herbaceous plants could reduce productivity but would be unlikely to result in mortality of established plants. This group is more resilient to trampling than shrubs or annual plants due to its more flexible tissues and more extensive root systems. Trampling of perennial vegetation would produce less of an impact during dormancy 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 (as described in Section 3.3.2) from trampling also affects vegetation by reducing water and oxygen infiltration and restricting root growth.

Annual Vegetation - Trampling of annual plants could result in injury or mortality, and/or seed bank reductions if trampled during their growing season (before seed set/dissemination).

Potential seedbank reductions would be short term and negligible to minor due to abbreviated life cycles and generally high fecundity, particularly for introduced and/or invasive species.

Woody Vegetation - Trampling of shrubs could deform mature individuals and could kill immature shrubs (Owens and Norton 1990). Similarly, trees could be deformed by livestock breaking limbs of mature plants, or killed by trampling of seedlings or immature plants. 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. Woody species within trailing corridors and bedding areas would generally display more deformities and fewer young plants than adjacent stands.

Effects of Grazing

Perennial Herbaceous Vegetation - Livestock would graze preferentially on herbaceous components of the plant community to the extent that they are 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 plant vigor. Utilization during periods when plants are withdrawing reserves from roots for growth, during re-growth, or during seed formation will impact herbaceous species greater than the same level of utilization when the plant is not actively growing or is dormant.

Annual Vegetation - Grazing would remove biomass and could kill plants, but similar to trampling, these impacts would be short-term due to the high fecundity and short life cycles of this group. Palatability and rapid growth of cheatgrass is typically earlier than the rapid growth phase for perennial native grasses. Therefore, grazing in these communities during the winter or early spring could result in some minor short-term indirect benefit for perennial native species by potentially relieving some of the grazing pressure on perennial native grasses.

Woody Vegetation - Livestock prefer herbaceous vegetation, but will increasingly utilize woody species (e.g. bitterbrush and mountain mahogany) as browse as herbaceous vegetation goes dormant (Stuth and Winward 1977, Ganskopp et al. 1999, Ganskopp et al. 2004). Reductions in biomass of browse species would be greater when herbaceous vegetation is dormant.

Effects of Vectors

Livestock may transport weed seeds that adhere to their bodies or drop undigested weed seeds in their feces. Cheatgrass has been known to spread in this manner (Young and Longland 1996). Trailing could indirectly elevate competition for limited resources between existing native and imported exotic species if livestock import and deposit exotic plant materials (Laycock and Conrad 1981). Openings in vegetative cover created by trampling could occur and provide opportunities for germination and spread of exotic annual plants, particularly where these species are adjacent to or components of the plant community. Livestock trailing could also have indirect short-term benefits for upland vegetation by dispersing native seeds and creating microhabitats for native species through localized soil disturbance (Burkhardt 1996).

Magnitude of Effects

The type and magnitude of effects to upland vegetation by livestock trailing activities (active trailing, bedding, and possible herding by OHVs) will depend upon trailing intensity (the number of livestock that pass through a given area), timing of events (during active growth or dormancy), type of trail/route (improved road, unimproved road, or cross-country), and location of the event (MLRA). Livestock trailing-related impacts would also add cumulatively to livestock grazing-related impacts incurred during authorized grazing.

The degree that plant communities would be directly affected increases as intensity increases. Greater numbers of livestock would increase the potential to trample or ingest vegetation compared to lower numbers of livestock. Timing of trailing affects the magnitude of impacts to vegetation. Trailing when plants are initiating growth or actively growing (typically in spring) would impact them more than trailing when they are dormant (perennials) or have completed their life cycle (annuals). Route characteristics (i.e. previous disturbance) are also important influences on the magnitude of impacts. Trailing along existing roads would produce fewer impacts to vegetation than cross country trailing. How these three factors are combined would dictate the overall magnitude of impacts to upland vegetation.

The intensity of use also determines the amount of indirect impacts to plant communities. Low to moderate numbers of livestock would not damage or remove enough vegetation to allow for noxious or invasive plants to colonize a site. Large to substantial livestock numbers would damage vegetation and create bare ground openings that allow weedy species to establish. Weedy species that become established as a result of livestock trailing could spread into adjacent plant communities resulting in increased competition for resources over the short-and long-term. However, plant communities at higher elevations and/or in higher precipitation zones (e.g. above 5,000 feet in the Rocky and Blue Mountain Foothills MLRA and Rocky and Blue Mountains MLRA) tend to be more resilient to disturbance and, therefore, more resistant to invasion by weedy plants than those at lower elevations in lower precipitation zones (e.g. Snake River Plans MLRA).

Comparison of Alternatives

There would be no potential for upland vegetation to be trampled or ingested by trailing livestock. Alternatives B and C would affect up to 51,681 acres and 50,762 acres of upland vegetation, respectively; approximately 4% of all FRFO BLM-administered lands for each action alternative (Vegetation Maps 1-5). The trailing corridors proposed in Alternative B would occur 31% on/along improved roads, 36% on/along unimproved roads, and 33% cross-country (Table 14). The trailing corridors proposed in Alternative C would occur 31% on/along improved roads, 39% on/along unimproved roads, and 30% cross-country. Alternative C would involve approximately 919 fewer acres than B, and 4% less of its trailing corridor would be cross-country (1% more on improved and 3% more on unimproved roads). For both action alternatives, the intensity of use would be similar on each route type (Table 14).

Table 14. Comparison of acres of upland vegetation affected during trailing (by trampling or ingestion), AUMs, and proportions of trailing by season and route type for each alternative.

Alter-native	Total Trailing Corridor	AUMs	Proportion of Growing Season Use	Proportion of Dormant Season Use	% Trailing Footprint by Route Type		
					Improved Road	Unimproved Road	Cross-country
A	0	0	0	0	0	0	0
B	Up to 51,681 acres	4,446	Up to 44%	At least 56%	31%	36%	33%
C	Up to 50,762[1] acres	4,446	Up to 44%	At least 56%	32%	39%	29%

[1]This is a slight overestimation because there are 4 cases where the trailing buffer has been narrowed to 100 feet to avoid recently burned and treated areas, and a weed avoidance area.

The timing of trailing events proposed in alternatives B and C is identical in relation to the broadly defined phenology of upland vegetation (i.e. growing season vs. dormant season). Where resource stipulations in Alternative C limit trailing temporally (e.g. sage-grouse lekking periods), the duration for which the stipulation applies would not change the season of trailing pertaining to upland vegetation. At least 56% of proposed livestock use during trailing events would occur during the dormant season for perennial herbaceous vegetation, both in terms of numbers of livestock and AUMs allotted (Table 14). Up to 44% of livestock trailing could occur during the growing season.

3.4.2.2 **Alternative A**

Because vegetation within trailing corridors would not be trampled or ingested by trailing livestock, upland vegetation condition would exhibit minor improvements over the long-term due to the small proportion of upland vegetation affected (approximately 4% of BLM-administered lands in the FRFO). The degree to which upland vegetation could benefit depends upon the nature of the trail. The improvements would be most noticeable where cross-country trailing is removed and least noticeable along improved roads because of other disturbance factors associated with those areas.

Effects resulting from the absence of cross-country trailing would be minor to moderate over approximately 17,920 acres depending upon the current condition of associated plant communities. Native perennial plants would increase in number and distribution over the long-term, except where dominance by exotic annual species would preclude this from occurring.

The absence of trailing on/along unimproved roads would result in minor benefits to approximately 19,520 acres of upland vegetation in trailing corridors. Although some disturbance would still occur (e.g. vehicle travel), it would largely be limited to roadways (i.e. the centerline of a route). This would create opportunities for re-vegetation by and/or an increase of perennial vegetation in disturbed areas adjacent to roads; providing there is an adequate seed source or seed bank of perennial species. Improvements to exotic annual plant communities associated with unimproved roads would be negligible.

The absence of trailing on/along improved roads would likely produce no benefits or only negligible effects to upland plant communities within approximately 16,960 acres. Such areas are heavily disturbed by numerous other activities like road maintenance, vehicle travel,

mowing, and weed control/spraying. Ongoing ground disturbing activities would preclude improvements to upland vegetation within trailing corridors.

Assuming applicants would transport livestock via truck, vehicle traffic on roads would increase. A corresponding increase in the amount of atmospheric dust along those roads would occur. Dust may adversely affect photosynthesis, respiration, and transpiration, but definitive effects to vegetation are unclear (Spellerberg 1998). Farmer (1993) found that lichens and mosses were more sensitive to the effects of roadside dust than vascular plants. Effect distances are usually 33 to 66 feet (Forman and Alexander 1998). Vegetation within 33 to 66 feet of roads could incur negligible to minor indirect effects by an increase in roadside dust; effects would likely be short term because trucking events would be short in duration and low in frequency.

3.4.2.3 **Alternative B**

The direct effects to upland vegetation as a result of issuing crossing permits include trampling and grazing. Indirect alterations in species compositions could also occur as a result of the direct effects and introduction of weed seeds by livestock. The primary cover types affected include Big Sagebrush & Big Sagebrush Mix (Woody Vegetation) and Exotic Annual (Annual Vegetation) (Table 13). Bunchgrass (Perennial Herbaceous Vegetation), Mountain Big Sagebrush (Woody Vegetation), and Rabbitbrush (Woody Vegetation) would be affected to a lesser extent. The acres for each cover type within the corridors are a small percentage (ranging from 1% to 7%) of the acres of the cover types within the FRFO. In all, up to 4% of upland vegetation in the FRFO could be affected.

The magnitude of impacts to upland vegetation would depend on the season of use, the number of livestock, route characteristics (road vs. cross-country), and the duration of use. A greater number of livestock would trail during the dormant season (56%) than the growing season (44%) of herbaceous perennial plants. However, the amount of AUMs associated with trailing during the growing and dormant seasons would be similar. For all routes the duration would be short. The maximum stay for any one herd would be at bedding areas where animals would be in a specific place for 10-14 hours.

Table 15. Comparison of proposed livestock trailing use during growing and dormant seasons of herbaceous perennial vegetation for both action alternatives (B and C).

Class of Livestock	**Growing Season[1]**		**Dormant Season**	
	# of Livestock	**AUMs**	**# of Livestock**	**AUMs**
Cows	31,068	1,122	18,051	787
Sheep	29,640	987	58,700	1,538
Horses	0	0	125	12
Total	60,708	2,109	76,876	2,337
Proportion	44%	47%	56%	53%

[1]12,200 (25%) cattle assigned 401 (9%) AUMs have broad and/or overlapping proposed seasons of use; therefore, trailing could occur during growing season, dormant season, or portions of both.

Herd sizes would range from small to medium numbers of sheep at any one time, and small numbers of cattle would be present at any one time. Numerous trail segments are used multiple times by multiple herds (Table 1; Maps B.2-5). Therefore, in some cases, the effective number of livestock could be more than ten times the maximum group number resulting in large to substantial livestock numbers using a particular trail or portion of trail.

Almost half (49%) of the total acres affected by trailing would involve small numbers, 23% would involve medium numbers, 18% would involve large numbers, and 10% would involve substantial numbers of livestock (Table 16). Typically, trailing routes would be utilized by either cattle or sheep, but not both. In all, there would be approximately 8 miles of proposed trails with overlapping use, but only 2 miles (328 acres) would be cross-country and 6 miles would be associated with roads.

Table 16. Comparison of livestock number categories proposed by route type.

Livestock Number Category	Total Acres[1]	Percent of Total	Route Type					
			Improved Roads		Unimproved Roads		Cross-country	
			Acres[1]	Percent	Acres[1]	Percent	Acres[1]	Percent
Small	26,400	49%	6,720	41%	11,360	59%	8,320	46%
Medium	12,320	23%	5,600	34%	4,160	21%	2,560	14%
Large	9,760	18%	2,400	15%	2,560	13%	4,800	26%
Substantial	5,440	10%	1,600	10%	1,280	7%	2,560	14%

[1]Acreage calculations are slightly higher here compared to other GIS calculations based upon total miles/total trailing corridor. This is due to approximately 8 miles of overlap in sheep and cattle use; cattle and sheep were calculated separately (since their numbers differ by category) but were combined by category in this table.

Trampling Effects

Trampling effects would occur primarily along the middle of a trailing route becoming less pronounced toward edges of the trailing corridor due to herders driving livestock together, and the habit of livestock to remain in a relatively tight group. Cross-country trailing events would affect upland vegetation in trailing corridors the most, and trailing on/along improved roads would produce the least impacts. Trailing through big sagebrush and other shrub communities and herbaceous perennial vegetation would produce more direct effects than trailing through exotic annual vegetation.

Long-term damage to woody, herbaceous perennial and annual upland vegetation within trailing corridors would be negligible to moderate, but minor overall since most of the events are associated with roads and most would consist of small to medium numbers of livestock (Table 17). Long-term indirect impacts, i.e. the spread weedy species, would also be minor for these reasons. Upland vegetation in trailing corridors makes up approximately 4% of the FRFO; therefore, taken as a whole, impacts as a result of trampling would be minor.

Table 17. Magnitude of impact on upland vegetation via trampling by route type and for FRFO, overall.

Route Type	Small & Medium #s of Livestock	Large & Substantial #s of Livestock	Magnitude of Trampling Impacts
Cross-country (33%)	60%	40%	Moderate
Unimproved Roads (36%)	70%	30%	Minor
Improved Roads (31%)	75%	25%	Negligible
Overall Magnitude of Impacts to Upland Vegetation in the FRFO			*Minor*

The long-term effects would be damage to shrubs (primarily big sagebrush species), particularly associated with cross-country routes, and to a lesser degree unimproved roads. Damage to shrubs would be more pronounced along the center of trailing routes and less pronounced along the edges. Shrubs within trailing routes and bedding areas would display more deformities and

fewer young plants than adjacent stands. Trampling of perennial herbaceous plants, especially bunchgrasses, could result in reductions in perennial herbaceous plant productivity, but the majority of trailing and bedding would occur during the dormant season when herbaceous perennials are less susceptible to damage (Table 15). Impacts from vectors would be greatest where substantial livestock numbers trail cross-country and where they congregate.

Of the 112 miles (17,920 acres) of cross-country trailing corridors, 46% would experience small, 14% medium, 26% large, and 14% substantial numbers of livestock (Table 16). The approximately 328 acres of overlapping use proposed on cross-country routes would involve large numbers of sheep and small numbers of cattle. Small and medium livestock numbers would produce moderate short-term and minor long-term effects to upland vegetation in cross-country trail corridors. Large to substantial numbers would produce moderate to major short-term impacts and moderate long-term impacts. Long-term indirect impacts (i.e. plant community degradation and exotic annual introduction/spread) could where large to substantial numbers of livestock trail cross-country. However, overall trampling impacts to upland vegetation in cross-country corridors would be moderate in the short-term and minor to moderate over the long-term since the majority of cross-country trailing (approximately 60%) would involve small and medium numbers of livestock.

Of the 122 miles which total approximately 19,520 acres along unimproved roads, 59% would consist of small, 21% medium, 13% large, and 7% substantial numbers of livestock (Table 16). Upland vegetation within trailing corridors along unimproved roads would incur minor short-term and negligible long-term effects when subjected to small and medium numbers of livestock. Large and substantial numbers would produce moderate short-term and minor long-term trampling impacts to vegetation along unimproved roads. Approximately 70% of trailing along unimproved roads consists of small and medium numbers of livestock; therefore, the overall trampling impacts to upland vegetation associated with these trails would be minor over the short- and long-term.

Of the 106 miles totaling approximately 16,960 acres along improved roads, 41% would involve small, 34% medium, 15% large, and 10% substantial numbers of livestock (Table 16). Due to repeated heavy disturbance from a variety of sources, upland vegetation within trailing corridors associated with improved roads would potentially incur no direct or indirect impacts with small or medium livestock numbers; and negligible to minor impacts with large to substantial in both the short- and long-term. Trailing proposed along improved roads (approximately 75%) would largely consist of small and medium numbers of livestock; therefore, negligible short- and long-term trampling effects would result.

Grazing Effects

Grazing impacts to upland vegetation within cross-country sheep corridors and livestock bedding areas would be moderate. However, because of the short duration and small proportion of the upland vegetation comprising the FRFO (<1%), direct grazing effects from livestock bedding events would be minor over the long-term (Table 18). 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 (<4% of the FRFO) and for a limited duration, direct grazing effects during trailing would be minor.

Table 18. Magnitude of impacts to upland vegetation via grazing by trailing event, and for FRFO upland vegetation, overall.

Event	Acres	Magnitude of Grazing Impacts
Bedding (sheep and cattle)	1,457	Moderate
Sheep Trailing	6,720	Moderate
Overall Magnitude of Impacts to Upland Vegetation in the FRFO		*Minor*

Up to 4,446 AUMs (2,525 for sheep, 1,909 for cattle, and 12 for horses) of forage/biomass could be utilized during trailing events (Table 15); 53% allotted during the perennial herbaceous growing season and 47% during the dormant season. Utilization of all 4,446 AUMs would be unlikely due to the amount of trailing proposed along roads, as well as the relatively rapid movement of cattle (and horses) when actively trailing.

Grazing effects to vegetation would occur primarily in proposed bedding areas for cattle and sheep (horses would not bed), as well as during cross-country sheep trailing events. Bedding areas total 1,457 acres (<1% of the FRFO), and cross-country sheep trailing totals 6,720 acres (<1% of the FRFO). Small to medium numbers of livestock would result in light to moderate utilization, and large to substantial numbers would result in moderate to heavy utilization of vegetation. Of the 6,720 acres of proposed cross-country sheep trails, 88% would experience small numbers, 3% medium numbers, and 13% large numbers of sheep.

Grazing effects would result in shorter herbaceous plant species chiefly associated with bedding areas and cross-country sheep routes. Livestock would preferentially select bluebunch wheatgrass, Idaho fescue, and needlegrass over Sandberg bluegrass and squirreltail. Slight to moderate utilization of these perennial herbaceous plants would produce minor to moderate localized, short-term effects; moderate to heavy utilization would result in moderate to major localized, short-term effects. Since the vast majority would involve small to medium numbers of livestock (Table 16), direct grazing-related impacts to perennial herbaceous vegetation would be moderate at most.

Additionally, the duration of use would be short, so grazed perennial herbaceous plants would likely recover/re-grow, especially when utilization coincides with dormancy, providing authorized grazing events do not occur concurrently.

Cattle bedding during the dormant season for perennial herbaceous plants could browse on woody species (e.g. bitterbrush or shadscale) where available. Overall effects would be negligible since so few acres of these vegetation types are present in the proposed bedding areas (approximately 235 acres [Table 13]). Browse plants would also be expected to recover over the short-term due to the short duration of utilization.

3.4.2.4 **Alternative C**

Impacts to upland vegetation would be similar to Alternative B, but slightly less in overall magnitude where stipulations are implemented. Overall long-term direct and indirect adverse trailing impacts to upland plant communities would also be minor, but with a few site-specific improvements.

Stipulations associated with burned, treated, and/or weed avoidance areas (Section 2.3.3) would reduce effects on upland vegetation. Adherence to the stipulations would have moderate short term benefits for recently burned, stressed, and immature vegetation. There would be numerous locations where the trailing corridor would be narrowed, bedding would not be allowed, and/or livestock would avoid burn or ESR treatment perimeters until vegetation recovery objectives are met. Avoidance of priority noxious weeds would have a negligible long-term reduction in potential weed spread.

3.4.3 Cumulative Impacts – Upland Vegetation

3.4.3.1 Scope of Analysis

The extent of the FRFO was selected to describe cumulative effects to upland vegetation. This area was selected because the trailing corridors proposed in alternatives B and C facilitate livestock grazing systems throughout the FRFO, yet the corridors themselves would affect approximately 4% of the area.

3.4.3.2 Current Conditions and Effects of Foreseeable Future Actions

Past actions that were considered include livestock grazing and range management projects, road and ROW construction and maintenance, fence construction, fire suppression, fuels projects, ESR and habitat restoration projects, OHV use, and military use. Actions that have occurred in the past and will continue into the foreseeable future include livestock grazing, noxious weed management, utility corridor ROW maintenance, and recreation.

The collective effect of past actions has contributed to the existing condition of vegetation described in Section 3.4.1. In particular, the levels and intensities of anthropogenic activities across all land jurisdictions, especially associated with lower elevation, more populated areas has perpetuated increases of early successional vegetation, especially of understory plants where often deeper-rooted longer lived perennial herbaceous species have been replaced.

The effects of ongoing and foreseeable future activities include livestock grazing and range management projects, road and ROW maintenance, vegetation treatments, noxious weed management, OHV use, and military use. The effects of future wildfires are also considered because these natural events are predictable to a certain degree based on the number and size of wildfires that have occurred in the past decade.

- Grazing permitted in the FRFO results in damage to and consumption of vegetation. Currently, 149,592 AUMs are allocated for livestock. Rangeland Health Assessments and subsequent evaluations and determinations on meeting Standards and Guidelines have been completed on 172 allotments in Bennett, Big Willow, Goodrich, Indian Valley, Snake River, and Sunnyside Management Areas; and are scheduled for Mountain Home, Weiser River, Payette River, and Boise River Management Areas in the future.

  Management direction in the new permits may include conditions to achieve applicable standards based on determinations. Allotments in the FRFO are required to meet Standards and Guidelines. Future livestock grazing is projected to maintain or improve upland vegetation on the whole due to implementation of the Standards and Guidelines.

However, livestock grazing would likely continue to result in plant community alterations, particularly in localized areas adjacent to fences, gates and livestock facilities (e.g. troughs and supplement sites).

- Road or ROW (powerlines and pipelines) construction and subsequent ongoing maintenance (e.g., blading, grading, and/or spraying) along these features will continue to affect upland vegetation within and adjacent to maintained buffers. Blading and grading disturb soils and vegetation and often create conditions conducive to noxious and invasive species establishment. Spraying of these sites helps to keep weeds and weedy species relatively restricted to the maintained buffers, or to a minimum (e.g., around powerline poles, which are kept relatively free of vegetation to prevent fire). As a result, upland vegetation is often sparse in these locations. These effects are confined spatially to existing locations and occur over a continuous temporal scale.

- If implemented, the Paradigm Project would result in up to an approximately 4,365-acre network of fuel breaks over the next several years (beginning in 2013). Various fuel break methods may include, but are not limited to, seeding (greenstripping), mowing, disking, herbicide application, and targeted grazing. Direct effects include localized mortality of larger and older sagebrush. Herbaceous species would increase with the reductions of shrub canopy in seeded and mowed areas. Alterations in species composition (i.e. from current vegetation to seeded species) would occur where greenstrips are established. The purpose of the Paradigm Project is to reduce the size of wildfires and fire return intervals, and to protect existing native shrub communities.

- The FRFO falls within numerous Cooperative Weed Management Areas (CWMAs). The BLM and its cooperators have been working together to identify, monitor, and treat noxious weeds for several years. These cooperative efforts are expected to continue into the foreseeable future. Weed treatments consist of mechanical, biological, and chemical methods as described in the Noxious and Invasive Weed Treatment for the Boise District and Jarbidge Field Offices Environmental Assessment (USDI 2007). Native species in noxious weed treatment areas could be killed by overspray or have reduced fitness during treatments; however, control of noxious weeds would have long-term benefits to native plant communities by reducing competition.

- The spatial and temporal extent of authorized and unauthorized cross-country OHV activities is difficult to quantify, but generally this use would affect upland vegetation directly by causing breakage, mortality, and removal of plants. Indirectly, cross-country OHV use would affect upland vegetation by disrupting surface soils and biological crusts, creating bare areas susceptible to weed invasion and/or spreading of invasive species.

- Military activities would be confined to existing areas of disturbance and be off-set with on-going and future restoration projects.

- Wildfires have burned approximately 217,819 acres (with some overlap) of BLM uplands from 2001 to 2011, a yearly average of approximately 20,000 acres. ESR and habitat

improvement projects would be expected to improve plant communities and ecological processes in burned and/or degraded areas.

3.4.3.3 **Cumulative Impacts - Alternative A**

Upland vegetation would be affected in the same manner and to the same degree by the factors listed above. The absence of trailing would result in minor reductions in overall impacts compared to alternatives B and C. The dust generated by livestock hauling operations would be in addition to dust generated by existing traffic. The lack of baseline traffic counts along these routes makes a quantifiable analysis of existing roadside dust difficult. However, dust effects would be greater during dry conditions. The increase in traffic that would result from livestock hauling operations could inhibit plant vigor, but the cumulative effects would be negligible because of existing vehicle traffic levels and associated dust.

3.4.3.4 **Cumulative Impacts - Alternative B**

Trampling and grazing could affect vegetation on up to 51,681 acres (~4% of upland vegetation) comprised of 45% big sagebrush (Wyoming, basin, and mountain big sagebrush) communities, 26% exotic annuals, 19% other shrub (rabbitbrush, salt desert shrubs, stiff sagebrush, bitterbrush, mountain shrubs, greasewood, and low sagebrush) communities, 9% bunchgrass, and 1% trees (conifers and aspen). However, 67% of the trailing corridors would be associated with roads, where vegetation has already been altered or removed by trailing and other activities (e.g. road maintenance, OHV use). Trailing-related impacts to upland vegetation and to sagebrush and bunchgrass, in particular, would be minor on a field office-wide scale.

Effects to upland vegetation from wildfire (20,000 acres annually on average) and the Paradigm Project (up to 4,365 acres over the long-term) would result in damage, mortality, and/or alterations in plant community components on up to 24,365 acres (<2% of upland vegetation) over the short (herbaceous components) and long (shrub components) terms. A portion of those acres would involve big sagebrush communities. However, fuel breaks established by the Paradigm Project could offset shrub loss over the long-term because intact stands of sagebrush would be protected from fire to a moderate degree within the confines of the project area and to a minor degree across the FRFO. In treated areas, anticipated increases in herbaceous species could offset the AUMs removed by trailing livestock, but would likely be negligible within the context of permitted grazing in the FRFO.

While the effects to vegetation from trailing could be confined to localized areas and narrow timeframes, those of permitted grazing would be widely dispersed both temporally and spatially, making comparison difficult. The total active use permitted AUMs in the FRFO would increase by 4,446 AUMs (3%). Given that the continued application and implementation of Standards and Guidelines would result in proper livestock management and improving conditions, the cumulative effects to vegetation in the project area would be minor.

Cooperative weed management treatments would partially offset any increase in noxious weeds resulting from livestock trailing activities. Total eradication of noxious weeds would be difficult if not impossible to attain and unlikely given the budget and staffing at federal and state levels. Biological control agents are becoming increasingly effective on some weed species, and more

of these agents are likely to become available in the near future. The cumulative increase in noxious weeds from issuing the crossing permits would be negligible to minor.

3.4.3.5 **Cumulative Impacts - Alternative C**

Cumulative impacts to upland vegetation would be similar to those described in Alternative B. Vegetation changes could occur on up to 50,762 acres (4%) of upland vegetation in the FRFO, approximately 919 fewer acres than Alternative B. AUMs would be the same (4,446 AUMs). Trailing stipulations would result in minor reductions in trailing-related impacts compared to Alternative B. However, impact reductions would be negligible when combined with the other factors affecting upland vegetation (e.g. livestock grazing, fire, vegetation treatments, etc.).

3.5 **Special Status Plants**

3.5.1 **Affected Environment – Special Status Plants**

Special status plants (SSP) include species listed or proposed for listing under the Endangered Species Act and species designated as sensitive by the BLM State Director. BLM special status plants are given a numeric ranking (from 1 to 4) based on several criteria including risk of extinction, population size, distribution, and trend. Species with the greatest threat are assigned a ranking of Type 1 and those with the least threat are assigned a ranking of Type 4. The FRFO received updated lists of ESA Listed, Proposed, and Candidate species and critical habitat USFWS dated August 1, 2011 (Semi-annual Species List Update from the Idaho US Fish and Wildlife Service, #1002.0000 14420-2009-SL-0365). Eight SSP species could be affected by trailing routes (Table 19).

Table 19. Special status plant species affected by trailing routes in the Four Rivers Field Office, Idaho.

Species	Trailing Route #	TRS	EO#	BLM Acres		Status
Allium aaseae	02-02, -03, -05	6N-1W-21,22,23,27,28	15	201		Type 2
	02-01, -04	4N-2E-16	10, 24	52		Type 2
Astragalus atratus var. *inseptus*	08-02, -03	2S-6E-14	65	<0.5		Type 3
	22-03, -04	3S-10E-29	74	<0.5		Type 3
	22-03, -04	4S-10E-5, 8	41	68		Type 3
	22-07, -08	4S-10E-18	19	6.3		Type 3
	22-11, -12, -13, -14	4S-10E-29, 30	62	53		Type 3
	22-13, -14	4S-9E-23, 24, 25	64	30		Type 3
	22-11, -12, -13, -14	4S-10E-21, 22	18	22		Type 3
Astragalus mulfordiae	02-01, -04	4N-2E-14	18	<0.5		Type 2
Haplopappus radiatus	14-02, -03	14N-7W-12, 13, 23, 26, 27	15,16, 17	212		Type 3
Lepidium davisii	08-01, -03, -04, -05	4S-4E-4, 5	24, 44	49		Type 3
	09-02,	4S-4E-27	25	33		Type 3
Lepidium papilliferum	All appropriate trailing routes	NA	NA	Proposed Critical Habitat	1,874	Type 1
				Occupied	2,880	

Species	Trailing Route #	TRS	EO#	BLM Acres		Status
				Habitat		
				Slickspot peppergrass Habitat	13,500	
				Potential Habitat	4,558	
Lomatium packardiae	13-01	9N-1W-7	16	<0.5		Type 3
Texosporium sancti jacobii	20-02	1N-2E-20, 2, 28, 29	10	45		Type 2

Habitat degradation, alteration, and loss have led to a fragmentation of SSP habitat in the trailing corridors. Approximately 26% of the corridors are dominated by exotic annuals (Table 13). These areas do not provide habitat for pollinators which can result in barriers for genetic exchange between SSP occurrences.

Slickspot Peppergrass

Slickspot peppergrass (*Lepidium papilliferum*) is currently listed as threatened under the Endangered Species Act (Public Law 93-205, 1973, as amended through Public Law 107-136, 2002). Slickspot peppergrass occurs in the FRFO and NCA. None of the proposed trailing routes go through any known slickspot peppergrass Element Occurrences (EO); however, at least eight separate segments of occupied habitat and six segments of proposed critical habitat would be traversed by the trailing routes (Table 19). Several trailing routes would also traverse segments of proposed critical habitat, occupied habitat, slickspot peppergrass habitat, and potential habitat. Proposed critical habitat is habitat that has been defined by the USFWS as critical to the long term survival of the species (up to 1,875 acres could be affected by proposed trailing). Occupied habitat consists of a 0.5 mile radius buffer around currently known EOs and was established to provide protection of habitat for the benefit of insect pollinators of slickspot peppergrass (2,880 acres could be affected by trailing). Slickspot peppergrass habitat is habitat that has been surveyed for the presence of the species at least once and is known to contain slickspots (13,500 acres could be affected by proposed trailing). Potential habitat is habitat that contains suitable soils, may contain slickspots, but has not yet been surveyed for the presence of slickspots and/or slickspot peppergrass (4,558 acres could be affected by trailing).

This species is endemic to the Snake River Plain and extends from Parma, Idaho to Glenns Ferry, Idaho in the north and to near Twin Falls, Idaho in the south. In 2006, BLM and the USFWS entered in a conservation agreement that provided for implementation of a number of conservation measures including measures designed to help offset adverse impacts to the species from livestock grazing. The primary intent of these measures, with respect to livestock grazing, was to manage livestock grazing and trailing to conserve suitable habitat conditions for slickspot peppergrass while implementing Standards and Guidelines.

Other SSP Species

Six additional BLM sensitive vascular plant species and one BLM sensitive non-vascular plant species (*Texosporium sancti jacobii*) are also known to occur within the trailing routes (Table 19).

None of these species is particularly palatable to livestock although Packard's biscuitroot (*Lomatium packardiae*) may be somewhat palatable as none of the *Lomatium* species are known to be poisonous. The majority of the milkvetch species (*Astragalus* spp.) are known to be poisonous to livestock and many types of mustard (including slickspot peppergrass) contain chemical compounds that make them unpalatable to livestock. As a consequence, the direct effects of livestock grazing on these plants are minimal. The major impacts of livestock grazing on these three 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.

3.5.2 Environmental Consequences – Special Status Plants

3.5.2.1 General Discussion of Impacts

In 2003, wildfire and invasion by invasive annuals and noxious weeds were identified as the two primary reasons for slickspot peppergrass decline and loss of habitat (USFWS 2003). Livestock grazing was also identified as a secondary factor and specific impacts associated with livestock grazing include: 1) reduction in a diversity of pollen sources (diversity of perennial forbs) resulting in a reduced diversity of pollinators, from both physical trampling and persistent grazing of perennial forbs during the critical growth period; 2) mechanical damage to slickspots, especially when soils are saturated; 3) potential damage to long term seed availability; 4) damage to soil crusts, both in the slickspots and the surrounding area; and 5) spread and continued persistence of invasive annuals and noxious weeds through both physical transport and continuous soil disturbance) were identified in 2006 (USFWS 2006). These factors have also contributed to a decline in other SSP and their habitat within the FRFO.

Pollen source reduction - A reduction in the number and diversity of pollen sources (native forbs) reduces the diversity of pollinators available to SSP species. Slickspot peppergrass is primarily an outcrossing species, requiring pollen from separate plants for successful fruit production (USFWS 2006). Slickspot peppergrass pollen is transported solely through insects; therefore, maintenance or improvement of pollinator habitat is essential to the conservation of slickspot peppergrass. A native sagebrush community with few disturbances provides pollinator habitat whereas non-native annual grasslands are less likely to support a wide variety of pollinators. Disturbances, such as livestock use, that reduce natural cavities (dead plant stalks, holes in stems, etc.) or disturb nests in the ground will remove pollinator nesting habitat. Pollinator abundance and diversity is important because many SSP have a narrow time frame (from weeks to months) in which they can be pollinated. This is especially important for annuals such as slickspot peppergrass which depends on annual seed set for its long term survival. Livestock trampling and grazing are known to reduce the number and diversity of native plants (pollen sources).

Mechanical damage - Livestock trampling of slickspots is one of the main disturbances to slickspot microsites, especially in the spring when soils are moist. Livestock trampling can affect the soil layers of slickspots. Trampling when slickspots are dry can lead to mechanical damage to the slickspot crust, potentially resulting in invasion of non-native plants into the slickspots. Livestock trampling of water saturated slickspot soils that breaks through the restrictive layer has the potential to alter the soil structure and functionality of slickspots. Penetrating trampling which occurs when the slickspots are wet also has the potential to affect

the seed bank for slickspot peppergrass by pushing the seeds below a depth at which they can germinate.

Long-term seed availability – Seed availability is tied to the number and diversity of pollen sources, the number of viable seed produced in a given year, and the ultimate location of the seed within the soil profile. In the case of slickspot peppergrass and other species, livestock may push viable seed below a depth at which it can germinate.

Soil crust damage - Loss of soil crust reduces the water holding capacity and the amount of nitrogen fixation that can occur. This is important in desert ecosystems where both water and nitrogen tend to be at a premium. Loss of soil crusts also tends to promote colonization of invasive annuals and noxious weeds. Livestock trampling is known to result in damage to soil crusts. This is most pronounced during the driest times of the year when soil crusts are unable to repair themselves.

Spread and continued persistence of invasive annuals and noxious weeds – Establishment and spread of invasive species inhibits the growth of native species and the recovery of native ecosystems. Livestock trampling that results in bare soils creates areas which are susceptible to the establishment and spread of invasive annuals and noxious weeds. Livestock trailing routes also serve as transmission corridors for the transport of invasive annual and noxious weed seeds primarily through physical transport. Habitat fragmentation occurs where distances between native plant communities separated by invasive annual-dominated communities are greater than 0.5 miles.

3.5.2.2 **Alternative A**

No trampling impacts would occur to slickspot peppergrass or any other known SSP species where trailing is suspended. There would be minor improvements in SSP habitats. Recovery of existing vegetation would be expected to occur in many areas although recovery would be slow (20-50 years) and noticeable effects would not be apparent for at least five years. Cross-country segments of trailing routes (5,060 acres of slickspot peppergrass habitat and 1,287 acres of potential habitat) would experience the most substantial recovery where those segments still contain remnant and or intact soil crusts and native vegetation. Negligible increases in native perennials would occur along trailing route segments dominated by invasive annuals or adjacent to roads. Native dominated plant ecosystems, with intact soil crusts, are more resistant to weed invasion and provide both higher numbers and a diversity of native forbs that serve as pollen sources for insect pollinators. The absence of livestock trailing and its associated effects (trampling and grazing) would benefit pollinator habitat and connectivity between populations; therefore, there would be a minor increase in frequencies of SSP in some areas and/or populations could expand into previously occupied areas in others.

3.5.2.3 **Alternative B**

Impacts from trailing on improved and unimproved roads would be negligible (e.g. small to moderate sized groups of cattle) to moderate (e.g. large to substantial sized groups of sheep) because the majority of livestock (at least cattle) would be using previously disturbed/hardened surfaces free of vegetation. However, some impacts would occur adjacent to roads. The potential for impacts along roads would vary between sheep and cattle as sheep have more of a

tendency to wander and cattle tend to move in a straight line. Sheep are also typically moved in larger groups than cattle which further increases the likelihood that individual animals would wander off the road. Impacts from livestock trailing would vary from minor (e.g., in invasive annual dominated communities) to moderate (e.g. in native perennial dominated communities) on cross-country routes. Livestock trailing in the spring typically includes some level of grazing (e.g., for groups travelling <4 miles/day on multi day trails and sheep bands with lambs) and as a consequence livestock are also more likely to wander off the road at this time of year. Herd size would vary from small to substantial, but even small groups may cause mortality of individual SSP if direct trampling occurs. Trailing activities would have a negligible long-term effect on fragmentation because they occur in narrow linear areas that have been previously disturbed.

Slickspot Peppergrass

The majority (67%) of trailing routes would occur along roads; however, 64 of the trailing events would include cross-country segments, 23 of which occur within slickspot peppergrass habitat (5,060 acres) (Table 20) or potential habitat (1,287 acres) (Table 21). Trailing in the corridors has been occurring for years and in combination with persistent wildfire, has resulted in the general impacts described above. With the exception of mechanical damage to slickspots, all of these effects would continue to impact all of the special status species within the trailing corridors.

Table 20. Cross-country trailing through BLM-administered lands that contain slickspot peppergrass habitat.

Trailing Route (Event #)	Alternative B (trail miles)[1]	Acres	Alternative C (trail miles)	Acres	Difference[2]
02-01 & -04	9.86	1,577	8.66	1,386	-1.2 mi /191 acres
02-02 & 03	4.35	696	0.67	107	-3.68 mi/589 acres
02-05	4.35	696	0.67	107	-3.68 mi/589 acres
07-01 & -04	1.65	264	1.64	263	-0.01/1 acre
08-02	2.67	428	2.67	428	0
08-03	2.67	428	2.67	428	0
09-01 &02	3.10	496	3.10	496	0
10-01	3.51	561	3.51	561	0
12-01	0.06	9.88	0.06	9.88	0
15-01 & 02	0	0.12	0	0.22	0/+0.10
18-05.1a & 2a	0.53	85	0.53	85	0
18-05.1b & 2b	0.09	14	0.09	14	0
20-02 & 03	0.61	98	0.61	98	0
22-03& 04	0	0.10	0	0.10	0
22-07 & 08	0.41	66	0.41	66	0
22-11 & 12	0.11	17	0.11	17	0
22-13 & 14	0.05	8	0.05	8	0
22-19 & 20	0.55	88	0.55	88	0
24-01& 02	0.04	6	0.04	6	0
Total	**34.61**	**5,060**	**26.04**	**4,168**	**8.57mi/892 acres**

[1]Miles on BLM-administered lands only.

[2] Figures in the difference column with a positive value (+) reflect an increase in cross-country trailing to protect slickspot peppergrass EOs.

Table 21. Cross-country trailing through BLM-administered lands that contain potential habitat.

Trailing Route (Event #)	Alternative B (trail miles)[1]	Acres	Alternative C (trail miles)	Acres	Difference[2]
02-01 & -04	0.25	39	0.07	11	0.18 mi/28ac
02-05	0.74	118	0.74	118	0
08-01& 03	0.94	150	0.94	150	0
09-01& 02	0.51	81	0.54	87	+0.03mi/6ac
20-02& 03	0.29	46	0.29	46	0
21-01	1.02	164	0	0	-1.02/164ac
21-02	2.45	393	2.45	393	0
21-03	1.85	296	1.85	296	0
Total	**8.05**	**1,287**	**6.88**	**1,101**	**1.2 mi/186ac**

[1]Miles on BLM-administered lands only.

[2] Figures in the difference column with a positive value (+) reflect an increase in cross-country trailing to protect Davis peppergrass playas.

A single cow may render a slickspot uninhabitable for several growing seasons or until that slickspot can be reseeded if it was occupied prior to the disturbance. Even a single sheep hoof may cause damage if soils are saturated, plants are young, or small in stature. Above a minimum level (50 livestock), an increase in the number of livestock trailing through an area primarily increases the probability of adverse effects occurring rather than producing an increase in the intensity of the effects. Twenty-six bedding areas would occur within slickspot peppergrass habitat; three bedding areas (102 acres) associated with EOs 76 and 108 would occur in proposed critical habitat, one bedding area would occur in occupied habitat associated with EO 18 (35 acres) adjacent to Nicholson Road, 20 bedding areas would occur within low quality slickspot peppergrass habitat (640 acres), and two bedding areas would occur in low quality potential habitat (71 acres). Trampling impacts within the three bedding areas in proposed critical habitat have been minor to date; however, the potential for future damage exists as all of these bedding sites are either adjacent to or directly on top of slickspots known to contain slickspot peppergrass plants. Trampling impacts in the one bedding area within occupied habitat are expected to be negligible because it is adjacent to Nicholson Road in a heavily disturbed area. Trampling impacts within those bedding areas in both potential habitat and slickspot peppergrass may reduce the diversity and numbers of native forbs for pollinators as well as disturbing the integrity of existing slickspots and their potential to support slickspot peppergrass; however, due to the already low quality of the habitat and the relatively small area (711 acres) the overall effect on slickspot peppergrass habitat across the range of the species would be expected to be negligible to minor.

Two trailing routes have cross-country segments that cross proposed critical habitat/occupied habitat (1.4 miles of routes 02-01 (spring) and 02-04 (fall) associated with EO 75; 1.0 miles of routes 22-17 and 22-18 (any time during the year) associated with EO 8), and monitoring has determined that effects have been minor. Three additional routes traverse proposed critical habitat/occupied habitat but trailing activities have been primarily restricted to roads and effects from trailing activities to slickspot peppergrass and its habitat have been negligible. Twenty-three of the proposed routes have some cross-country trailing through either slickspot peppergrass habitat (5,060 acres) or potential habitat (1,287 acres) and effects have varied from negligible to moderate. In the absence of any additional stipulations/ restrictions, the effects from livestock trailing would be expected to remain the same. Effects to the species are

expected to be minor to moderate when taken into context with respect to the total amount of slickspot peppergrass habitat (179,679 acres) and potential habitat (109,558 acres) within the FRFO.

The affected area, slickspot peppergrass habitat (5,060 acres), potential habitat (1,287 acres) and bedding areas, would be less than three percent of the total slickspot peppergrass habitat within the FRFO and with the exception of one bedding area (T5N-R1W-Sec 24 & 25) (35 acres) in proposed critical habitat, no slickspots currently known to contain slickspot peppergrass would be directly impacted. However, both slickspot peppergrass habitat and potential habitat would be impacted, although the impacts would be negligible to minor and would be expected to occur primarily along cross-country routes. Impacts from trailing would be expected to reduce pollen sources (native forbs) and long-term seed availability through trampling and grazing. Increases in soil crust damage and and/or spread of invasive annuals and noxious weeds would also likely occur on a localized level. Most of the potential damage that could have been done to these areas has already occurred due to past trailing activities. Consequently, additional impacts to these areas resulting from continued trailing would be negligible to minor.

Other SSP Species

Damage to SSP occurrences adjacent to roads has occurred inadvertently as a result of livestock trailing outside the road footprint during past trailing activities. The damage that has occurred is sporadic and can be classified as minor to moderate. Sixteen of the 19 special status species EOs, within the proposed trailing routes, occur in areas that have experienced wildfire within the last 20 years. As a consequence, many of these areas are dominated by invasive species and have low levels of crust cover. All of these factors have reduced the size and numbers of plants within these EOs. Smaller numbers of plants decrease the likelihood of pollination and seed set occurring in the short term and may lead to additional long term losses of plants as they mature and die without replacing themselves. The affected area and the numbers of plants are small; therefore, impacts from trailing activities would be negligible to minor over the long term.

One bedding area (T4N-R2E-16) (36 acres) would occur directly on an Aasea's onion site, a Type 2 SSP species. Potential recovery of this EO would be inhibited by livestock trailing. Due to the small number of EOs affected, the proposed action would not likely result in any of these species being listed under ESA.

3.5.2.4 **Alternative C**

A reduction of 8.6 miles (892 acres) of cross-country trailing in slickspot peppergrass habitat (Table 20) and 1.2 miles (186 acres) of cross-country trailing in potential habitat (Table 21) would improve habitat by reducing the amount of soil/soil crust disturbance that has occurred in many of these areas. Implementing stipulations for SSP (e.g. staying within 50 feet of a road) would minimize impacts to occurrences in trailing corridors to the point where there would be no effect or at most, impacts would be negligible in no more than 1% of the affected area. Increases in pollinator habitat in these areas would result in a negligible improvement in connectivity between SSP occurrences.

Slickspot Peppergrass
Bedding areas would not be allowed in proposed critical habitat; consequently, trampling impacts within the three bedding areas identified in Alternative B would not occur. A minor long-term improvement in vegetation conditions would occur where bedding, and consequently trampling impacts, would not occur adjacent to EO 108 (T5N-R1W-Sec 24 & 25).

A reduction of 8.6 miles of cross-country trailing would allow recovery of 892 acres of slickspot peppergrass habitat and 186 acres of potential habitat.

Impacts in the remaining areas would be as described in Alternative B.

Other SSP Species
Restricting trailing activities to existing roads in the vicinity of known SSP EOs would allow for improvements in SSP habitats (e.g. increases in vegetation that supports pollinators, reduced invasive annuals, increased biological soil crust cover, and reduced trampling) where past trailing activities have occurred and limited opportunities for recovery. Improvements would be slow (20-50 years) and noticeable effects would not be apparent for at least five years.

3.5.3 Cumulative Impacts – Special Status Plants

3.5.3.1 Scope of Analysis

Slickspot peppergrass is restricted to the Snake River Plain and occurs within the confines of both the FRFO and the Twin Falls District BLM. All of the remaining special status species, with exception of *Allium aaseae*, have a fairly wide distribution (Table 22); therefore, the scope of analysis for this project is the FRFO.

Table 22. Range of special status species, southwest Idaho, eastern Oregon, and northern Nevada.

Species	Boise District	Twin Falls District	Vale District	Nevada
Allium aaseae	X			
Astragalus atratsus var. *inseptus*	X	X		
Astragalus mulfordiae	X	X	X	
Haplopappus radiatatus	X		X	
Lepidium papilliferum	X	X		
Lepdium davisii	X	X	X	X
Lomatium packardiae	X		X	X
Texosporium sancti jacibii	X			

3.5.3.2 Current Conditions and Effects of Foreseeable Future Actions

Slickspot peppergrass
Currently there are 80 known slickspot peppergrass EOs within the FRFO. There are 21,199 acres of proposed critical habitat, 65,780 acres of occupied habitat, 179,679 acres of slickspot peppergrass habitat, and 109,558 acres of potential habitat.

Other SSP Species
Within the FRFO there are 70 *Allium aaseae* EOs, and statewide, the following number of EOs is known for each of the species potentially affected by the proposed action; *Astragalus atratus*

var inseptus (69), *Astragalus mulfordiae* (34), *Haplopappus radiatus* (44), *Lepidium davisii* (174), *Lomatium packardiae* (16), and *Texosporium sancti jacobii* (23).

The effects of current and foreseeable future activities include: livestock grazing, pest control, habitat fragmentation, residential and agricultural development, and energy infrastructure. The effects of future wildfires are also considered because these natural events are predictable to a certain degree based on the number and size of wildfires that have occurred in the past decade.

- Livestock grazing often results in localized trampling impacts as well as reducing the numbers of native forbs that serve as pollen sources for native pollinators of slickspot peppergrass and other specials status plant species. Trampling impacts also reduce the soil crust cover which is usually accompanied by an increase in invasive species. Livestock grazing occurs throughout the FRFO and encompasses the range of slickspot peppergrass and other special status species affected by the proposed trailing. Range improvements (i.e. water troughs and salting sites) occur in isolated areas across the landscape and tend to concentrate livestock which often results in trampling impacts. Consequently, grazing-related effects are widely distributed across BLM-administered lands.

- Pest control for the treatment of crickets and grasshoppers has occurred and will continue to occur within slickspot peppergrass habitat. However, the long-term effects of these treatments on native insect pollinators have not been examined in detail and the long-term effects to slickspot peppergrass are currently unknown.

- Wildfires and agricultural development and other human activities have resulted in a major degree of fragmentation, primarily within the Snake River Plains MLRA (Vegetation Maps 2-5). Approximately 25% of the analysis area, primarily in the Snake River Plains MLRA is dominated by exotic annuals (Table 13).

- Residential and agricultural development has occurred and will likely continue to occur on private lands which affect SSP and their habitat through habitat conversion, increased noxious and invasive weed invasions, increased OHV use, increased threat of wildfire, changes to insect pollinator populations, and increased habitat fragmentation.

    - Currently, two large scale developments, M3 Eagle (1.5 miles N of slickspot peppergrass EO 108) and Mayfield Townsite (2.0 miles N of slickspot peppergrass EO 31), are planned on private lands within slickspot peppergrass habitat. Some loss and or degradation of slickspot peppergrass and its habitat is expected to occur on private lands.

    - Agricultural areas occur immediately adjacent to SSP habitat on BLM-administered lands within the FRFO. Agriculture often requires the use of pesticides and herbicides which may affect insect pollinators of native plant species including slickspot peppergrass and other SSP species. Agricultural areas and agricultural equipment often serve as vectors for the introduction of noxious and invasive species. A small amount (<1 percent) of habitat conversion from slickspot peppergrass habitat

to agricultural lands has occurred in trespass cases within the FRFO. Approximately 14 percent of the currently known EOs are immediately adjacent to agricultural lands and another 60% of the EOs are within one mile of agricultural lands. How much of an impact these factors are currently having on slickspot peppergrass pollinators is unknown; however, spraying that kill pollinators or the forbs that support them could have moderate to major effects within and adjacent to the sprayed areas.

- Powerlines and gas pipelines bisect large segments of slickspot peppergrass habitat within the FRFO. If the impacts from powerline fire starts are discounted, impacts from powerlines and gas pipelines would be best described as minor to moderate within the ROW corridors. Most of these have access roads associated with them. These access roads and associated ROWs often serve as growth and dispersal points for noxious and invasive plant species. On a number of occasions, damage to powerlines has resulted in wildfire that has led to the loss and/or degradation of large segments of SSP habitat. Additional powerlines are planned in the future, most notably Gateway West which will also be accompanied by an access road that could serve as a dispersal point for noxious and invasive species.

- Wildfire has destroyed or degraded several hundred thousand acres of SSP habitat including a substantial portion of slickspot peppergrass habitat throughout the range of the species and its effects on the species can be described as major. Wildfire is the single most important reason for the loss and degradation of slickspot peppergrass habitat (USFWS 2003). Extensive and frequent wildfire, within native plant habitat, usually results in a type conversion to a landscape dominated by invasive annuals (cheatgrass) and habitat no longer suited for native plant species (especially shrubs) in general and special status species in particular. The same report also identified the encroachment of invasive species and type conversion as the second most important factor in the loss and degradation of slickspot peppergrass habitat. Type conversion has also increased harvester ant predation on slickspot peppergrass seed by providing optimum habitat for the ants which favor open areas with low to minimal shrub cover (USFWS 2011). These habitats are now in abundant supply due to the previously discussed type conversion and the magnitude of the problem is becoming apparent as more and more ant mounds are discovered in close proximity to existing slickspot peppergrass EOs.

3.5.3.3 **Cumulative Impacts - Alternative A**

In the absence of trailing, minor improvements in pollinator habitat and recoveries of SSP populations would have a negligible cumulative benefit over the long term. Livestock grazing, especially during the spring, would have negligible to moderate impacts on plants and their habitat over much of the analysis area. Implementation of Standards and Guidelines could help reduce impacts over the long term. Activities or events that degrade or eliminate habitat for plants and their pollinators (e.g., insecticide use, fragmentation, development, ROW corridors, and wildfire) would have minor to major direct effects on approximately 3% of the analysis area annually; however, because the activities are widely dispersed across the landscape, indirect impacts would affect a larger area. Wildfire could directly affect more than 20% of the area over the long term.

3.5.3.4 **Cumulative Impacts - Alternative B**

Due to the small number of SSP EOs and the relatively small amount of slickspot peppergrass habitat (5,060 acres) and potential habitat (1,287 acres) actually affected, trailing would have a negligible additional cumulative impact. As described in Section 3.5.3.3, impacts from other activities and events occurring throughout the analysis area would have minor to major effects over a substantial portion of the analysis area. The addition of trailing activities would not result in a change in status for any SSP.

3.5.3.5 **Cumulative Impacts - Alternative C**

Cumulative effects would be similar to those described in Alternative B; however, Alternative C would decrease cross-country trailing through 886 acres of slickspot peppergrass habitat and 186 acres of potential habitat, a reduction of 8.6 miles. Implementation of design criteria would have negligible benefits over the long term relative to impacts from other activities and events.

3.6 **Noxious Weeds and Invasive Species**

3.6.1 **Affected Environment - Noxious Weeds and Invasive Species**

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 weeds.

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 CWMAs with federal, state, county, and private organizations to 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 FRFO in varying degrees and densities. BLM resource specialists, along with CWMA groups, identified priority species of noxious weeds for control in the FRFO. In general, priority species with limited to scattered distribution and/or in the Idaho State Department of Agriculture's Early Detection and Rapid Response (EDRR) and Control categories have been identified as priority/avoidance species relevant to trailing activities (Table 23).

Table 23. Primary dispersal method, management category/objective, and corresponding counties for priority noxious weed species in the FRFO.

Noxious Weed	Dispersal Methods[1]	Category[2]	Area of Concern (County)
Mediterranean sage	Wind	EDRR[3]	Payette
Spotted knapweed	Wind, animals, vehicles	EDRR/Control[3]	Boise, Washington
Squarrose knapweed	Sheep's wool, animal fur	EDRR	Elmore
Yellow starthistle	Game birds	EDRR[3]	Payette, Washington
Dalmatian toadflax	Wind	Control[3]	Gem, Washington
Diffuse knapweed	Vehicles, wind	Control[3]	Ada, Gem, Elmore, Payette, Washington
Leafy spurge	Waterways, vehicles, fur and feet of livestock and other animals	Control[3]	Boise, Washington
Russian knapweed	Adventitious buds on creeping root systems	Control	Ada, Elmore, Gem, Washington
Scotch thistle	Wind, livestock, wildlife	Control[3]	Ada, Boise, Canyon, Elmore, Gem, Payette, Washington
Whitetop	Wind, waterways, vehicles	Control[3]	Ada, Gem, Elmore, Payette, Washington

[1] Primary methods of seed dispersal [From Sheley and Petroff (1999) and ISSG (2012) for Scotch thistle.
[2]The concentration of these weeds is at a level where control and/or eradication may be possible.
[3]CWMA and BLM category/objective differs from ISDA statewide category/objective.

Additionally, numerous invasive exotic plant species not considered noxious weeds occupy the uplands in the FRFO to varying degrees and densities. These plants are more widespread and abundant than noxious species. The more common invasive species in the FRFO include cheatgrass and medusahead, Russian thistle, halogeton, tumblemustard, and bur buttercup, and are described below.

Cheatgrass and **medusahead** are invasive annual grasses that have become established in the FRFO, generally in disturbed areas (e.g. burned communities with reduced native perennial grasses), typically below 5,500 to 6,000 feet in elevation. These species are persistent and the potential for their expansion is virtually unlimited. The ability of cheatgrass to germinate in the late winter/early spring prior to other species and again in the fall, give it a competitive advantage for nutrient and moisture acquisition. Cheatgrass has become so ubiquitous as to be considered a naturalized species in arid steppe to mesic (moist) forest habitats (Rice et al 1992).

Russian thistle is an early successional annual that grows best in sites with little competition from other species. Seeds remain viable for less than one year, but are readily dispersed by rolling plants and wind.

Halogeton is a common annual in disturbed areas, primarily along roads in salt desert shrub and low-elevation shrub steppe communities below 5,500 feet in elevation. It is a weak competitor that has occasionally expanded into depleted communities adjacent to disturbed areas.

Tumblemustard occurs in a variety of the habitats identified in the FRFO, but thrives in areas with little plant litter such as roadsides and other disturbed places (e.g. badger mounds). It is not highly invasive in undisturbed sagebrush communities.

Bur buttercup is an annual species that emerges and sets seed in the early spring when temperatures are low and before many native species have started their growth. This plant thrives in waste areas and roadsides, forming low dense mats. The spiny seeds are easily transported on animal fur or vehicles.

3.6.2 Environmental Consequences - Noxious Weeds and Invasive Species

3.6.2.1 General Discussion of Impacts

A combination of impacts (i.e., disturbance, preferential grazing of herbaceous perennials, and weed seed transport) could increase invasive species along trailing routes and in bedding areas. Damage to native plants and soils can reduce plants' overall productivity and competitiveness creating niches for invasive species 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.

Comparison of Alternatives

Noxious weeds potentially affected by trailing have been quantified in terms of the number of recorded occurrences and the number of species for each alternative. These calculations are based on point locations monitored by the Boise District Weeds Specialist. No livestock would be trailed in Alternative A, but vehicle traffic to transport cattle could increase. Because vehicles are potential vectors of weed seeds, they are considered in the analysis. For alternatives B and C, noxious weeds were evaluated within the defined trailing corridors (Section 2.3), and are identical in terms of number of occurrences and number treated.

All but a few known occurrences of these species within the proposed trailing corridors (for both alternatives B and C) have been treated (chemically, biologically, and/or mechanically) over the past seven years where trailing is proposed (Table 24). Weed treatments are ongoing and will continue as new infestations of these species are discovered.

Table 24. Number of mapped occurrences of FRFO priority noxious weeds in the proposed trailing corridors, and number of those treated.

Species	#Occurrences	#Treated
Mediterranean sage	0	0
Squarrose knapweed	62	62
Spotted knapweed	4	4
Yellow starthistle	1	1
Dalmatian toadflax	15	14
Diffuse knapweed	12	11
Leafy spurge	16	14
Russian knapweed	1	1
Scotch thistle	68	57
Whitetop	15	12

3.6.2.2 **Alternative A**

Elimination of trailing would likely have the fewest impacts to noxious weeds and invasive plants. There would be no soil disturbance or weed seed transport associated with trailing events (active trailing, herding, and bedding). However, vehicle traffic would likely increase which could transport and spread weed seeds adjacent to roads. However, this rate of weed spread would potentially be less than if livestock were trailing along roads, particularly unimproved roads. Moving livestock in this manner would exclude cross-country travel, and approximately 17,920 acres would be undisturbed by trailing. Therefore, overall minor reductions in the extent of weed spread from livestock trailing would occur, mainly by eliminating the potential to introduce weed seeds in remote locations.

3.6.2.3 **Alternative B**

The effects of trailing on the spread of noxious weeds and invasive species would be moderate at most at site specific locations within and directly adjacent to trailing corridors. Overall impacts, however, would be minor across the FRFO due to the location of the trailing routes (67% along roads), short duration of direct impacts, and small proportion of land involved (Table 25).

Table 25. Magnitude of impacts regarding the potential increase/spread of noxious weeds and invasive species within the trailing corridor, and for FRFO, overall.

Plant Type	**Magnitude of Impacts**
Priority Noxious Weeds	Minor
Other Noxious Weeds	Minor
Invasive Species	Minor to Moderate
Overall Magnitude of Impact to FRFO	Minor

The trailing corridors include mapped infestations of eight of the ten priority noxious weeds (Table 24, Weeds Maps 1-5). Trailing would have a minor potential to increase priority noxious weeds for the following reasons: 1) infestations are small; 2) nearly all have been/continue to be treated; 3) soil disturbance would be of a short duration and relatively small area of impact on the landscape per trailing episode; and 4) livestock do not appear to be a primary mechanism of dispersal for most of these species (Table 23) (Sheley and Petroff 1999). Other noxious weeds in the 51,681-acre proposed trailing corridor would result in similar effects as priority species.

Non-noxious invasive species (e.g. cheatgrass) generally have larger, more widespread infestations than noxious species and mostly have not been treated. Therefore, trailing could likely have a greater effect on the spread of these invasives than on the spread of noxious weeds. Where exotic invasive species are dominant in the trailing corridor, moderate impacts could be expected, particularly on cross-country routes and in bedding areas; however, where invasive species are not dominant but are present, or trailing occurs along roads, negligible to minor impacts would occur.

Plant communities above 5,000 feet elevation (in the Central Rocky and Blue Mountain Foothills MLRA) would be less prone to increases in weed spread than those in lower elevations. Increased effective precipitation in the higher elevations often results in higher perennial plant cover that can resist weed invasion. In the lower elevations of this MLRA and in the Snake River Plain MLRA, the trailing routes would pass through areas with higher cover of invasive

species (e.g. cheatgrass); therefore, an increase in weeds associated with trailing would be difficult to discern from background conditions.

The potential for new weed populations in the Central Rocky and Blue Mountain Foothills MLRA would be relatively low given relative resiliency of the more montane plant communities and the limited amount of disturbance proposed. Small patches of weedy or invasive plant species could establish along these higher elevation routes, but would be unlikely to spread. Lower elevation plant communities of the Snake River Plains MLRA already support weedy and invasive plant species so spread of these species would be difficult to attribute to issuing crossing permits. However, cross country trailing routes in the Snake River Plain MLRA could be at risk of new species of weeds.

3.6.2.4 **Alternative C**

Effects to noxious weeds and invasive species would similar to those described in Alternative B. The number of mapped occurrences in the trailing corridor would be identical to Alternative B. The overall effect of livestock trailing to the spread of these species would be minor due to ongoing weed treatments, limited acreage involved, short duration of direct impacts, and large percentage of trailing events associated with roads. The narrowed corridors through priority noxious weed populations would reduce the potential to spread because of trailing livestock as vectors, but the overall impact would be negligible to minor.

3.6.3 **Cumulative Impacts – Noxious Weeds**

3.6.3.1 **Scope of Analysis**

The extent of the cumulative impact analysis area for noxious weeds and invasive species is the FRFO boundary. This area was selected because the trailing routes, while dispersed, are located throughout the FRFO; therefore, they could cumulatively impact noxious weed and invasive species populations across the FRFO. There are numerous allotments that the routes do not cross and few noxious weeds and invasive species that are so localized that they are not part of larger distributions within the FRFO. However, the scope of the cumulative impact analysis area was kept at a relatively large scale, despite the somewhat limited extent of some of these individual populations.

3.6.3.2 **Current Conditions and Effects of Foreseeable Future Actions**

The collective effect of past actions has contributed to the current frequency and distribution of noxious weeds and invasive species described in Section 3.6.1. Past actions exerting the greatest influence on the extent of noxious weed and invasive species populations in the project area include: road and ROW (i.e., powerlines and pipelines) construction and maintenance, wildfire, rehabilitation and restoration efforts, livestock grazing, and noxious weed treatments. Less influential activities include previous and current recreation permits (e.g. motorcycle races) and livestock facilities (e.g. troughs).

The effects of ongoing and foreseeable future activities include road and ROW maintenance, vegetation treatments (including the Paradigm Project), noxious weed management, livestock grazing and range management projects, OHV use, and military use (as described in Section 3.4.3.2). The effects of future wildfires are also considered because these natural events are

predictable to a certain degree based on the number and size of wildfires that have occurred in the past decade.

- Road or ROW (powerlines and pipelines) construction and subsequent ongoing maintenance (e.g., blading, grading, and/or spraying) along these features will continue to affect noxious weed distribution. Blading and grading disturb soils and vegetation and often create conditions conducive to noxious and invasive species invasion. Spraying of these sites helps to keep weeds and weedy species relatively restricted to the maintained buffers, or to a minimum (e.g., under powerlines which are kept relatively free of vegetation to prevent fire). These effects are generally spatially confined to existing locations and occur over a continuous temporal scale. Additional powerlines are planned in the future, most notably Gateway West, which would be accompanied by an access road that could serve as a transmission point for noxious and invasive species.

- The Paradigm Project would result in up to an approximately 4,365-acre network of fuel breaks over the next several years (beginning in 2013) if implemented. Direct effects include removal or treatment of weeds in the project area. Indirect effects include alterations in species composition (i.e. from current vegetation to seeded species), and reduction in fire size and return intervals. Seeded plant communities may better compete with weeds and fewer fires would reduce the potential for weeds in these areas over the long-term. Vegetation rehabilitation and restoration projects would impact weeds and weed distribution similarly.

- The FRFO falls within numerous Cooperative Weed Management Areas (CWMAs). The BLM and its cooperators have been working together to identify, monitor, and treat noxious weeds for several years. These cooperative efforts are expected to continue into the foreseeable future. Weed treatments consist of mechanical, biological, and chemical methods as described in the Noxious and Invasive Weed Treatment for the Boise District and Jarbidge Field Offices Environmental Assessment (USDI 2007). The extent of influence depends upon the degree of success of past, present, and future weed treatment efforts.

- Grazing permitted in the FRFO results in damage to and consumption of vegetation. Currently, 149,592 AUMs are allocated for livestock. Rangeland Health Assessments and subsequent evaluations and determinations on meeting Standards and Guidelines have been completed on 172 allotments in Bennett, Big Willow, Goodrich, Indian Valley, Snake River, and Sunnyside Management Areas; and are scheduled for Mountain Home, Weiser River, Payette River, and Boise River Management Areas in the future.

  Management direction in the new permits may include conditions to achieve applicable standards based on determinations. Allotments in the FRFO are required to meet Standards and Guidelines. Future livestock grazing is projected to maintain or improve upland vegetation on the whole due to implementation of the Standards and Guidelines. However, livestock grazing would likely continue to result in plant community alterations, particularly in localized areas adjacent to fences, gates and livestock facilities

(e.g. troughs and supplement sites), which may include the spread of invasive species and, to a lesser extent, noxious weeds.

- The spatial and temporal extent of authorized and unauthorized cross-country OHV activities is difficult to quantify. Generally this use could directly affect noxious weed distribution by the transport of weed seeds. Indirect effects include breakage, mortality, or removal of native or seeded perennial plants, and disruption of surface soils and biological crusts creating bare areas susceptible to weed invasion and/or spread of invasive species.

- Military activities would be confined to existing areas of disturbance and be off-set with on-going and future restoration projects.

- Wildfires have burned approximately 217,819 acres (with some overlap) of BLM uplands from 2001 to 2011, a yearly average of approximately 20,000 acres. ESR and habitat improvement projects would be expected to minimize noxious weed invasion and invasive species expansion.

3.6.3.3 **Cumulative Impacts - Alternative A**

Noxious weeds and invasive species would be affected in the same manner and to the same degree by the factors listed above. Cumulative impacts would, overall, be minor. The absence of trailing would result in negligible reductions in overall impacts compared to alternatives B and C. However, a low level of weed increase could result from anticipated trucking activities adding a negligible amount to the total impacts. Similar to upland vegetation (Section 3.4), the extent that vegetation treatments and weed control efforts are successful will dictate the amplitude of the cumulative impacts outlined above.

3.6.3.4 **Cumulative Impacts - Alternative B**

Cumulative impacts here would also be minor, overall. The degree to which these impacts affect noxious weeds and invasive species would be slightly greater than Alternative A, and similar to but marginally greater than Alternative C.

Trailing could increase noxious weeds and invasive species on up to 51,681 acres. However, 67% of the trailing corridors would be associated with roads, where vegetation has already been altered or removed by trailing and other activities (e.g. road maintenance, OHV use). Further, most priority noxious weeds mapped along these roads have been and/or continue to be treated.

The higher elevations (>5,000 feet) are less susceptible to weed spread because of higher effective precipitation and the condition of the plant communities, which is composed primarily of native mid-to-late seral sagebrush steppe communities (i.e. sagebrush spp. and perennial herbaceous spp.). Previous disturbances (e.g. livestock grazing, OHV, roads) have facilitated weed spread in the higher elevations, primarily restricted to roadsides. Negligible additive impacts to noxious weeds and invasive species from trailing would be expected in upper elevations.

Lower elevations, would be more likely to have cumulative impacts from other management activities such as previous and current livestock grazing and facilities/infrastructure than trailing-related activities. Because the lower elevations are already in a partially invasive species-dominated state, an overall increase in weed distribution would be minor.

Wildfire annually burns 20,000 acres on average in the FRFO. This would result in damage, mortality, and/or alterations in plant community components, potentially opening niches for noxious and/or invasive species to inhabit. However, vegetation treatments (rehabilitation and restoration) which produce vigorous, more desirable plant communities over the long-term would have a competitive advantage and could limit weed invasion. Fuel breaks established by the Paradigm Project could also limit weed invasion or spread over the long-term.

Cooperative weed management treatments would partially offset any increase in noxious weeds resulting from livestock trailing activities. Total eradication of noxious weeds would be difficult if not impossible to attain and unlikely given the budget and staffing at federal and state levels. However, biological control agents are becoming increasingly effective on some weed species, and more of these agents are likely to become available in the near future. The cumulative increase in noxious weeds from issuing the crossing permits would be negligible to minor.

While the effects to noxious weeds and invasive species from trailing could be confined to localized areas and narrow timeframes, permitted grazing would be widely dispersed both temporally and spatially making comparison of impacts difficult. The continued application and implementation of Standards and Guidelines would result in proper livestock management thus improving plant community conditions and limiting the expansion of noxious and invasive species. Therefore, the cumulative effects of future livestock grazing to noxious and invasive species would be minor.

3.6.3.5 **Cumulative Impacts - Alternative C**

Cumulative impacts would be very similar to Alternative B. The types of cumulative impacts would be the same as the other alternatives; though, the degree would be marginally less than Alternative B due to trailing stipulations to reduce weed spread and protect vegetation treatments and soils (e.g. following wildfire).

3.7 **Riparian Areas, Water Quality, and Fisheries**

3.7.1 **Affected Environment – Riparian Areas, Water Quality, and Fisheries**

General information about streams is presented at the beginning of this section. Information about specific stream segments that would be affected by trailing is presented at the end of this section.

Riparian Areas

There are 396-miles of streams in the FRFO. Of these, 276-miles (70 percent) are in proper functioning condition (PFC), and 117-miles (30 percent) are in functioning-at-risk (FAR) condition. All streams adjacent to (within 150 feet and beyond) or crossed by the proposed trailing routes are in PFC. With the exception of Bennett Creek which is in PFC, all stream segments associated with fords are in FAR condition (Table 26). Channel widths at fords are

typically widened compared to the stream widths immediately above and below fording sites because trailing, along with other livestock related uses, or the presence of roads at the crossings, often maintains an "in and out," ramp-like travel way with no undercut or vertical streambanks. There are no springs or wetlands which would be impacted along any of the trail routes.

Table 26. Functioning condition rating, crossing type, and summary of impacts for streams associated with proposed trailing, Four Rivers Field Office, Idaho.

Trailing Route #	Stream name	Current PFC rating[2]	Crossing type[3]	Impacts by resource N/A, Yes/No (effect magnitude)		
				Riparian	Fisheries	Water quality
14-01	Rock[1]	PFC	Culvert on improved road	No	No	No
	Wolf[1]					
	Sumac					
	Trail					
	Henley		Parallel on county road			
	Hog					
13-01 and 04-01	George Way	PFC	Culvert on improved road	No	N/A	No
	Indian[1]		Parallel on ridge ≥ 3/8-mile north of Indian Creek.		No	No
10-01	Syrup[1]	PFC	Wet ford	Yes (minor effect)	No	Yes (minor effect)
	Ditto	PFC	Parallel on 2-track road	No	N/A	No
22-03	Alkali (A)	FAR	Culvert on improved road	Yes (minor to moderate effect)	N/A	No
22-13 & 14	Alkali (B)	FAR	Dry ford	Yes (minor to moderate effect)	N/A	Yes (negligible effect)
22-13 & 14	Bennett	PFC	Dry ford	Yes (moderate effect)	N/A	No
22-03	L. Canyon[1]	PFC	Parallel on county road	No	No	No
22-07	L. Canyon[1]	N/A (water gap)	Crossing on culvert, or wet ford	Yes (minor effect)	N/A	Yes (minor effect)

[1]Denotes perennial flow regime streams.
[2]PFC - proper functioning condition, FAR - functioning at risk with static trend, N/A - not applicable.
[3]Crossings occur on culverts or bridges on improved roads. Fords identify a trail traversing perpendicular across the active channel and floodplain. Fords are further defined as wet fords or dry fords. Wet fords are expected to have standing or flowing water, and dry fords are not expected to have standing water.

The 13 streams traversed by trailing routes have been rated for functioning condition within the last 6-years. Standard Checklists (USDI 1998) and other available qualitative and quantitative data are used to determine if riparian areas are meeting Standards and Guidelines. The standard checklist consists of 17 indicators that are used to assess the functioning condition of riparian areas. Indicators are compiled into three interlocking attribute categories representing erosion/deposition, hydrologic function, and vegetative status. Presence of noxious weeds is also considered for riparian health where applicable.

Water Quality

All streams potentially affected by the proposed trailing routes are meeting the applicable Idaho Department of Environmental Quality (DEQ) standards for water quality.

All surface waters in Idaho are protected for the following beneficial uses: wildlife habitat, agricultural water supply, and industrial water supply (Idaho Administrative Procedures Act [IDAPA 58.01.02]). All undesignated surface waters are protected for the following beneficial uses: primary or secondary contact recreation, cold water aquatic life, and the protection and propagation of fish, shellfish, and wildlife, where achievable.

Within the analysis area, only Wolf, the lowermost section of Trail, Indian, Syrup, and Little Canyon creeks are classified as perennial flow regime streams (USGS 2012). All other streams have intermittent flow regimes, which DEQ assumes would meet standards for seasonal cold water aquatic life during periods of optimum flow. Other standards, in particular allowable bacterial levels in intermittent waterbodies, apply only when specific minimum flow volumes are reached. For example, the state of Idaho defines an intermittent stream as one that has a period of zero (0) flow for at least one (1) week during most years, or has a 7Q2 hydrologically-based flow of less than one-tenth (0.10) cfs. The 7Q2 is defined as the seven day average flow over a two week period. If a stream contains natural perennial pools containing significant aquatic life, it is not considered intermittent (IDAPA 58.01.02.003.51). Water quality standards only apply to intermittent waters during optimum flow periods sufficient enough to support the beneficial uses for which the water body has been designated. The optimum flow for contact recreation is equal to, or greater than, five (5.0) cubic feet per second (cfs). The optimum flow for aquatic life is equal to, or greater than, one (1.0) cfs (IDAPA 58.01.02.070.07).

Fisheries

Redband trout (*Onchorhynchus mykiss gardeneri*) are categorized by BLM and Idaho Department of Fish & Game (IDFG) as a sensitive species. Redband trout are native to the intermountain west, and unlike introduced rainbow trout, are uniquely adapted to the higher water temperatures and lower oxygen levels commonly found in lower elevation western streams in the summer months. Along the proposed trailing routes, redband trout are present in Wolf, Rock, Indian, Syrup, and seasonally occur in the lowermost 0.1-mile segment of Trail creeks.

Bull trout (*Salvelinus confluentus),* a threatened species under the ESA are not present in, or near, any stream along the proposed trailing routes. No other special status aquatic organisms are present.

Route 10-01 – Syrup Creek

Riparian Areas

Vegetation along the 0.1-mile segment of Syrup Creek associated with the proposed crossing is mostly Geyer's and coyote willows. Because this segment is present in a deposition zone below a narrow canyon, substrates are very coarse, and do not support sedge or rush plant species. This area is a designated water gap established in 1986 when the segments up and downstream of the road crossing were fenced into riparian exclosures. The segment is in FAR condition due to concentrated livestock impacts related to authorized use at the water gap.

Water Quality
Syrup Creek is listed as "un-assessed" in the DEQs 2010 Integrated Report. The high PFC rating of this stream, both up and downstream of proposed trail crossing, suggests this stream would meet all applicable water quality standards. BLM data (1992) show the segments up and downstream of the proposed crossing met cold water biota and secondary contact recreation standards.

Fisheries
BLM electro-fishing data (1996-2000) show Syrup Creek supports an unusually dense and viable redband trout fishery, given the small size and limited summer water flows in this stream. At the proposed trailing location (ford) there are no pools present, and the wetted channel at the ford is very shallow by early summer and throughout the fall. No fish occupy the crossing location except during spring run-off when increased stream flows allow up and downstream migration of redband trout (Tarter, pers. obs).

Route 22-03 – Alkali (A) Creek
Riparian Areas
This reach of Alkali Creek was rated in FAR for stream channel and floodplains due to active headcuts in the stream channel in an assessment conducted in 2011. The stream is listed as intermittent; however, dense and healthy communities of obligate hydric vegetation are present throughout this segment. The segment was rated in PFC for vegetation.

Fisheries
Alkali Creek does not support a fishery due to intermittent flow regimes.

Water Quality
The stream is listed as intermittent so standards for seasonal cold water biota apply. In DEQ's 2010 Integrated Report, Alkali Creek is described as de-listed, and is fully supporting standards for seasonal cold water biota.

Route 22-13 & 14 – Alkali (B) Creek
Riparian Areas
Riparian vegetation at the fording location is mostly Baltic rush and Kentucky bluegrass, with lesser frequency of Nebraska sedge near the stream channel. At the fording site, riparian areas are highly disturbed for 300-feet up and downstream of the ford as a result of historic disturbances, together with annual authorized use by livestock. The area provides access to livestock for watering early in the spring when water is often present in this intermittent flow regime stream. Soils are highly compacted, and bank shearing and pugging is frequent throughout the short reach associated with the crossing.

Fisheries
Alkali Creek does not support a fishery due to intermittent flow regimes.

Water Quality
The stream is listed as intermittent so standards for seasonal cold water biota apply. In DEQ's 2010 Integrated Report, Alkali Creek is described as de-listed, and is fully supporting standards for seasonal cold water biota.

Route 22-13 & 14 – Bennett Creek

Riparian Areas
In 2005, the stream segment associated with the proposed crossing was rated PFC. The stream is listed as intermittent; however, dense and healthy communities of obligate hydric vegetation are present throughout this segment. The ford on Bennett Creek occurs on a historic two-track road. The riparian area affected by the ford is approximately 60-feet wide by 70-feet long (4,200 square feet, or <0.1 acres). Vegetation in this segment is mostly coyote willows, with deep-rooted, healthy, and dense communities of Nebraska sedge and Baltic rush occurring in the understory.

Water Quality
The stream is listed as intermittent so standards for seasonal cold water biota apply. In DEQ's 2010 Integrated Report, Bennett Creek is listed as fully supporting its beneficial uses.

Route 22-11 – Little Canyon Creek

Riparian Areas
The route crosses Little Canyon Creek at the historic Emigrant Trail Crossing on the Old Oregon Trail. The culvert is approximately 24-feet long. The short segment (<0.1-mile long) at the crossing is a designated water gap, and permitted livestock can easily access the eastern side of the stream both south and north of the culvert.

Water Quality
Little Canyon Creek is a perennial stream with approved DEQ Total Maximum Daily Loads (TMDLs) for sediment (IDEQ 2010). The TMDL is based on streambank stability of ≥ 20 percent, and less than 30-percent fine sediments in riffle reaches. BLM data show that the short segments at the water-gap may not be achieving TMDL bank stability targets. A 0.3-mile segment downstream of the crossing (outside the water-gap), may not meet TMDL targets. All segments of Little Canyon Creek upstream of the water-gap are fully meeting TMDL targets.

3.7.2 Environmental Consequences – Riparian Areas, Water Quality, and Fisheries

3.7.2.1 General Discussion of Impacts

Riparian Areas
Trailing routes crossing on improved roads with culverts, or paralleling streams on improved roads, would have little direct effect on riparian areas and would not be expected to cause any change in the general functioning condition of a riparian area. However, some livestock may occasionally break contact from the herd and stray into riparian areas adjacent to the road if those streams are accessible. Because livestock are actively herded, the time spent in riparian areas would be of short duration, and would have a minimal effect on riparian area health, and would not be expected to cause a change in functioning condition.

Livestock trailing on routes which go directly through riparian areas along streambanks or active floodplains on the lower terrace (flood prone area) could result in physical alterations to a stream, including: pugging, bank shearing, and soil compaction. In addition, streamside vegetation may be trampled and woody plants may be physically damaged from stem breakage. Fording sites that are "armored" with coarser rock substrates can better withstand livestock trampling than crossings composed of fine soil, sand, and gravel substrates.

Water Quality

Trail routes crossing streams on improved roads (on a bridge or culvert) or paralleling streams at least 150 feet away from the active stream channel, would have a negligible effect on water quality because: 1) the level of manure along a particular trailing route would be widely dispersed along the route, and not directly into flowing water; therefore, it would not increase bacterial levels in perennial streams; 2) vegetation would filter and sequester the small amount of fine sediment generated from trailing on county or two-track roads before it could reach the stream, except in cases where a large rainfall event would generate large overland flows; and 3) in the unlikely event rainfall volume and duration should occur to the extent that freshly deposited fecal material is washed into a perennial stream, it would be diluted, and would not persist but for a short duration, and it would not result in a violation of DEQ standards for contact recreation (when they apply). Similarly, trailing on improved roads would not be expected to increase sediment levels along routes paralleling streams as trailing would not be expected to loosen and mobilize any more sediment than normal vehicular traffic would.

Livestock defecating in a perennial stream at wet fords could increase levels of *E. coli* beyond DEQ standards for primary and/or secondary contact recreation. However, this would constitute a water quality violation only if the bacterial contamination from trailing events results in five measurements taken over a 30-day period exceeds the standard (126 cpu/ml). Livestock disturbance of banks and stream substrates could increase sediment levels at and below crossings.

Fisheries

Fisheries may be impacted by physical disturbance related to livestock crossings at wet fords in salmonid bearing streams. Water quality impairment could occur and cause an increase in suspended sediment levels. Depending on the time of year, spawning redds could be disturbed at stream crossings.

3.7.2.2 **Alternative A**

No change in stream functioning condition, fisheries resources, or water quality would result from eliminating livestock trailing. The functioning condition at crossings or fords is a result of past and ongoing activities not associated with trailing (Section 3.7.3.2).

3.7.2.3 **Alternative B**

Trailing related impacts to riparian, water quality, and fisheries resources would be negligible to moderate on four streams and would not occur on nine streams (Table 26). Streams and trailing routes where potential impacts to one or more resources were identified will be discussed below in further detail. With the exception of crossings, all other trailing would occur greater than 150

feet from active stream channels. At crossings, all effects would be confined to the near bank areas and active floodplains.

Route 10-01 – Syrup Creek

Riparian Areas

Trailing livestock through the water gap would result in a minor effect over the short and long term. As the substrates are very coarse here, the likelihood of pugging and deep ground disturbance would be low, regardless of soil moisture content. Livestock would have a negligible effect on riparian vegetation as the heavy utilization levels in the water gap resulting from permitted grazing uses in the allotment would leave little forage for livestock consumption. In addition, the actual time in the water gap and crossing area would likely be less than one-half hour. It is not expected that damage to woody vegetation would occur as livestock would not be trailed through riparian areas. At the narrow ford across the active channel of Syrup Creek, substrates are also very coarse, and trailing would have a negligible effect on the stream channel due to the stable substrates. However, there may be some movement of particles in the active channel resulting from mechanical disturbance from livestock hooves.

Water Quality

Livestock defecating in the active channel of Syrup Creek could briefly increase levels of *E. coli* bacteria beyond DEQ standards, but would not exceed standards over a 30-day period. Water flow volume is normally less than 1.0-cubic foot per second (cfs) at the crossing in November, so the effect on water quality would be minimal, localized, and of short duration.

Suspended sediment (turbidity) levels would temporarily increase downstream of the ford. However, the stream channel bed has a low percentage of fine sediments in the substrates at the crossing location. The effect on water quality from increased turbidity would be minimal, localized, and of short duration; therefor, a violation of DEQ water quality standards for suspended sediment (when it applies) would not occur.

Fisheries

Disturbances related to livestock fording Syrup Creek in November would have no effect on redband trout populations in this stream as water quality would not be compromised and fish would not be physically present at the ford. Livestock watering adjacent to the ford would have a negligible effect because no pools containing redband trout are present in this reach.

Route 22-03 – Alkali (A) Creek

Riparian Areas

The crossing would be on a 24-foot wide culvert across Alkali Creek Road. Because the streambanks on the south side of the culvert are gentle, and the culvert occurs on a 70-degree turn in the road, it is likely that many livestock would take a "short-cut" by leaving the road and fording Alkali Creek. Depending on the moisture levels in the streambed, various levels of trampling and pugging would occur, resulting in a minor to moderate effect to soils and vegetation in a small area about 50-feet wide by 65-feet long (3,250-square-feet). However, this would not result in a net loss of riparian vegetation as the dense communities of healthy Nebraska sedge and Baltic rush would resist soil compaction, but there would be a minor, short-

term reduction in plant vigor. There would be minor to moderate impacts from bank shearing along the streambanks.

Route 22-13 & 14 – Alkali (B) Creek

Riparian Areas

Depending on the level of moisture present in the streambed when the trailing event occurs, disturbance of streambank soils in the channel and adjacent floodplain could range from minor to moderate. There would be negligible to minor impacts to riparian vegetation as most of the vegetation at the crossing would be consumed during the authorized grazing season in the associated allotment.

Route 22-13 & 14 – Bennett Creek

Riparian Areas

Trailing livestock through the water gap would result in a minor to moderate adverse effect on the riparian area within the narrow trailing corridor, and would occur as trampling of the floodplain and stream channel along the designated trailing route. A spring trailing event would be expected to result in more soil surface disturbance than a fall/winter event because soils would be more easily damaged when moisture levels are greater. Trailing livestock through the ford on Bennett Creek is expected to result in a minor to moderate effect on the riparian areas, and would occur as trampling of the floodplain within the designated trailing route.

Water Quality

Trailing at this ford would have negligible effect on water quality in Bennett Creek, and intermittent flow regime stream, as the dense communities of Nebraska sedge and Baltic rush help protect the soil surface from excessive livestock trampling, and under most circumstances, free flowing water is not present at the crossing.

Route 22-11 – Little Canyon Creek

Riparian Areas

Watering at the crossing during trailing would result in additional trampling within the riparian areas; however, vegetation is already compromised by heavy, authorized use at the water-gap. The additional brief use during the trailing event would have a minor effect at the water-gap. Most disturbances would be shallow due to the compacted nature of soils within the water-gap.

Water Quality

The increased use in the water-gap resulting from the trailing event could cause a minor increase in levels of active bank erosion at this location. TMDL bank stability targets would not be met; however, trailing would have a minor impact because of the short duration of the disturbance and short length of streambank directly affected. The trailing would not be expected to jeopardize water quality in Little Canyon Creek.

3.7.2.4 **Alternative C**

Trailing related impacts to riparian, water quality, and fisheries resources would be as described in Alternative B except for the Alkali (A) Creek crossing. An additional herder keeping the majority of livestock on the road would help minimize livestock in the stream, resulting in negligible, short-term impacts to streambanks and riparian vegetation.

3.7.3 Cumulative Impacts – Riparian Areas, Water Quality, and Fisheries

3.7.3.1 Scope of Analysis

All streams associated with trailing routes in the northern portion of the FRFO are in PFC (Riparian Map 1). No impacts from trailing were identified in this area (Table 26); therefore, the scope of analysis will focus on the Mountain Home and Bennett Mountain Management Areas where negligible to minor impacts resulting from trailing were identified. Because impacts were identified for short segments of Syrup, Alkali, Bennett, and Little Canyon creeks, the cumulative analysis will address the entire lengths of these streams only.

3.7.3.2 Current Conditions and Effects of Foreseeable Future Actions

The four creeks total 27.2 miles on BLM-administered lands; 74% are in PFC, 18% are in FAR condition with static trend, and 8% are FAR with upward trend. Little Canyon Creek is the only stream which is 303(d) listed, and DEQ prepared TMDLs for all segments of this stream in 1998 to address excess sediment issues. Water quality standards are being met on the streams. Healthy and viable populations of redband trout occur in Syrup and Little Canyon creeks in the perennial segments upstream of Emigrant Trail Reservoir.

In relation to this analysis, the effects of current and foreseeable future activities include: livestock grazing, road maintenance, and OHV use. The effects of future wildfires are also considered because these natural events are predictable to a certain degree based on the number and size of wildfires that have occurred in the past decade.

- Permitted livestock grazing occurs throughout the area. Livestock have access to approximately 85% of the streams. Livestock influence on riparian habitat varies by season. Use between September 16 and June 30 (cool season) generally results in minor, short-term affects because streams have an opportunity to recover. Use between July 1 and September 15 (hot season) generally results in moderate, long-term effects because livestock tend to congregate in these areas resulting in heavy use with little opportunity for recovery. Extended use of streams (>2 weeks) can degrade water quality by removing plants that provide shade (short or long term), increase sediment loads (short or long term), and increase fecal coliform levels (short term). Adverse impacts to fisheries generally occur where riparian habitat is in poor condition (wide, shallow streams with little shading cover) and water quality is degraded (increased temperatures and sediments). Livestock grazing along the streams occurs during the spring (April 1 - June 30) and fall (October 1 – December 31).
- Road maintenance along improved roads could increase sediment input to streams over the short term until vegetation becomes reestablished in disturbed areas adjacent to the road. Increased sediment input would generally be associated with substantial rain events (>1 inch/hour).
- OHV activity, primarily associated with unimproved roads, can remove vegetation at and near stream crossings allowing minor to moderate increases in sediment input and negligible increases in water temperature downstream of crossings.
- Past wildfires have resulted in a short term (two year) loss of vegetation that shades a stream and stabilizes streambanks. Increased sediment input from adjacent uplands and

increased water temperatures can degrade water quality over the short term until riparian vegetation becomes reestablished. Less than 0.5 miles of Little Canyon Creek were affected by a fire which occurred in 2011. No other streams have had fires in the previous 10 years.

3.7.3.3 Cumulative Impacts - Alternative A

Of the total 27.2 miles of streams in the analysis area, removal of trailing impacts from 0.15 miles associated with fording locations would have no, or negligible beneficial short or long term cumulative effects on riparian habitat, water quality, and fisheries. The current functioning condition ratings at fording locations are associated with permitted livestock grazing, or livestock concentrating in approved water-gaps. OHV use occurs only at the road crossing in the Syrup Creek water-gap.

3.7.3.4 Cumulative Impacts - Alternatives B and C

Trailing crossings would have negligible additional impacts to riparian habitat, water quality, and fisheries over the short and long term. The trailing would represent 1-2 hours of use each on the five crossings (0.15 miles of total stream length affected) by small to medium herds of cattle; whereas, small herds of livestock would be accessing streams daily throughout the authorized grazing periods.

3.8 Wildlife and Special Status Animal Species

3.8.1 Affected Environment – Wildlife and Special Status Animal Species

Typical sagebrush-associated and upland species include greater sage-grouse, pronghorn antelope, mule deer, coyote, white-tailed and black-tailed jackrabbit, mountain cottontail, badger, Paiute ground squirrel, meadowlark, and horned lark. All of these species are year-round residents. Common riparian species include yellow warbler, dusky flycatcher, Northern oriole, song sparrow, spotted towhee, and lazuli bunting. Most of the songbirds are neotropical migrants, which means that they are only present in FRFO habitat during the spring, summer, and fall. Bighorn sheep use the south side of the Snake River canyon and Hells Canyon and adjoining Payette National Forest. The NCA was established to conserve, protect, and enhance the most densely known nesting population of raptors, and their supporting habitat, in North America.

Regions of the FRFO contain native sagebrush habitats for wildlife. Bitterbrush is common in mid to higher elevations and provides browse for ungulates. The lower elevations still retain native shrubs but are often dominated by cheatgrass and lack diversity of native grasses and forbs. The shrubs provide winter browse for antelope, but sage-grouse no longer use, or perhaps rarely use, the lowest elevations. Areas of the FRFO also contain a variety of forest types in areas of higher precipitation and elevation.

Sixty-one wildlife species classified as BLM Sensitive Species are known or have the potential to occur in the FRFO (Appendix 4). Although multiple BLM Sensitive and other important (e.g. ungulates, raptors) wildlife species reside within the FRFO, only those that are likely to be affected by trailing activities (e.g. burrowing, shrub-nesting, and disturbance-sensitive species) will be analyzed in detail. Given the nature of the activities and the general effects described in

Section 3.8.2, the following species and groups of species are most likely to be affected by trailing and will be discussed relative to the impact vectors:

- Greater sage-grouse
- Columbian sharp-tailed grouse (uses sage-grouse analysis as surrogate for impacts analysis)
- Neotropical migratory birds (uses sage-grouse analysis as surrogate for impacts analysis)
- Bighorn sheep - Rocky Mountain, California
- Big game – mule deer, pronghorn antelope, elk
- Raptors - ferruginous hawk, golden eagle, bald eagle, peregrine falcon, prairie falcon, western burrowing owl, red-tailed hawk, northern goshawk
- Long-billed curlew

Additional species that have the potential to be affected by trailing activities, but impacts would be so minimal as to be immeasurable, include the following:

- Riparian birds
- Northern and southern Idaho ground squirrel

Greater Sage-grouse

Greater sage-grouse (sage-grouse) have undergone long-term population declines and are currently absent from the majority of their estimated distribution prior to Euro-American settlement of the Western United States (Schroeder et al. 2004). While populations of sage-grouse are still in decline in some regions, the overall population trend has become more stable in recent years (Connelly et al. 2004). On March 23, 2010, sage-grouse were determined to warrant protection under the ESA, but was precluded from listing due to other species with higher listing priority. The BLM has developed interim policy on conservation policies and procedures to facilitate maintaining and restoring habitat for sage-grouse while the BLM determines how to incorporate long term measures into their Land Use Plans (USDI 2011).

Sage-grouse are a sagebrush obligate species which means they depend on sagebrush habitat for food and cover. During the winter, they inhabit regions where sagebrush is above the snow level. Sage-grouse begin breeding in early spring. These birds exhibit a polygynous mating system where one or two dominant males mate with multiple females. Males defend territory within a lek and perform elaborate displays with specialized plumage and vocalizations. Lek locations can vary, but are typically found in open areas adjacent to sagebrush communities that provide escape, thermal, and feeding cover. Areas of bare soil, short grasses, windswept ridges, exposed knolls and other open areas serve as leks (Patterson 1952, Connelly et al. 2004). During the nesting season, they rely on sagebrush for cover and food, perennial grasses for nesting cover and food, and forbs for nesting cover. Nesting habitat is characterized by sagebrush with an understory of native grasses and forbs, with horizontal and vertical structural diversity. Approximately 79% of sage-grouse nesting occurs within 4 miles of leks (Doherty et al. 2010). In the summer, when herbaceous vegetation begins to desiccate in sagebrush uplands, broods typically shift habitat to areas where wet meadows are present, following vegetation phenology to feed on succulent forbs (Connelly et al. 2004, Klebenow 1969).

Sage-grouse are typically found in two main regions within the FRFO. The West Central Sage-Grouse Planning Area (SGPA) contains sagebrush habitat from the Oregon border to a few miles east of the North Crane road, north to Cambridge/Indian Valley, and south to the Washington/Payette/Gem county line. The area is characterized by valley farmlands encompassed by extensive rolling hills of sagebrush-grassland habitat and mountain foothills. The area is dominated by introduced perennial grasses such as bulbous bluegrass, crested wheatgrass, intermediate wheatgrass, and native perennial grasses including Idaho fescue and bluebunch wheatgrass with scattered sagebrush and abundant forbs.

The Mountain Home SGPA contains sagebrush habitat in Elmore County, east of Mountain Home. This SGPA is part of the Snake River plain and is characterized as low elevation Wyoming big sagebrush habitat which lacks adequate native grasses and forbs for food and cover. The herbaceous understory is dominated by cheatgrass, has been burned by wildfires, or both. The result is a loss of sagebrush cover and increased fragmentation of sage-grouse habitat.

Currently, the BLM characterizes sage-grouse habitat based on population levels and movements (Preliminary Priority and Preliminary General habitats [PPH/PGH]) or primary vegetation components (Key – intact sagebrush, Restoration Type I - perennial grassland, and Restoration Type II - annual grassland) (Table 27). These habitats overlap (Wildlife Maps 1.1-4 and 2.1-4) and the BLM emphasizes the maintenance and enhancement of PA and key habitat types.

Table 27. Acres of Sage-grouse Habitat in the Four Rivers Field Office, Idaho.

Habitat Type	**Acreage**
Preliminary Priority Habitat	163,371
Sagebrush	138,931
Perennial Grassland	24,440
Preliminary General Habitat	193,918
Sagebrush	66,395
Perennial Grassland	123,709
Persistence >25%	3,814
Key	185,892
RI – Perennial Grassland	145,013
RII – Annual Grassland	139,771

Columbian Sharp-tailed Grouse

Columbian sharp-tailed grouse were once wide spread and abundant in mesic shrub-steppe and grasslands throughout the northwest (Marks and Marks 1988). They have been extirpated from most of their historic range in Oregon, California, and Nevada, and have been reduced to remnant populations in the majority of their remaining range (Marks and Marks 1988). Populations in western Idaho are small and isolated and are limited to Washington and Adams counties. The largest known population in western Idaho is found within the vicinity of the Columbian Sharp-tailed Grouse Habitat ACEC. The area supports big sagebrush, serviceberry, chokeberry, bitter cherry, rose, and hawthorn shrubs and perennial grasses which provide nesting habitat. While no trailing routes intersect the ACEC, Columbian sharp-tailed leks can still be found within Priority and General Habitat Areas for greater sage-grouse. As Columbian sharp-tailed grouse are habitat generalists and occupy habitat synonymous with sage-grouse habitat in the West Central SGPA, the analysis for sage-grouse will serve as a surrogate analysis for Columbian sharp-tailed grouse.

Neotropical Migratory Birds

Neotropical bird species, which nest in North America and winter in Central and South America, have become a concern in recent years as populations have declined. The January 10, 2001 Executive Order (13186) on the responsibilities of Federal agencies to protect migratory birds directs action agencies to "ensure that environmental analyses of Federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern". The Idaho Bird Conservation Plan (IDBCP) identified the highest priority habitats for priority bird species in need of conservation and supports the long-term sustainability goal of Executive Order 13186 as it takes a habitat-based approach to conserving bird populations (IPIF 2000). Priority habitats for neotropical migratory birds that would be impacted by livestock trailing would primarily be sagebrush habitat.

Although sage-grouse are only short-distance migrants, they will be used to describe effects to priority, sagebrush dependent, neotropical migrant birds such as sage sparrow, gray flycatcher, Brewer's sparrow, sage thrasher, and loggerhead shrike. This method could overlook habitat associations specific to some of the priority bird species, but the sage-grouse analysis includes impacts to nesting habitat, so it will account for impacts to the priority neotropical migrant birds that could have some of their nesting activities impacted by trailing events.

Bighorn Sheep

Rocky Mountain Bighorn Sheep - In the FRFO, Rocky Mountain bighorn sheep primarily occur in and adjacent to the Hells Canyon on the Snake River. The bighorn sheep in this region are part of the Hells Canyon Population Management Unit (PMU). Bighorn sheep were native to Hells Canyon but were extirpated in the early part of the 20th century due to over-hunting and disease outbreaks associated with domestic sheep contact (IDFG 2010). Reintroduction of bighorn sheep into Hells Canyon began in 1975 with a translocation from the upper Salmon River; the last translocation of bighorn sheep into Hells Canyon occurred in 2002.

The Hells Canyon metapopulation consists of at least four interacting populations or herds. The most recent surveys from 2009 estimate the Hells Canyon population size at 150 individuals (IDFG 2010). Disease is the greatest issue facing bighorn sheep in the Hells Canyon PMU. Currently all four herds are limited by disease as outbreaks of pneumonia have resulted in very low recruitment because of sporadic lamb die offs and pneumonia in adults (IDFG 2010).

Bighorn sheep begin breeding in the fall and lambs are born May to mid-June; lambing sites are not known to occur on BLM-administered lands in the FRFO. Many populations exhibit seasonal migration, moving to higher elevations in the summer and lower elevations in the winter. Typically, rams are known to make long distance (30-40 miles) exploratory forays beyond core herd home ranges (CHHR), primarily during the fall rut (Cahn et al. 2011, IDFG 2010). Twenty-five percent of foray movements by Hells Canyon bighorn sheep reach a distance of at least 9.3 miles (USFS 2010). This life history trait puts bighorn sheep at risk of contact with domestic sheep, notably when suitable habitats are well connected and overlap with domestic sheep allotments (Gross et al. 2000). Conversely lost domestic sheep pose a serious threat to bighorn sheep populations.

Analysis from the Payette National Forest Final Supplemental Environmental Impact Statement (FEIS) (USFS 2010) and the IDFG Bighorn Sheep Management Plan 2010 identify bighorn sheep summer source habitat within the Reeds Grove Allotment where sheep trailing is currently being proposed. Bighorn sheep have been observed in the West Pine Creek Allotment approximately 2 miles north of route 03-01.

Bighorn sheep summer source habitat within West Pine Creek Allotment is contiguous with bighorn sheep habitat in the Hells Canyon PMU CHHR (Wildlife Map 4). Bighorn sheep habitat within Reeds Grove Allotment is limited on public lands and is not contiguous with habitat found in West Pine Creek Allotment. IDFG has determined that West Pine Creek and Reeds Grove allotments are areas where risk of contact between domestic sheep and bighorn sheep is very low.

California Bighorn Sheep – The Owyhee Front PMU includes a disjunct area in the NCA on the south side of the Snake River adjacent to Swan Falls Dam. Life history and disease issues for California bighorn sheep are similar to those described for Rocky Mountain bighorn sheep. The FRFO conducted a risk analysis of this population and determined that there was a moderate risk that animals would cross the river and encounter domestic sheep in the Sunnyside Winter Allotment because there is limited bighorn access to the rim above the canyon and information from IDFG modeled habitat indicates that limited habitat is available outside of the river canyon. Because the nearest domestic sheep trailing route is 6.5 miles away from the canyon rim, much further than domestic sheep grazing use, and winter trailing would not overlap the normal use period of bighorn sheep (spring-summer), potential impacts to this species will not be discussed below.

Big Game Species

Rocky Mountain elk, mule deer, and pronghorn antelope are present throughout much of the FRFO (Wildlife Maps 3.1-5). Elk forage in forest and forest-edge habitat, feeding primarily on grasses and forbs, and, to a lesser degree, on woody vegetation. Elk usually occur more in the mid to higher elevations; however, during severe winters elk have occurred in the lower elevations along Interstate 84 between Boise and Mountain Home. Mule deer are present throughout the year in the FRFO. Winter range occurs in the mid-elevations, while the higher elevations provide summer range. The higher elevations have stands of bitterbrush, which are preferred browse species. Shrubs are particularly important in the winter, but are used throughout the year. Pronghorn use low elevation areas in the winter and mid-elevation areas in the summer. During winter months, antelope browse on a wide variety of woody plants, including sagebrush, shadscale, winterfat, and Nuttall's saltbush. In the summer, pronghorn consume more forbs and grasses.

Raptors

Raptors occur throughout the FRFO, and the NCA was specifically designated to conserve, protect, and enhance raptor species. The Snake River Canyon within the NCA provides habitat for a unique aggregation of raptor populations and is the largest concentration of nesting raptors in North America. Raptors occur in a variety of habitats from upland ground-dwelling (e.g. burrowing owl) and cliff-dwelling species (prairie falcon, golden eagle) to forest-dwelling (e.g.

Northern goshawk). The NCA also is low enough in elevation and warm enough to host a variety of wintering raptor species (e.g. golden and bald eagles, long-eared owls, and rough-legged hawks). Other raptors commonly found within the FRFO include red-tailed hawk, Swainson's hawk, and ferruginous hawk.

Several raptor species are identified in the USFWS "Guidelines for Raptor Conservation in the Western United States" (Whittington and Allen 2008) and "Seasonal Wildlife Restrictions and Procedures for Processing Requests For Exception on Public Lands in Idaho" (Information Bulletin ID-2010-39) which provides suggested criteria for a suite of species including raptors relative to sensitivity to disturbance during the nesting period. The FRFO refers to this document when considering projects on public lands, to reduce impacts to wildlife. Raptors 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 Protection Act, as amended in 1990.

Nest locations for prairie falcons, golden eagles, and burrowing owls have been extensively recorded in the NCA. Limited nest sites have been recorded in the remainder of the FRFO. Several occurrences of golden eagles, prairie falcons, ferruginous hawks, and burrowing owl occur within the NCA boundaries. With the exception of ongoing monitoring of golden eagles and ferruginous hawk nests, most raptor nest identification and study in the NCA occurred in the 1980s and 1990s. In the remainder of the FRFO, identification of raptor nests was generally the result of incidental observations, not systematic surveys.

Time and distance restrictions for potentially disruptive human activities are generally applied to protect nesting raptors between February 1 and July 31 (unless an exception is granted by the BLM manager in accordance with IB ID-2010-39 (USDI 2010, Table 28). Exceptions or temporal deviations from the established February 1 - July 31 timeframe may also be granted based on species, variations in nesting chronology of particular species locally, topographic considerations (e.g., intervening ridge between construction activities and a nest) or other factors that are biologically reasonable. In such cases, temporary exceptions to wildlife seasonal restrictions may be allowed at times to accommodate certain activities, if the activities can be done quickly and with little or no disturbance to the wildlife species of interest. The intent of allowing an exception is to eliminate a restriction when it has no applicability or is not needed to avoid impacts to wildlife. The discretion to allow an exception is limited to those situations where the degree of impacts to wildlife, as predicted in the NEPA analysis, would be the same, with or without the restriction. An exception is a case-by–case, one time exemption from a seasonal restriction for a specified portion of the project, right-of-way or lease area.

Table 28. Recommended buffers from raptor nests for human disturbances, FRFO, Idaho.

Species	**Spatial Buffer in Non-Urban Areas**
Bald eagle	0.5 to 1.0 mile
Ferruginous hawk	1.0 mile
Golden eagle	0.5 mile
Peregrine falcon	1.0 mile
Prairie falcon	0.5 mile
Red-tailed hawk	0.33 mile
Western Burrowing owl	0.25 mile

Long-billed Curlew

Long-billed curlew occupy grassland, open shrubsteppe, and agricultural habitats, including regions of the Snake River Plain. A substantial portion of Idaho's nesting curlew pairs have been documented in the 43,890 acre Long-billed Curlew Habitat Area of Critical Environmental Concern (ACEC) (Wildlife Map 3.4). Typically, long-billed curlews arrive at the ACEC in late March or early April and typically initiate nest sites from April to May. Recent survey data estimates that approximately 276-306 adult curlews nest within the ACEC (Carlisle et al. 2011). Curlews prefer low-stature vegetation for nesting. The Cascade RMP prescribed intensive livestock grazing and sheep use to help maintain suitable nesting habitat; however, nest destruction caused by livestock trampling has been observed in the ACEC.

Riparian Birds

Riparian areas are crucial for many species of birds, including migrants such as yellow warblers and lazuli bunting, as well as resident species such as black-capped chickadee and northern flicker. In the desert, riparian shrub communities may support over 50 species of birds, whereas adjacent sagebrush uplands may have less than 10. The density and width of shrubs and the lushness of the undergrowth influence bird numbers; the wider and denser the shrubs the better the cover for nesting birds. Mountain quail need fruiting shrubs such as chokecherry and elderberry to provide food, particularly in the winter. They use tall thick riparian shrubs for cover in this semi-arid desert environment. Mountain quail surveys were conducted in the Bennett Mountain area in 2004 and 2005. There were limited positive responses, but a small remnant population was located. Mountain quail were re-introduced in Canyon, King Hill, and Cold Spring Creeks on the east side of Bennett Mountain over a four-year period. Mountain quail may occur on other portions of the FRFO. Livestock trailing routes occur in very limited riparian habitat; therefore, the impacts to riparian birds would be negligible and will not be analyzed in detail.

Idaho Ground Squirrels

Northern Idaho Ground Squirrels - Listed under the Endangered Species Act in April 2000, with a Recovery Plan published in 2003, the northern Idaho ground squirrel (NIDGS), occupies northern regions of the FRFO in Adams County. NIDGS inhabit dry, montane open meadows usually surrounded by ponderosa or Douglas-fir woodlands. Decline of NIDGS is primarily due to fire suppression which allowed forests to encroach into meadows, reducing the amount of habitat available for squirrels and subsequently closing off natural dispersal corridors and isolating populations. Livestock activities including livestock trailing do not pose a significant threat to NIDGS populations. NIDGS colonies on BLM land are located approximately 19 miles north of the nearest proposed livestock trailing route; therefore, NIDGS will not be discussed further.

Southern Idaho Ground Squirrels - Southern Idaho ground squirrels (SIDGS), a candidate species, occur north of the Payette River, east of Hells Canyon, east to the Sweet/Ola Valley and north probably to Cambridge. The exact extent of their range is not known. Various populations have been located on the both private and BLM-administered lands. The northern extent of the population appears to have been extirpated from many locations since the late 1990s to early 2000s. Agricultural expansion, the spread of exotic annual grasses, and

degradation of sagebrush steppe vegetation structural diversity are likely reasons for the species decline.

SIDGS utilize burrows that are three to four feet deep. Livestock trampling could cause burrow entrances to collapse, but is unlikely to cause collapse of the burrow chamber due to the depth of the burrows. SIDGS can easily dig out a burrow entrance and at times intentionally blocked their burrow entrance to evade predators; therefore, the effects from livestock trampling are negligible. Approximately 33 miles of trailing routes (portions of 02-05, 04-01 and 14-03 primarily on private lands) would occur within SIDGS range. Livestock routes have been active for numerous years and SIDGS have acclimated to any disturbance along trailing routes. The routes would be used in the fall when squirrels are hibernating, so forage competition would not be a factor (Yensen 1982). Because trailing livestock represent a negligible threat of burrow collapse and would not compete for forage, SIDGS will not be discussed further.

3.8.2 Environmental Consequences – Wildlife and Special Status Animal Species

3.8.2.1 General Discussion of Impacts

The general effects of trailing on wildlife would include disturbance (i.e. behavioral) and physical impacts to wildlife species.

- Disturbance – Cattle and Human Presence
- Physical, Direct – Trampling
- Physical, Indirect – Grazing/Forage Competition
- Physical, Indirect – Disease Transmission

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

<u>Disturbance – Winter/Summer Range</u>

Livestock trailing and associated activities could disturb big game during critical periods (e.g. during the winter when energy reserves are low, parturition). However, the large expanses of big game wintering and breeding habitat (approximately five million acres in the FRFO) would allow individuals to easily avoid short-term (hours) disturbances represented by trailing events. Minimal trailing activities in riparian areas would preclude disturbance of mule deer fawning habitat. It is also unlikely that elk and antelope utilize areas in the FRFO for concentrated calving/fawning activities, so the limited spatial scope of trailing activities during the relevant time period would not have any measurable impacts. Likewise, disturbance to sage-grouse during the winter would be negligible because there is no shortage of this habitat type in the FRFO relative to the small footprint of trailing activities. Consequently, there would be no measurable disturbance to big game and this impact will not be addressed in the detailed analysis.

Disturbance – Breeding Behavior

Disturbance 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.

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 all aspects of 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 significant loss of prey base. Repeated human intrusions near golden eagle nest sites have resulted in the abandonment of the nest; 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 negatively impacts the productivity of songbirds (Barton and Homes 2006).

Utilizing designated livestock trailing periods and routes, and instituting seasonal buffers for critical areas would have short and long-term beneficial effects on nesting raptors and other wildlife by reducing vehicle noise and other human-caused disturbances.

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 occurring on trailing routes 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 Greene 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 and subsequently degrading the quality of wildlife habitat (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 adverse impacts for wildlife associated with riparian and open water habitat by degrading habitat through sedimentation and streambank alteration, resulting in elevated water temperatures and lower levels of dissolved oxygen (USFWS 1995, p24).

Restricting vehicle use to roads and limiting the trailing routes to existing road corridors would provide short and long-term beneficial impacts to wildlife habitat by reducing 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)
Livestock trailing could potentially damage the nests and burrows of wildlife species. 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 because of their reduced mobility. 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) as ground nests tend to be larger and more conspicuous. Some species may avoid building nests or burrows near the roads on which much of the trailing activities occur.

Physical, Indirect – Grazing (Competition for Forage)
Livestock trailing would have 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 are utilizing the same area, 2) forage plants are in limited supply, or both domestic and big-game animals are consuming the same forage plants (Smith and Julander 1953). However, any quantifiable forage removal would only occur in bedding areas.

Physical, Indirect - Disease Transmission (West Nile Virus and Bighorn/Domestic Sheep)
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 the 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). *Culex* spp. comprise the primary mosquito genus responsible for West Nile Virus 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 the likelihood of

WNV outbreaks. The impacts of WNV to sage-grouse will not be analyzed in detail because stream crossings would have no or negligible effects on streambanks (e.g. crossing would occur across culverts, the substrates are coarse and would not support standing water, or water would not be present during the trailing event, Section 3.7.2).

Trailing activities involving domestic sheep could potentially impact wildlife through disease transmission. While bighorn sheep are susceptible to many diseases, the most important is bronchopneumonia, which is commonly associated with bacteria in the family Pasteurellaceae (Cahn et al. 2011). Domestic sheep are known to carry strains of Pasteurellaceae which are highly pathogenic in bighorn sheep and leads to infectious respiratory disease (Foreyt 1989, 1994). Studies have also shown a negative correlation between the presence and proximity of domestic sheep and bighorn sheep population persistence (Singer et al. 2001 and Epps et al. 2004). Pneumonia epizootics resulting from contact between domestic sheep and bighorn sheep can result in all-age die-offs of wild sheep populations, followed by years of depressed reproductive success due to fatal pneumonia in lambs and low juvenile survival (Cahn et al. 2011).

Because 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 may be affected by trailing. Further discussions of the direct, indirect, and cumulative impacts in the project area specific to greater sage-grouse, and raptors are grouped by species in the sections below.

Comparison of Impacts

Livestock trailing would affect up to 1,138 acres within 0.62 miles of sage-grouse leks, 11,419 acres of sag-grouse nesting habitat, and 24,120 acres of big game winter range (Table 29).

Table 29. Comparison of direct and indirect impacts to wildlife in the Four Rivers Field Office, Idaho.

Issue	Indicator	Alternative		
		Alternative A	Alternative B (Applicant routes)	Alternative C (BLM routes)
Sage-grouse: Lek Disturbance	Acres trailing w/in 0.62 mi of occupied or undetermined lek from (3/1-5/15)	0	1,138	1,009
Sage-grouse: Nesting Habitat Disturbed	Acres overnighting w/in 4.0 mi of occupied or undetermined lek (4/1-6/15)	0	153	153
Sage-grouse: Nesting Habitat Trampled	Acres trailing and overnighting w/in 4.0 mi of occupied or undetermined lek (4/1-6/15)	0	11,419	11,281
Columbian Sharp-tailed grouse: Lek Disturbance	Acres of trailing w/in 0.62 mi of occupied or undetermined lek from (3/15-5/15)	0	0	0
Columbian Sharp-tailed grouse:	Acres overnighting w/in 4.0 mi of occupied or	0	0	0

Issue	Indicator	Alternative		
		Alternative A	Alternative B (Applicant routes)	Alternative C (BLM routes)
Nesting Habitat Disturbed	undetermined lek (4/1-6/30)			
Columbian Sharp-tailed grouse: Nesting Habitat Trampled	Acres trailing and overnighting w/in 4.0 mi of occupied or undetermined lek (4/1-6/15)	0	0	0
Long-billed Curlew: Nesting Habitat Disturbed	Acres trailing w/in Long-billed Curlew Habitat ACEC	0	4,304	4,317
Big Game: Winter Range Habitat Disturbed	Acres trailing w/in big game winter range	0	23,917	24,120

3.8.2.2 **Alternative A**

Greater Sage-grouse

There would be negligible impacts to sage-grouse and other sagebrush dependent species on BLM-administered lands. Trucking could potentially disturb birds at lek sites and subsequently cause birds to flush from a lek. This would interrupt crucial breeding rituals of the species and could result in decreased reproductive activity. Because trucks would stay on established roads, no impacts to nesting habitat would occur.

Where transporting livestock via truck is not viable, sage-grouse would benefit where disturbance at leks and nests, trampling of nests, and habitat modification would not occur. There would be a minor increase in reproductive activity of sage-grouse, Columbian sharp-tailed grouse, and sagebrush associated migratory song birds over the short and long term.

Rocky Mountain Bighorn Sheep/Big Game

Not allowing domestic sheep trailing within the Reeds Grove Allotment (route 03-01 in Alternative B) would eliminate any potential interaction and disease transmission between domestic and bighorn sheep (on the specific trailing route). However, there would only be a negligible reduction in the overall threat to bighorn sheep because domestic sheep could still access the West Pine Allotment through non-BLM-administered lands. Spring trailing would not coincide with bighorn breeding season when rams are most likely to make frequent, long-distance forays.

There would be a negligible increase in available forage for big game in areas where trailing no longer occurred, reducing competition between livestock and big game, potentially benefitting deer and elk over the short term.

Raptors

Trailing-related habitat disturbances would not occur and a minor improvement in nesting habitat (for ground nesting birds), and prey species habitat would occur over the long term. The absence of cross-country trailing events would produce the greatest benefit to upland vegetation in trailing footprints, and the absence of trailing along improved roads would produce the least benefit. Ground nesting raptors like burrowing owls could benefit from slightly improved cover.

Tree or cliff nesting raptors could also benefit as slightly improved cover could provide improved habitat for prey species. Nesting raptor species that avoided cross-country trailing events during the spring could re-populate these areas. This would be expected to result in a minimal increase of nesting raptors due to limited increase in overall defended territory space needed by raptors to forage.

Long-billed Curlew

Trucking activity could flush birds from nest sites. This impact would be negligible as trucking would likely occur outside the ACEC. Removal of trailing and bedding would result in a minor increase in standing vegetation which would make the corridors less suitable for nesting habitat in the short term. There would be a minor increase in nest success because trampling damage from trailing would not occur.

3.8.2.3 **Alternative B**

Greater Sage-grouse

Potential disturbance impacts to sage-grouse lekking activity would occur on 1,138 acres of BLM-administered land. Seven documented, occupied or undetermined leks fall within 0.62 miles of trailing activities proposed between March 1 and May 15. Lekking activities would be impacted when trailing activities occur outside of the 6:00 pm - 10:00 am temporal restriction proposed in Alternative C. The majority of trailing activity would likely occur within the temporal restriction (between 10:00 am and 6:00 pm); therefore, the impact on lekking behavior would be minor. Disturbance of lekking activity would subsequently result in decreased reproduction, but impacts to reproduction would be minor as trailing events would occur over a short temporal scale (1-2 days) and lekking activity occurs over a one- to two-month period.

Bedding would occur on 153 acres of BLM within 4.0 miles of occupied or undetermined sage-grouse leks. Additionally, 11,419 acres of bedding and trailing would occur within 4.0 miles of these leks from April 1 to June 15. Where trailing livestock displace nests from shrubs or trample nests, nesting success of sagebrush-dependent species would be adversely affected. Due to the protective placement of nests by sage-grouse and the overestimation of areas that would actually be impacted by livestock (e.g. the entire 11,419 acres would not be removed as productive sage-grouse nesting habitat, rather direct impacts would only occur where nests are trampled). Sage-grouse fitness could potentially be reduced, but given that the area that could potentially be impacted by livestock encompasses 5% of priority and general habitat in the project area, impacts to sage-grouse productivity in the FRFO would be minor and not enough to measurably affect the population using the project area.

Rocky Mountain Bighorn Sheep/Big Game

Domestic sheep trailing on route 03-01 could result in contact with and disease transmission to bighorn sheep. Although the route is within 14 miles of the Hells Canyon PMU CHHR, and ram forays could conceivably intersect the trailing route, there would be a very low risk of contact between bighorn sheep and domestic sheep (USFS 2010). The one-day trailing event would occur during a 10-day period between March 1 and June 30. The trailing route would occur along an improved road which would allow herders to better manage sheep bands and keep sheep from straying from the herd. Therefore, potential for disease transmission would have a negligible effect on bighorn sheep populations over the long term.

Livestock trailing corridors would affect 23,917 acres of big game winter range on BLM-administered lands. Because the spatial scale and temporal duration of trailing activities would be limited, the impacts of forage competition would be negligible.

Raptors

Trampling and grazing effects on vegetation would be minor (Section 3.4.2.3); therefore, because raptors generally have extensive foraging areas, annual vegetative reductions related to trailing would have negligible, short-term (annually during nesting and brood-rearing periods) effects to habitat that supports raptor prey.

Disturbance of nesting raptors would occur where trailing or bedding activities were within one mile of nests. Spring trailing would occur within one mile of nine ferruginous nest platforms and within 0.25 miles of 47 recorded burrowing owl nests (IDFG 2011), most of which occur in the NCA. Because proposed trailing routes have been used for 20 or more years and trailing activities in the vicinity of nests are relatively short-duration (i.e. generally less than a half day), nesting raptors have either become acclimated to livestock trailing through the area or avoid trailing areas and have not nested along these routes in a number of years. 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 project area.

Because raptor occupancy in the project area outside the NCA has not been thoroughly catalogued, existing sightings likely underestimate the true occupancy. Most of the other species (except for burrowing owls and ferruginous hawks) utilize canyons or cliffs for their nesting activities. Because trailing events would entail movement of livestock of at least three to five miles per day and there would be few trailing routes within one mile of canyons, disturbance to cliff-nesting birds would be negligible.

Long-billed Curlew

Approximately 4,300 acres of the ACEC would be affected by livestock trailing corridors. Potential direct impacts to long-billed curlew from trailing include trampling of nests and flushing birds from nests, which could reduce the reproductive activity of long-billed curlew. However, the impacts would be minor as a limited number of trailing events (four bands of sheep, 5,240 animals total) would be traversing through long-billed curlew habitat during breeding and nesting season. Moderate impacts to nesting could occur at the 10 bedding sites identified. Fall trailing activities would reduce the height of residual vegetation, especially at bedding sites.

3.8.2.4 **Alternative C**

Greater Sage-grouse

Impacts to sage-grouse lekking activity would occur on 1,009 acres of BLM land. Disturbance within 0.5 miles of leks would be moderately reduced relative to Alternative B by reducing cross-country trailing and limiting trailing activities to between 10:00 am and 6:00 pm. Approximately 153 acres of bedding and 11,281 acres of trailing corridors would occur in sage-grouse nesting habitat. More routes would be on unimproved and improved routes than in

Alternative B; therefore, impacts to nesting sage-grouse would negligible to minor over the short term.

Rocky Mountain Bighorn Sheep/Big Game
The risk for contact and disease transmission between bighorn sheep and domestic sheep would be the same as Alternative B.

Approximately 24,120 acres of big game winter range on BLM lands would be affected by trailing corridors. Similar to Alternative B, the impacts from forage competition would be negligible.

Raptors
Activities associated with alternative C would be similar to Alternative B, but slightly less in regards to vegetation impacts to habitat overall magnitude due to stipulations. Trailing stipulations that would affect habitat are primarily associated with burned, treated, and/or weed avoidance areas. Adherence to these stipulations would produce moderate site-specific improvements in prey habitat, primarily by protecting recently burned, stressed, and immature vegetation.

Long-billed Curlew
Approximately 4,317 acres of the ACEC would be affected by trailing corridors. Although routes in the ACEC were modified to address SSP concerns, cross-country travel would be less than in Alternative B. There would be a minor reduction in nest disturbance and trampling compared to Alternative B. Impacts from fall trailing would be the same as Alternative B.

3.8.3 **Cumulative Impacts – Wildlife and Special Status Animal Species**

3.8.3.1 **Scope of Analysis**

Greater Sage-grouse
A 14.5-mile buffer around the West Central and Mountain Home SGPA will be used to assess cumulative impacts for sage-grouse. This buffer would include all preliminary priority and general habitats and the majority (90+%) of key, RI and RII habitats (Table 27). Human activities (e.g. agriculture, residential development, and infrastructure) and wildfires have fragmented or removed suitable habitat between these populations. Telemetry data for sage-grouse in the West Central SGPA documented movements up to 33.6 miles between breeding and wintering habitats; however, the average distance travelled for males and females to winter locations was 14.5 miles (IDFG 2011). Therefore the West Central SGPA was buffered by 14.5 miles to account for the majority of sage-grouse that may utilize the area. Telemetry data that reflects the seasonal movements of sage-grouse utilizing habitats of the Mountain Home SGPA is currently not available. A 14.5 mile buffer was also established for the Mountain Home SGPA to account for sage-grouse that utilize habitat within the Mountain Home SGPA. Additionally, a 14.5 mile buffer incorporates the 11.2 mile buffer suggested in other studies (Connelly et al. 2000).

In relation to sage-grouse, the area assessed for cumulative impacts to sage-grouse in the West Central SGPA includes the FRFO and portions of the Vale District Office (Oregon). While

portions of the Jarbidge FO, Shoshone FO, Sawtooth National Forest, Boise National Forest, and the FRFO include areas assessed for the Mountain Home SGPA. Projects selected for cumulative effects analysis included those that could affect breeding activities and nesting habitat.

Rocky Mountain Bighorn Sheep
The area assessed for cumulative impacts to bighorn sheep includes areas in the FRFO within 25 miles of core habitat and west of Highway 95 that support domestic sheep grazing. This area would represent a moderate or greater risk of contact and disease transmission.

Big Game
Because the impacts identified for trailing would be negligible, there are no cumulative impacts; therefore, cumulative impacts will not be discussed for big game.

Long-billed Curlew
The FRFO boundary will serve as the analysis area for long-billed curlew. Although proposed trailing routes would only affect 4% of the FRFO, the routes are widely dispersed and overlap with long-billed curlew habitats across the FRFO.

Raptors
Considering the small spatial and temporal effect of trailing, the abundance of nesting raptors, and their home range sizes, the project area was deemed appropriate to describe cumulative effects to raptors.

3.8.3.2 Current Conditions and Effects of Foreseeable Future Actions

Past actions to be considered include livestock grazing, range improvement projects, energy infrastructure, road construction and maintenance, fence construction, fuels projects, wildfire and suppression, ESR, habitat restoration projects, agricultural expansion, and OHV recreation. Collectively they have re-shaped natural ecosystems in the FRFO and surrounding areas, resulting in the current wildlife habitat conditions. Historic overgrazing during the late 1800's and early 1900's, along with severe drought, resulted in long-term effects including changes in native plant community structure and species diversity. Historic development and agricultural expansion in lower elevation areas resulted in habitat fragmentation which is largely irreversible. Additionally, the expansion and spread of invasive non-native grasses throughout the FRFO has degraded wildlife habitat, as native perennial grasses and forbs, which provide crucial cover and food, have been replaced. The spread of non-native invasive plant species has been exacerbated by increase of wildfire frequency. Disease transmission and un-regulated hunting resulted in the extirpation of bighorn sheep from much of their historic range.

Actions that will continue into the foreseeable future include livestock grazing, range improvement projects, infrastructure construction and maintenance, and recreation. The effects of future wildfires are also considered because these natural events are predictable to a certain degree based on the number and size of wildfires that have occurred in the past decade.

- Livestock grazing is authorized throughout sage-grouse and big game habitat. Seasons of use, stocking rates, and utilization levels vary by allotment. Current livestock grazing

management practices and range improvements on BLM-administered lands would be designed to maintain or meet Standards and Guidelines by either enhancing poor condition habitat for sage-grouse or other wildlife species or by maintaining good condition areas. Sage-grouse local working groups in the West Central SGPA are continuing efforts to mitigate impacts to sage-grouse habitat on private lands.

  - The Goodrich Permit Renewal would potentially impact sage-grouse within the West Central SGPA. Livestock grazing would be permitted on seven allotments and may impact nesting and lekking habitat on approximately 1,480 acres of BLM land. Three BLM allotments currently authorize domestic sheep within 25 miles of bighorn sheep source habitat. Authorizing domestic sheep grazing on BLM allotments that support bighorn sheep habitat within proximity of bighorn CHHR could pose a disease transmission risk to Rocky Mountain bighorn sheep. The FRFO is considering changing class of livestock from sheep to cattle on these allotments. As a result of the Payette National Forest FEIS, a majority of the sheep grazing allotments on the Payette National Forest have been closed in order to protect bighorn sheep habitat and provide the highest probabilities of persistence for bighorn sheep populations.

  - The Bennett Mountain Permit Renewal would potentially impact 43,000 acres of sage-grouse habitat within the Mountain Home SGPA.

- The Paradigm Project will occur within the Mountain Home SGPA. A 4,365-acre network of fuel breaks would be created beginning in 2013. Although the project could affect small amounts of sagebrush, the project is designed to protect sagebrush communities from wildfires and provide long-term benefits to sage-grouse and other wildlife species. Vegetation management projects in the NCA could disturb raptors short term while they are being implemented. Habitat improvements from any of the projects would benefit raptors and their prey over the long term.

- Authorized and unauthorized cross-country OHV activities occur throughout the FRFO, and although the spatial and temporal extent is difficult to quantify, the effects to wildlife would be short-term disturbance and short or long-term habitat modification.

- Accounting for some overlap, wildfires burned approximately 217,819 acres of uplands from 2001 to 2011. Locations and amounts of impacted habitat are impossible to determine, but up to 20,000 acres could be affected annually. Given the interim guidance that the BLM is currently under (USDI 2011), protection (suppression) and rehabilitation (ESR) of sage-grouse habitat is a priority. However, because of slow growth rates for shrubs and competition from invasive annuals, recovery to native shrub and herbaceous dominated communities could take 10-30 years after treatment. Long-term recovery could occur, but burned areas would provide low-quality habitat over the short term. Protection of sage-grouse habitat would benefit other wildlife species.

3.8.3.3 **Cumulative Impacts - Alternative A**

Greater Sage-grouse

Moving trailing to non-BLM-administered lands and/or trucking livestock would have a negligible short-term improvement on breeding and nesting success. Livestock grazing management and OHV activities would affect the majority of the analysis area and occur throughout the breeding and nesting seasons. Impacts from these activities would be minor to moderate on an annual basis. Wildfire and vegetation treatments would occur over smaller areas, but would have long-term affects to nesting and breeding habitats. Therefore, trailing removal would have negligible additive impacts.

Rocky Mountain Bighorn Sheep

Changing livestock from domestic sheep to cattle on BLM-administered lands in the West Pine Creek and Cambridge allotments could have a minor long-term reduction in potential disease transmission. However, domestic sheep grazing could continue on the private lands in 91% and 64% of the allotments respectively and on other private lands. Removing trailing on BLM-administered lands would have no cumulative effect on potential disease transmission. Trailing sheep could be present on private lands for one day and grazing sheep could be present throughout the year.

Raptors

Minor habitat improvements from trailing removal would have a minor cumulative benefit relative to the effects of wildfires and vegetation treatments. The moderate degree of change from wildfires and vegetation treatments would occur over similar or larger areas over the long term. There would be a negligible reduction in trailing-related disturbance factors. Other disturbance factors would likely be short duration, but because some (e.g., OHV activity, grazing) are more ubiquitous and occur throughout the nesting periods, their impacts would be minor to moderate annually. Removal of trailing would have negligible additive cumulative effects.

Long-billed Curlew

Moderate to heavy grazing utilization in grassland communities provides short-term benefits for curlew nesting habitat; however, most BLM-administered allotments (especially outside the ACEC) are managed for $\leq$50% utilization levels. Wildfires that convert shrublands to grasslands could create nesting habitat. Grazing and wildfire occur throughout curlew habitat; therefore, changes in trailing would have a negligible cumulative effect on nesting habitat.

3.8.3.4 **Cumulative Impacts - Alternatives B and C**

Because only minor differences in impacts were identified between alternatives B and C, the following analyses will apply to both alternatives.

Greater Sage-grouse

Activities considered in the analysis area, as described in Alternative A, are expected to continue as they have (e.g., livestock grazing, wildfire) or will benefit sage-grouse through habitat enhancement and protection (e.g., ESR treatments, Paradigm Project). Trailing activity would impact approximately 5% (up to 11,419 acres) of the total Priority and General Habitat within

the FRFO. The minor impacts to sage-grouse incurred by trailing and limited area affected would cumulatively have negligible additional impacts on sage-grouse populations.

Rocky Mountain Bighorn Sheep
Cumulative impacts related to bighorn sheep would be as described in Alternative A.

Raptors
Impacts of other activities would be as described in Alternative A. Minor habitat impacts associated with trailing would negligibly add to short-term habitat loss caused by wildfires and vegetation treatments. Long-term habitat improvements associated with vegetation treatments would offset impacts from trailing. Trailing activities would have negligible additional disturbance activities relative to the degree and scope of other disturbance activities.

Long-billed Curlew
Proposed trailing routes would impact up to 9% of potential curlew habitat (Exotic Annual or Bunchgrass cover types) in the analysis area. Livestock grazing and, to a lesser degree, OHV use would occur throughout these cover types and would have minor trampling and minor to moderate disturbance impacts annually. There would be a moderate increase in these cover types over the short to long term because of wildfires, although vegetation treatments could limit those increases over the long term. Because of the abundance of curlew habitat, widespread nature of other impacts, and likelihood of increase in amount of habitat, trailing activities would have a negligible additive cumulative impact.

3.9 Cultural Resources

3.9.1 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. They include definite locations or sites, structures, historic trails, natural features, or items that have traditional cultural or religious importance to a specific social or cultural group. For compliance with section 106 of the NHPA, BLM addresses impacts to historic properties. Historic properties are a subset of cultural resources that are listed or eligible for listing on the National Register of Historic Places (NRHP).

To analyze how livestock trailing would impact cultural resources, the FRFO archaeologist conducted a records review (Class I Inventory) using existing data. The GIS database used by the BLM and the Idaho State Historic Preservation Office (SHPO) consists of polygons that depict where surveys have been completed and point data where cultural resource sites have been recorded. This database was merged with the proposed trailing corridors to complete the analysis.

The proposed trailing corridors and bedding areas were used to define the area of potential effect (APE) on BLM-administered lands. The APE is defined as a 0.25-mile wide corridor that would be used for trailing, plus bedding areas which encompass up to 40 acres each. Because the corridors identified in alternatives B and C are similar, the APE is a combination of the two

alternatives. An intersection of known sites and the APE indicated where trailing activities could impact known cultural resource sites.

Seventy-two known cultural resource sites (sites) occur in the APE on BLM-administered lands; however, only two are known to occur in identified bedding sites and neither are considered historic properties. At least nine sites would not be accessible to livestock because of physical barriers. The sites included lithic scatters, historic scatters, cairns, rock feature sites, lithic quarries, multicomponent sites, road segments, and other types of sites. Most of the sites have not been evaluated for their eligibility to the NRHP, but most would not be considered historic properties because the sites lack the required characteristics (e.g., not related to a famous person or important events, not the work of a master, or don't contain significant new scientific information). Individual site conditions have been documented; however, most have not been monitored to determine trailing impacts. Because of the historic annual use of trailing routes, surface context has been compromised through time, but is relatively stable, and subsurface context has remained intact.

Some of the proposed trailing corridors cross, or follow along or near historic trails. Seven events would cross the main Oregon Trail/Kelton Road, three would cross the North Alternate, and five would cross Goodale's Cutoff. One corridor would follow the Oregon Trail, two would follow the North Alternate, and six would follow Goodale's Cutoff.

3.9.2 Environmental Consequences – Cultural Resources

3.9.2.1 General Discussion of Impacts

Direct impacts from trailing and bedding could include surface disturbance and soil compaction with subsequent damage to and repositioning of artifacts through trampling. The presence of livestock can impact sites by leaving hoof prints, churned soils from trampling, depressions, wallows, and incised paths. These actions by livestock physically damage and move artifacts and cultural features. In addition to artifact breakage, a loss of site integrity and loss of archaeological context information occurs. Livestock trailing transports, moves, buries, and uncovers artifacts and features horizontally across the site surface and moves them vertically through the site sediments. Livestock defecation and urination reduces the aesthetics of cultural sites.

Livestock trailing could also cause indirect impacts. Livestock remove vegetation by ingesting or trampling plant materials which could facilitate erosion and subsequent damage or complete destruction of sites. Impacts from wind and water erosion would be increased where vegetation is damaged or removed resulting in artifact transport, artifact burial, and artifact exposure which could facilitate subsequent damage to or destruction of sites.

Variables that may worsen or mitigate impacts to cultural resources include: livestock type (cattle, horse, or sheep), season of use, soil moisture, route type, and number of animals.

Livestock Type – Horses, with their hard hooves that often have metal shoes, would have the greatest potential to impact soils at sites. Cattle would have a moderate potential and sheep would have a minor potential to impact soils.

Season of Use – Use during the summer would cause the most impacts because hard, dry soils would increase artifact breakage and would be more susceptible to erosion. Impacts would be negligible to minor during the winter because frozen soils would hold their shape, and snow could provide an added protective layer. Minor to moderate impacts would be expected in spring and fall when soils are potentially moist to saturated, but vegetation would help reduce impacts.

Soil Moisture – Trailing when soils are saturated could cause moderate impacts because it could cause artifacts to be moved vertically through the soil profiles as heavy livestock punched through the soils while possibly pushing a surface artifact down several inches into the buried sediments.

Route Type - Generally, the magnitude of the impacts to cultural resources would be negligible along improved roads because animals primarily trail on previously disturbed areas (e.g., road and associated maintained border); minor along unimproved roads because animals, especially sheep, could trail on relatively undisturbed areas adjacent to the roads; and moderate for cross-country trailing events because there is no previously disturbed road area to follow.

Livestock Numbers – Impacts would increase as the number of trailing livestock increased. Impacts would be greatest where multiple trailing events occur in the same corridor and large or substantial numbers of animals were present. Areas where livestock congregate receive additional impacts because more animals would be confined to a smaller area for a longer amount of time.

The magnitude of trailing impacts on sites could range from no effect to major effect. One trailing livestock could break a unique artifact or destroy a feature; then, each additional animal increases the chance of impacting that site. The potential for damage to surface and subsurface sites would increase where livestock and/or humans congregate (e.g., bedding and existing watering sites, campsites, corrals, animal processing areas) or when soil moisture conditions are at or near saturation.

Livestock trailing can cause short-term ($\leq$1 year) and long-term (>1 year) effects. The indirect effects of trampling and ingesting vegetative cover at a site would be short term because vegetation would grow back in time. Slight erosion on a site caused by livestock could be short-term because of vegetative regrowth. The magnitude of these examples would be considered to be a negligible effect to site integrity. Trailing event duration would range from less than one to 12 days, with most events lasting less than one day. Because the livestock are moving, they usually spend less than a minute in a cultural resource site and thus are considered to be a short-term impact. Long-term impacts to cultural resources that could occur as a result of trailing include breakage of artifacts or loss of site integrity.

Some sites are protected from trailing impacts because fences or impassable terrain are located between the trail and the recorded cultural sites. Other sites would be protected from impacts due to the inherent nature of the site, such as a pictograph on the underside of an overhanging rock outcrop in a steep draw or hunting blinds on steep canyon slopes. Rock cairns, rock walls

and other rock features would not be affected by trailing because livestock tend to walk around the features instead of walking into the features. Historic scatters would not likely be affected by trailing because the characteristics that make them significant, such as bottle bottoms and bottle tops, would not be broken by trailing livestock.

3.9.2.2 **Alternative A**

The 63 sites would be protected over the long term from impacts caused by trailing livestock. Breakage or loss of site context and integrity caused by trampling would not occur on more than 50,000 acres. There would be a negligible to minor improvement in site integrity over the long term where vegetation that protects sites is maintained or increases. However, an undetermined number of historic properties and historic trail segments located within new trailing corridors on private and State lands could be impacted if livestock operators choose to trail across and/or along historic trails located on non-BLM–administered lands. Trucking on existing roads would have no or negligible effects on historic properties; however, minor to major effects could occur where trucks travel off established roads or where animals are congregated. New areas would be subjected to direct effects (e.g. artifact damage) and indirect effects (e.g. loss of site integrity because of damage to vegetation).

3.9.2.3 **Alternative B**

Based on a data review, no recorded sites occur within 21 trailing corridors; therefore, no historic properties would be affected by granting trailing permits for those corridors. Site integrity in the remaining corridors would remain static over the long term where minor changes in soils and vegetation occur and could have a minor decline where moderate changes in soils and vegetation occur.

Horse trailing would have a negligible effect on six sites. A small group of animals would trail on an improved road during November when soils would not be saturated.

Cattle trailing would have a negligible to moderate effect on up to 43 sites. Eight sites would be negligibly affected because they are associated with improved roads, whereas minor to moderate affects could occur on sites associated with unimproved (15 sites) or cross-country (16 sites) routes. Minor to moderate effects could occur at 18 sites where cattle would trail in both the spring and fall and minor effects could occur where cattle trail in the spring (4 sites), fall (12 sites), or any season (5 sites). Minor impacts would occur where small (27 sites) or medium (6 sites) herds would be trailed and minor to moderate impacts could occur where large herds would be trailed (6 sites). Only one site would be affected by a large number of animals travelling cross-country during both the spring and fall. Moderate long term affects could occur at 11 sites where cattle are trailed cross-country during the spring when soils could be saturated.

Sheep trailing would have a negligible to moderate effect on up to 28 sites. Nine sites would be negligibly affected because they are associated with improved roads, whereas minor to moderate affects could occur on sites associated with unimproved (4 sites) or cross-country (15 sites) routes. Minor to moderate effects could occur at 12 sites where sheep would trail in both the spring and fall and minor effects could occur where sheep trail in the spring (5 sites) or fall/winter (11 sites). Minor impacts would occur where small (6 sites) or medium (11 sites) herds would be trailed and minor to moderate impacts could occur where large (9 sites) or

substantial (2 sites) herds would be trailed. Five sites would be affected by a large or substantial number of animals travelling cross-country during both the spring and fall. Negligible or minor long-term impacts could occur at 10 sites where sheep are trailed cross-country during the spring when soils could be saturated.

Impacts to historic trails would be negligible because the trailing corridors usually cross or run parallel to historic trails they are overlaid with improved roads. The crossings would be very short in duration and considered a short-term impact. Trailing along or near historic trails would usually only be for a short distance and would last for a short period of time.

3.9.2.4 **Alternative C**

Impacts to cultural resources would be the similar to those described in Alternative B; however, altering routes to address other resource concerns would also avoid eight sites (one associated with cattle trailing on an unimproved road, one associated with sheep trailing on an unimproved road, and six associated with sheep trailing cross country during the spring and fall). Because eligible sites identified within the APE would be avoided, no impacts would occur in staging, bedding, or portable trough areas. Stipulations that limit the width of trailing routes (e.g., through burned areas or special status plant occurrences) would help reduce or eliminate impacts in those areas. Not trailing animals when soils are saturated would eliminate long-term impacts where cattle (20 sites) or sheep (18 sites) trail cross-country or on unimproved roads in the spring.

3.9.3 **Cumulative Impacts – Cultural Resources**

3.9.3.1 **Scope of Analysis**

The geographic scope for analyses was limited to the APE for the proposed trailing analysis. Direct and indirect (associated with site integrity) effects identified above were limited to the immediate proximity of sites.

3.9.3.2 **Current Conditions and Present Effects of Past, Present, and Foreseeable Future Actions**

Current and past effects to historic properties include permitted grazing and associated trailing and rangeland management projects; recreational activities; wildfires and ESR treatments; and natural weathering and deterioration of cultural sites.

- Grazing, concentrated livestock use associated with rangeland management projects, and trailing have been occurring for decades throughout the APE. After 20 years of observing livestock-related impacts, the FRFO archaeologist has observed that livestock often impacted only the top few inches of a cultural site. Surface integrity is generally lacking for lithic scatters and other portable artifacts due to a number of factors, including those listed previously. Most sites in the APE are sparse lithic scatters. Field visits have shown that the top 4” of a site lacks spatial integrity and in the case of sparse lithic scatters, they do not contain the requisite characteristics to qualify for eligibility to the NRHP.

- Recreational uses, primarily OHV use and hunting, occur throughout the APE and have no to minor effects on cultural resources except where OHV use is heavy (e.g., high density of roads or trails) or where sites have been vandalized.
- Forty sites have been affected by wildfire since 1980. Short-term loss of protective vegetation made them susceptible to erosion until vegetative cover re-established. ESR treatments avoided sites and helped stabilize soils over the long term to reduce erosional effects.
- Natural weathering and deterioration would have a negligible (where sites are protected by stable soils and perennial vegetation) to minor (where sites are associated with soil erosion and annual vegetation) effect over the long term.

Future impacts would occur from the uses listed above and authorized activities occurring on BLM-administered lands listed in Table 3. Cultural resources on BLM-administered lands would be protected by the NHPA, and any adverse impacts to eligible sites from authorized activities would be avoided or mitigated by following protocols designed to comply with Section 106 of the NHPA.

3.9.3.3 **Cumulative Impacts - Alternative A**

Not permitting trailing would eliminate trampling impacts and improve site integrity; however, it would have a negligible benefit relative to impacts from other activities occurring in the APE. Negligible to minor impacts from grazing, wildfire, recreational uses, and natural weathering would occur annually over some or the entire APE.

3.9.3.4 **Cumulative Impacts - Alternative B**

Trailing impacts would be a negligible and additive impact to cultural resources in the APE. Negligible to minor impacts from grazing would occur annually over the entire APE, but would not always overlap temporally (e.g., where vegetation regrowth occurs after fall, winter, or early spring use and before trailing use). There would be a low degree of spatial overlap between recreational uses and trailing because OHV use primarily occurs on existing maintained and unmaintained routes. Cross-country OHV use is widespread; however, repeated use that causes loss of vegetation occurs in a small portion (<1%) of the APE. In a normal or above average fire year (e.g., 2012), wildfires could affect 5-10% of the APE and negligible to minor short-term affects to site integrity could overlap spatially and temporally with trailing events. Natural weathering would occur throughout the APE and temporally overlap trailing.

3.9.3.5 **Cumulative Impacts - Alternative C**

Trailing impacts would be a negligible and additive impact to cultural resources in the APE, but the stipulations would protect eight sites and reduce adverse impacts to at least 24 sites. Impacts from trailing would not overlap impacts from wildfire and ESR treatments either spatially or temporally. The magnitude and overlap of grazing, recreational uses, and weathering would be as described in Alternative B.

3.10 **Livestock Management**

3.10.1 **Affected Environment – Livestock Management**

Grazing Permittees

The FRFO administers livestock grazing on 318 allotments, using 290 permits that annually allocate up to 156,821 AUMs (including 7,229 suspended AUMs). Many of these allotments are further divided into pastures to facilitate livestock grazing management practices. Livestock grazing in these allotments has either been addressed, is being addressed, or is scheduled to be addressed in EAs. The EAs modify livestock grazing as necessary to conform to Standards and Guidelines and land use plan objectives.

Livestock Trailing Applicants

The FRFO received 24 applications for crossing permits requesting permission to trail livestock across BLM-administered lands (Table 1). Approximately 340 miles of proposed routes would cross 108 grazing allotments where up to 4,446 AUMs would be used. When trailing livestock, operators plan their routes to avoid roads with high speed traffic, existing concentrations of livestock, routes that are tortuous or longer than necessary, and difficult or impassable geography. They take advantage of fenced fields with available watering sites that they either own or have permission to use for overnight stops, as well as terrain conducive to orderly and efficient movement of livestock when planning a trailing route. Trailing along fence lines is one means of controlling cattle. Locations of gates are also taken into consideration when multiple pastures must be crossed. Before beginning a trailing event, livestock operators also must consider weather, soil conditions, range readiness, and other factors when deciding whether destination allotments would be available for use.

3.10.2 **Environmental Consequences – Livestock Management**

The following assumptions apply for analysis purposes:

- Road conditions would limit the timing of livestock turnout or removal; in some years snow drifts or wet road surfaces could prevent access and/or safe travel (e.g. during spring or after October 1).
- Most of the trailing routes have been in use for many years and in some cases use pre-existing, though expired, livestock driveways.

3.10.2.1 **General Discussion of Impacts**

Trailing livestock across an allotment when permitted livestock grazing is occurring could result in the following direct and indirect impacts to forage and livestock/operations:

- Reducing availability of forage for permitted livestock
- Creating resource conflicts, through timing, intensity, or other mechanisms that would not be present under existing grazing permits
- Interfering with the distribution or breeding of permitted livestock
- Increasing cost to maintain, repair, or replace range facilities (e.g. fences, water developments, troughs) used, damaged, or otherwise rendered unavailable due to use by trailing livestock

Impacts to crossing permit applicants that could result from modifying or denying their applications for crossing permits would include changes in access and cost:

- Access
  - Temporal modifications to trailing and permitted use of allotments dictated by road conditions
  - Potential inaccessibility of some portions of routes or of allotments by trucks, even under favorable road conditions
  - Requiring overnight stops outside of fenced fields that would otherwise prevent livestock drift

- Cost
  - Costs incurred by trucking, modified trailing, and possible combinations of the two
  - Lengthening of routes requiring additional time to complete the trailing event and/or additional overnight stops
  - Lengthy segments with restrictions that would require additional herders for livestock control

Costs for trailing, feeding, and trucking were determined for sample cattle herds (500 head) and sheep bands (1,600 head) based on information provided by applicants and permittees (Table 30).

Table 30. Trailing and trucking cost per mile and feeding cost per month for sample cattle herds and sheep bands, Four Rivers Field Office, Idaho.

	Cattle	**Sheep**
Sample Herd/Band Size	500	1,600
Average Cost of an AUM	$12	$12
Trailing		
# Cowboys or Herders Required	4	2
Labor Cost/Day	$450.00[1]	$79.00
Miles Travelled/Day	10	5
Labor Cost/Mile	$45.00	$15.80
AUMs/mile	1.6	2.1
AUM Cost/Mile[2]	$19.20	$25.20
Total Cost/Mile	$64.20	$41.00
Trucking		
# Animals/Truck	32 (spring) – 40 (fall)	200
#Trips Required/Herd or Band	8	13 (fall) – 16 (spring)
Cost /Truck/Mile	$7.82	$4.15
Cost/Herd or Band/Mile	$62.56	$53.95 (fall) - $66.40 (spring)
Feeding		
AUMs/month	500	320
AUM Cost/Month	$6,000	$3,840

[1]Includes rider and horse.
[2]This cost would only be incurred if private landowners charged trailing applicants for AUMs.

3.10.2.2 **Alternative A**

Grazing Permittees

Forage - There would be a minor increase in forage availability in both the short (<1 year) and long term (≥1 year) because trailing livestock would not trample or consume up to 4,446 AUMs annually. Increased forage availability would be most beneficial during drought years when overall plant productivity is reduced. In above average production years, additional forage availability would have a negligible benefit relative to the overall increase in productivity.

Livestock/Operational Conflicts - Trailing associated interference with permitted livestock, resource conflicts, or range facility costs would not occur resulting in a negligible to minor short-term improvement in allotment operations.

Crossing Permit Applicants

Access – There could be minor access impacts for cattle operators. All destination grazing areas (allotments or other areas used for grazing) that cattle would be trailed to could be accessed by trailing across non-BLM-administered lands or trucking. There would be minor to major access impacts for sheep operators. Where alternative trailing routes are not available, animals would need to be trucked. Destination grazing areas could not be accessed until lambs are large enough to be trucked without risk of injury (approximately four months). Trucking in the fall would be an option for cattle and sheep operators. Destination grazing areas that are not accessible by maintained roads or alternative trailing routes would not be available for use.

In most cases, applicants would be required to negotiate with private landowners for trailing access. If private lands required for alternative trailing routes could not be accessed, then destination grazing areas would not be available for use.

Weather conditions could delay vehicle access for one day to a few weeks causing a minor impact on operators that need to truck livestock. Weather conditions would have a negligible effect on operators that could trail livestock on alternative routes.

Costs – Alternative trailing routes could cause negligible to minor increases in expenses depending on the increase in miles and days required to trail. Currently used routes likely represent the most efficient route for accessing destination grazing areas; therefore, alternative routes would likely be longer and take more time. Facilities and space necessary for bedding might not be available, safe, or feasible. Additionally, harm to animals from trailing along highways or other roads with heavy traffic could occur, especially during spring trailing events with young animals. Costs would increase proportionally with herd size and the need for additional herders, supplies, vehicles, and overnight stays.

Trucking costs would be a minor to moderate expense for cattle operators depending on the distance trucked. One cattle herd (500 animals) would cost up to $63/mile to truck (Table 30). Feeding cattle herds until they could reach destination grazing areas would cost $6,000/herd/month.

Trucking costs would be a minor to moderate expense for sheep operators depending on the distance trucked. One sheep band (1,600 animals) would cost up to $66/mile to truck (Table

30). Feeding ewe/lamb bands until lambs are old enough to be trucked (four months) would cost $3,840/band/month or up to $268,800 if none of the applicants' 28,000 sheep could find alternative spring trailing routes.

3.10.2.3 **Alternative B**

Grazing Permittees

Forage - Forage allocations for trailing would have a minor effect on 48,148 acres in 108 grazing allotments. The 4,446 AUMs allocated for trailing would be 3% of the total active AUMs (149,592 AUMs) currently authorized and 4% of the average AUMs billed annually (110,572 AUMs) between 2001 and 2011. Seventy-three events with 1,909 AUMs would occur for cattle and 21 events with 2,525 AUMs would occur for sheep.

Impacts would occur primarily when trailing events occur during the growing season (3/1 – 7/15). Because cattle generally graze at bedding sites and not along the trail, these impacts would primarily occur on six multi-day ($\geq$2 days) trailing events that account for only 215 AUMs. Sheep would be more likely to feed along the trail as well as at bedding sites. Ten sheep trailing events would occur during the growing season and would utilize up to 1,219 AUMs. Some regrowth could occur where spring trailing occurs prior to May 1 on the Snake River Plain and June 1 in the foothills and mountains during the early part of the growing season.

Forage loss due to trampling would vary by route type, herd size, and season of use. Negligible to minor effects would occur adjacent to improved roads whereas minor (small to medium herd sizes) to moderate (large to substantial herd sizes) would occur on cross-country routes. Minor short-term impacts would be expected from trailing events that occur outside the growing season and along improved roads whereas minor to moderate impacts would be expected to occur from cross-country trailing events that occur during the growing season.

Livestock/Operational Conflicts - Disruption to permitted livestock grazing by trailing activities would be negligible to minor because many allotments consist of numerous pastures, livestock (mostly cattle) would not always be present in the same pastures as a trailing event, and the majority (67%) of trailing corridors would occur along roads. Coordination and communication between grazing permittees and trailing permittees would help alleviate this conflict. However, minor impacts could occur where trailing and grazing livestock breeds are incompatible, trailing bulls disrupt grazing cows and calves or attempt to breed with grazing cows, or when grazing livestock are being moved between areas concurrent with the presence of trailing livestock.

Overlap of proposed cattle trailing and authorized cattle grazing could occur during 55 trailing events, up to 32 of which would occur during the spring use period (11 of which could occur outside the spring use period because of the length of the permitted trailing period). Potential sheep trailing conflicts on allotments with permitted cattle grazing could occur on up to 12 proposed routes; however, conflicts would be minimal as long as all gates passed through are closed. Sheep/sheep conflicts could occur on up to five allotments where a total of 21,600 sheep would trail concurrently with permitted sheep use. Many of these trailing routes have been in use for years and BLM has not been made aware that these conflicts pose any threat or cost to ongoing grazing activities.

There could be negligible short-term impacts to range facilities caused by excessive use; however, these are generally repaired by the crossing applicant once their animals have left.

Crossing Permit Applicants
Access – There would be no effect on the ability of applicants to access destination feeding areas because traditional trailing routes would be permitted.

Costs – There would be no increase in trailing costs beyond those normally incurred during trailing (Table 30).

3.10.2.4 **Alternative C**

Grazing Permittees
Forage – Impacts to forage availability would be similar to those described for Alternative B. One additional allotment and 919 fewer acres would be affected. There would be a negligible increase in forage availability where cross-country routes were modified to unimproved and improved roads.

Livestock/Operational Conflicts - Impacts from livestock/operational conflicts would be nearly identical to Alternative B. In the additional allotment affected, spring sheep trailing would have a negligible effect on grazing cattle.

Crossing Permit Applicants
Access – Impacts would be the same as Alternative B.

Costs – Route changes would have a negligible impact on trailing costs by adding two miles (0.3% increase over Alternative B) to the overall route mileage. Requirements to reduce route widths in SSP habitat, vegetation treatments, noxious weed locations, and at the Alkali Creek crossing would have negligible to minor short-term impacts because of potential increased herding costs. Implementation of soil moisture criteria could have a negligible to minor short-term impact where spring trailing events were delayed until criteria were met. Some feeding costs could be incurred by the delay.

3.10.3 **Cumulative Impacts – Livestock Management**

3.10.3.1 **Scope of Analysis**

The scope of analysis for cumulative impacts to livestock management extends to the FRFO boundary. The FRFO was selected as an outer limit for cumulative impacts because trailing routes cross many grazing allotments administered by both the BLM (109 out of 318 allotments in the FRFO) and Forest Service and would be used to operate associated grazing systems.

3.10.3.2 **Current Conditions and Effects of Foreseeable Future Actions**

The collective effect of past actions (Table 3) has contributed to the current conditions of livestock grazing within the project area. In relation to this analysis, the effects of current and foreseeable future activities will include: livestock grazing permit renewals, vegetation treatments (i.e. ESR, habitat restoration projects, and noxious weed management), development,

and OHV and recreational activity. The effects of future wildfires are also considered because these natural events are predictable to a certain degree based on the number and size of wildfires that have occurred in the past decade.

- Permitted livestock grazing is authorized under 10-year grazing permits throughout the FRFO. When permits are renewed based on the Standards and Guidelines process (fully processed), changes in permit terms and conditions (e.g. livestock numbers, season of use, AUMs) are made where allotments are not meeting standards and livestock are a significant factor. Since 1997, 169 allotments in the FRFO have been fully processed. Where permits have been processed, livestock grazing management has improved, and many degraded vegetation communities have either stabilized or are improving. For allotments affected by proposed crossing permits, 34 have been assessed, 23 were not meeting standards and livestock were determined to be a significant factor, and 11 of those have been fully processed.
- Vegetation treatments could affect approximately 21,000 acres annually. Depending on vegetation recovery objectives, these areas could be unavailable for grazing for zero (for weed treatments) to 10 years (restoration activities in the NCA). Vegetation treatments are designed to stabilize and improve vegetation communities, with an emphasis on perennial plants; therefore, long-term stability and availability of forage would be one expected outcome.
- Large-scale developments that result in loss of open space could eliminate livestock trailing in some areas.
- OHV and recreational activity occurs throughout the FRFO and can adversely affect livestock operations by harassing livestock, leaving gates open allowing livestock access to unauthorized or unintended use areas, and reducing or eliminating vegetation in use areas.
- Approximately 20,000 acres of BLM-administered lands burn annually in the FRFO. Burned areas are normally closed to livestock grazing and permitted use is reduced until vegetation recovery objectives are met. Depending on supplemental fencing to allow grazing in unburned portions of pastures, approximately 2,000 AUMs (assuming 10 ac/AUM average stocking rate) could be affected annually.

3.10.3.3 **Cumulative Impacts - Alternative A**

Grazing Permittees

Forage – Reductions in forage availability from grazing permit modifications, grazing closures associated with wildfire and vegetation treatments, and recreation activities could have negligible (primarily recreation) to major (e.g. closure that affects an entire allotment) long-term effects on individual permittees and minor impacts to overall forage availability. The addition of 4,446 AUMs not allocated to trailing would have a negligible cumulative benefit at both the permittee and area-wide levels, but no benefit where allotments are closed because of wildfire or vegetation treatments

Livestock/Operational Conflicts – Potential disruptions associated with OHV and recreational uses could have negligible to moderate short-term impacts primarily at the allotment level. Potential for impacts would be greatest near population centers and lower in more remote areas.

Removal of livestock conflicts caused by trailing animals would have a negligible cumulative benefit relative to disruptions caused by OHV and recreational users.

Crossing Permit Applicants
Access – Area closures related to wildfires, vegetation treatments, or developments on State or private lands would have negligible impacts on access to destination feeding areas. Routes through (i.e. wildfire, vegetation treatments) or around affected areas would generally be available. Not issuing crossing permits would have a minor to major additional cumulative impact.

Costs – Closures of destination feeding areas because of wildfires or vegetation treatments would have moderate to major impacts while those areas are closed. There would be minor short-term increases in costs because of restrictions associated with moving through or additional miles required to go around closed or altered areas. Not issuing crossing permits would have a negligible to minor additional cumulative impact.

3.10.3.4 **Cumulative Impacts - Alternative B**

Grazing Permittees
Forage – Trailing has not been a factor in whether allotments are meeting standards; therefore, crossing permits would have no cumulative effect on whether or not forage allocations would need to be modified when grazing permits are issued under the Standards and Guidelines process. Additional forage allocated to trailing livestock would have a negligible (throughout the FRFO) to minor (at the allotment level) cumulative impact relative to the amount of forage that could be affected by closures related to wildfires or vegetation treatments.

Livestock/Operational Conflicts – Impacts from other activities would be as described in Alternative A. Impacts from trailing livestock would have a negligible (FRFO-wide) to minor (on allotments with greater levels of OHV and recreation use) cumulative impact over the short term.

Crossing Permit Applicants
Because no impacts were identified for crossing permit applicants, there would be no cumulative impacts related to access or cost.

3.10.3.5 **Cumulative Impacts - Alternative C**

Grazing Permittees
Forage – Impacts would be the same as Alternative B.

Livestock/Operational Conflicts - Impacts would be the same as Alternative B.

Crossing Permit Applicants
Access – Impacts related to closures or restricted access areas would be as described in Alternative A. Issuing crossing permits with minor restrictions would have a negligible additional cumulative impact.

Costs – Impacts would be the same as Alternative B.

3.11 **Recreation Management**

3.11.1 **Affected Environment – Recreation Management**

The BLM provides for outdoor recreation as part of the "multiple-use" principle. It recognizes that recreation and tourism play an important role in public land management. The variety of recreational opportunities available in the project area ranges from primitive opportunities in remote locations to trail use adjacent to urban settings. These recreational opportunities are primarily dispersed in nature, meaning the activities are resource dependent where visitor services and recreational developments are minimal. Activities include camping, hunting, boating, fishing, white-water rafting, hiking, target shooting, rock-hounding, photography, birding, and exploring back roads and trails by car, OHV, mountain bike, and horse.

One exception to this dispersed recreation prominence is the Boise Front, the foothills adjacent to Boise. Here, the Ridge to Rivers Trail System, a 100+ mile network of trails and trailheads, has been built to provide motorized and non-motorized opportunities to local residences. Ridge to Rivers trails are managed jointly by local, state and federal agencies. Annually thousands of users take advantage of the trail opportunities provided. The trail system is recognized as a major amenity of the City of Boise. Annually, two competitive special recreation permits are authorized in the project area for foot races. Several competitive mountain bike races also occur on trails in the western portion of the Boise Front.

3.11.2 **Environmental Consequences – Recreation Management**

3.11.2.1 **General Discussion of Impacts**

General impacts to the visitor may include disruption of their activity from the direct contact with the sights and sounds of livestock management activities. Direct disturbance or changes in the recreational users' experience may occur when users encounter trailing animals at times or places where they are not expected. Physical damage or changes to recreation related facilities may also occur from direct impacts (trampling of trails, livestock rubbing against or pushing over signs, or trail tread being broken up by hoof action). Physical impact to visitors (i.e. injuries) may occur when users are directly attacked or hit by livestock or associated guard dogs or are injured while trying to avoid trailing animals (e.g. falling from bike). Motorized activities are common for visitors and direct impacts could occur when trailing animals and recreational use of vehicles happen to be using common routes concurrently.

Indirect impacts may occur to recreational users by the perceived changes in the naturalness of an area when livestock are encountered or by evidence left behind of livestock use (e.g. heavily trampled vegetation or abundant feces).

The duration of trailing's impacts may be short term (during actual trailing) or may be longer term where evidence of trailing leaves a lasting impact to the naturalness of an area. The likelihood of encounters with recreationist would be greater where trailing occurs in Special Recreation Management Areas (SRMAs) such as the Boise Front, or close to populated areas.

The overall level of impacts to recreation use would be minimal because of the dispersed nature of the majority of recreational use in the project area where trailing occurs. Therefore, these impacts will not be discussed in detail. However, the exception to this is in the heavily used Boise Front, where trailing occurs in an area managed specifically to enhance recreational trail experiences. Therefore, recreation impacts are discussed in detail for each alternative only for trailing events in the Boise Front.

3.11.2.2 **Alternative A**

Users would not encounter trailing animals while recreating during the spring and fall and their recreational experiences would not be altered by trailing events. Trail tread would not be broken and debris would not be knocked onto trails resulting in no additional need for repair work or additional maintenance. Visitor experiences of a natural environment would not be affected by long term changes in wildlife habitat or vegetation due to trampling.

3.11.2.3 **Alternative B**

Impacts to recreational opportunities and visitors would be moderate from two spring (02-01) and three fall (02-04) trailing events in the Boise Front. Trailing would have localized, short-term effects on users that unexpectedly encounter livestock animals while recreating. While effects may be short-term to any one person, the total number of individuals affected could be great due to the use levels of foothills trails. Trails would be affected by hoof action breaking up tread surface when animals are trailed directly on trails. Debris material could also be deposited onto trails when animals are moving adjacent and uphill of trails. Additional work would be required to repair damaged trail tread and remove debris from trails. This impact could create a moderate workload when trailing follows after regular trail maintenance has occurred for the season. Debris on trails could also directly affect users if the debris caused an accident or injury.

3.11.2.4 **Alternative C**

Impacts to recreational opportunities and visitors would be similar to those described in Alternative B with the exception of trail conditions following trailing. Having the permittee clear and repair the trail after animals have passed through would lessen the potential for users being directly affected by trail conditions. The need for additional trail work or maintenance would also be reduced.

3.11.3 **Cumulative Impacts – Recreation Management**

3.11.3.1 **Scope of Analysis**

The analysis area for cumulative impacts to recreation is the Boise Front. The area was selected because the trailing routes overlap with special recreation management area designations.

3.11.3.2 **Current Conditions and Effects of Foreseeable Future Actions**

The Boise Front contains a mix of landowners ranging from private, city, county, state and federal agencies. Depending on the landowner, foothills land is used for livestock grazing, habitat conservation, wildlife management, residential living, recreational uses, and military training. Substantial amounts of the foothills have been impacted from wildfires which affects all resources and users in the area. These past and present actions are expected to continue to influence the visitor experiences.

3.11.3.3 **Cumulative Impacts - Alternative A**

Overall, the cumulative impacts to recreation from past, present, and foreseeable future actions would be minor. The effects on recreational opportunities would be slight and would result in a small but detectable change in the quality of the visitor experience. Recreation opportunities could be slightly enhanced in the foreseeable future if no trailing occurs.

3.11.3.4 **Cumulative Impacts - Alternative B**

The cumulative impacts to recreation in combination with trailing would be negligible. The quality of recreational opportunities would be maintained. Visitor experiences would not show a noticeable change.

3.11.3.5 **Cumulative Impacts - Alternative C**

The cumulative impacts would fall somewhere between alternatives A and B. The effects on recreational opportunities would be slight and would result in a small change in the quality of the visitor experience. Visitor experiences would not show a noticeable change.

4.0 Consultation and Coordination

4.1 List of Preparers

Name	Title	Responsibility
Terry Humphrey	Manager, Four Rivers Field Office	Review, oversight
Patricia Roller	Manger, Morley Nelson Snake River Birds of Prey National Conservation Area	Review, oversight
Matthew McCoy	Assistant Manager, Four Rivers Field Office	Review, oversight; EA creation
Leah Baker	Assistant Field Manager, Acting, Four Rivers Field Office	Review, oversight; EA creation
Jonathan Beck	Planning & Environmental Coordinator	Review
Seth Flanigan	NEPA Specialist	NEPA Compliance
John Biar	Resource Coordinator	Review, oversight, range
Brandon Knapton	Resource Coordinator	Review, oversight, wildlife
Mike Barnum	Rangeland Management Specialist	Rangeland Management
Martin Espil	Rangeland Management Specialist	Rangeland Management
Christina Handy	Rangeland Management Specialist	Rangeland Management
Anne Halford	Restoration Ecologist	Soils/Watershed
Lara Hannon	Ecologist	Upland Vegetation, invasive plants, noxious weeds
Mark Steiger	Botanist	Special Status Plants
Allen Tarter	Natural Resource Specialist	Riparian resources, water quality, fisheries
Jill Holderman	Wildlife Biologist	Wildlife
Joseph Weldon	Wildlife Biologist	Wildlife
Dean Shaw	Archeologist	Cultural Resources
Jared Fluckiger	Outdoor Recreation Planner	Recreation
Larry Ridenhour	Outdoor Recreation Planner	Recreation
Steve Leonard	Wild Horse and Burro Specialist	Wild Horses
Michele Porter	GIS Specialist	GIS

4.2 List of Agencies, Organizations, and Individuals Consulted

Idaho Conservation League,
Idaho Department of Fish and Game
Idaho Department of Lands
Idaho State Historic Preservation Office
Individual citizens & livestock operators,
Shoshone Piaute Tribe
Shoshone Bannock Tribes
United States Fish and Wildlife Service, Western Watersheds Project
United States Fish and Wildlife Service

4.3 Public Participation

A letter was sent to permittees in the FRFO on October 5, 2011 requesting crossing permit applications for trailing events on BLM-administered lands so they could be included in a NEPA analysis of trailing impacts. The project was posted on the BLM ePlanning website on the same day. A scoping letter was sent to interested publics on December 14, 2011 requesting

information and issues that should be considered in the NEPA analysis. Written comments submitted in response to the scoping document were provided by the following:

- Idaho Conservation League – John Robison
- Idaho Department of Fish and Game – Scott Reinecker
- Idaho Department of Lands – Rebecca Rutan
- Idaho State Historical Society – Kenneth Reid
- Little Cattle Company - Brad McIntosh
- Simplot Livestock – Chuck Jones
- US Fish and Wildlife Service – Brian Kelly
- Western Watershed Project – Katie Fite

These comments are summarized in Section 1.7 and are available in the administrative record.

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6.0 Appendices

Appendix 1. Four Rivers Livestock Trailing Activities Concurrence, USFWS.

United States Department of the Interior
U.S. Fish and Wildlife Service
Idaho Fish and Wildlife Office
1387 S. Vinnell Way, Room 368
Boise, Idaho 83709
Telephone (208) 378-5243
http://www.fws.gov/idaho

MAY 15 2012

Memorandum

To: Field Office Manager, Four Rivers Field Office, U.S. Bureau of Land Management, Boise, Idaho

From: State Supervisor, Idaho Fish and Wildlife Office, U.S. Fish and Wildlife Service, Boise, Idaho

Subject: Four Rivers Livestock Trailing Activities—Ada, Canyon, Elmore, Gem, and Payette Counties, Idaho—Concurrence
In Reply Refer To: 01EIFW00-2012-I-0206 Internal Use: CONS-100a

This memorandum transmits the U.S. Fish and Wildlife Service's (Service) concurrence on the effects to species listed under the Endangered Species Act (Act) of 1973, as amended, from actions associated with the U.S. Bureau of Land Management's (Bureau) proposed livestock trailing activities in the Four Rivers Field Office (FRFO) area in Ada, Canyon, Elmore, Gem, and Payette Counties, Idaho. In a letter dated April 30, 2012, and received by the Service on May 2, the Bureau's FRFO requested concurrence with the determination, documented in your April 30, 2012 Biological Assessment (Assessment; USBLM 2012, entire), that the proposed action is not likely to adversely affect *Lepidium papilliferum* (slickspot peppergrass), a plant species listed as threatened under the Act. This letter also serves as the Conference Report for the proposed livestock trailing activities as it provides concurrence for the Bureau's determination that the action is not likely to adversely affect proposed critical habitat for the slickspot peppergrass.

Project Overview

The proposed action is to permit livestock trailing along 41 historic (greater than or equal to 20 years) routes (62 separate trailing events) in the Four Rivers Field Office area. These routes pass through occupied habitat[1], slickspot peppergrass habitat, and potential habitat for the species. The proposed action will allow livestock permittees to move their

[1] "Occupied habitat" is defined as slickspot peppergrass Element Occurrence (EO) acreage plus the area contained within a 0.5 mile wide insect pollinator buffer area surrounding the EO. "Slickspot peppergrass habitat" is defined as an area documented to contain slickspot microsites, but where adequate surveys have not been conducted in order to determine presence or absence of the species. "Potential habitat" is defined as areas within the known range of the slickspot peppergrass that have certain general soil and elevation characteristics that indicate the potential for the area to support the slickspot peppergrass although the presence of slickspot microsites or the plant is unknown (USBLM 2009, pp. B–2 and B–3).

livestock from one area to another and facilitates use of their public land grazing authorizations. The majority of the trailing will occur along existing roads with a 0.125 mile wide buffer on each side of individual roads for a total width of 0.25 miles. The exception to the 0.25 mile trailing route width will be if a trailing route road is bordered on one side or the other with a fence, which occurs along a number of the livestock trailing routes. In those cases, the practical buffer width will be less than the specified 0.25 mile trailing buffer. The livestock trailing permits will be valid for a period of 1 year.

No livestock trailing routes will pass through any slickspot microsites known to contain slickspot peppergrass. The distance from livestock trailing routes to the nearest Element Occurrence (EO) is typically greater than 0.5 mile for most trailing routes. Ten livestock trailing routes bisect proposed critical habitat/occupied habitat: eight of these ten routes are located within fenced roadways that have been highly disturbed from annual livestock trailing activities that have occurred over the past 20 years or more. Critical habitat units bisected by livestock trailing routes on roads include Subunit 2a, which is associated with B-ranked EO 76 and C-ranked EO 52; Subunit 2b, which is associated with C-ranked EOs 18 and 25; and Subunit 3c, which is associated with B-ranked EOs 8 and 26.

Two of the ten livestock trailing routes that bisect proposed critical habitat/occupied habitat are located on unfenced roads: 1) Trailing Route 2020_01 and 2) Trailing Route 2002_01 &_04. Trailing Route 2020_01 occurs along Range Road which is a wide heavily maintained gravel road with a heavily disturbed right-of-way. Although no proposed critical habitat is bisected by this route, the nearest EO (EO 53) to this trailing route is approximately 0.2 miles away. Due to the width of the road and the right-of-way, the potential for trampling impacts to occur in this EO is extremely unlikely. In addition, Trailing Route 2002_01 &_04 occurs with 0.5 miles of EO 76 and within proposed critical habitat subunit 2a. Sheep are actively herded in the road right-of-way within Trailing Route 2002_01 &_04. The location of this trailing route within a draw further reduces the probability that the herded sheep will wander away from the existing road; therefore, trampling impacts to the species or its habitat along Trailing Route 2002_01 &_04 are also extremely unlikely to occur.

Eighteen livestock trailing routes will contain a combined total of about 28.5 miles of cross country trailing through slickspot peppergrass habitat. In addition, eight trailing routes will contain a combined total of about 7.8 miles of cross country trailing through potential habitat. No cross country trailing will be authorized within proposed critical habitat or occupied habitat.

Livestock bedding will occur in slickspot peppergrass habitat (16 sites), potential habitat (5 sites), and occupied habitat (1 site) on Federal lands (Bureau and Bureau of Reclamation (BOR) lands), with additional bedding sites within mapped habitat for the species located on private lands (7 sites) and State of Idaho lands (1 site). All bedding areas are historic and have been used for at least 20 years; they are highly disturbed and typically contain an understory dominated by *Bromus tectorum* (cheatgrass).

The maximum duration for an individual cattle trailing event in slickspot peppergrass habitat will be 4 days with a maximum number of 500 cattle. In addition, the maximum duration for an individual sheep trailing event in slickspot peppergrass habitat will be 10 days with a maximum number of 3,400 sheep. The majority (94 percent) of cattle trailing events will occur over 2 days or less with a little less than half (46 percent) of the sheep trailing events lasting 4 days or less. The expected numbers of livestock and associated livestock trailing durations are consistent with trailing events that occurred in past years.

Basis for Service Concurrence – Section 7 Consultation and Conference

Service concurrence that the activities associated with the proposed livestock trailing actions in the FRFO area are not likely to adversely affect the slickspot peppergrass and its proposed critical habitat is based on the following rationales.

- No livestock trailing will occur within slickspots known to contain slickspot peppergrass; therefore, direct effects of livestock trampling slickspot peppergrass plants will be avoided.
- With the exception of two trailing routes, no livestock trailing will occur within 0.5 mile of EOs unless the trailing occurs within fenced roadways that have been highly disturbed from over 20 years of annual livestock trailing activities, making the presence of slickspot peppergrass or its habitat highly unlikely. For the remaining two livestock trailing routes, sheep will be actively herded on an unfenced roadway located in a draw on one trailing route, and cattle will be trailed on a heavily maintained, wide graveled road that bisects highly degraded habitat on the second trailing route, making trampling effects on the species or its habitat extremely unlikely. Therefore, trampling effects on slickspot peppergrass plants and its habitat within EOs will be discountable.
- With the exception of one trailing route (where sheep will be actively herded on an unfenced roadway located in a draw), no livestock trailing will occur through proposed critical habitat unless the trailing occurs within fenced roadways that have been highly disturbed from over 20 years of annual livestock trailing activities, making the presence of primary constituent elements (PCEs) of proposed critical habitat highly unlikely. In addition, developed areas such as lands covered by paved or graveled roads are excluded from critical habitat designation because such lands lack PCEs for slickspot peppergrass. Therefore, direct effects of livestock trampling on PCEs of proposed critical habitat will be discountable.
- All slickspot peppergrass habitat located within trailing routes has been surveyed at least once, and while slickspot microsites are present, habitat quality is low and most of the trailing routes within slickspot peppergrass habitat are distant from EOs, reducing the probability that plants are present; thus, effects on individual plants associated with livestock trailing routes bisecting slickspot peppergrass habitat are highly unlikely to occur and are therefore discountable.

- Quality of the potential habitat overlapping with cross country trailing routes is low to moderate, and most of the trailing routes within potential habitat are distant from EOs, significantly reducing the probability that slickspot peppergrass plants are present; thus, effects on individual plants associated with livestock trailing routes bisecting potential habitat are highly unlikely to occur and are therefore discountable.
- Livestock trailing and bedding activities will avoid or minimize effects to slickspot peppergrass associated with trailing-related trampling, ground disturbance, and the introduction or spread of invasive nonnative plants through implementation of the following conservation measures.
    - Livestock bedding will not be authorized within proposed critical habitat at any time, avoiding direct and indirect effects to PCEs 1, 2, 3, and 4.
    - Livestock trailing within slickspot peppergrass habitat and potential habitat when soils are saturated will only be permitted on existing roads.
    - Cross country trailing within slickspot peppergrass habitat and potential habitat will not be permitted when soils are saturated.
- Trampling associated with livestock trailing and bedding activities has the potential to result in localized ground disturbance, localized spread of invasive nonnative plants, and damage or loss of individual native plants; however, conservation measures such as restricting the majority of trailing activities to existing roadways and not authorizing cross country trailing when soils are saturated will reduce the likelihood of effects in slickspot peppergrass habitat and potential habitat. Effects to habitat parameters important to slickspot peppergrass are expected to be so small that they cannot be meaningfully measured, detected, or evaluated. Therefore, effects to slickspot peppergrass and its proposed critical habitat associated with proposed livestock trailing activities are insignificant.
- The risk of effects to slickspot peppergrass associated with livestock trailing and bedding activities within occupied habitat, slickspot peppergrass habitat, and potential habitat as well as within proposed critical habitat is further minimized by the relatively short duration of most trailing events (2 days or less for most cattle training events and 4 days or less for about half of sheep trailing events) and the short term of the livestock trailing permits (1 year).

Confirmation of Section 7 Conference Conclusions

The Bureau may request that the Service confirm the conclusion in the Conference Report portion of this memorandum should proposed critical habitat for the slickspot peppergrass become designated in the action area prior to end of the 1 year term of the livestock trailing permits. This request must be in writing. If the Service reviews the proposed action and finds that there have been no significant changes in the livestock trailing activities that could warrant a reanalysis of effects, the Service may confirm the Conference Report portion of this memorandum as our Letter of Concurrence, and no further section 7 consultation will be necessary.

Conclusion

This concludes informal consultation on proposed livestock trailing activities in the FRFO under section 7 of the Act. If the proposed action addressed in this memorandum is modified, environmental conditions change, or additional information becomes available regarding potential effects on listed species, you should verify that your effects determination conclusions are still valid.

Thank you for your continued interest in the conservation of threatened and endangered species. Please contact Barbara Chaney at (208) 378-5259 if you have questions concerning this memorandum or the section 7 process.

cc: BLM, Boise (Knapton, Steiger)
BLM, Boise (Rosentreter, Hoefer)

References Cited

U.S. Bureau of Land Management (USBLM). 2012. Biological Assessment for Federally Listed Plant Species. U.S. Bureau of Land Management – Four Rivers Field Office. Four Rivers Field Office Livestock Trailing. April 30, 2012. 17 pp. + maps.

U.S. Bureau of Land Management (USBLM). 2009. Final biological assessment for slickspot peppergrass (*Lepidium papilliferum*): Jarbidge and Four Rivers Field Offices, land use plans and ongoing actions. September 16, 2009. 675 pp. + appendices.

Appendix 2. Design Criteria

The following design criteria were developed for the scoping process to identify potential modifications to trailing routes to minimize adverse resource impacts:

Wildlife

- From April 15 to June 15, livestock trailing routes would avoid bighorn sheep lambing areas.
- From March 1 to May 15, livestock trailing would be routed at least 0.5 miles from occupied sage-grouse leks where possible. If this is not feasible, trailing events would be timed to occur between 10:00 am and 6:00 pm.
- From March 1 to May 15, bedding areas would be located at least four miles from occupied sage-grouse leks where possible.
- From April 1 to June 15, temporary water troughs would not be placed in sagebrush habitat, to avoid impacts to nesting sage-grouse. If this is not feasible, previously disturbed sites would be used (such as areas around stock ponds or troughs or in past seedings, or other grassland sites).
- From April 1 to June 15, cattle bedding areas would not be located in sagebrush habitat. If this is not feasible, previously-disturbed sites would be used such as areas around stock ponds or troughs or in past seedings, or other grassland sites.
- From April 1 to June 15, livestock trailing routes would avoid sagebrush habitats to the extent practical, to minimize potential impacts to nesting sage-grouse.
- From June 1 through November 30, sage-grouse leks may be used for livestock bedding areas or temporary water sites to maintain shorter vegetation for the lek.
- From February 1 to July 30, livestock trailing would be routed, to the extent practicable, at least 0.5 miles from canyon rims to avoid impacts to nesting golden eagles.
- Areas used for staging vehicles, horse trailers, fence panels, etc. would avoid sagebrush areas. If this is not feasible, previously disturbed sites would be used such as areas around stock ponds or troughs or in past seedings, or other grassland sites.

Threatened, Endangered, and Special Status Plants

- Livestock trailing would be avoided where it has the potential to affect occupied SSP habitat.
- Trailing in critical/proposed critical habitat and occupied habitat would be permitted only on existing improved roads. Cross-country trailing would not be permitted in critical/proposed critical habitat or occupied habitat at any time.
- Cross-country trailing would be permitted in slickspot peppergrass habitat and potential habitat only when soils are not saturated. When soils are saturated, trailing would be permitted only on existing roads (including unimproved roads).
- Bedding would not be permitted within critical/proposed critical habitat and occupied habitat.

Vegetation

- Livestock trailing on routes through or adjacent to vegetation treatment areas (Emergency Stabilization and Rehabilitation (ESR), fuels projects, or restoration projects) would be

limited to existing roads (including two-tracks) and the trailing buffer narrowed to 100 feet (50' to either side of center line) until treatment objectives are met or criteria for reopening the treated area to grazing are met.

- No bedding would occur within burned and/or treated areas until ESR or other treatment objectives are met or criteria for opening the area to grazing are met.
- Trailing routes and bedding areas would be located, and/or timed, to minimize the potential spread of noxious weeds.
- Trailing routes and bedding areas would avoid aspen stands.

Riparian Resources

- Bedding areas would be at least 0.25 miles from riparian areas.
- Temporary water facilities would be placed at least 0.25 miles from riparian areas.
- Livestock trailing across riparian areas and live streams would be restricted to pre-determined locations.

Cultural Resources

- Canyon and stream crossings would be restricted to pre-determined locations.
- Livestock trailing would be routed to avoid playas.

Soils

- Trailing would not be authorized during times when soils are saturated to minimize impacts to soils. Specifically, 1) for soils in general, there would be no evidence of puddles or frost and soils would be firm; and 2) within slickspots, there would be no evidence of puddles and the soil within slickspots would be firm.
- Trailing routes would occur on roadways/designated routes of travel when practical.

Travel Management and Off Highway Vehicles

- Motorized vehicles would remain on existing vehicle routes. Cross country use of motorized vehicles would not be authorized.

Recreation

When conducting livestock trailing on or across designated recreation trails, operators would be required to ensure that trails are returned to pre-crossing condition (e.g. removing displaced rocks, using hand tools to reestablish trail tread).

Appendix 3. Number and Name of Allotments Crossed by Proposed Trailing Events, Four Rivers Field Office.

Allotment #	Allotment Name
00003	Jerusalem
00005	Willow Ridge
00006	Sheep Creek Common
00007	Tommy Carr
00010	Chacartegui
00022	Beal Individual
00023	Bean Individual
00028	Stillwell Individual
00037	Brownlee
00041	Granger Butte
00044	Riley Butte
00045	Branch Individual
00059	Minnie
00060	West Crane Common
00061	Tennison Creek
00063	T. Cada Individual
00070	Clarkson Individual
00071	Mcfadden
00074	Cove Creek
00080	East Riley Butte
00106	Indian Creek
00107	Indian Creek Custodial
00114	Gatfield Individual
00115	Packer John
00125	Dechambeau Individual
00147	Holbrook Individual
00174	Sage Hen Flat
00176	Black Canyon
00181	Anderson Creek
00189	McCool Individual
00191	Linson Creek
00192	Fenced Federal Range
00196	McPherson Individual
00197	Buck Creek
00211	Nissula Individual

Allotment #	Allotment Name
00222	Pratt Individual
00240	Clipper Flat
00246	Smith-Black Canyon
00251	Hog Creek
00256	Sutton Ranches Individual
00268	West Pine Creek
00273	Perkins Creek
00278	Spring Valley
00284	Spring Creek
00295	Little Willow
00310	Black Canyon
00311	No Unit
00312	Bannister Basin
00313	Fenwick Place
00347	Little Rock Creek
00349	McChord Butte
00361	Crane Creek
00365	Old Craig
00366	Staley
00370	Paddock Valley
00376	Fry Individual FFR
00381	Cow Camp
00382	Beef Trap
00390	Fenced Federal Range
00391	Little Emmett
00399	Spring
00813	Mountain Home Subunit
00815	Mud Springs
00816	Lockman Butte
00817	Martha Avenue
00818	Ditto Creek
00819	Dive Creek/Big Bluff
00820	Cornell
00821	Chalk Flat
00825	Sunnyside Spring/Fall
00826	Sunnyside Winter
00871	Cottonwood
00875	Chattin Hill

Allotment #	Allotment Name
00876	East Slater Flat
00886	Squaw Creek
00896	Airbase
01030	Southwest Alkali Seeding
01033	Hammett #1
01034	Hammett #2
01035	Hammett #3
01036	Hammett #4
01038	Hammett #6
01043	South Camas
01045	Lower Bennett Creek
01103	Hot Springs
01124	Sugarbowl
01128	North Cold Springs
01130	South Cold Springs
01365	Reeds Grove

Appendix 4. Idaho BLM Special Status Animal Species Potentially Affected by Proposed Trailing Events, Four Rivers Field Office.

Type 1. Federally Listed, Proposed and Candidate Species: Includes species that are listed under the Endangered Species Act as Threatened (T) or Endangered (E), and proposed (P) or candidates (C) for listing.
Type 2. Rangewide / Globally Imperiled Species: Includes species that are experiencing significant declines throughout their range with a high likelihood of being listed under the Endangered Species Act in the foreseeable future due to their rarity and/or significant endangerment factors.
Type 3. Regional / State Imperiled Species: Includes species that are experiencing declines in population or habitat and are in danger of regional or local extinctions in Idaho in the foreseeable future.
Type 4. Peripheral Species in Idaho: Includes species that are generally rare in Idaho with the majority of their breeding range outside the state.
Type 5. Watch List Species: Includes species that are not considered Idaho BLM sensitive species but current population or habitat information suggests that species may warrant sensitive species status in the future.

Threatened, Endangered, Candidate Species	Scientific Name	Type	Habitat	Management Considerations
Birds				
Greater Sage-grouse (C)	*Centrocercus urophasianus*	1	Sagebrush obligate	Discussed in section 3.8 – Affected Environment/ Environmental Consequences and all alternatives
Yellow-billed Cuckoo (C)	*Coccyzus americanus*	1	Thick, wide riparian trees and shrubs, known only as vagrant along the Snake River	Trailing would not impact riparian habitat or impacts would be negligible
Mammals				
Northern Idaho Ground Squirrel (T)	*Urocitellus brunneus brunneus*	1	Open montane meadows surrounded by Douglas-fir or ponderosa in northern regions of FRFO in Adams County	Trailing would not impact higher elevation forested habitats
Southern Idaho Ground Squirrel (C)	*Spermophilus brunneus endemicus*	1	Lower elevation shrub-steppe habitat of the Weiser River Basin	Discussed in section 3.8- Affected Environment/ Environmental Consequences
Canada Lynx (T)	*Lynx canadensis*	1	Forested elevations above 1,524 m composed of spruce, subalpine fir and lodgepole pine.	No longer considered to have habitat within the Four Rivers field office
Invertebrates				
Snake River Physa Snail (E)	*Physa natricina*	1	Confined to the Snake River	Trailing would not impact lotic habitats

Sensitive Species (Type 2, 3, 4, and 5)

Sensitive Species	Scientific Name	Type	Habitat	Management Considerations
Birds				
American White Pelican	*Pelecanus erythrorhynchos*	2	Mainly isolated islands in fresh water lakes and reservoirs	Trailing would not impact lentic habitats
Bald Eagle	*Haliaeetus leucocephalus*	2	Winter migrant to the Bennett Mountain North area. Habitat lakes, Reservoirs, streams	Discussed in section 3.8-Affected Environmental/Environmental Consequences/all alternatives
Peregrine Falcon	*Falco peregrinus anatum*	3	Nests on tall, sheer cliffs	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Prairie Falcon	*Falco mexicanus*	3	Nests on, cliffs, hunts over shrub-steppe	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Northern Goshawk	*Accipiter gentilis*	3	Aspen stands and conifer forests	Trailing would not impact higher elevation forested habitat
Ferruginous Hawk	*Buteo regalis*	3	Open country, nests on ground or rock outcrops	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Columbian Sharp-tailed Grouse	*Tympanuchus phasianellus columbianus*	3	Shrub-steppe and montane shrub	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Mountain Quail	*Oreortyx pictus*	3	Riparian and shrub-steppe hillsides with berry-producing shrubs. Drainages directly NW of King Hill Creek and Bennett Hills	Trailing would not impact riparian habitat or impacts would be negligible
Flammulated Owl	*Otus flammeolus*	3	Open ponderosa pine forests	Trailing would not impact higher elevation forested habitat
Calliope Hummingbird	*Stellula calliope*	3	Seral stage forests in montane areas	Trailing would not impact higher elevation forested habitat
Lewis' Woodpecker	*Melanerpes lewis*	3	Open ponderosa pine forest, open riparian woodland, and logged or burned pine forests	Trailing would not impact higher elevation forested habitat
Williamsons Sapsucker	*Sphyrapicus thyroideus*	3	Montane coniferous forests and mixed aspen-coniferous forests	Trailing would not impact higher elevation forested habitat
Willow Flycatcher	*Empidonax trailii*	3	Riparian areas in dense willow	Trailing would not impact riparian habitat or impacts would be negligible

Sensitive Species	Scientific Name	Type	Habitat	Management Considerations
Hammond's Flycatcher	*Empidonax hammondii*	3	Nests in deep evergreen forests	Trailing would not impact higher elevation forested habitat
Olive-sided Flycatcher	*Contopus barealis*	3	Mid-to high elevation, dry Douglas-fir and grand fir forest	Trailing would not impact higher elevation forested habitat
Loggerhead Shrike	*Lanius ludovicianus*	3	Sagebrush steppe, open woodlands. Nest in tall shrubs and small trees	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Sage Sparrow	*Amphispiza belli*	3	Sagebrush steppe, nests in shrubs	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Brewer's Sparrow	*Spizella breweri*	3	Sagebrush steppe, nests in shrubs	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Upland Sandpiper	*Baratramia longicauda*	4	Associated with prairies and mountain meadows in Idaho	Trailing would not impact higher elevation forested habitat
White-headed Woodpecker	*Picoides albolarvatus*	4	Open and mature ponderosa and mixed ponderosa/Douglas- fir forests in Idaho	Trailing would not impact higher elevation forested habitat
Black-throated Sparrow	*Amphispiza bilineata*	4	Breeds in barren and grassy hillsides with scattered sagebrush and rabbitbrush	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Swainson's Hawk	*Buteo swainsoni*	5	Open stands of grass dominated vegetation, sparse shrubland, and small open woodlands	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Blue Grouse	*Dendragapus obscurus*	5	Shrub-steppe and grassland near forest edge and montane forest communities with open canopies	Trailing would not impact higher elevation forested habitat
Long-billed Curlew	*Numenius americanus*	5	Short-grass or mixed-prairie with flat rolling topography. Favor cheatgrass dominated grasslands in FRFO	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Wilson's Phalarope	*Phalaropus tricolor*	5	Associated with wetlands; nests in sparse to dense vegetation of uplands and marshes	Trailing would not impact wetland habitat
Northern Pygmy-owl	*Glaucidium gnoma*	5	Habitat generalist in Idaho from deciduous bottomlands to high elevation continuous forest	Discussed in section 3.8-Affected Environment/ Environmental Consequences

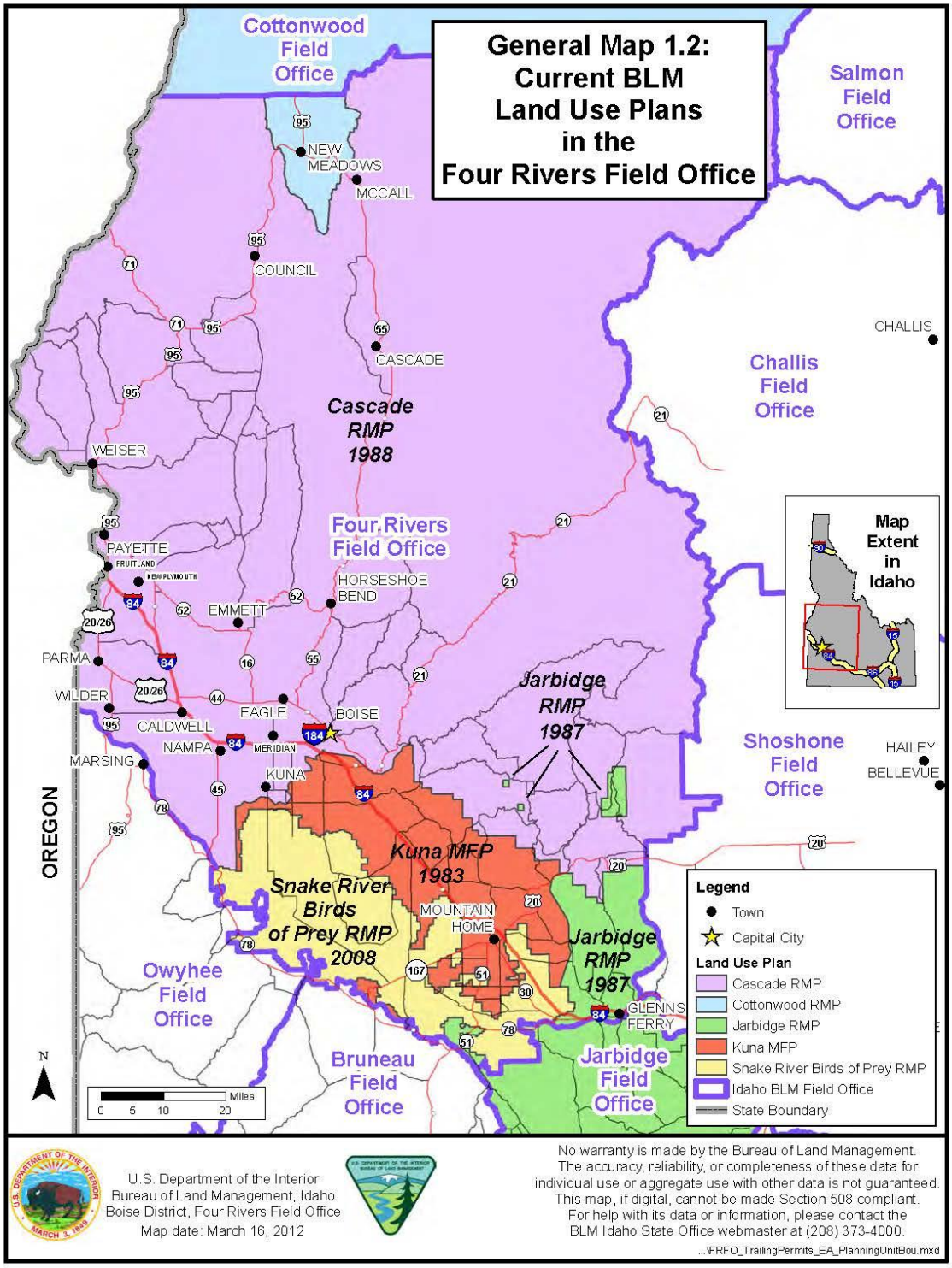
Sensitive Species	Scientific Name	Type	Habitat	Management Considerations
Great Gray Owl	*Strix nebulosa*	5	Lodgepole pine, Douglas-fir, and aspen grove forest types	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Short-eared Owl	*Asio flammeus*	5	Large expanses of shrub-steppe	Trailing impacts to short-eared owl would be similar to sage obligate species
Boreal Owl	*Aegolius funereus*	5	Subalpine forests characterized by subalpine fir and Engelmann spruce	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Western Burrowing Owl	*Athene cunicularia*	5	Gently-sloping areas of shrubsteppe	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Vaux's Swift	*Chaetura vauxi*	5	Associated with grand fir and mixed conifer forest types	Trailing would not impact higher elevation forested habitat
Red-naped Sapsucker	*Sphyrapicus nuchalis*	5	Deciduous and mixed woodlands, aspen groves in ponderosa pine forests and open rangeland	Trailing would not impact higher elevation forested habitat
Black-backed Woodpecker	*Picoides arcticus*	5	Lodgepole pine mixed conifer forests	Trailing would not impact higher elevation forested habitat
Cordilleran Flycatcher	*Empidonax occidentalis*	5	Riparian areas with large trees and willow and alder thickets	Trailing would not impact riparian habitat or impacts would be negligible
Pygmy Nuthatch	*Sitta pygmaea*	5	Strongly associated with ponderosa pine forests	Trailing would not impact higher elevation forested habitat
Sage Thrasher	*Oreoscoptes montanus*	5	Sagebrush obligate	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Green-tailed Towhee	*Pipilo chlorurus*	5	Shrub-steppe in areas with high diversity of shrub species	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Grasshopper Sparrow	*Ammodramus savannarum*	5	Shrub-steppe grasslands	Discussed in section 3.8-Affected Environment/ Environmental Consequences
Brewer's Blackbird	*Euphagus cyanocephalus*	5	Wide range of habitats; prefers human-modified habitat	Trailing impacts to Brewer's blackbird would be negligible
Cassin's Finch	*Carpodacus cassinii*	5	Open coniferous forests	Trailing would not impact higher elevation forested habitat
Mammals				
Pygmy Rabbit	*Brachylagus idahoensis*	2	Thick big sagebrush with deep soils. Habitat extremely limited in FRFO	Trailing impacts would be similar to sage obligate species

Sensitive Species	Scientific Name	Type	Habitat	Management Considerations
Grey wolf	*Canus lupus*	2	Generalist habitat species. Follows big game herds.	No impacts associated with trailing are expected accept human caused mortality
Spotted Bat	*Euderma maculatum*	3	Rocky canyons and cliffs, forages over sagebrush.	Trailing would not impact canyon habitats
Townsend's Big-eared Bat	*Plecotus townsendii*	3	Winter in stable-climate caves, forage over sagebrush	Trailing would not impact cavernous habitat
Fisher	*Martes pennanti*	3	Mature-to-old forests with high canopy closure and associated with mesic forest conditions	Trailing would not impact higher elevation forested habitat
Wolverine	*Gulo gulo luscus*	3	Extensive home ranges in high-elevation areas; forested drainage bottoms and cirque basins	Trailing would not impact higher elevation forested habitat
Yuma Myotis	*Myotis yumanensis*	5	Wide elevation range including riparian, desert scrub and mesic woodland and forested areas.	Trailing would not impact riparian habitat or impacts would be negligible
Long-eared Myotis	*Myotis evotis*	5	Coniferous forest and associated with forest-woodland riparian areas	Trailing would not impact higher elevation forested habitat
Long-legged Myotis	*Myotis volans*	5	Coniferous forest and deserts; may change habitat seasonally	Trailing would not impact higher elevation forested habitat
Western Small-footed Myotis	*Myotis ciliolabrum*	5	Winters in lava tube caves and rock crevices, under boulders, and beneath loose bark in summer	Trailing would not impact cavernous habitat
Western Pipistrelle	*Pipistrellus hesperus*	5	Canyons and deserts in rock crevices, under rocks, and burrows	Trailing would not impact canyon habitat
Reptiles				
Mojave Black-collared Lizard	*Crotaphytus bicinctores*	3	Deserts, presence of rocks and boulders	Trailing impacts to reptiles would be negligible
Longnose Snake	*Rhinocheilus lecontei*	3	Deserts, grasslands, and rocky canyons	Trailing impacts to reptiles would be negligible
Western Ground Snake	*Sonora semiannulata*	3	Deserts with loose or sandy soils	Trailing impacts to reptiles would be negligible
Common Garter Snake	*Thamnophis sirtalis*	3	Riparian habitat, open meadows, and evergreen forests	Trailing impacts to reptiles would be negligible

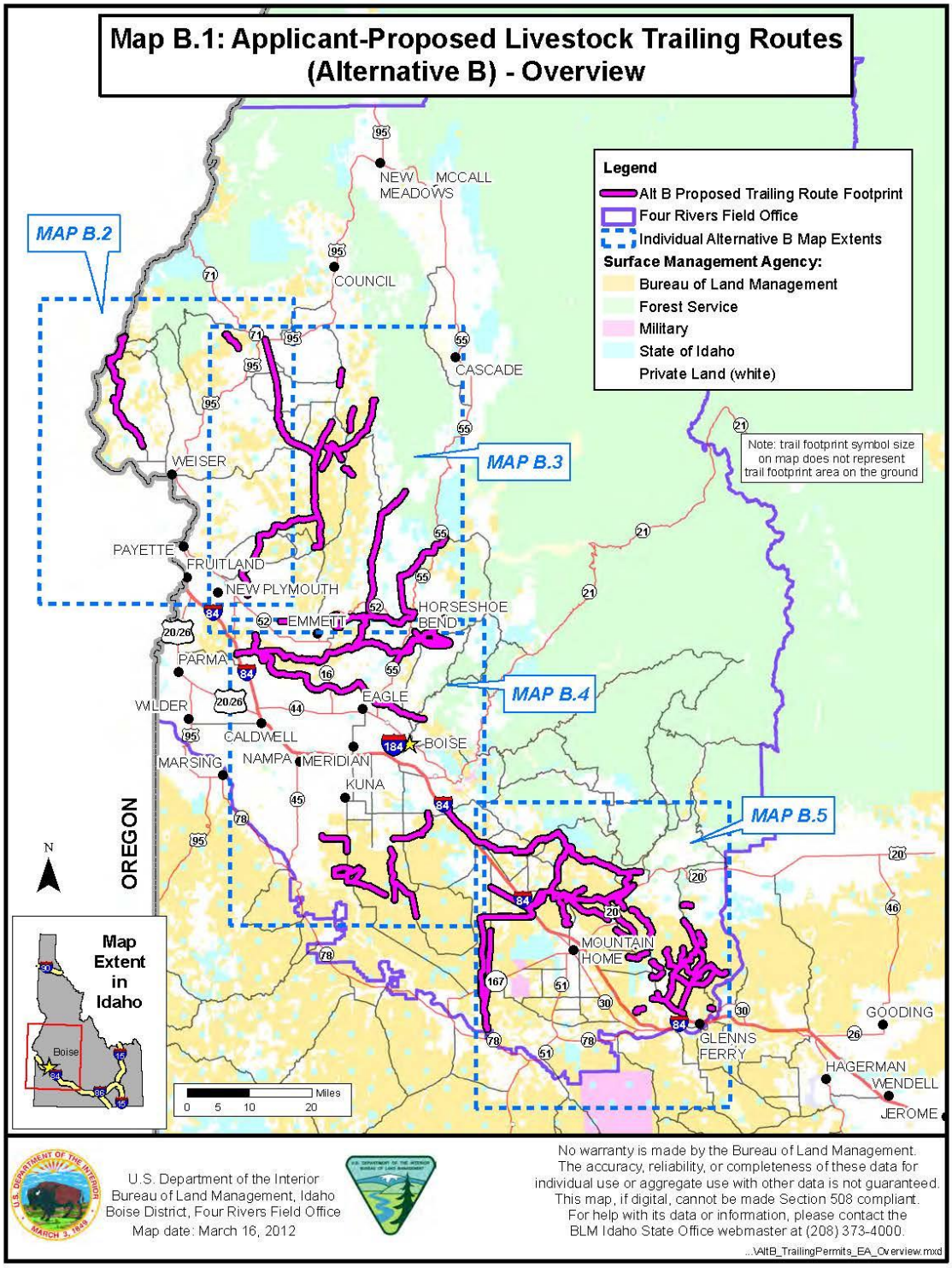
7.0 Maps

General Map 1.1

General Map 1.2



Map B.1


Map B.1: Applicant-Proposed Livestock Trailing Routes
(Alternative B) - Overview
Legend
Alt B Proposed Trailing Route Footprint
Four Rivers Field Office
Individual Alternative B Map Extents
Surface Management Agency:
Bureau of Land Management
Forest Service
Military
State of Idaho
Private Land (white)
Note: trail footprint symbol size on map does not represent trail footprint area on the ground
MAP B.2
MAP B.3
MAP B.4
MAP B.5
NEW MEADOWS
MCCALL
COUNCIL
CASCADE
WEISER
PAYETTE
FRUITLAND
NEW PLYMOUTH
EMMETT
HORSESHOE BEND
PARMA
EAGLE
WILDER
CALDWELL
NAMPA
MERIDIAN
BOISE
KUNA
MARSING
OREGON
MOUNTAIN HOME
GLENNS FERRY
GOODING
HAGERMAN
WENDELL
JEROME
Map Extent in Idaho
Boise
Miles
0 5 10 20
N
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: March 16, 2012
No warranty is made by the Bureau of Land Management.
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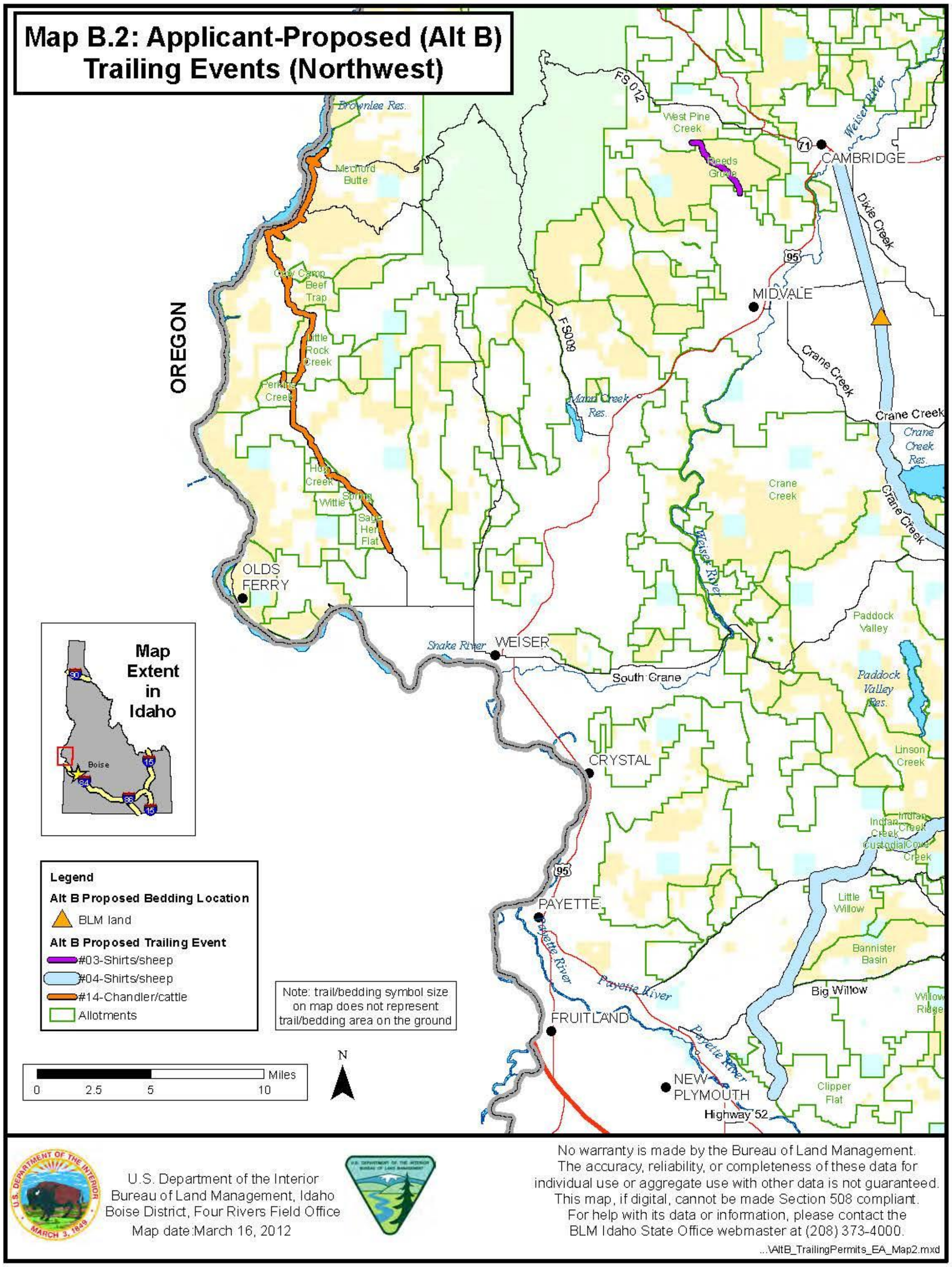
...\AltB_TrailingPermits_EA_Overview.mxd

Map B.2



Map B.2: Applicant-Proposed (Alt B) Trailing Events (Northwest)
OREGON
CAMBRIDGE
MIDVALE
WEISER
CRYSTAL
PAYETTE
FRUITLAND
NEW PLYMOUTH
OLDS FERRY
Map Extent in Idaho
Legend
Alt B Proposed Bedding Location
BLM land
Alt B Proposed Trailing Event
#03-Shirts/sheep
#04-Shirts/sheep
#14-Chandler/cattle
Allotments
Note: trail/bedding symbol size on map does not represent trail/bedding area on the ground
Miles
0 2.5 5 10
N
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date:March 16, 2012
No warranty is made by the Bureau of Land Management.
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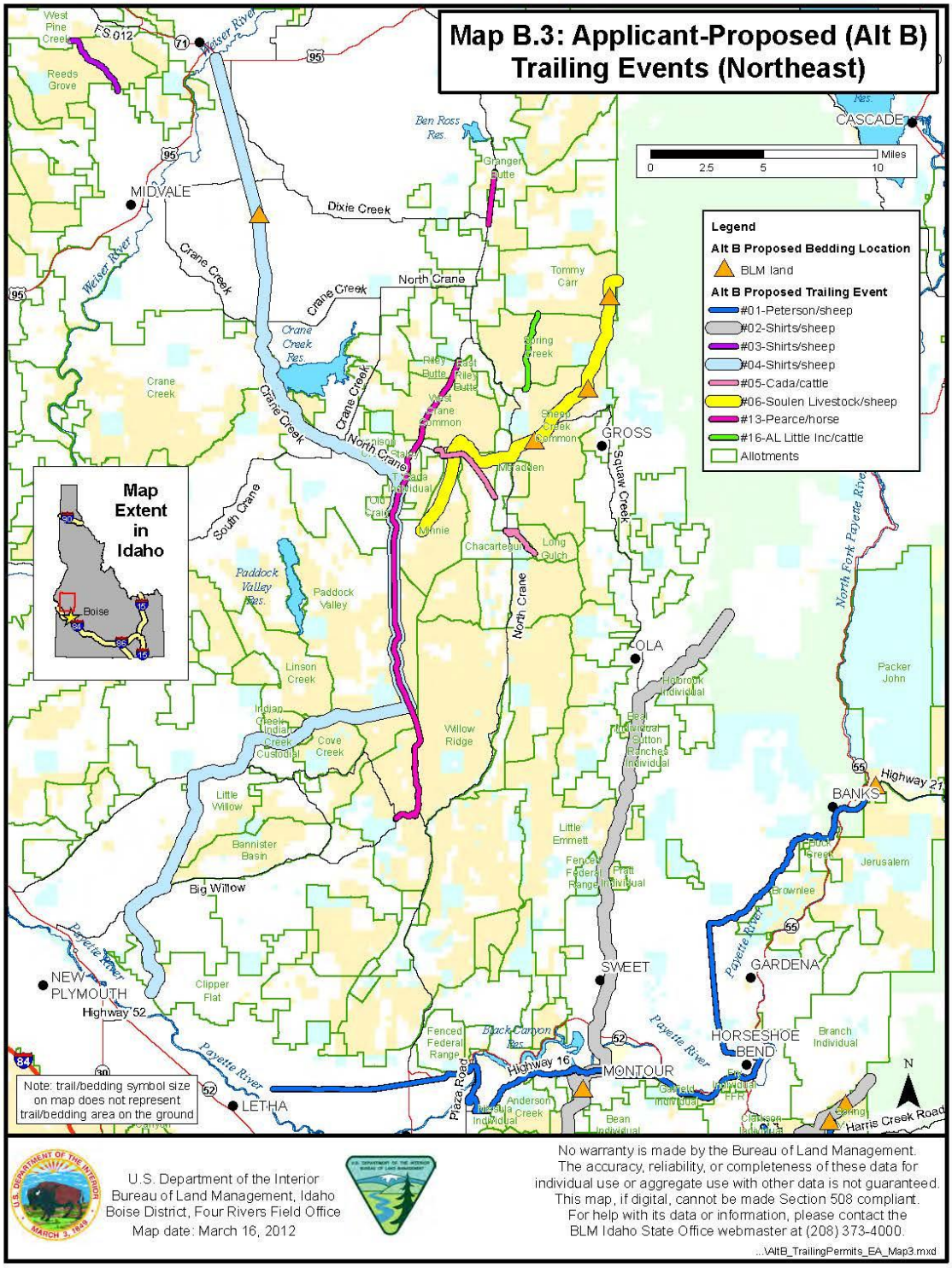
...\AltB_TrailingPermits_EA_Map2.mxd

Map B.3


Map B.3: Applicant-Proposed (Alt B) Trailing Events (Northeast)
Legend
Alt B Proposed Bedding Location
BLM land
Alt B Proposed Trailing Event
#01-Peterson/sheep
#02-Shirts/sheep
#03-Shirts/sheep
#04-Shirts/sheep
#05-Cada/cattle
#06-Soulen Livestock/sheep
#13-Pearce/horse
#16-AL Little Inc/cattle
Allotments
Miles
0 2.5 5 10
Map Extent in Idaho
Boise
MIDVALE
CASCADE
GROSS
COLA
BANKS
SWEET
GARDENA
NEW PLYMOUTH
LETHA
MONTOUR
HORSESHOE BEND
Highway 52
Highway 16
Highway 21
Harris Creek Road
Weiser River
Crane Creek
North Crane
South Crane
Dixie Creek
Paddock Valley Res.
Crane Creek Res.
Ben Ross Res.
Black Canyon Res.
North Fork Payette River
Payette River
Squaw Creek
Long Gulch
Willow Ridge
Cove Creek
Linson Creek
Indian Creek
Little Willow
Bannister Basin
Big Willow
Clipper Flat
Little Emmett
Jerusalem
Brownlee
Packer John
Note: trail/bedding symbol size on map does not represent trail/bedding area on the ground
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: March 16, 2012
No warranty is made by the Bureau of Land Management.
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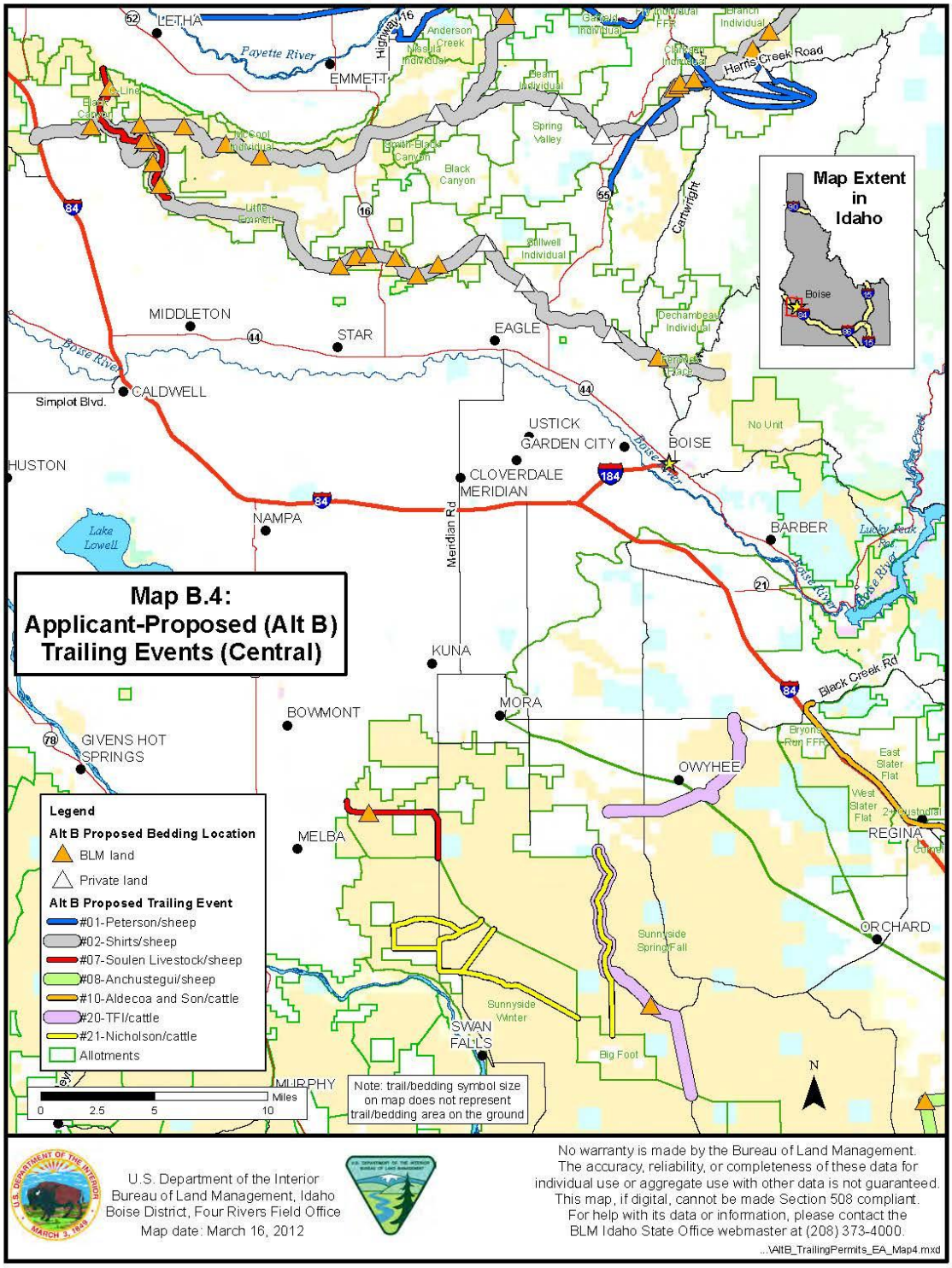
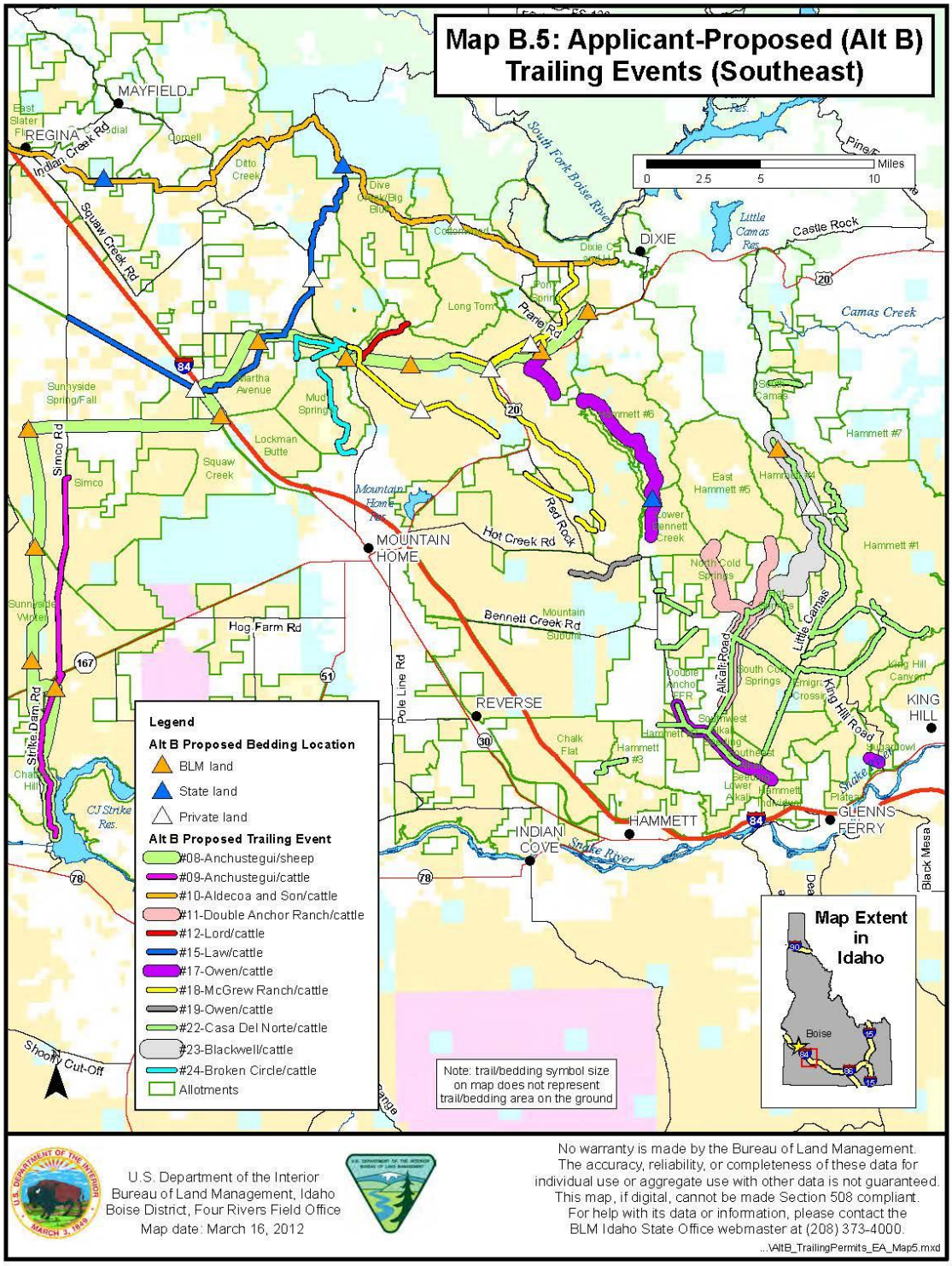
For help with its data or information, please contact the BLM Idaho State Office webmaster at (208) 373-4000.
...\AltB_TrailingPermits_EA_Map3.mxd

Map B.4


Map B.4:
Applicant-Proposed (Alt B)
Trailing Events (Central)
Map Extent in Idaho
Boise
Legend
Alt B Proposed Bedding Location
BLM land
Private land
Alt B Proposed Trailing Event
#01-Peterson/sheep
#02-Shirts/sheep
#07-Soulen Livestock/sheep
#08-Anchustegui/sheep
#10-Aldecoa and Son/cattle
#20-TFI/cattle
#21-Nicholson/cattle
Allotments
Miles
0 2.5 5 10
Note: trail/bedding symbol size on map does not represent trail/bedding area on the ground
N
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: March 16, 2012
No warranty is made by the Bureau of Land Management.
The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.
This map, if digital, cannot be made Section 508 compliant.
For help with its data or information, please contact the BLM Idaho State Office webmaster at (208) 373-4000.
..\AltB_TrailingPermits_EA_Map4.mxd
LETHA
EMMETT
MIDDLETON
STAR
EAGLE
CALDWELL
Simplot Blvd.
USTICK
GARDEN CITY
BOISE
HUSTON
CLOVERDALE
MERIDIAN
NAMPA
Meridian Rd
BARBER
KUNA
MORA
BOWMONT
GIVENS HOT SPRINGS
OWYHEE
MELBA
REGINA
ORCHARD
SWAN FALLS
MURPHY
Payette River
Boise River
Lake Lowell
Harris Creek Road
Black Creek Rd
Cartwright
Spring Valley
Black Canyon
Stillwell Individual
Dechambeau Individual
No Unit
Sunnyside Spring/Fall
Sunnyside Winter
Big Foot
East Slater Flat
West Slater Flat

Map B.5


Map B.5: Applicant-Proposed (Alt B) Trailing Events (Southeast)
MAYFIELD
REGINA
DIXIE
MOUNTAIN HOME
REVERSE
HAMMETT
INDIAN COVE
KING HILL
GLENNS FERRY
Miles
0 2.5 5 10
Legend
Alt B Proposed Bedding Location
BLM land
State land
Private land
Alt B Proposed Trailing Event
#08-Anchustegui/sheep
#09-Anchustegui/cattle
#10-Aldecoa and Son/cattle
#11-Double Anchor Ranch/cattle
#12-Lord/cattle
#15-Law/cattle
#17-Owen/cattle
#18-McGrew Ranch/cattle
#19-Owen/cattle
#22-Casa Del Norte/cattle
#23-Blackwell/cattle
#24-Broken Circle/cattle
Allotments
Note: trail/bedding symbol size on map does not represent trail/bedding area on the ground
Map Extent in Idaho
Boise
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: March 16, 2012
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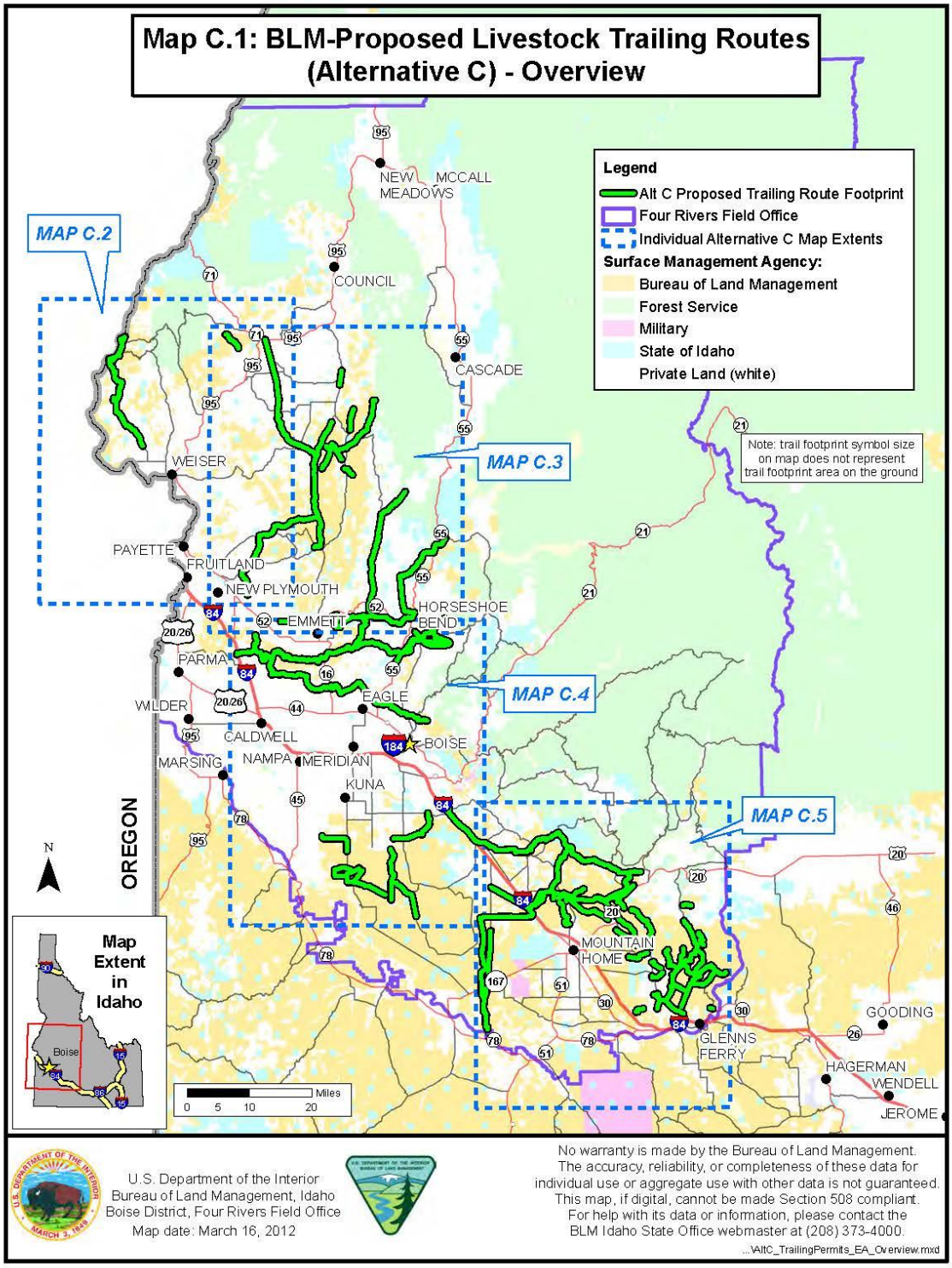
...\AltB_TrailingPermits_EA_Map5.mxd

Map C.1


Map C.1: BLM-Proposed Livestock Trailing Routes
(Alternative C) - Overview
Legend
Alt C Proposed Trailing Route Footprint
Four Rivers Field Office
Individual Alternative C Map Extents
Surface Management Agency:
Bureau of Land Management
Forest Service
Military
State of Idaho
Private Land (white)
Note: trail footprint symbol size on map does not represent trail footprint area on the ground
MAP C.2
MAP C.3
MAP C.4
MAP C.5
NEW MEADOWS
MCCALL
COUNCIL
CASCADE
WEISER
PAYETTE
FRUITLAND
NEW PLYMOUTH
EMMETT
HORSESHOE BEND
PARMA
EAGLE
WILDER
CALDWELL
NAMPA
MERIDIAN
BOISE
MARSING
KUNA
MOUNTAIN HOME
GLENNS FERRY
GOODING
HAGERMAN
WENDELL
JEROME
OREGON
N
Map Extent in Idaho
Boise
Miles
0 5 10 20
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: March 16, 2012
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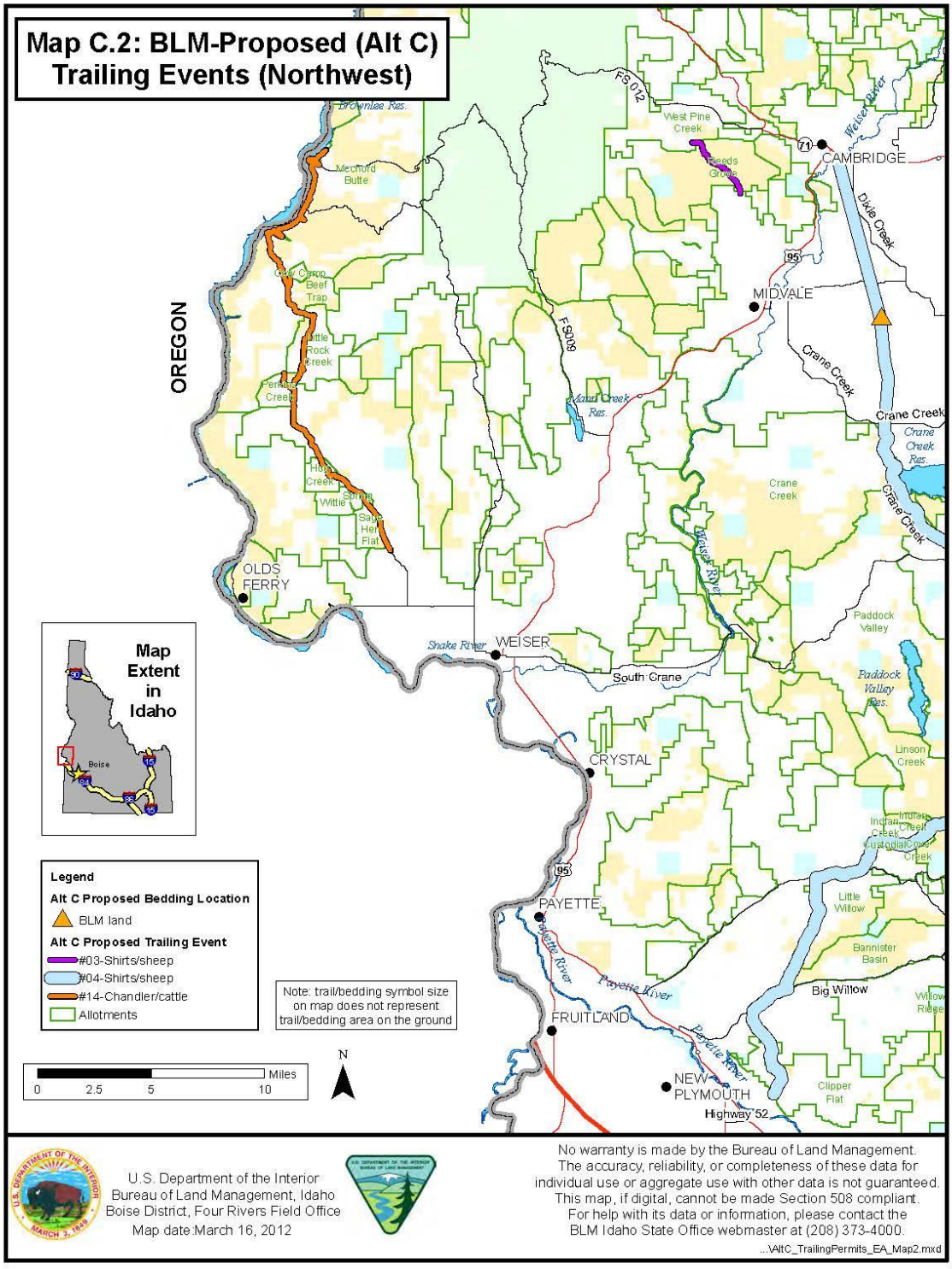
...\AltC_TrailingPermits_EA_Overview.mxd

Map C.2


Map C.2: BLM-Proposed (Alt C) Trailing Events (Northwest)
OREGON
Brownlee Res.
Mineral Butte
Gay Camp Beef Trap
Little Rock Creek
Pennsy Creek
Hog Creek
Summit
Wittle
Sage Hen Flat
OLDS FERRY
Map Extent in Idaho
Boise
Legend
Alt C Proposed Bedding Location
BLM land
Alt C Proposed Trailing Event
#03-Shirts/sheep
#04-Shirts/sheep
#14-Chandler/cattle
Allotments
Note: trail/bedding symbol size on map does not represent trail/bedding area on the ground
Miles
0 2.5 5 10
N
FS 012
West Pine Creek
Reads Gulch
CAMBRIDGE
Weiser River
Dixie Creek
MIDVALE
FS 009
Mann Creek Res.
Crane Creek
Crane Creek Res.
Crane Creek
Crane Creek
Weiser River
Snake River
WEISER
South Crane
Paddock Valley
Paddock Valley Res.
CRYSTAL
Linson Creek
Indian Creek
Custodial Creek
PAYETTE
Little Willow
Bannister Basin
Payette River
Big Willow
Willow Ridge
FRUITLAND
NEW PLYMOUTH
Clipper Flat
Highway 52
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date:March 16, 2012
No warranty is made by the Bureau of Land Management.
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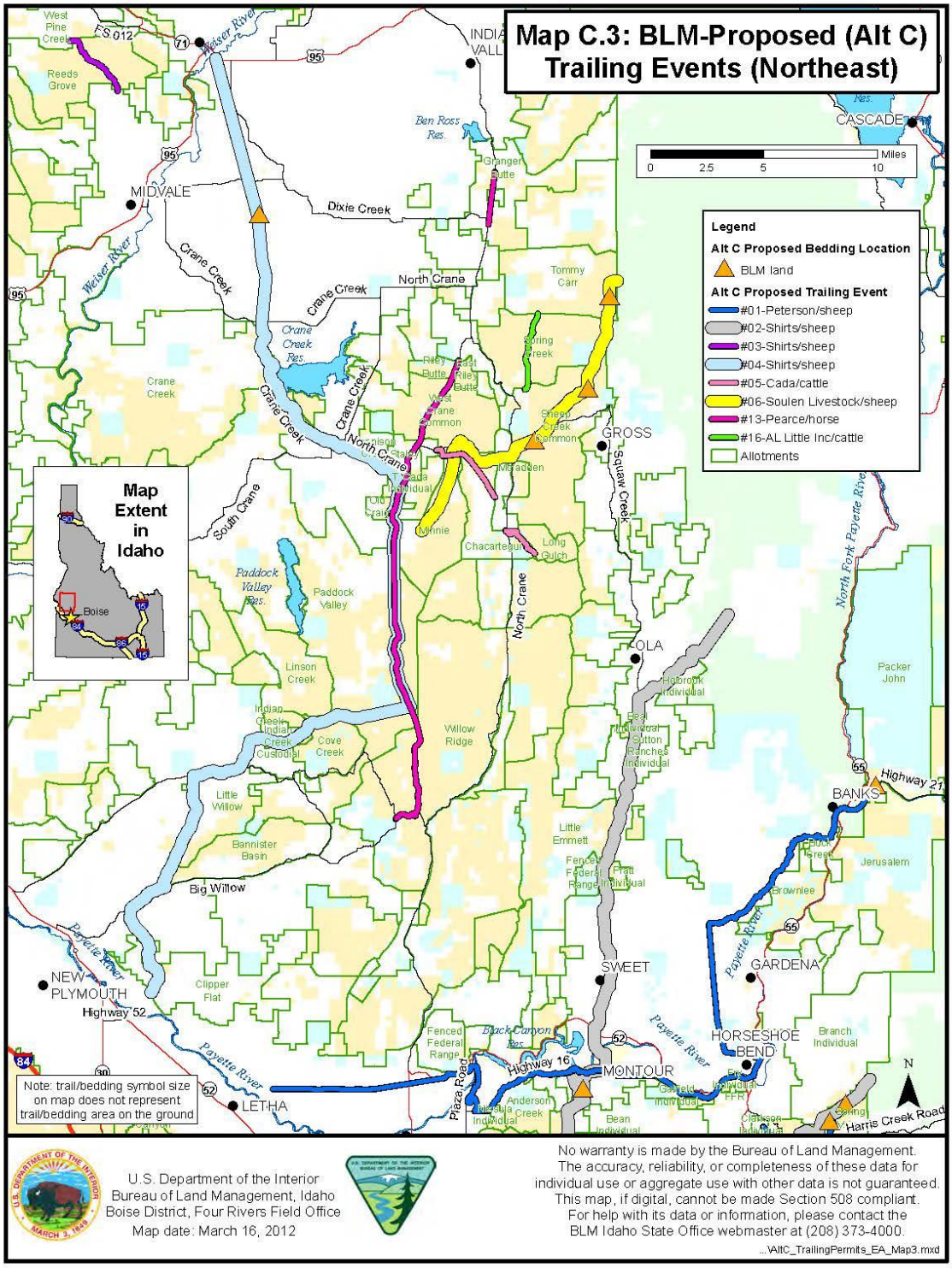
..\AltC_TrailingPermits_EA_Map2.mxd

Map C.3


Map C.3: BLM-Proposed (Alt C) Trailing Events (Northeast)
Legend
Alt C Proposed Bedding Location
BLM land
Alt C Proposed Trailing Event
#01-Peterson/sheep
#02-Shirts/sheep
#03-Shirts/sheep
#04-Shirts/sheep
#05-Cada/cattle
#06-Soulen Livestock/sheep
#13-Pearce/horse
#16-AL Little Inc/cattle
Allotments
Miles
0 2.5 5 10
Map Extent in Idaho
Boise
MIDVALE
CASCADE
GROSS
COLA
BANKS
SWEET
GARDENA
NEW PLYMOUTH
LETHA
MONTOUR
HORSESHOE BEND
Highway 52
Highway 16
Highway 21
Harris Creek Road
Weiser River
Payette River
North Fork Payette River
Crane Creek
North Crane
South Crane
Dixie Creek
Squaw Creek
Paddock Valley Res.
Crane Creek Res.
Ben Ross Res.
Black Canyon Res.
Note: trail/bedding symbol size on map does not represent trail/bedding area on the ground
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: March 16, 2012
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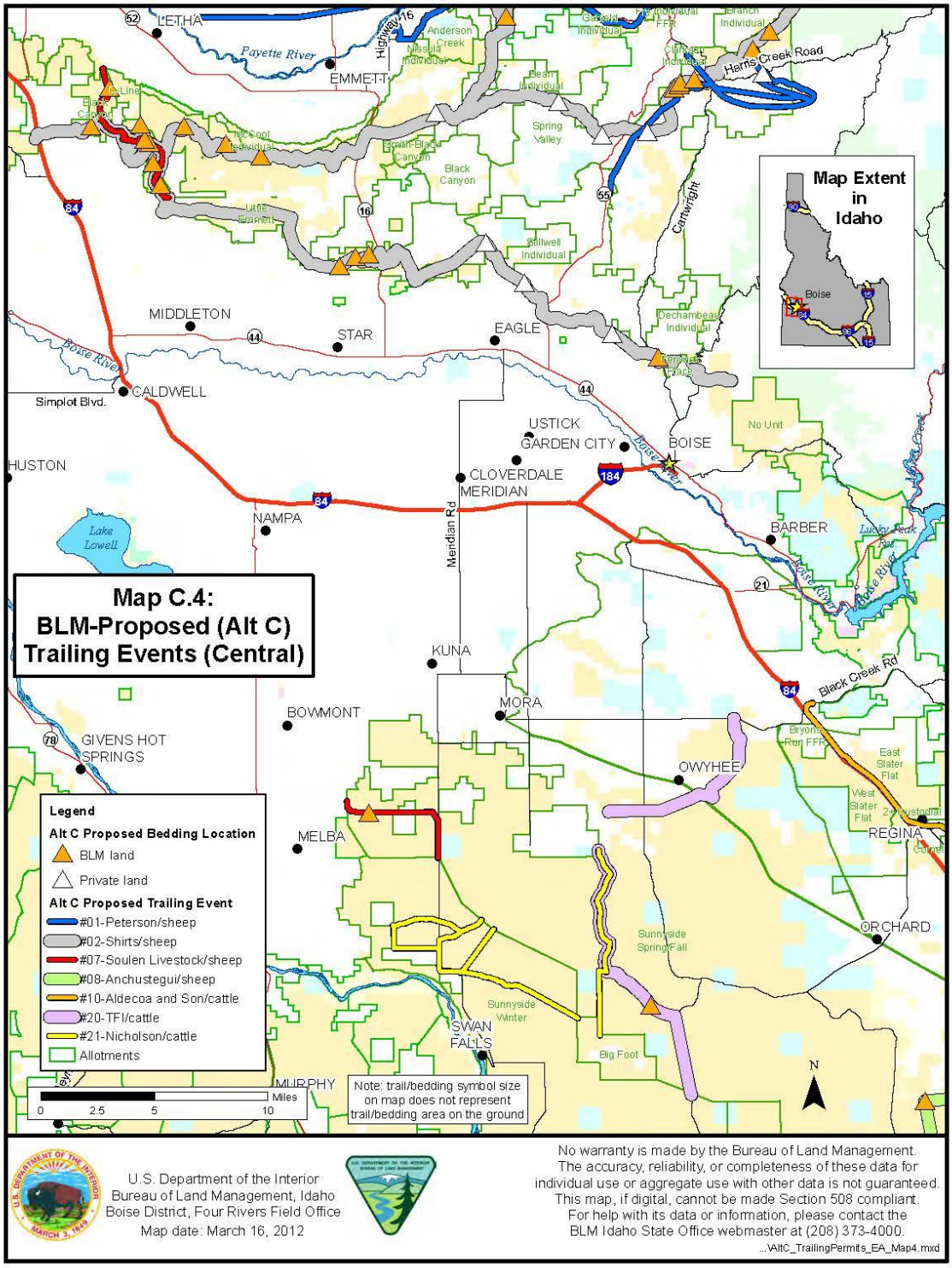
..\AltC_TrailingPermits_EA_Map3.mxd

Map C.4


Map C.4:
BLM-Proposed (Alt C)
Trailing Events (Central)
Map Extent in Idaho
Boise
Legend
Alt C Proposed Bedding Location
BLM land
Private land
Alt C Proposed Trailing Event
#01-Peterson/sheep
#02-Shirts/sheep
#07-Soulen Livestock/sheep
#08-Anchustegui/sheep
#10-Aldecoa and Son/cattle
#20-TFI/cattle
#21-Nicholson/cattle
Allotments
Miles
0 2.5 5 10
Note: trail/bedding symbol size on map does not represent trail/bedding area on the ground
N
LETHA
EMMETT
Payette River
Highway 16
Harris Creek Road
MIDDLETON
STAR
EAGLE
Boise River
CALDWELL
Simplot Blvd.
USTICK
GARDEN CITY
BOISE
HUSTON
CLOVERDALE
MERIDIAN
NAMPA
Meridian Rd
Lake Lowell
BARBER
Lucky Peak Lake
KUNA
MORA
BOWMONT
Black Creek Rd
GIVENS HOT SPRINGS
OWYHEE
MELBA
REGINA
ORCHARD
SWAN FALLS
MURPHY
Cartwright
Spring Valley
Black Canyon
Stillwell Individual
Dechambeau Individual
No Unit
Sunnyside Spring/Fall
Sunnyside Winter
Big Foot
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: March 16, 2012
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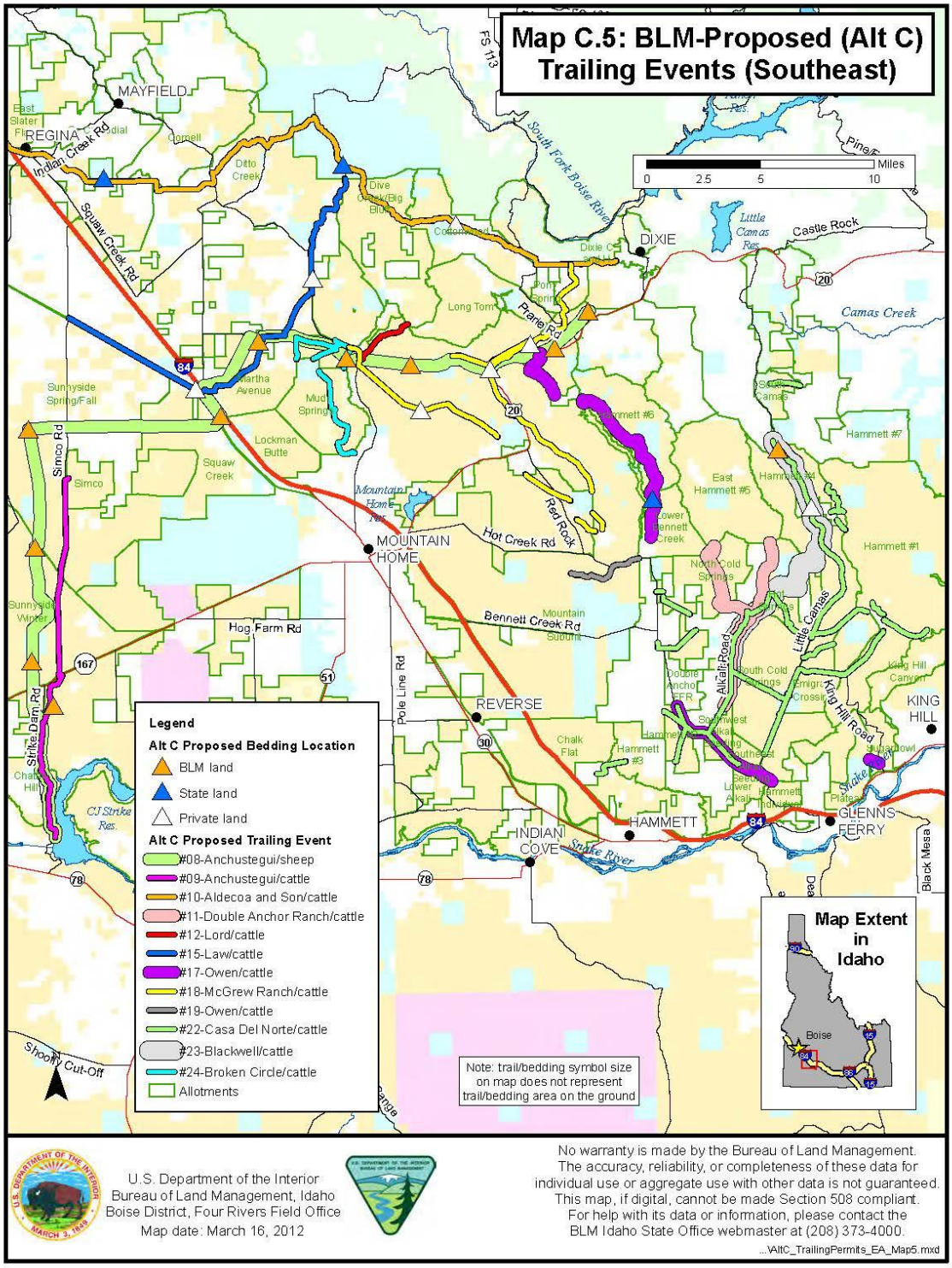
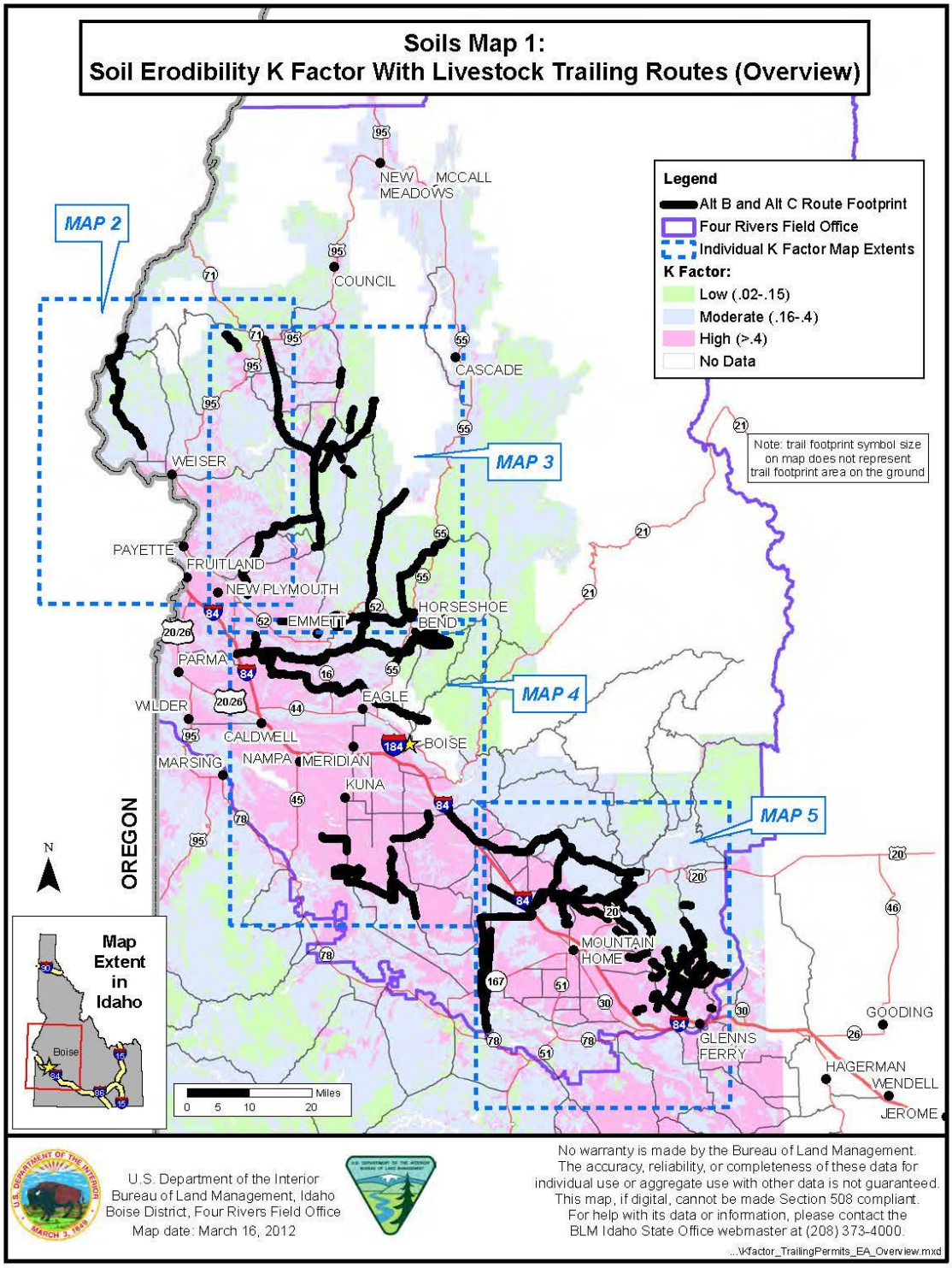
...\AltC_TrailingPermits_EA_Map4.mxd

Map C.5


Map C.5: BLM-Proposed (Alt C) Trailing Events (Southeast)
MAYFIELD
REGINA
DIXIE
MOUNTAIN HOME
REVERSE
HAMMETT
INDIAN COVE
KING HILL
GLENNS FERRY
Indian Creek Rd
Squaw Creek Rd
Prairie Rd
Hot Creek Rd
Bennett Creek Rd
Hog Farm Rd
Pole Line Rd
Simco Rd
Strike Dam Rd
King Hill Road
Alkali Road
Castle Rock
Camas Creek
Little Camas
Red Rock
South Fork Boise River
Snake River
Black Mesa
Miles
0 2.5 5 10
Legend
Alt C Proposed Bedding Location
BLM land
State land
Private land
Alt C Proposed Trailing Event
#08-Anchustegui/sheep
#09-Anchustegui/cattle
#10-Aldecoa and Son/cattle
#11-Double Anchor Ranch/cattle
#12-Lord/cattle
#15-Law/cattle
#17-Owen/cattle
#18-McGrew Ranch/cattle
#19-Owen/cattle
#22-Casa Del Norte/cattle
#23-Blackwell/cattle
#24-Broken Circle/cattle
Allotments
Note: trail/bedding symbol size on map does not represent trail/bedding area on the ground
Map Extent in Idaho
Boise
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: March 16, 2012
No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed. This map, if digital, cannot be made Section 508 compliant. For help with its data or information, please contact the BLM Idaho State Office webmaster at (208) 373-4000.
..\AltC_TrailingPermits_EA_Map5.mxd

Soils Map 1


Soils Map 1:
Soil Erodibility K Factor With Livestock Trailing Routes (Overview)
Legend
Alt B and Alt C Route Footprint
Four Rivers Field Office
Individual K Factor Map Extents
K Factor:
Low (.02-.15)
Moderate (.16-.4)
High (>.4)
No Data
Note: trail footprint symbol size on map does not represent trail footprint area on the ground
MAP 2
MAP 3
MAP 4
MAP 5
NEW MEADOWS
MCCALL
COUNCIL
CASCADE
WEISER
PAYETTE
FRUITLAND
NEW PLYMOUTH
EMMETT
HORSESHOE BEND
PARMA
EAGLE
WILDER
CALDWELL
NAMPA
MERIDIAN
BOISE
MARSING
KUNA
MOUNTAIN HOME
GLENNS FERRY
GOODING
HAGERMAN
WENDELL
JEROME
OREGON
N
Map Extent in Idaho
Boise
Miles
0 5 10 20
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: March 16, 2012
No warranty is made by the Bureau of Land Management.
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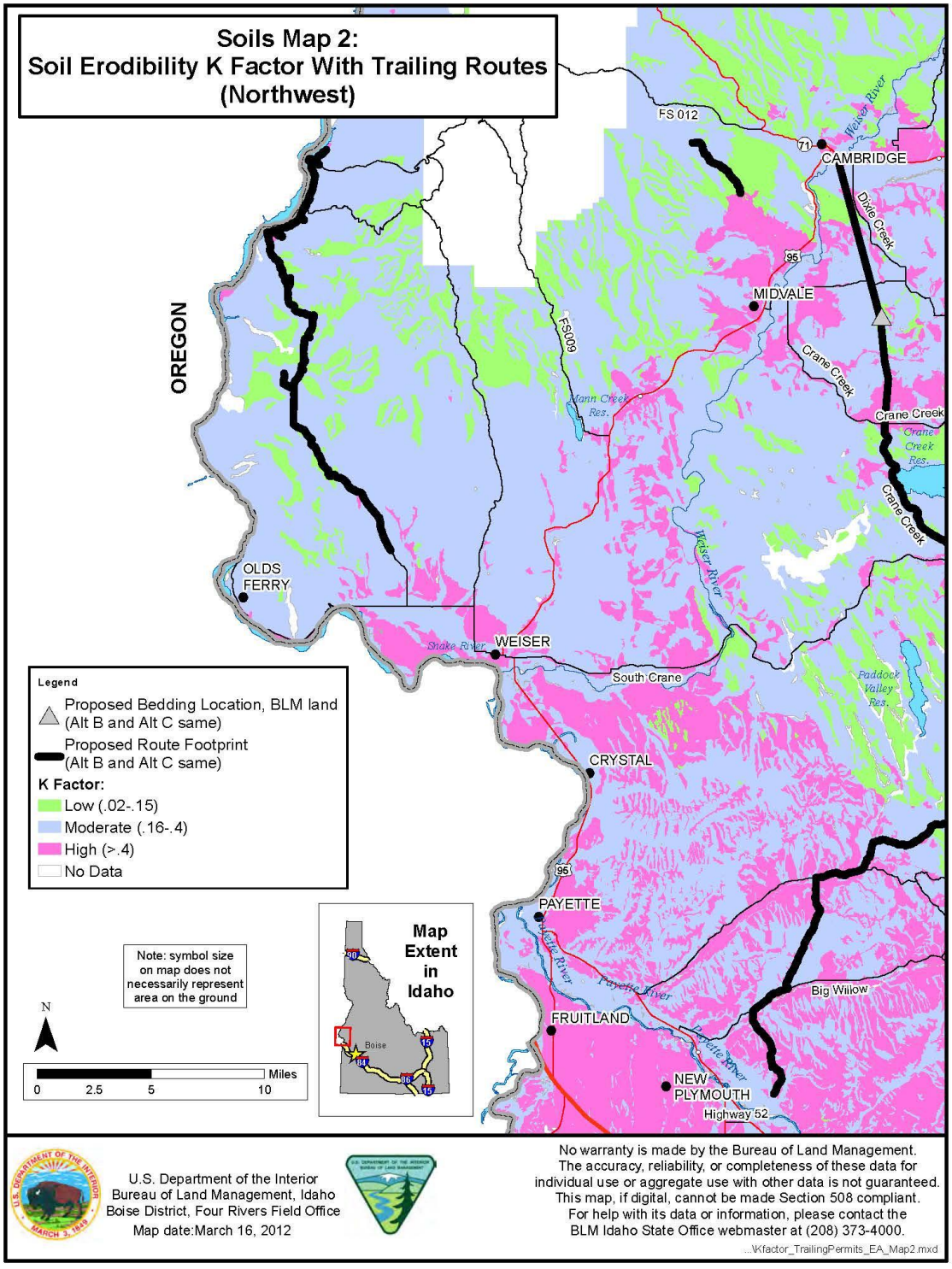
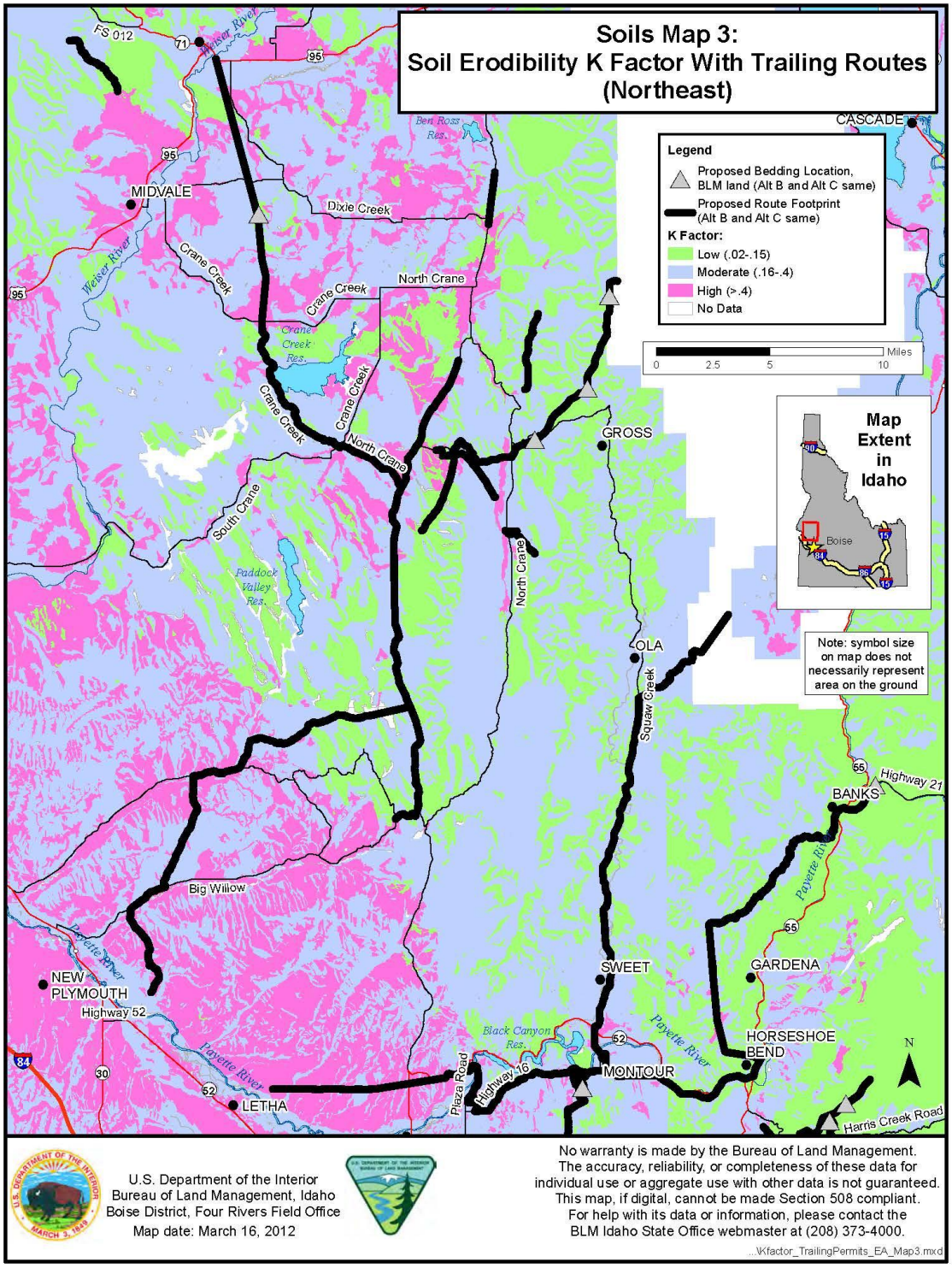
For help with its data or information, please contact the BLM Idaho State Office webmaster at (208) 373-4000.
...\Kfactor_TrailingPermits_EA_Overview.mxd

Soils Map 2


Soils Map 2:
Soil Erodibility K Factor With Trailing Routes
(Northwest)
OREGON
FS 012
CAMBRIDGE
Weiser River
Dixie Creek
MIDVALE
FS009
Crane Creek
Mann Creek Res.
Crane Creek Res.
OLDS FERRY
Snake River
WEISER
South Crane
Paddock Valley Res.
CRYSTAL
PAYETTE
Payette River
Big Willow
FRUITLAND
NEW PLYMOUTH
Highway 52
Legend
Proposed Bedding Location, BLM land (Alt B and Alt C same)
Proposed Route Footprint (Alt B and Alt C same)
K Factor:
Low (.02-.15)
Moderate (.16-.4)
High (>.4)
No Data
Note: symbol size on map does not necessarily represent area on the ground
N
Miles
0 2.5 5 10
Map Extent in Idaho
Boise
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date:March 16, 2012
No warranty is made by the Bureau of Land Management.
The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.
This map, if digital, cannot be made Section 508 compliant.
For help with its data or information, please contact the BLM Idaho State Office webmaster at (208) 373-4000.
...\Kfactor_TrailingPermits_EA_Map2.mxd

Soils Map 3


Soils Map 3:
Soil Erodibility K Factor With Trailing Routes
(Northeast)
Legend
Proposed Bedding Location, BLM land (Alt B and Alt C same)
Proposed Route Footprint (Alt B and Alt C same)
K Factor:
Low (.02-.15)
Moderate (.16-.4)
High (>.4)
No Data
Miles
0 2.5 5 10
Map Extent in Idaho
Boise
Note: symbol size on map does not necessarily represent area on the ground
CASCADE
MIDVALE
GROSS
OLA
BANKS
SWEET
GARDENA
HORSESHOE BEND
MONTOUR
NEW PLYMOUTH
LETHA
Weiser River
Dixie Creek
Crane Creek
North Crane
South Crane
Crane Creek Res.
Paddock Valley Res.
Ben Ross Res.
Black Canyon Res.
Squaw Creek
Payette River
Big Willow
Highway 21
Highway 52
Highway 16
Plaza Road
Harris Creek Road
FS 012
N
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: March 16, 2012
No warranty is made by the Bureau of Land Management.
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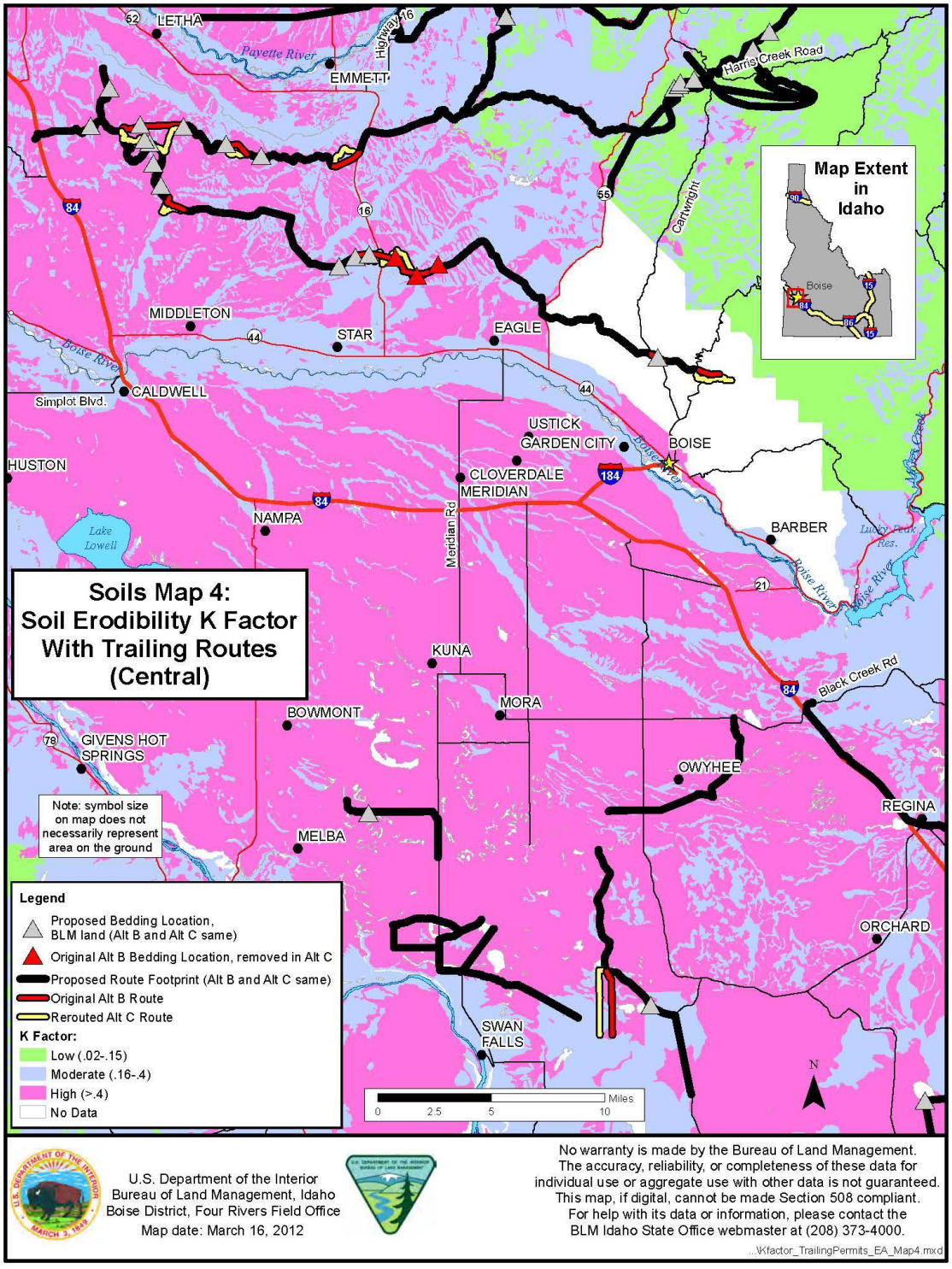
For help with its data or information, please contact the BLM Idaho State Office webmaster at (208) 373-4000.
...\Kfactor_TrailingPermits_EA_Map3.mxd

Soils Map 4


Soils Map 4:
Soil Erodibility K Factor
With Trailing Routes
(Central)
Map Extent in Idaho
Boise
LETHA
EMMETT
Payette River
Highway 16
Harris Creek Road
Cartwright
MIDDLETON
STAR
EAGLE
Boise River
CALDWELL
Simplot Blvd.
USTICK
GARDEN CITY
BOISE
HUSTON
CLOVERDALE
MERIDIAN
NAMPA
Meridian Rd
Lake Lowell
BARBER
Lucky Peak Res.
KUNA
Black Creek Rd
MORA
BOWMONT
GIVENS HOT SPRINGS
OWYHEE
REGINA
Note: symbol size on map does not necessarily represent area on the ground
MELBA
ORCHARD
SWAN FALLS
Legend
Proposed Bedding Location, BLM land (Alt B and Alt C same)
Original Alt B Bedding Location, removed in Alt C
Proposed Route Footprint (Alt B and Alt C same)
Original Alt B Route
Rerouted Alt C Route
K Factor:
Low (.02-.15)
Moderate (.16-.4)
High (>.4)
No Data
Miles
0 2.5 5 10
N
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: March 16, 2012
No warranty is made by the Bureau of Land Management.
The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.
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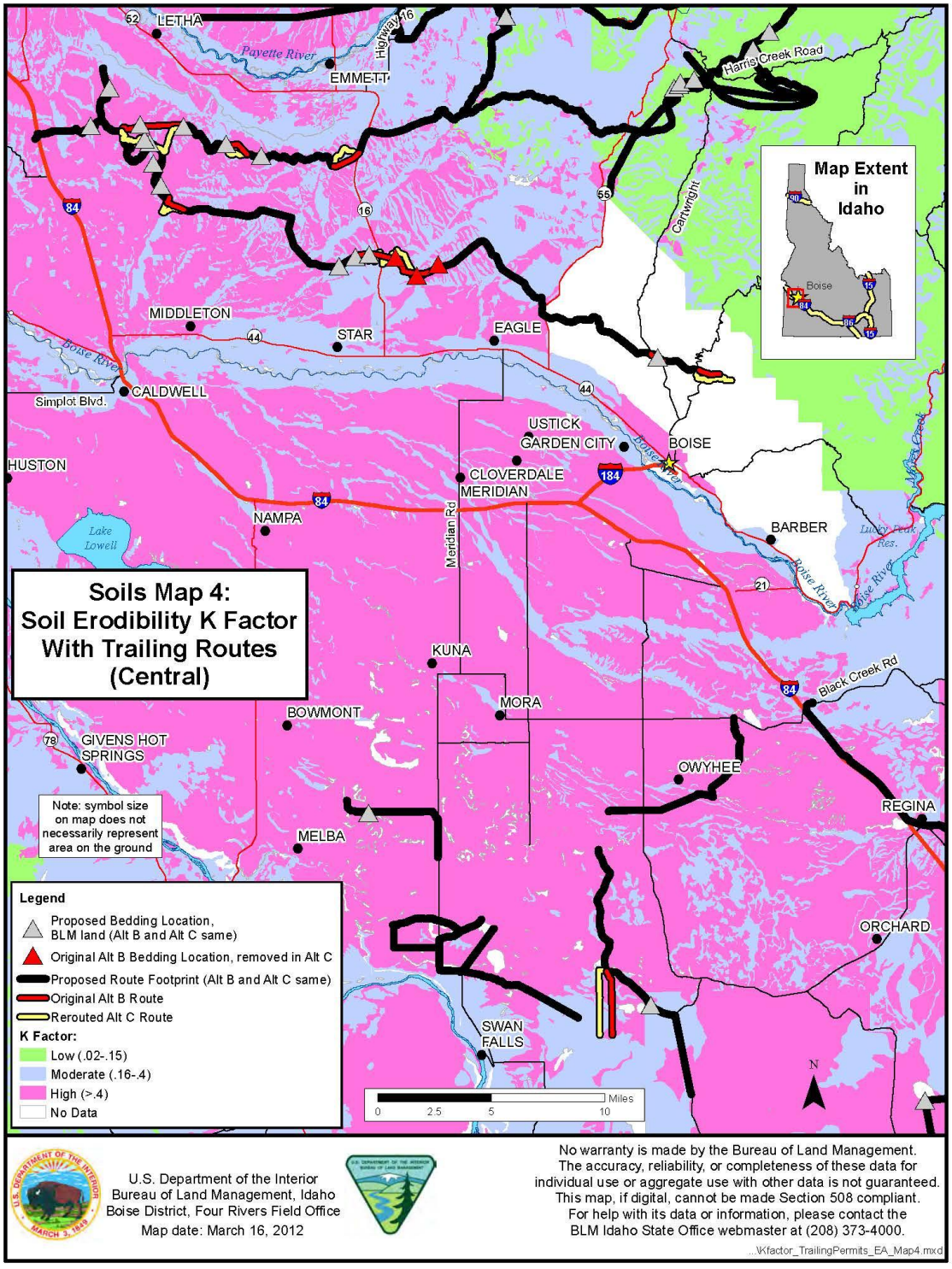
...\Kfactor_TrailingPermits_EA_Map4.mxd

Soils Map 5


Soils Map 4:
Soil Erodibility K Factor
With Trailing Routes
(Central)
Map Extent
in
Idaho
Boise
LETHA
EMMETT
Payette River
Highway 16
Harris Creek Road
Cartwright
MIDDLETON
STAR
EAGLE
Boise River
CALDWELL
Simplot Blvd.
USTICK
GARDEN CITY
BOISE
HUSTON
CLOVERDALE
MERIDIAN
NAMPA
Meridian Rd
Lake Lowell
BARBER
Lucky Peak Res.
KUNA
Black Creek Rd
MORA
BOWMONT
GIVENS HOT SPRINGS
OWYHEE
REGINA
Note: symbol size on map does not necessarily represent area on the ground
MELBA
ORCHARD
SWAN FALLS
Legend
Proposed Bedding Location, BLM land (Alt B and Alt C same)
Original Alt B Bedding Location, removed in Alt C
Proposed Route Footprint (Alt B and Alt C same)
Original Alt B Route
Rerouted Alt C Route
K Factor:
Low (.02-.15)
Moderate (.16-.4)
High (>.4)
No Data
Miles
0 2.5 5 10
N
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: March 16, 2012
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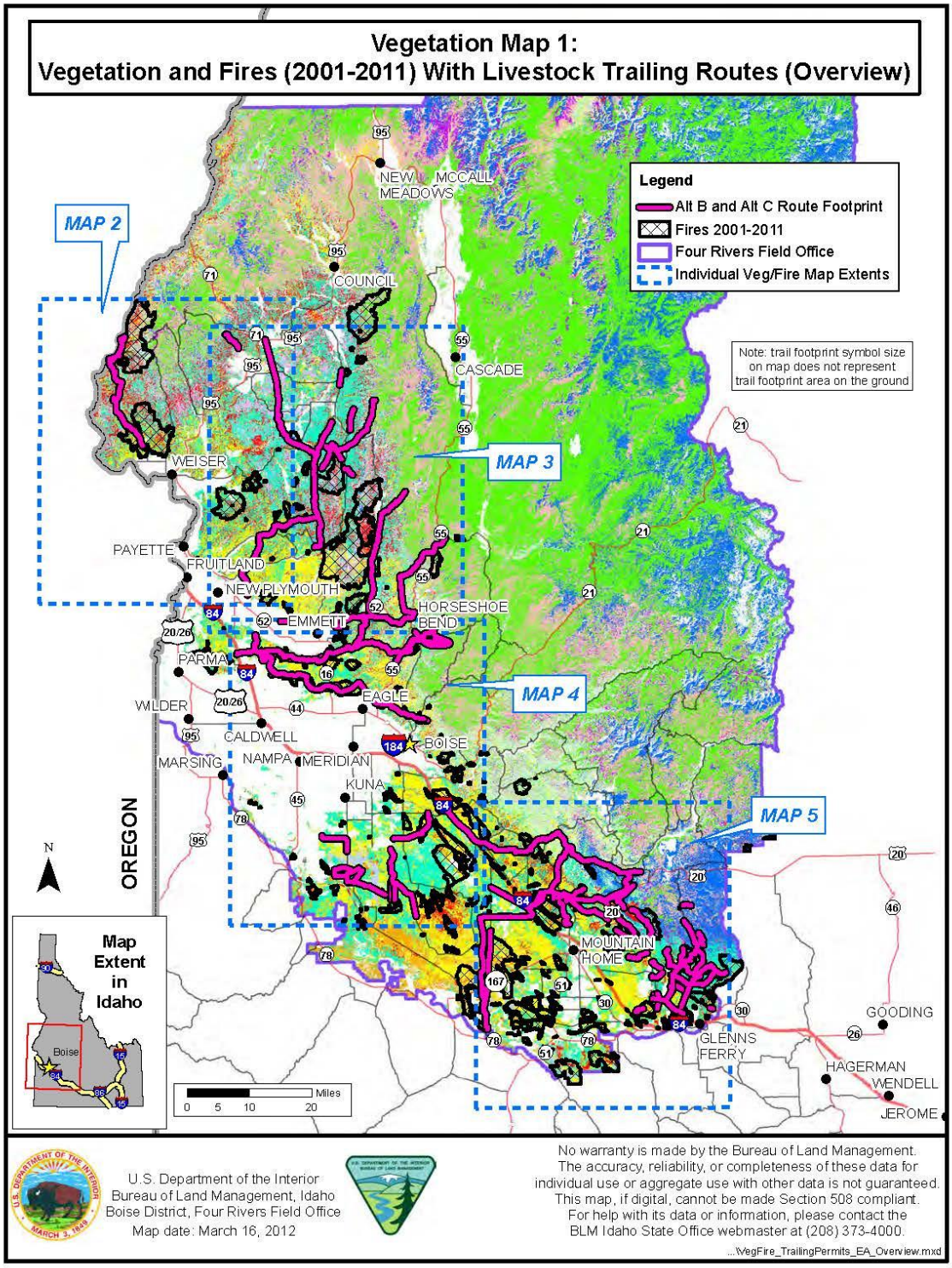
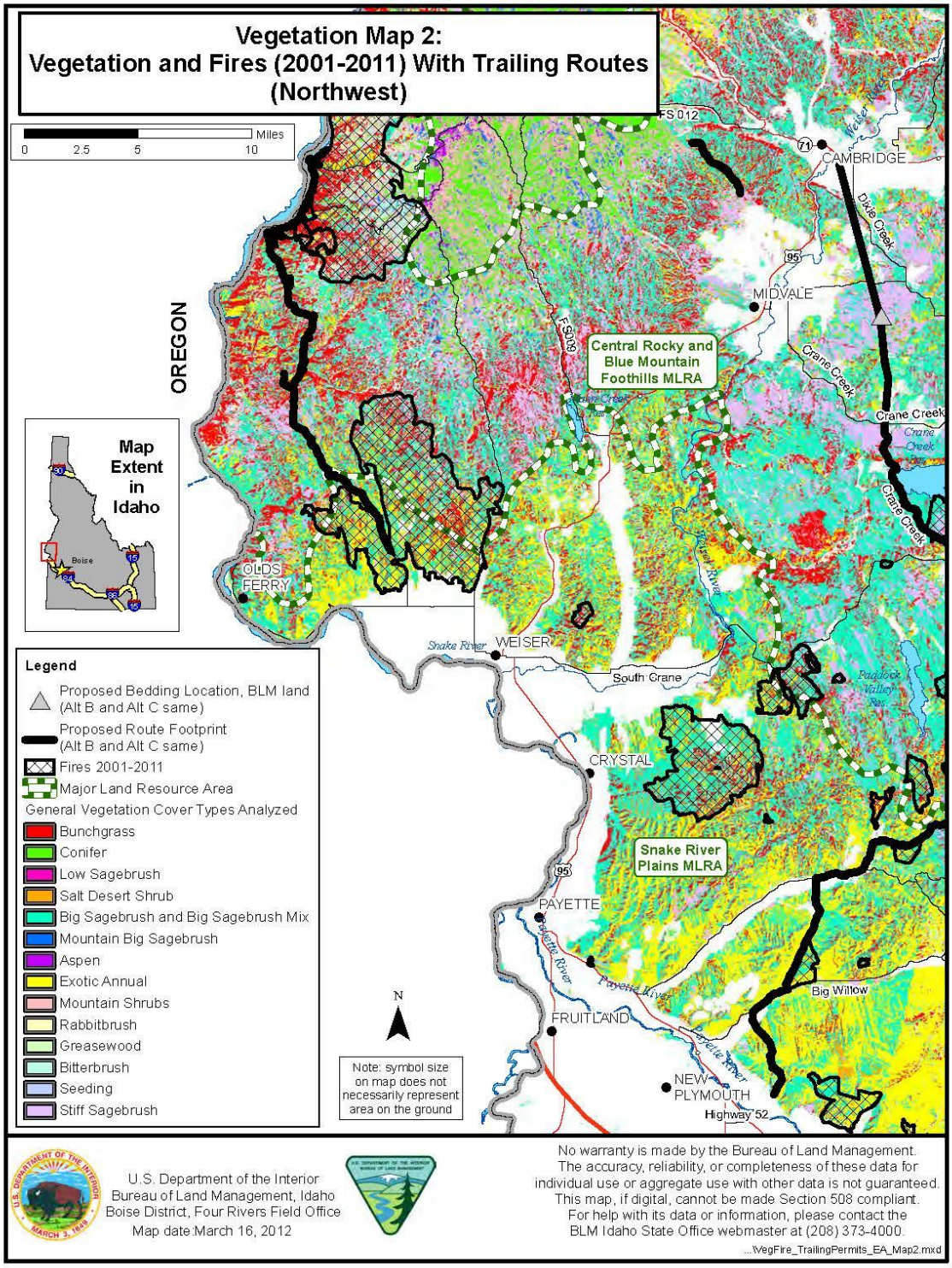
...\Kfactor_TrailingPermits_EA_Map4.mxd

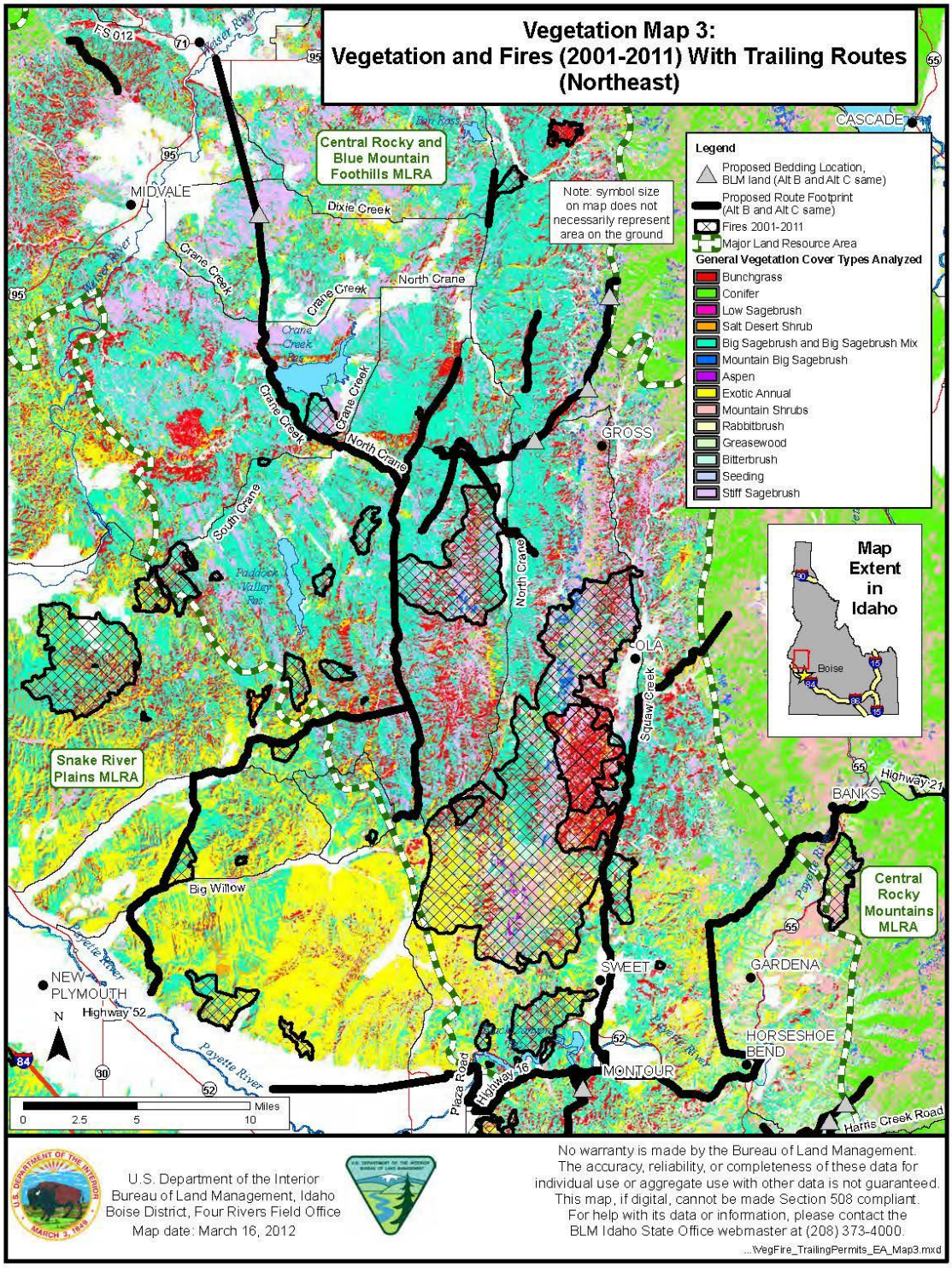
Vegetation Map 1



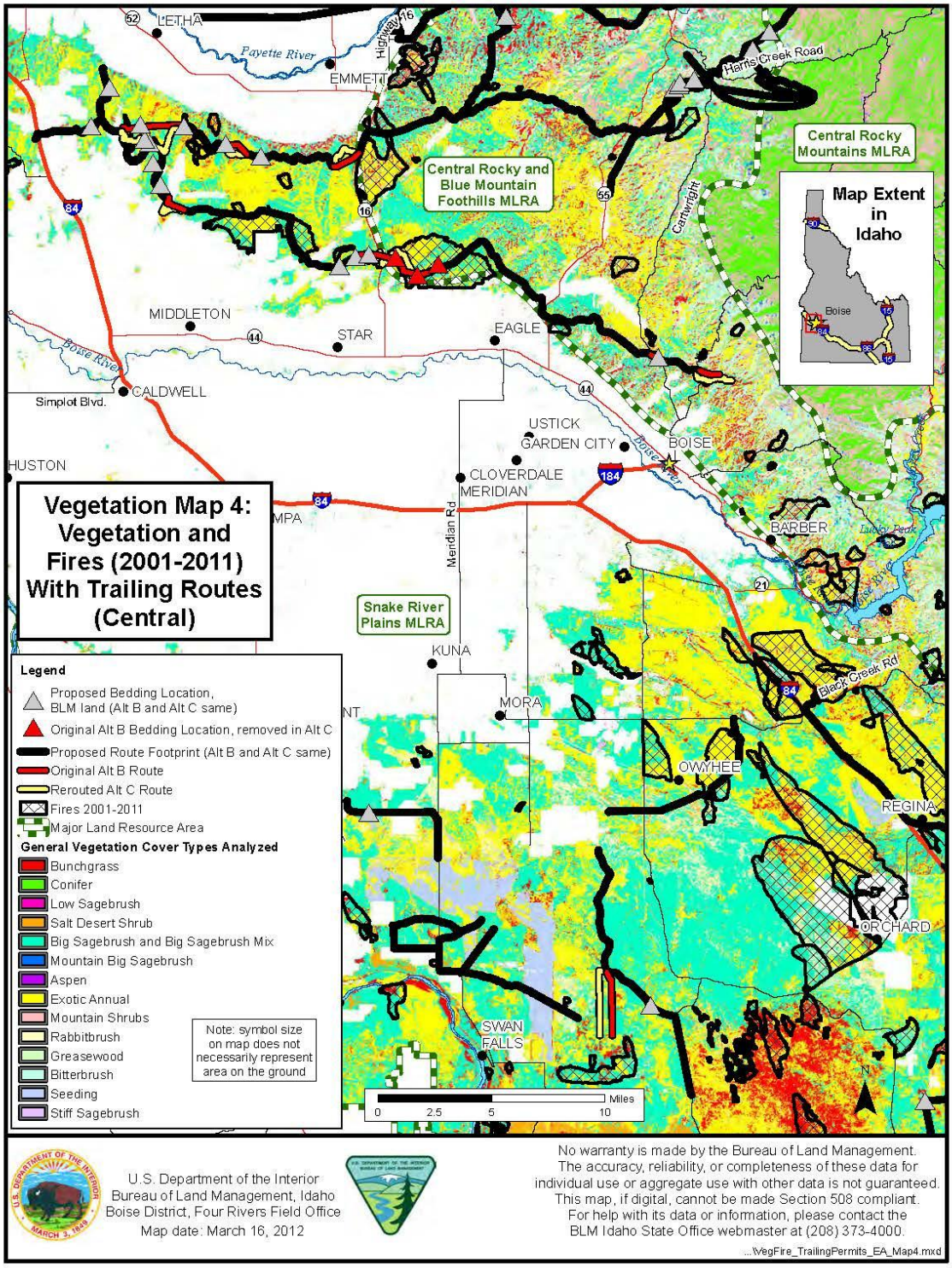
Vegetation Map 2



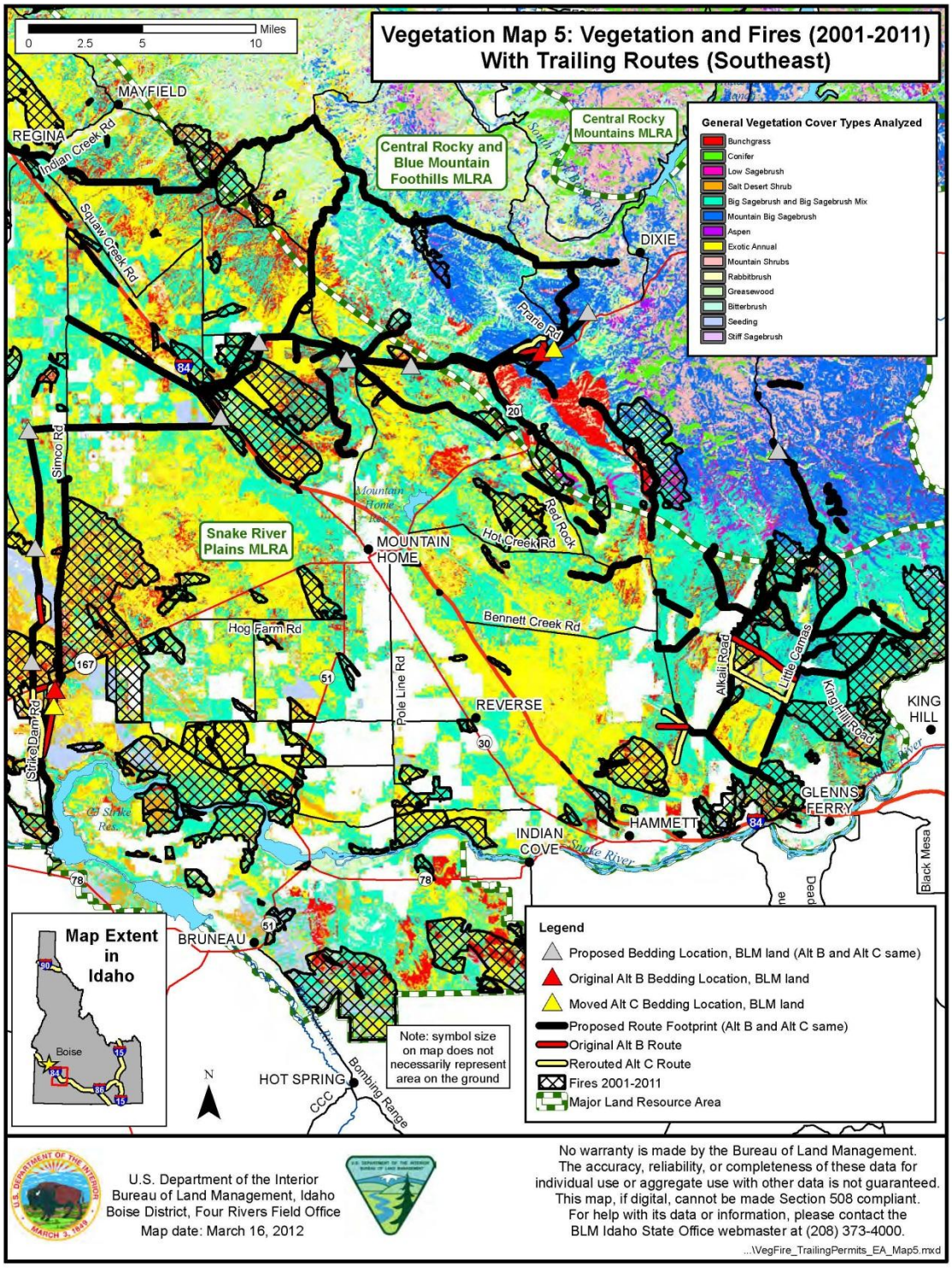
Vegetation Map 3



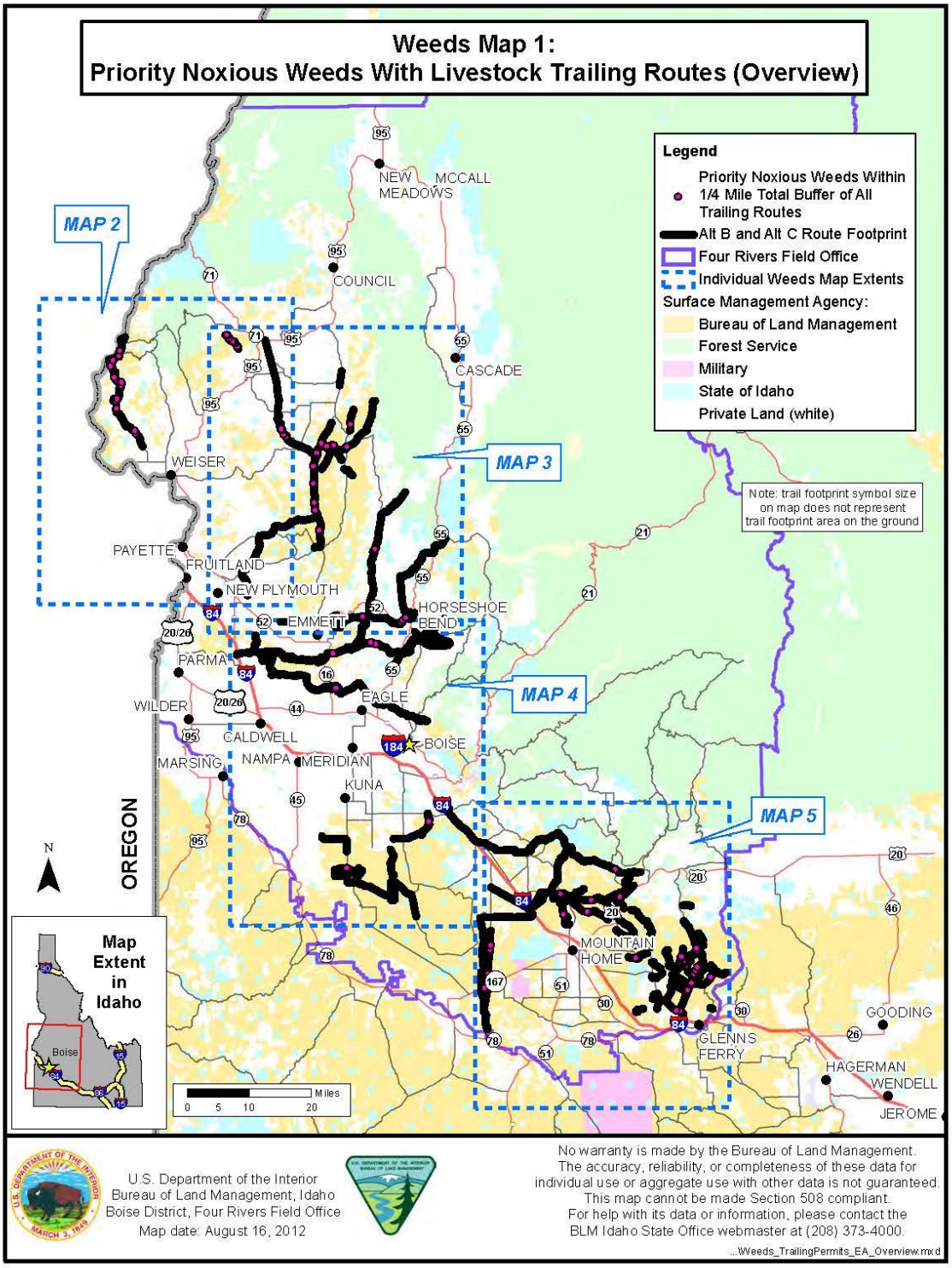
Vegetation Map 4



Vegetation Map 5



Weeds Map 1


Weeds Map 1:
Priority Noxious Weeds With Livestock Trailing Routes (Overview)
Legend
Priority Noxious Weeds Within 1/4 Mile Total Buffer of All Trailing Routes
Alt B and Alt C Route Footprint
Four Rivers Field Office
Individual Weeds Map Extents
Surface Management Agency:
Bureau of Land Management
Forest Service
Military
State of Idaho
Private Land (white)
Note: trail footprint symbol size on map does not represent trail footprint area on the ground
MAP 2
MAP 3
MAP 4
MAP 5
NEW MEADOWS
MCCALL
COUNCIL
CASCADE
WEISER
PAYETTE
FRUITLAND
NEW PLYMOUTH
EMMETT
HORSESHOE BEND
PARMA
EAGLE
WILDER
CALDWELL
NAMPA
MERIDIAN
BOISE
MARSING
KUNA
OREGON
MOUNTAIN HOME
GLENNS FERRY
GOODING
HAGERMAN
WENDELL
JEROME
Map Extent in Idaho
Boise
Miles
0 5 10 20
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: August 16, 2012
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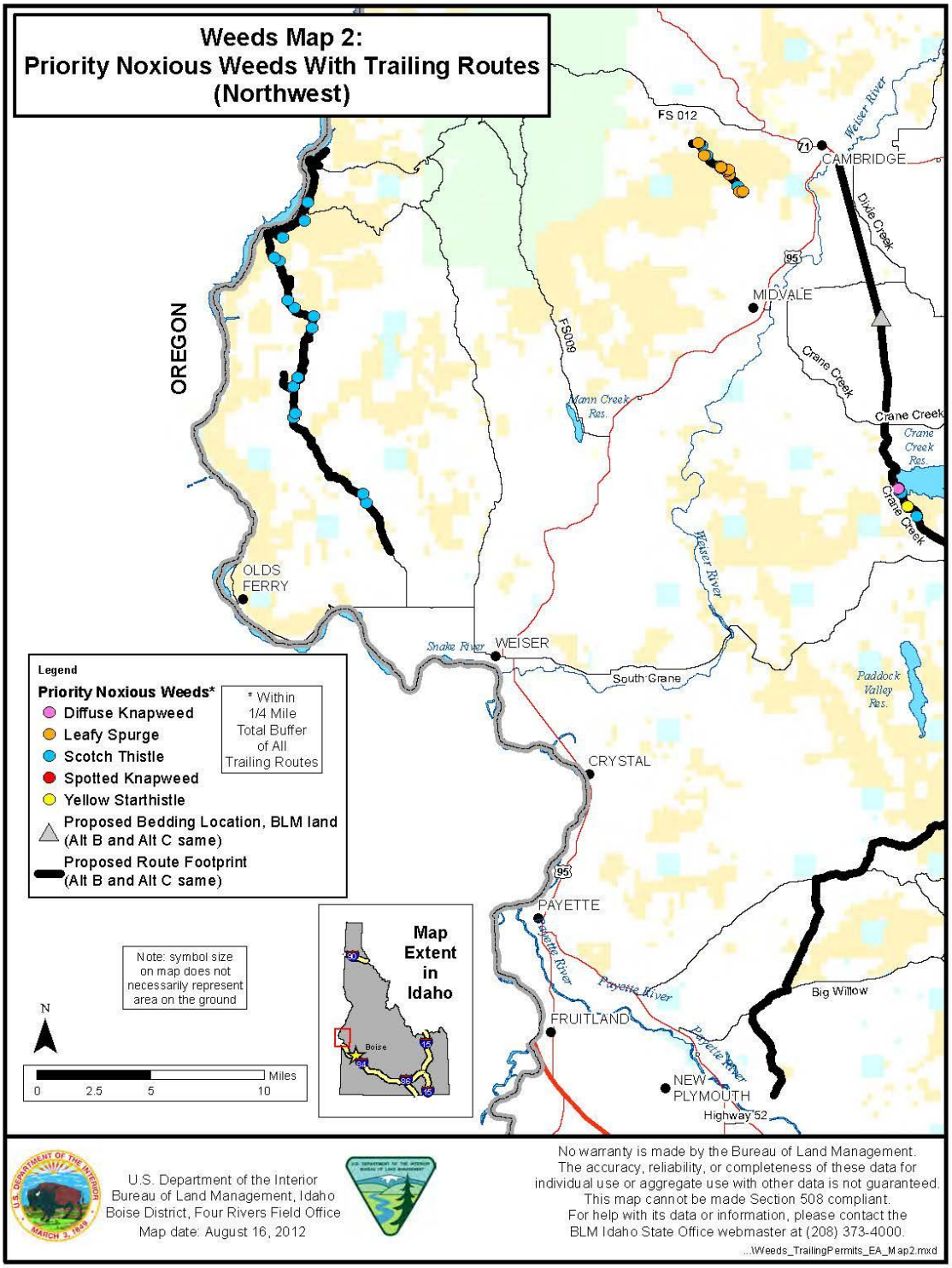
...\Weeds_TrailingPermits_EA_Overview.mxd

Weeds Map 2


Weeds Map 2:
Priority Noxious Weeds With Trailing Routes
(Northwest)
OREGON
FS 012
CAMBRIDGE
Weiser River
Dixie Creek
MIDVALE
FS009
Mann Creek Res.
Crane Creek
Crane Creek Res.
OLDS FERRY
Snake River
WEISER
South Crane
Paddock Valley Res.
CRYSTAL
PAYETTE
Payette River
FRUITLAND
Big Willow
NEW PLYMOUTH
Highway 52
Legend
Priority Noxious Weeds*
Diffuse Knapweed
Leafy Spurge
Scotch Thistle
Spotted Knapweed
Yellow Starthistle
Proposed Bedding Location, BLM land (Alt B and Alt C same)
Proposed Route Footprint (Alt B and Alt C same)
* Within 1/4 Mile Total Buffer of All Trailing Routes
Note: symbol size on map does not necessarily represent area on the ground
N
Miles
0 2.5 5 10
Map Extent in Idaho
Boise
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: August 16, 2012
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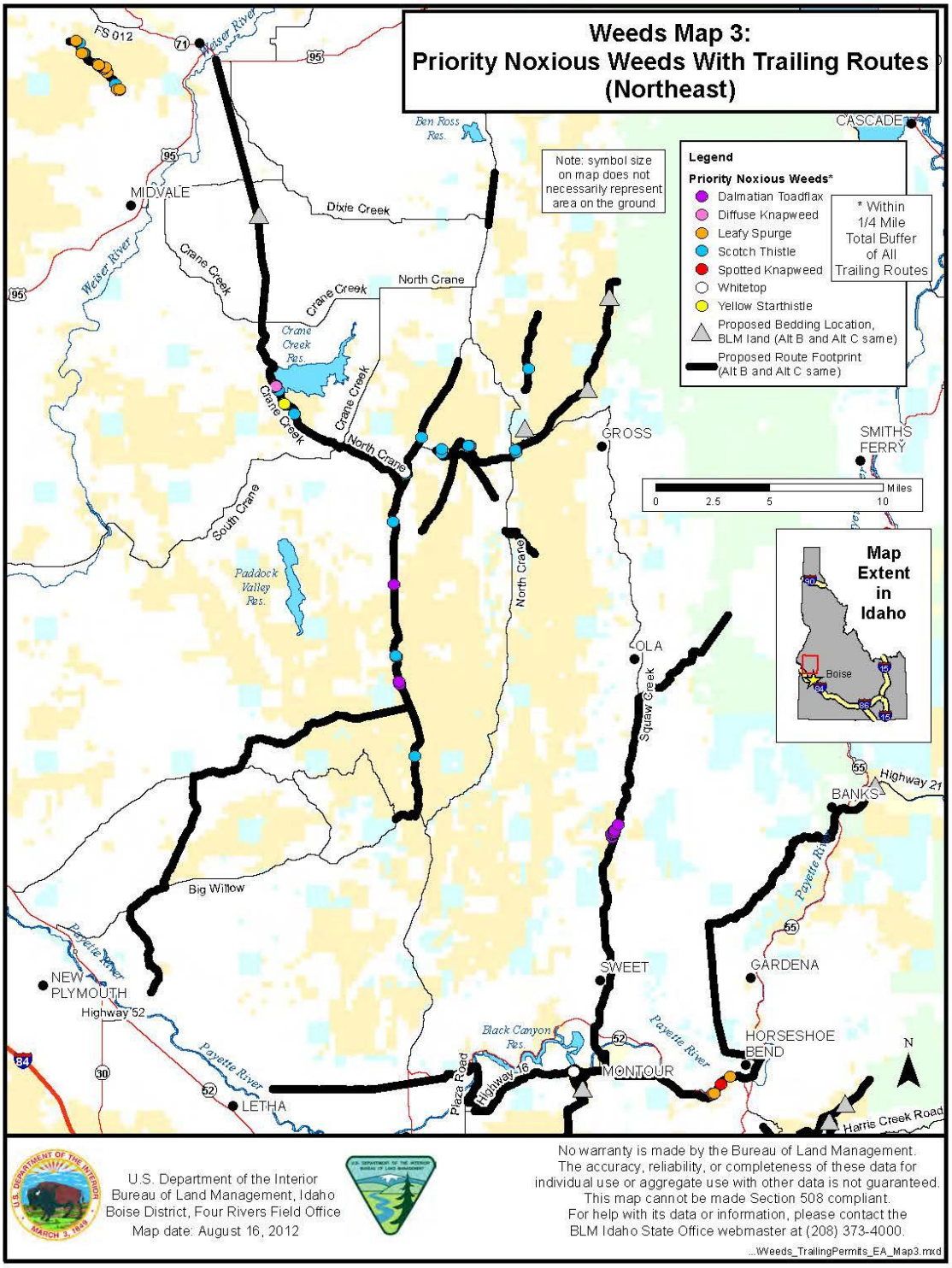
...\Weeds_TrailingPermits_EA_Map2.mxd

Weeds Map 3


Weeds Map 3:
Priority Noxious Weeds With Trailing Routes
(Northeast)
Note: symbol size on map does not necessarily represent area on the ground
Legend
Priority Noxious Weeds*
Dalmatian Toadflax
Diffuse Knapweed
Leafy Spurge
Scotch Thistle
Spotted Knapweed
Whitetop
Yellow Starthistle
Proposed Bedding Location, BLM land (Alt B and Alt C same)
Proposed Route Footprint (Alt B and Alt C same)
* Within 1/4 Mile Total Buffer of All Trailing Routes
Miles
0 2.5 5 10
Map Extent in Idaho
Boise
FS 012
Weiser River
Ben Ross Res.
CASCADE
MIDVALE
Dixie Creek
Crane Creek
North Crane
Crane Creek Res.
GROSS
SMITHS FERRY
South Crane
Paddock Valley Res.
North Crane
OLA
Squaw Creek
Highway 21
BANKS
Payette River
Big Willow
Payette River
NEW PLYMOUTH
Highway 52
SWEET
GARDENA
Black Canyon Res.
Payette River
HORSESHOE BEND
Plaza Road
Highway 16
MONTOUR
LETHA
Harris Creek Road
N
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: August 16, 2012
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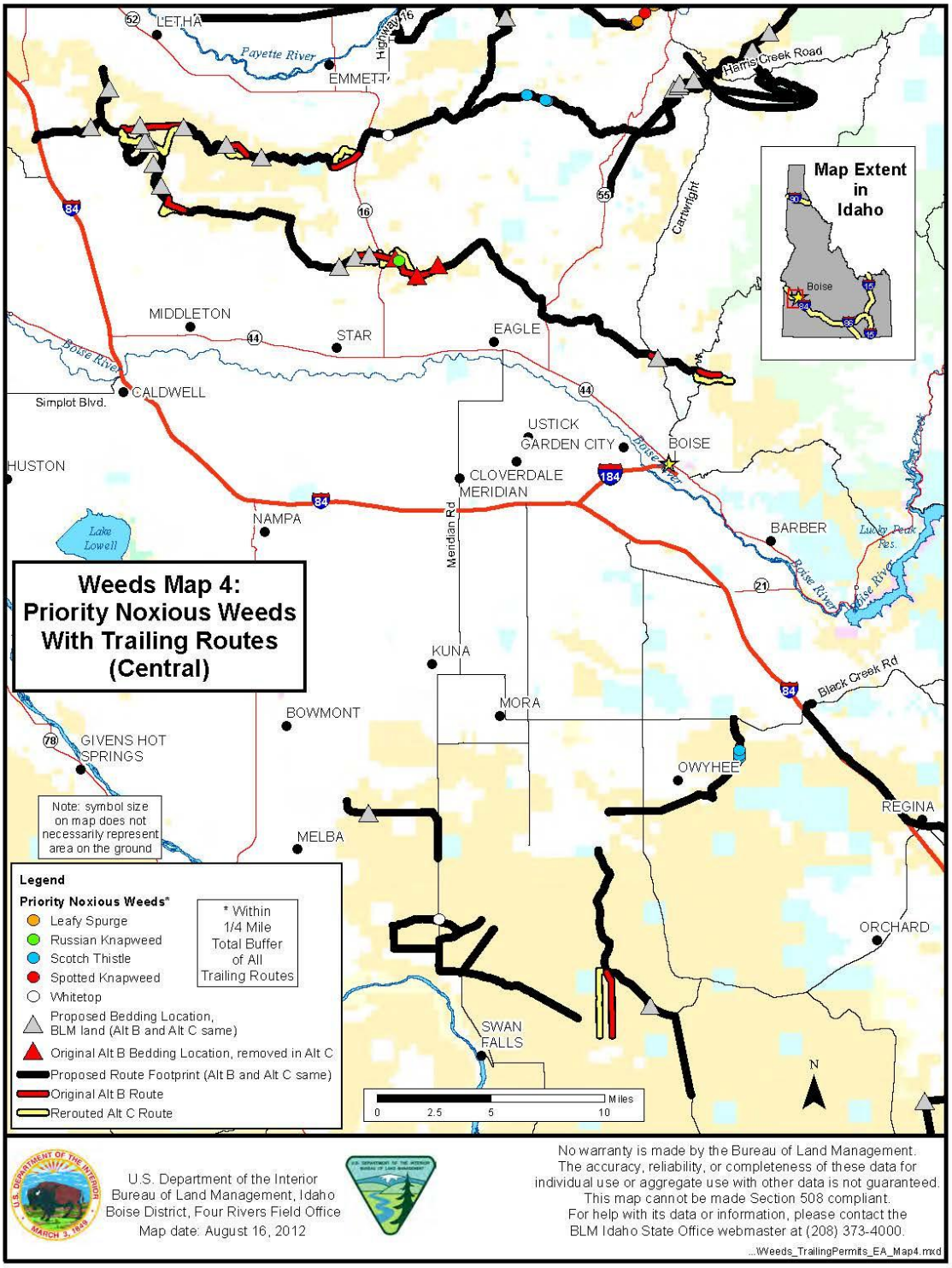
...\Weeds_TrailingPermits_EA_Map3.mxd

Weeds Map 4


Weeds Map 4:
Priority Noxious Weeds
With Trailing Routes
(Central)
Map Extent in Idaho
Boise
LETHA
Payette River
EMMETT
Highway 16
Harris Creek Road
Cartwright
MIDDLETON
STAR
EAGLE
Boise River
CALDWELL
Simplot Blvd.
USTICK
GARDEN CITY
BOISE
HUSTON
CLOVERDALE
MERIDIAN
Meridian Rd
NAMPA
Lake Lowell
BARBER
Lucky Peak Res.
Boise River
KUNA
Black Creek Rd
MORA
BOWMONT
GIVENS HOT SPRINGS
OWYHEE
REGINA
Note: symbol size on map does not necessarily represent area on the ground
MELBA
ORCHARD
SWAN FALLS
Legend
Priority Noxious Weeds*
Leafy Spurge
Russian Knapweed
Scotch Thistle
Spotted Knapweed
Whitetop
* Within 1/4 Mile Total Buffer of All Trailing Routes
Proposed Bedding Location, BLM land (Alt B and Alt C same)
Original Alt B Bedding Location, removed in Alt C
Proposed Route Footprint (Alt B and Alt C same)
Original Alt B Route
Rerouted Alt C Route
Miles
0 2.5 5 10
N
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: August 16, 2012
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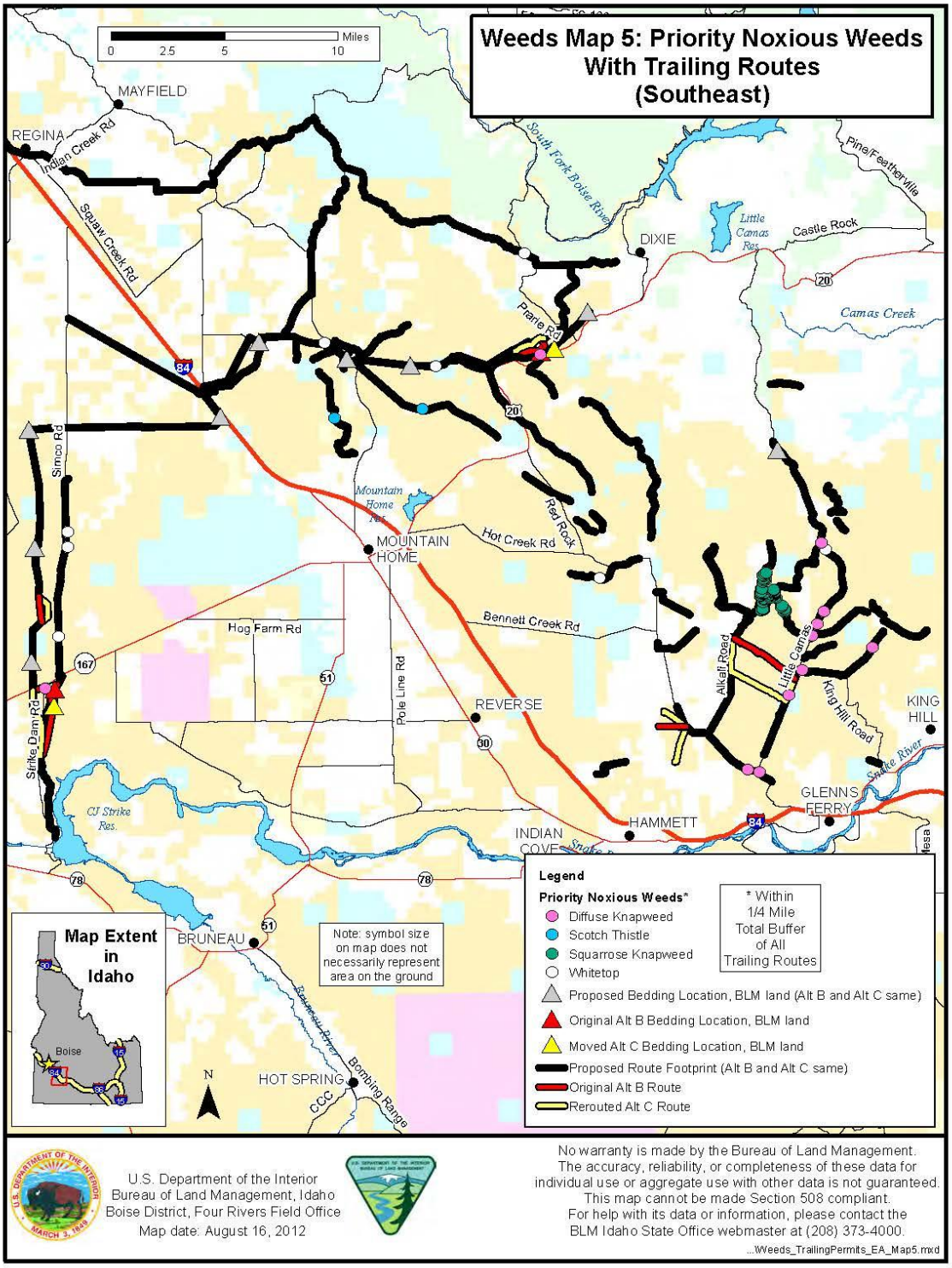
...\Weeds_TrailingPermits_EA_Map4.mxd

Weeds Map 5


Weeds Map 5: Priority Noxious Weeds With Trailing Routes (Southeast)
Miles
0 2.5 5 10
MAYFIELD
REGINA
Indian Creek Rd
Squaw Creek Rd
South Fork Boise River
Pine/Featherville
Little Camas Res.
Castle Rock
DIXIE
Camas Creek
Prairie Rd
84
20
Simco Rd
Mountain Home Res.
Rest Rock
Hot Creek Rd
MOUNTAIN HOME
Bennett Creek Rd
Hog Farm Rd
167
51
Pole Line Rd
Alkali Road
Little Camas
King Hill Road
KING HILL
Strike Dam Rd
REVERSE
30
Snake River
GLENNS FERRY
CJ Strike Res.
HAMMETT
INDIAN COVE
78
BRUNEAU
Note: symbol size on map does not necessarily represent area on the ground
Map Extent in Idaho
Boise
N
HOT SPRING
Bombing Range
CCC
Legend
Priority Noxious Weeds*
Diffuse Knapweed
Scotch Thistle
Squarrose Knapweed
Whitetop
* Within 1/4 Mile Total Buffer of All Trailing Routes
Proposed Bedding Location, BLM land (Alt B and Alt C same)
Original Alt B Bedding Location, BLM land
Moved Alt C Bedding Location, BLM land
Proposed Route Footprint (Alt B and Alt C same)
Original Alt B Route
Rerouted Alt C Route
U.S. Department of the Interior
Bureau of Land Management, Idaho
Boise District, Four Rivers Field Office
Map date: August 16, 2012
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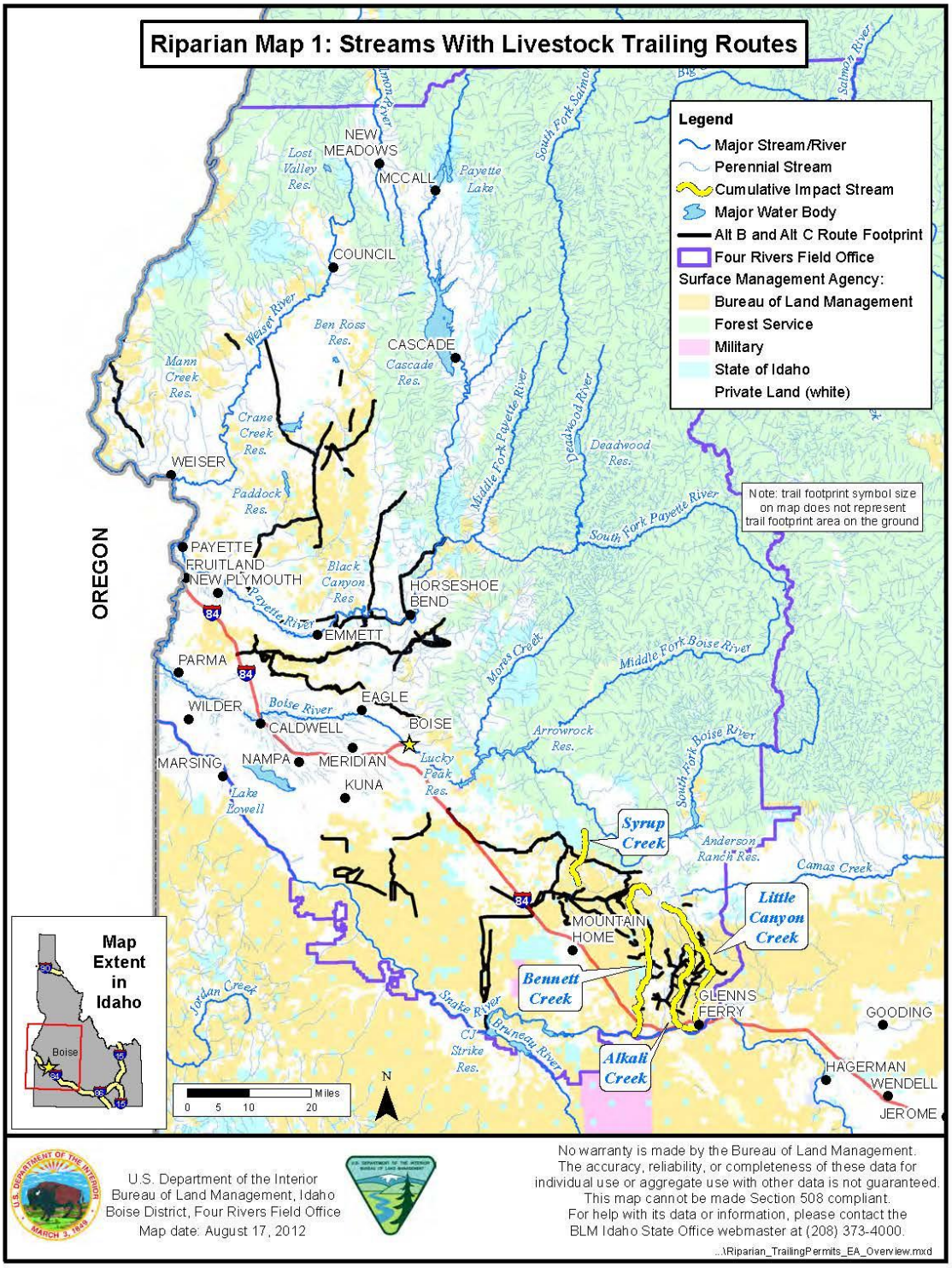
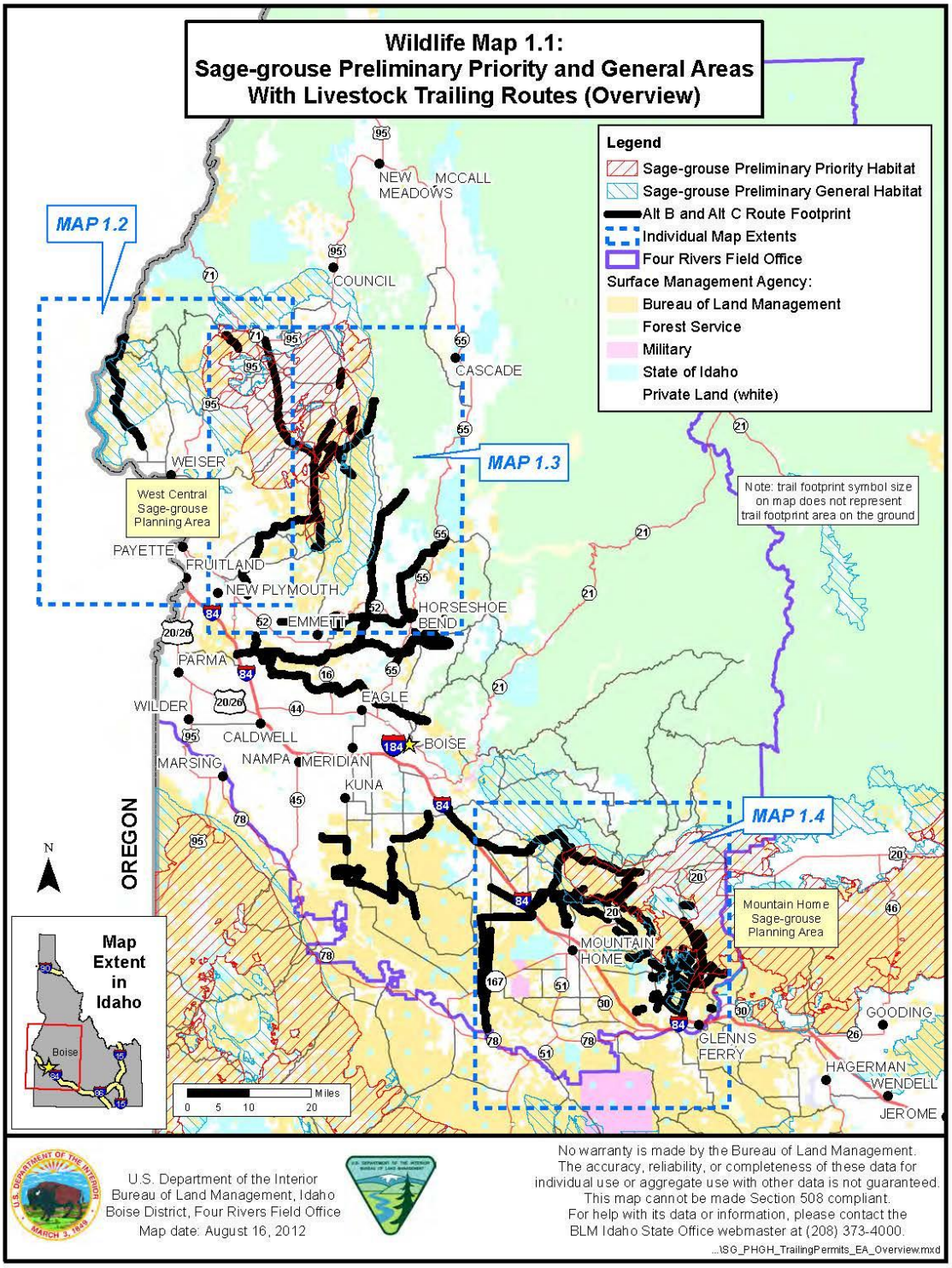
...\Weeds_TrailingPermits_EA_Map5.mxd

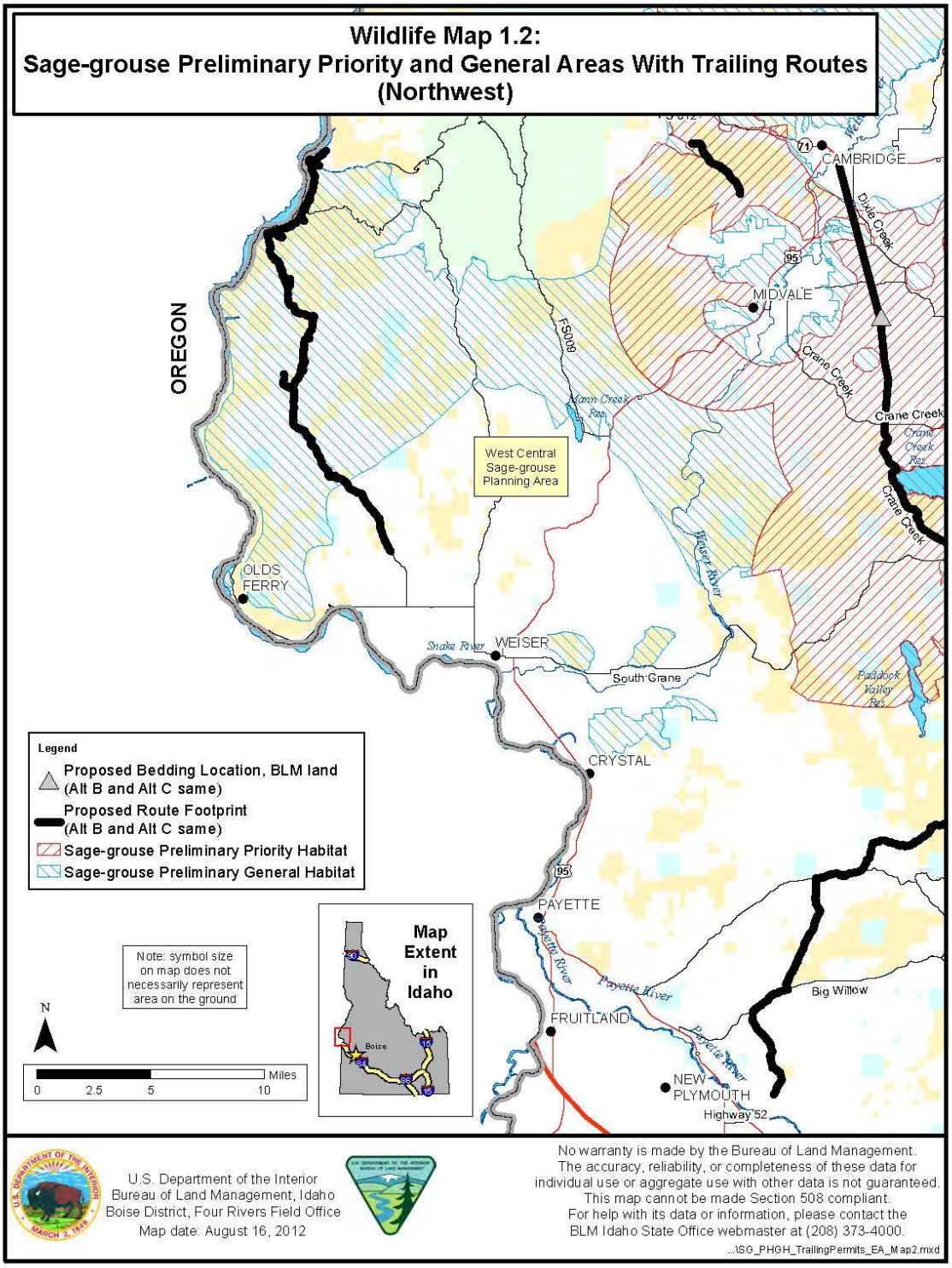
Riparian Map 1



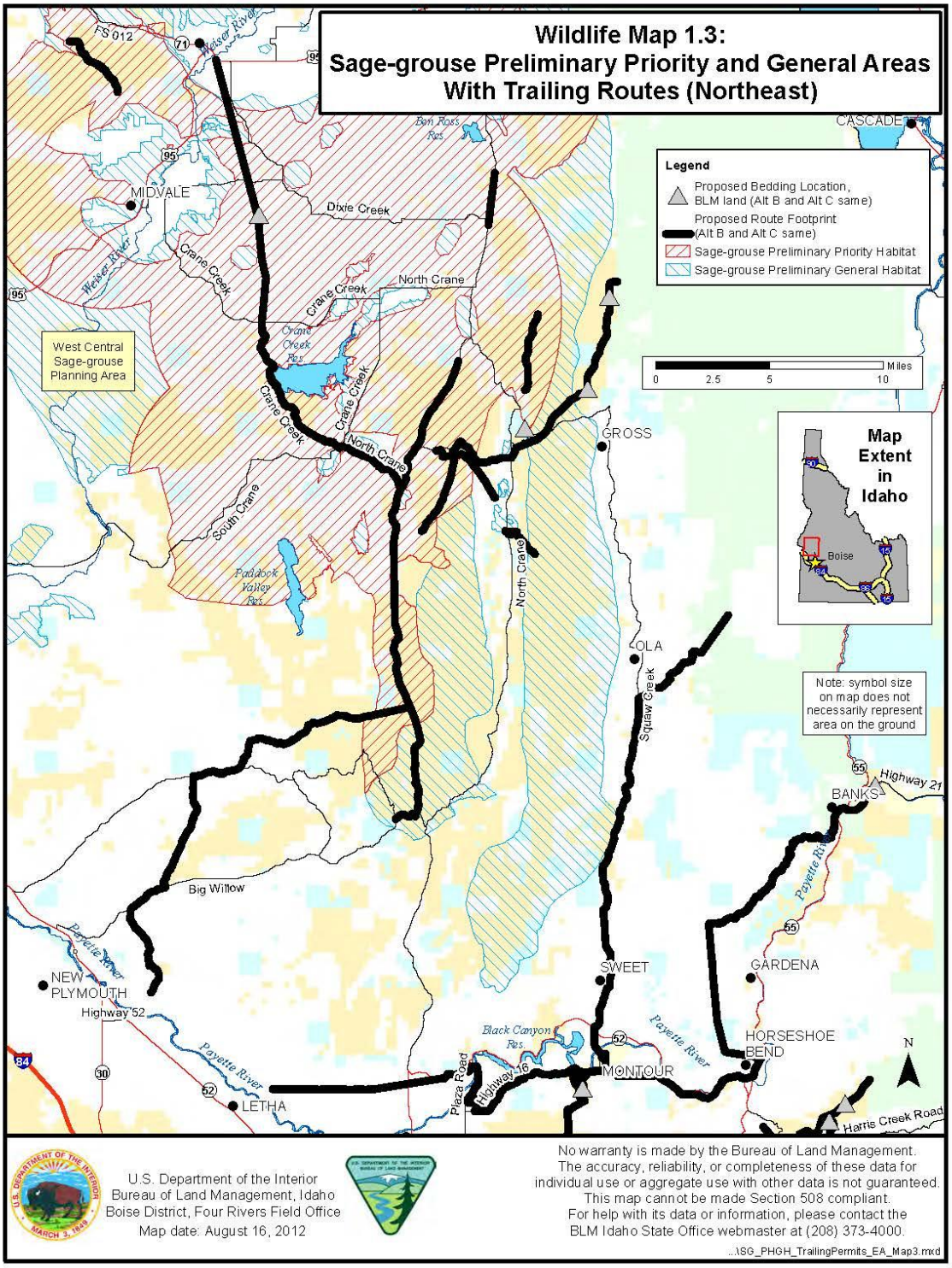
Wildlife Map 1.1



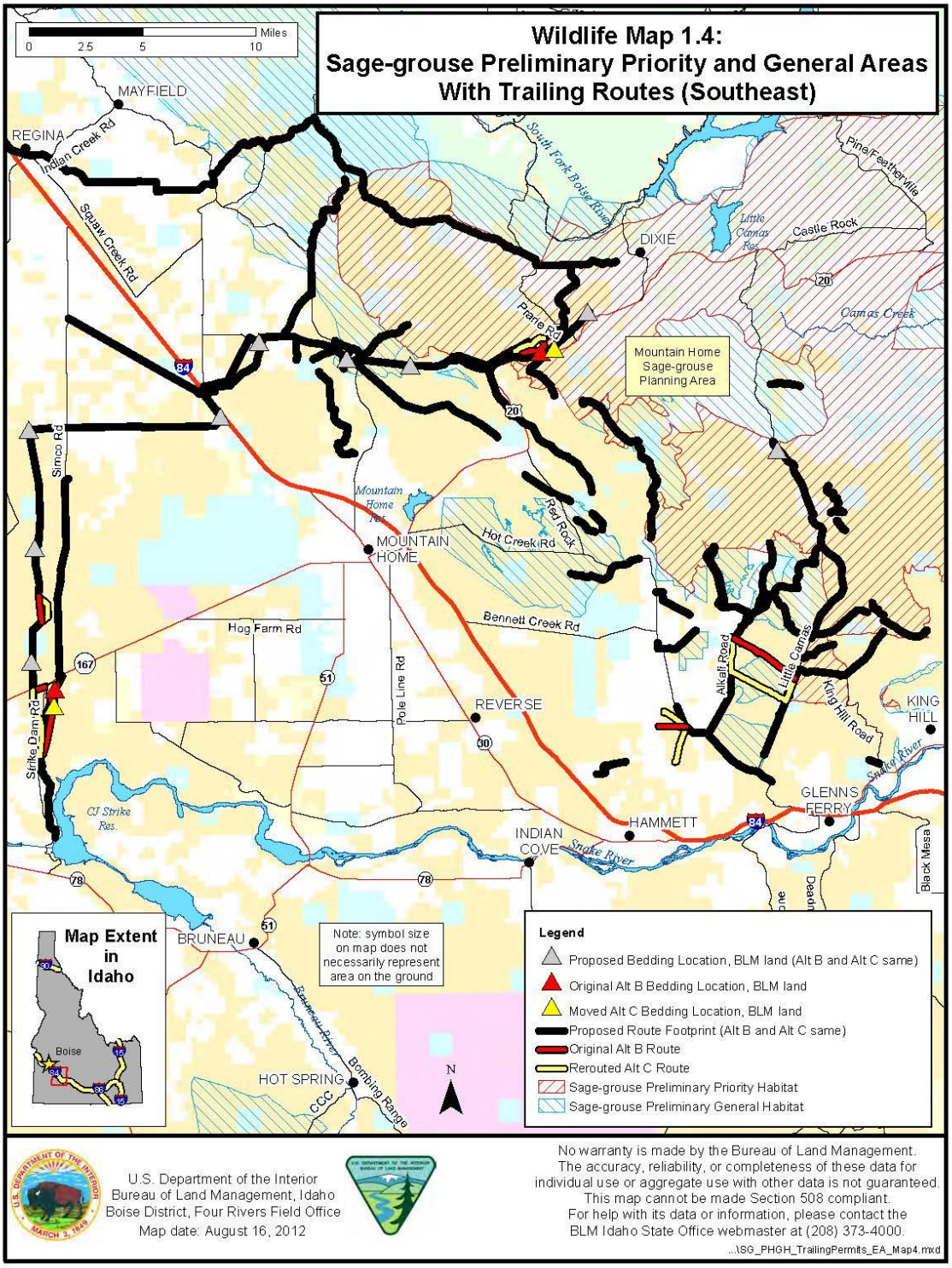
Wildlife Map 1.2



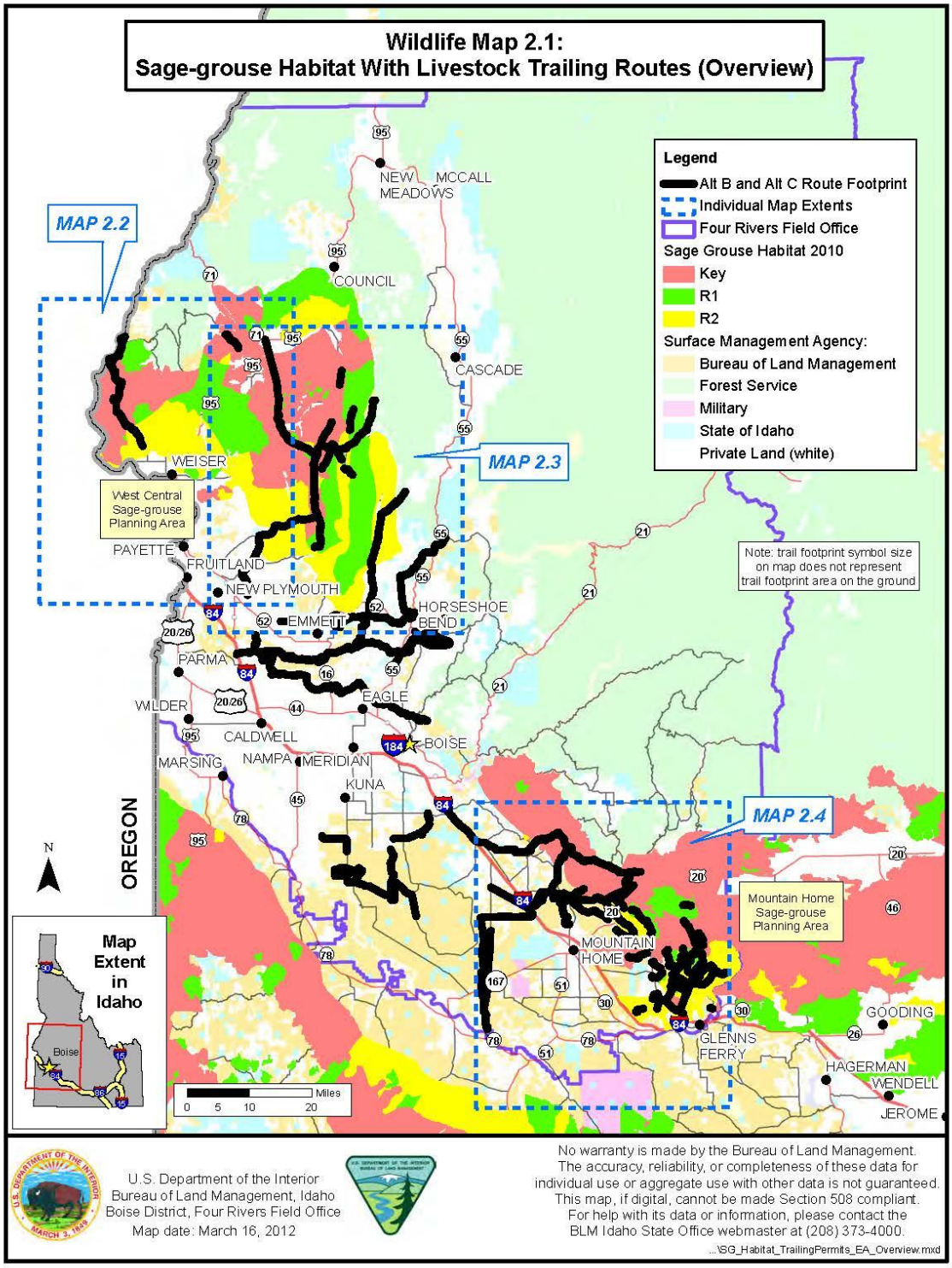
Wildlife Map 1.3



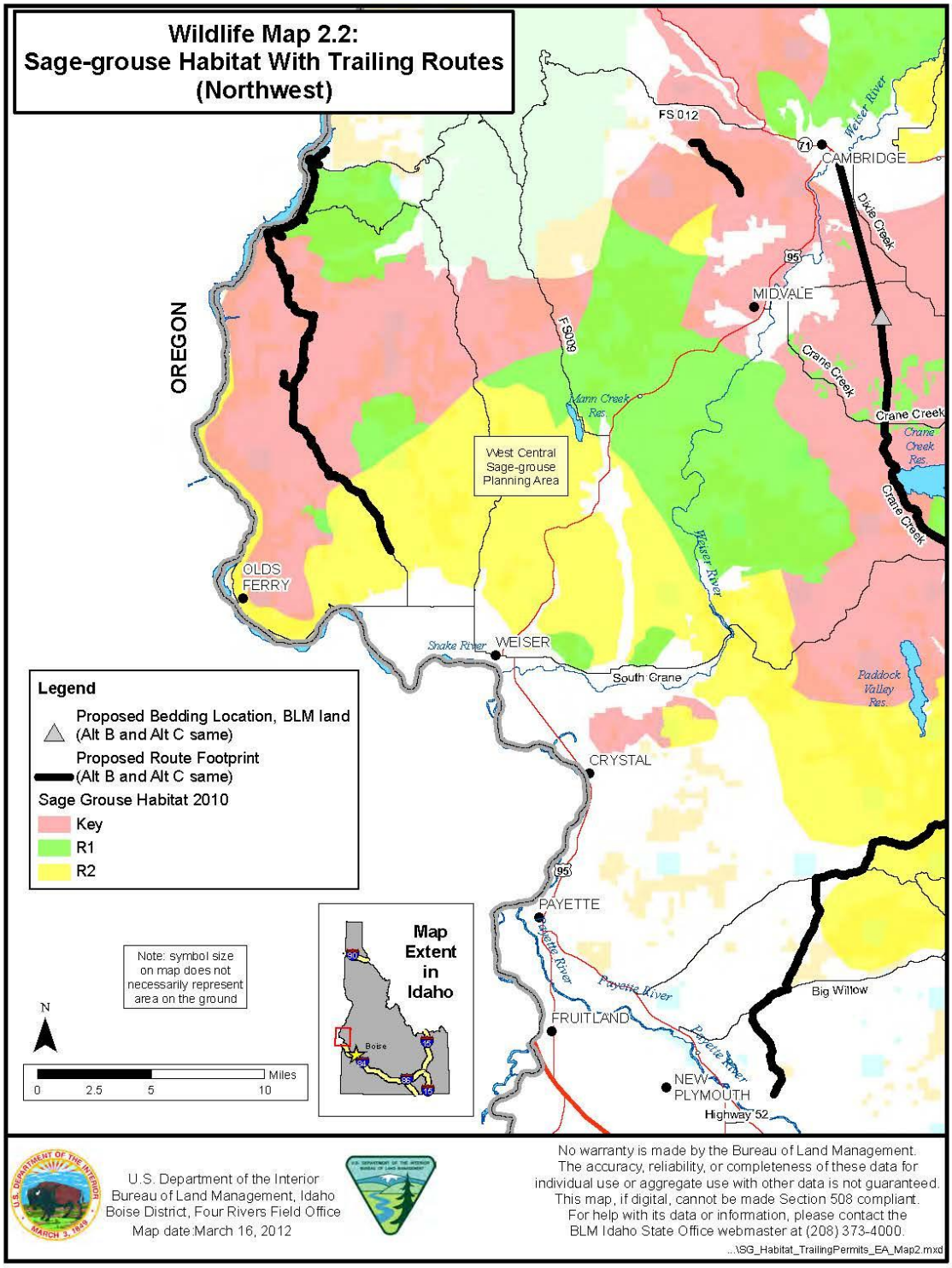
Wildlife Map 1.4



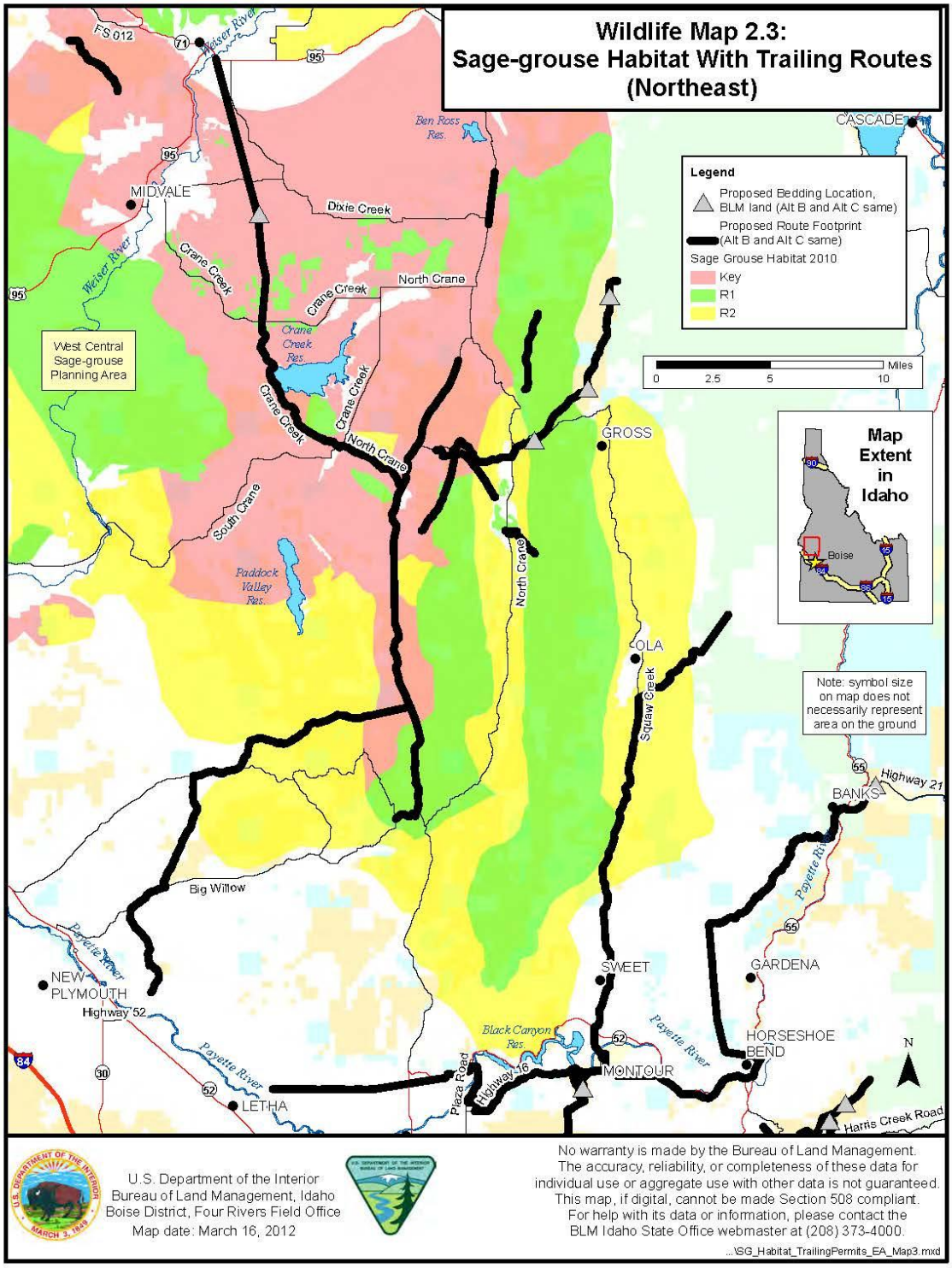
Wildlife Map 2.1



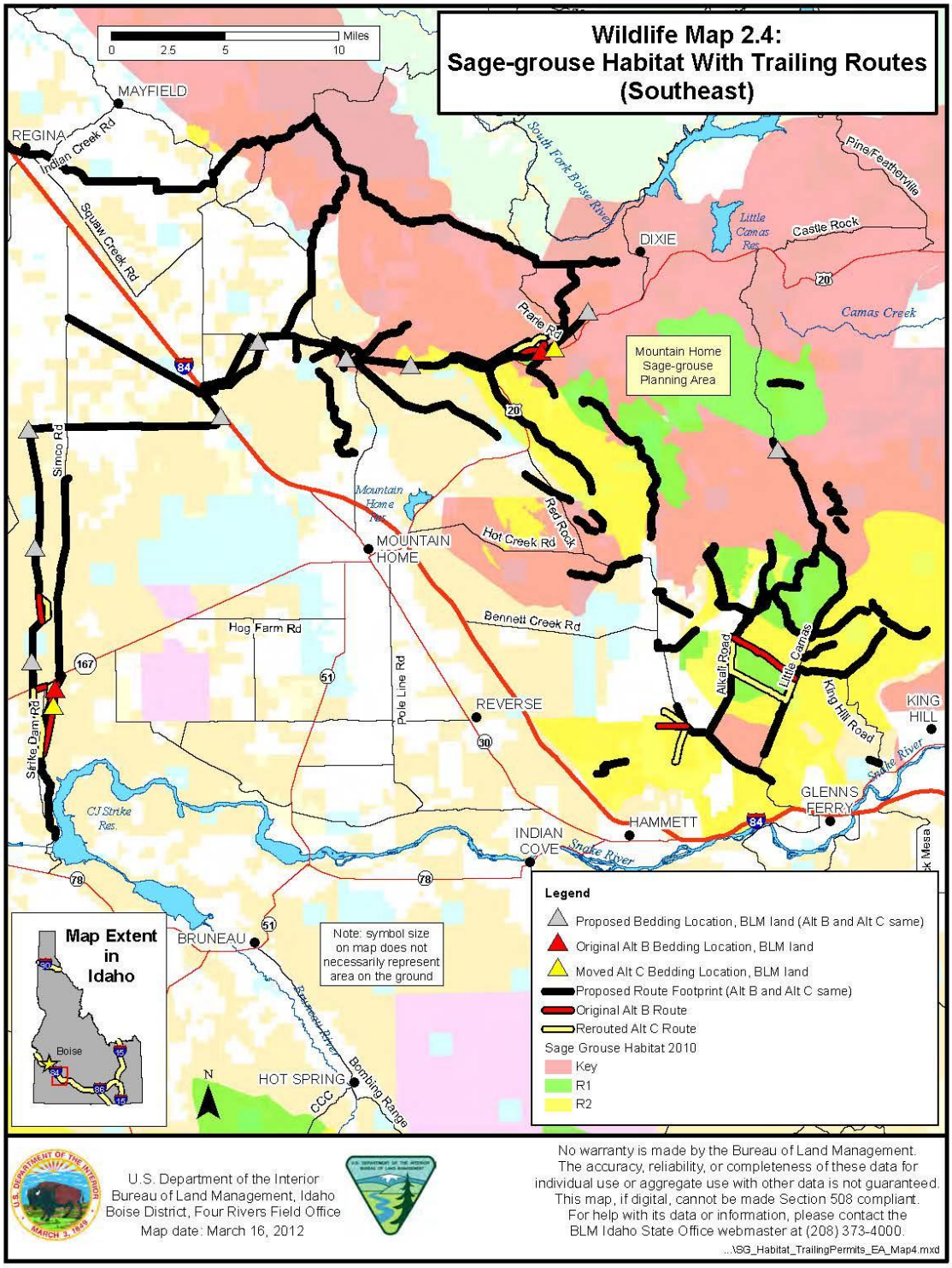
Wildlife Map 2.2



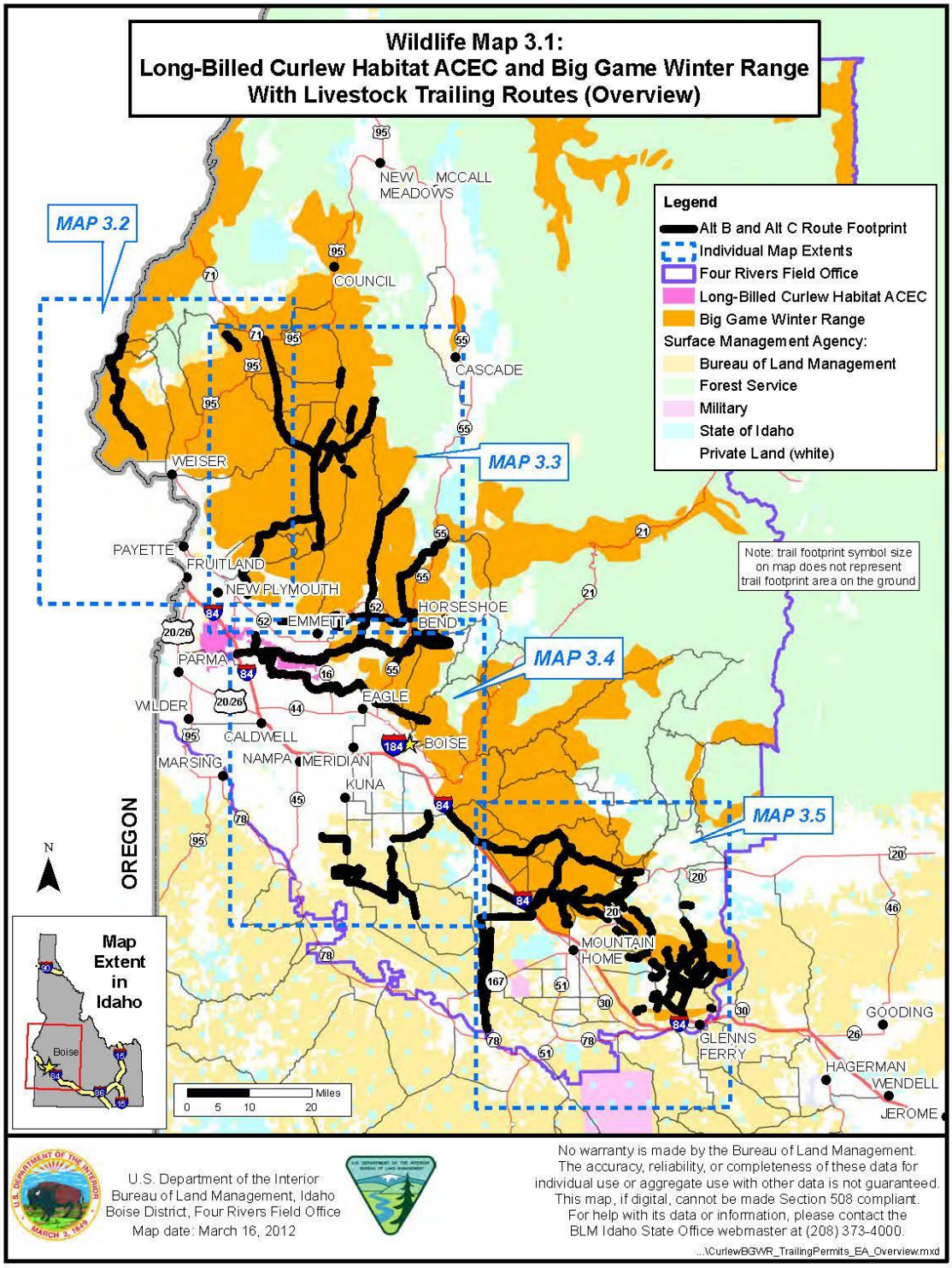
Wildlife Map 2.3



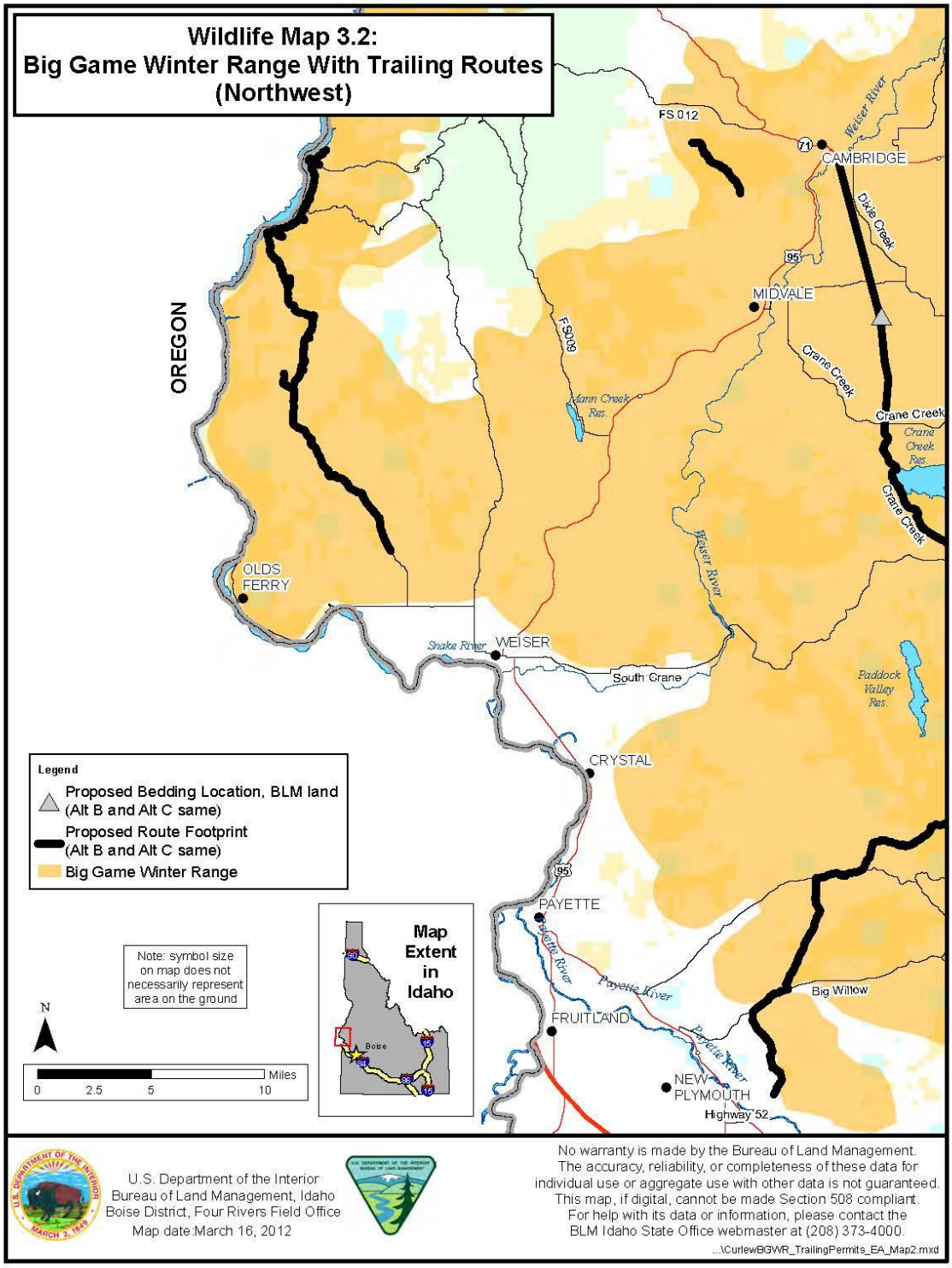
Wildlife Map 2.4



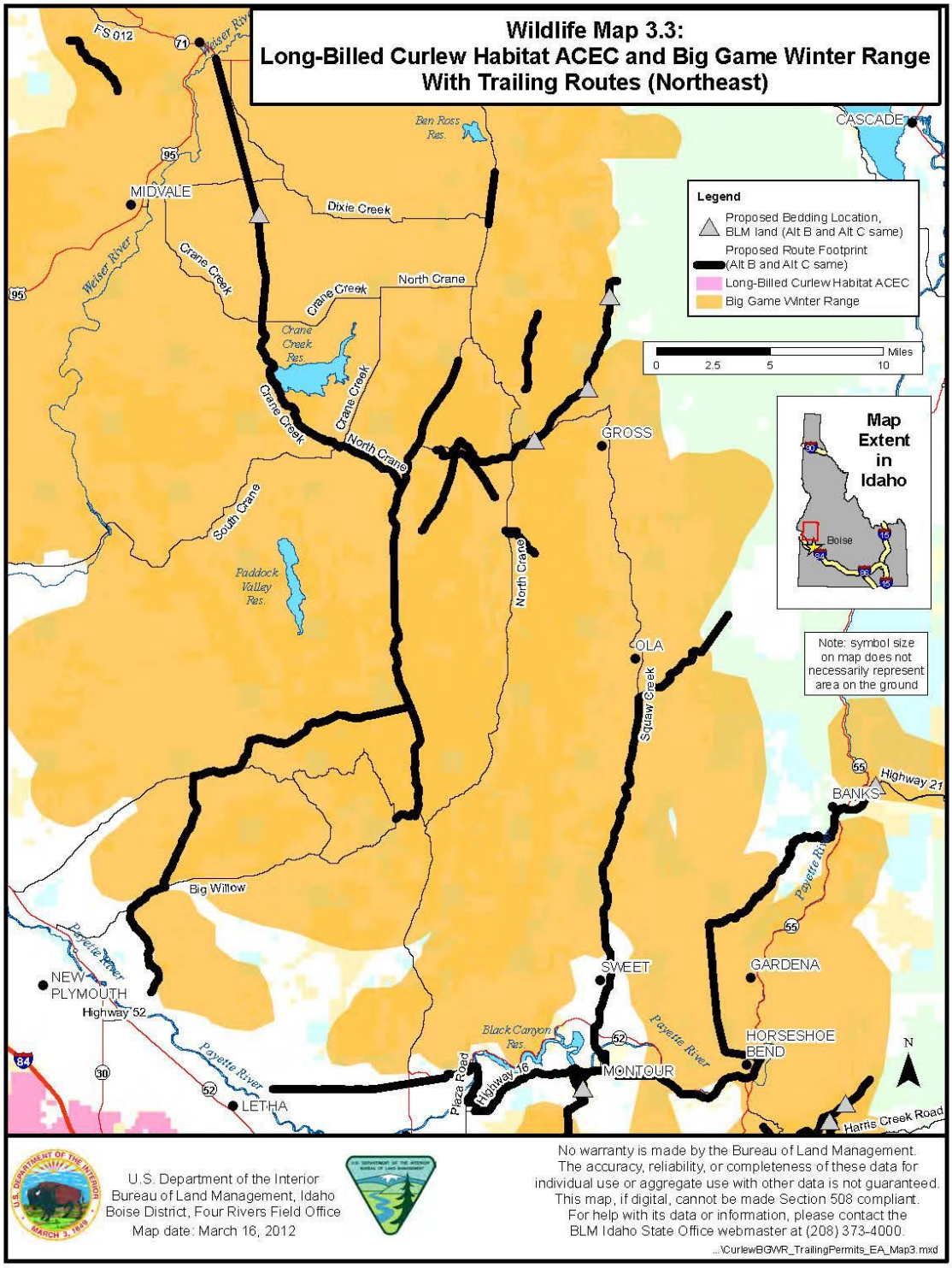
Wildlife Map 3.1



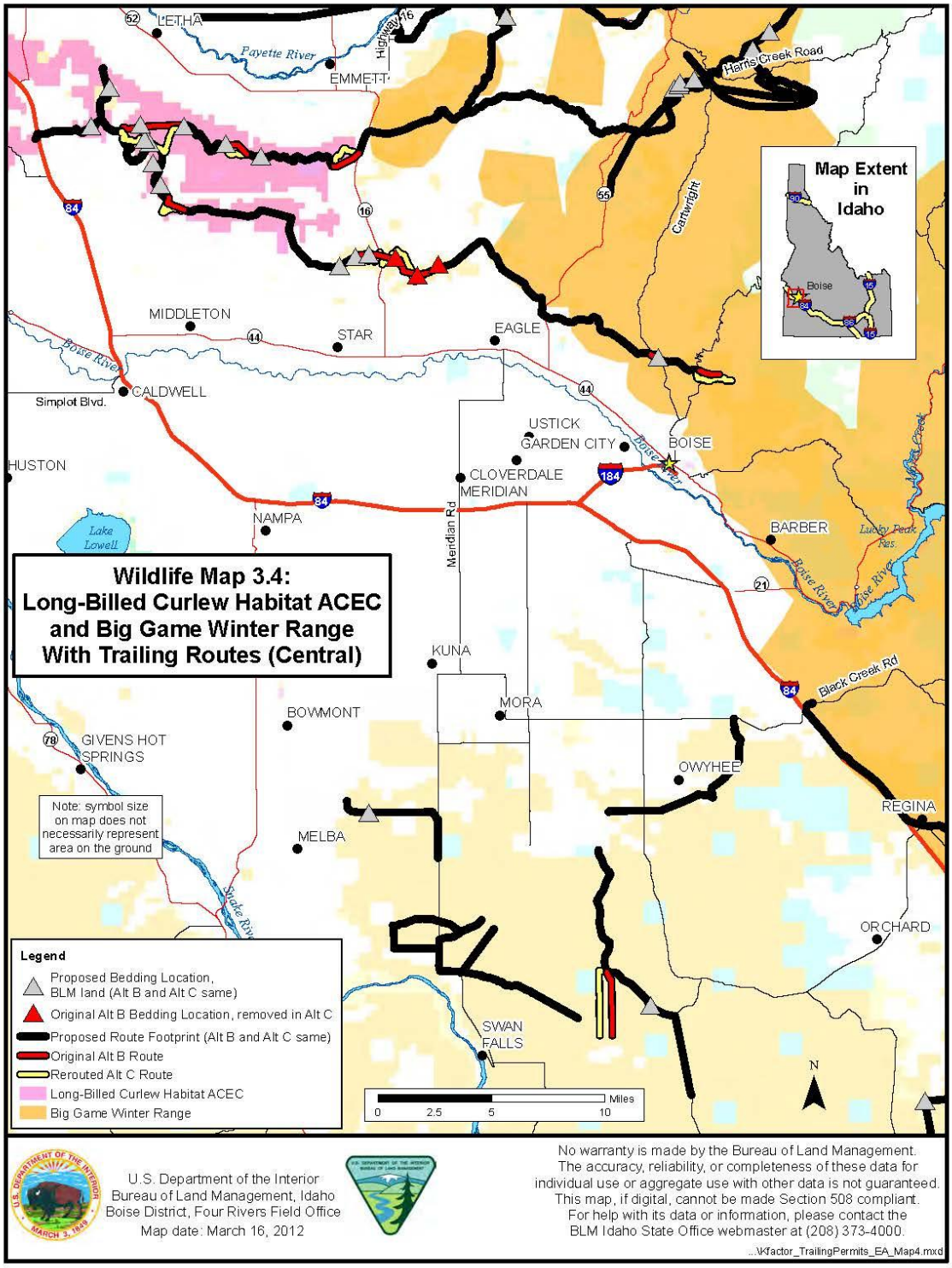
Wildlife Map 3.2



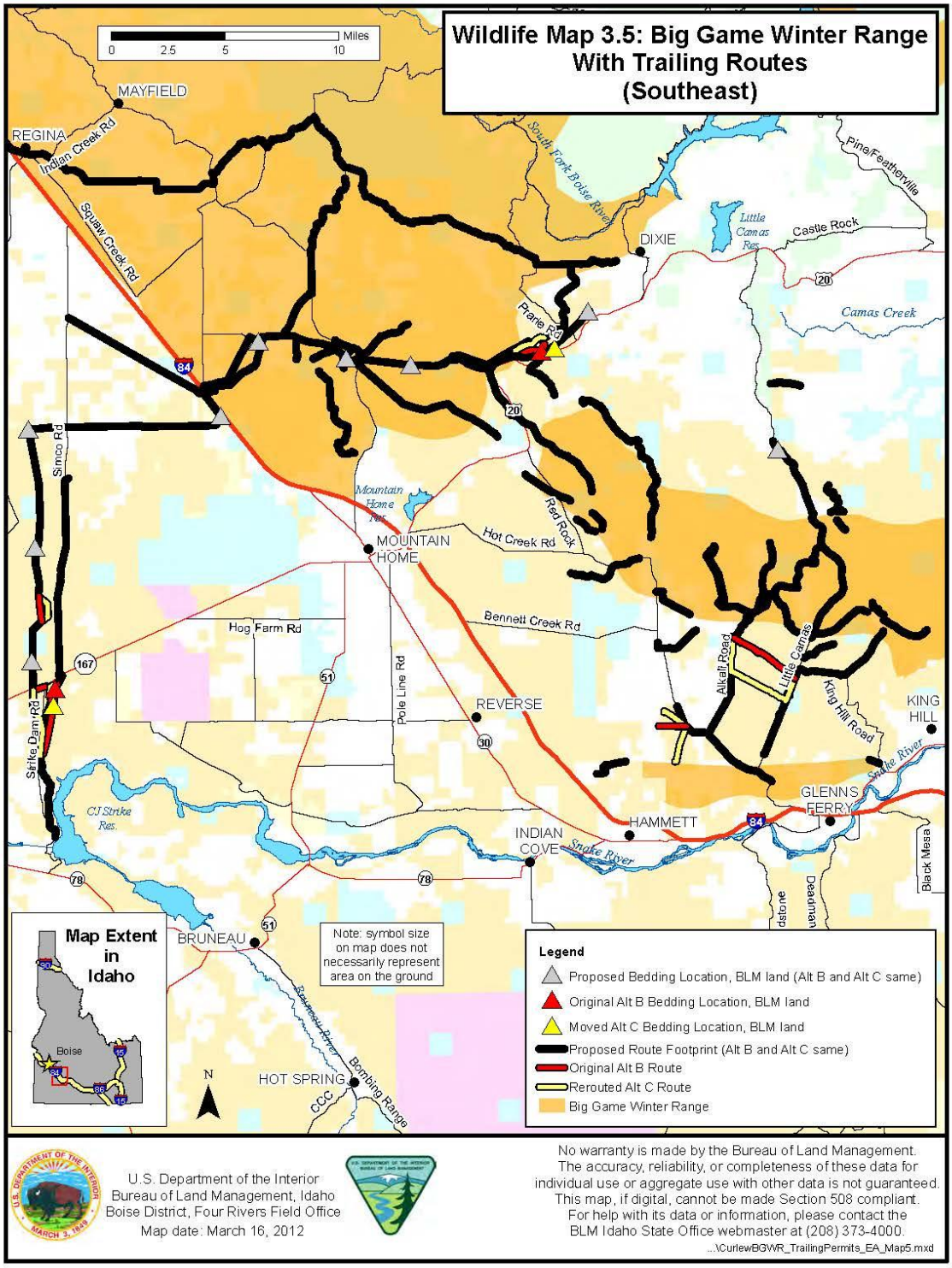
Wildlife Map 3.3



Wildlife Map 3.4



Wildlife Map 3.5



Wildlife Map 4