United States Department of Agriculture

Ashland Trails Project

Environmental Assessment
Siskiyou Mountains Ranger District
Jackson County, Oregon

for the greatest good

rogue river-siskiyou NATIONAL FOREST

December 2014

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Acronyms and Abbreviations

ACHP – Advisory Council on Historic Preservation

ACS – Aquatic Conservation Strategy

APE – area of potential effect

AWTA – Ashland Woodlands and Trails Association

BA – biological assessment

BE – biological evaluation

BMP – best management practices

CCC – Civilian Conservation Corps

CEQ – Council on Environmental Quality

CHU – Critical Habitat Unit

CFR – Code of Federal Regulations

cfs – cubic feet per second

cm - centimeters

CO2e – carbon dioxide equivalents

CWA – Clean Water Act

CWE – cumulative watershed effects

CY – cubic yards

dbh – diameter-at-breast height

EA – Environmental Assessment

EO – Executive Order

ERA – equivalent roaded area

ESA – Endangered Species Act

FR – Federal Register

FSH – Forest Service Handbook

FSM – Forest Service Manual

GHG – greenhouse gases

GLO – Government Land Office

GNN – Gradient Nearest Neighbor

GIS – geographic information system

GPS – global positioning system

HUC – Hydrologic Unit Code

IDT – interdisciplinary team

IRA – Inventoried Roadless Area

km – kilometer

km2 – square kilometers

KSA – Klamath demographic study area

LEMMA – Landscape, Ecology, Mapping and Analysis

LHZ – Landslide Hazard Zone

LRMP – Rogue River National Forest Land and Resource Management Plan

LSR – Late-Successional Reserve

MA – Management Area

MBTA – Migratory Bird Treaty Act

MIS – management indicator species

MOU – Memorandum of Understanding

NEPA – National Environmental Policy Act

NFMA – National Forest Management Act

NRF – nesting, roosting, foraging

NWFP – Northwest Forest Plan

ODFW – Oregon Department of Fish and Wildlife

PDC – Project Design Criteria

ROS – Recreation Opportunity Spectrum

TMDL – Total Maximum Daily Load

USC – U.S. Code

USDA – U.S. Department of Agriculture

USFWS – U.S. Fish and Wildlife Service

WEPP – Water Erosion Prediction Project

WROS – Wilderness Recreation Opportunity Spectrum

CHAPTER 1 – INTRODUCTION

This Environmental Assessment (EA) has been prepared by the Siskiyou Mountains Ranger District of the Rogue River-Siskiyou National Forest to evaluate the effects of the Ashland Trails Project (proposed action), which is proposed to reduce user conflict and discourage unauthorized trail proliferation on the non-motorized trail system in the vicinity of Ashland, Oregon through trail design, use designation, and management. The proposed action would involve adding some existing historic and previously unapproved trails to the approved trail system within the Forest; constructing new trails; and closing and rehabilitating several user created trails that are either not sustainable (i.e., resulting in unacceptable adverse impacts to soil, water, cultural, vegetation, and wildlife resources), or do not offer a desirable recreation opportunity. The proposed trail system would be managed for non-motorized uses and would create a non-motorized travel system that enhances recreation experience, safety, environmental protection, and operational efficiency.

This EA has been prepared pursuant to the provisions of Section 102(2) of the National Environmental Policy Act (NEPA) of 1969 (42 U.S. Code [USC] 4332(2)). A copy of this document and all appendices are posted on the Rogue River-Siskiyou National Forest website at http://www.fs.usda.gov/wps/portal/fsinternet/projects/rogue-siskiyou/landmanagement/projects.

1.1 Background

The Ashland area in southwest Oregon is a unique destination spot for outdoor recreationists, with numerous in-town trailheads that lead to U.S. Forest Service (Forest Service) trails. The original trail system in the vicinity of Ashland was built for hiking/pedestrian use, equestrian use, and cross country mountain bike use. In 2000, in response to public demand and ongoing resource damage, the Forest Service prepared the *Ashland Watershed Trails Management Project Environmental Assessment* (USDA Forest Service 2000). The primary purpose of that EA was to respond to the community's desire for an increase in recreation trail and access opportunities, to address maintenance needs on trails damaged in the 1997 floods, to protect the City of Ashland's domestic water supply, and to protect Late Successional Reserve (LSR) values.

In the nearly 15 years since the Ashland Watershed Trails Management Project was implemented, running, hiking, and downhill mountain bike use in the Ashland area has grown dramatically. Since 2000, estimated trail visits per year to the Ashland watershed have increased from 16,000 (USDA Forest Service 2000) to about 50,000 (see Section 3.2, *Attainment of Purpose and Need, Use and Demand*). This increase in use has resulted in increased user conflicts, particularly in the vicinity of the City of Ashland, were the majority of access points (six out of seven) are concentrated and where trails are not properly marked or designated. In addition, in response to increased use and user conflict, a myriad of confusing and unmaintained trails not authorized by the Forest Service have been created, many of which are impacting natural resources due to lack of appropriate trail design and location.

In 2009, the Forest Service contracted with Trails Unlimited, a Forest Service Enterprise Team Unit, to conduct an inventory of all trails (approved [System Trails] and user created [unapproved]) on National Forest System lands adjacent to Ashland (USDA Forest Service 2010a). Prior to the completion of the Trails Unlimited inventory in 2010, individuals representing many different user groups, including staff from the Forest Service and City of Ashland, met to identify options for reducing impacts and user conflicts on the trails. Shortly thereafter, in 2011, the Ashland Woodlands and Trails Association (AWTA), a private, non-profit organization focused on preserving, maintaining and providing public access to Ashland's woodlands and trails, contacted the Forest Service enquiring about opportunities to support efforts to address the issues surrounding the trails. AWTA developed an initial proposal for a trails system and presented it to the public for comments at two public meetings held in Ashland. The information garnered at the public meetings, along with input from the public through the AWTA website, was utilized to develop a Trails Master Plan (AWTA 2011). AWTA presented the Trails Master Plan, which identified potential trail opportunities, to the Forest Service in 2011. The Forest Service reviewed the Trails Master Plan and used many of the elements as the basis for the Proposed Action (Alternative 2) considered in this EA.

1.2 Purpose and Need

The *underlying need* for the proposed action is to implement the Rogue River National Forest Land and Resource Management Plan (LRMP) (USDA Forest Service 1990). The LRMP identifies the multiple use management goals, objectives, desired future conditions, and Standards and Guidelines that constitute direction for land and resource management within the Rogue River portion of the Rogue River-Siskiyou National Forest (see Section 1.5, *Management Direction*). Among other things, the LRMP requires the Forest Service to:

> "Provide a balance of resource management activities that will maintain a healthy forest ecosystem as well as helping to supply local, regional, and National social and economic needs" (page 4-1);
>
> "Maintain or improve water quality in Forest streams…" (page 4-1);
>
> "Maintain or improve soil site productivity in all resource management activities" (page 4-1);
>
> "Protect and manage habitat for the perpetuation and recovery of plants and animals which are listed as Threatened, Endangered or Sensitive" (page 4-2);
>
> "Provide habitat for viable populations of all existing native and desired non-native vertebrate wildlife species and maintain or enhance the overall quality of wildlife habitat across the Forest" (page 4-2);
>
> "Maintain or enhance ecosystem function to provide for long term integrity and productivity of biological communities" (page 4-2); and
>
> "Offer a wide range of developed and dispersed recreation opportunities by providing recreational settings, access, facilities, and education necessary to meet public demand" (page 4-3).

More specifically, the *need* for the proposed action is to provide a sustainable non-motorized trail system in the vicinity of Ashland commensurate with current public demand, and consistent with natural resource management responsibilities and Forest Service capabilities, that reduces user conflict through trail design, use designation and management.

The *purpose* of the proposed action is to provide for an adequate and sustainable trail system that minimizes impacts to soil, water, cultural, vegetation and wildlife resources and discourages unauthorized trail proliferation.

1.3 Proposed Action

The proposed action would generally be located within an approximately 12,700 acre area in the Rogue River-Siskiyou National Forest, Siskiyou Mountains Ranger District, in Jackson County, Oregon (action area) (Figure 1-1). The action area is generally bound on the northeast by the City of Ashland; on the east and south by the Forest boundary, with the majority of the trail system proposed downslope of Forest Service Road 2080; on the west by the Ashland Municipal Watershed boundary; and on the northwest by the Forest boundary. A small portion of the action area occurs on the Klamath National Forest, where about 1,200 feet of one trail (the Split Rock Trail) is located within that National Forest boundary (Figure 1-1).

The proposed action would include construction, maintenance, and decommissioning of an expanded network of trails within the action area to meet the stated purpose and need of the proposed action. Specifically, some existing historic and unapproved trails that meet Forest Service trail standards would be incorporated as approved System Trails and maintained in compliance with the Trails Management Handbook, Forest Service Handbook (FSH) 2309.18. Consistent with current LRMP land allocations and Forest Service trail standards, new trails would also be constructed to meet increased demand, and some non-System existing trails that are either not sustainable (i.e., resulting in unacceptable adverse impacts to soil, water, cultural, vegetation, and wildlife resources) or do not provide a desirable recreational opportunity would be decommissioned and rehabilitated. All trails within the action area would be managed for non-motorized uses, including hiker/pedestrian, bicycle, and equestrian uses, in a manner designed to minimize user conflict and the future creation of additional, unapproved trails.

A detailed description of the proposed action is provided in Chapter 2, *Alternatives*.

1.4 Decision Framework

The Responsible Official for the proposed action is the District Ranger for the Siskiyou Mountains Ranger District, of the Rogue River-Siskiyou National Forest. Based on the analysis in this EA, and considering the public comments received, the Responsible Official will decide:

- Whether to add, construct, and/or decommission trails within the action area as proposed;
- Select another alternative;

- Select and modify an alternative; or
- Take no action at all.

This decision will be informed by an evaluation of which alternative best meets the overall purpose and need for the proposed action, as well as the effects of the alternatives relative to the identified relevant issues.

The Siskiyou Mountains District Ranger has led this analysis, guided the interdisciplinary team (IDT), and coordinated the public involvement process for this EA.

1.5 Management Direction

This document is tiered to the Final Environmental Impact Statement and Record of Decision for the LRMP, as amended by the 1994 Northwest Forest Plan (NWFP). The LRMP guides all natural resource management activities for the Rogue River portion (~632,000 acres) of the Rogue River-Siskiyou National Forest. The LRMP embodies the provisions of the National Forest Management Act (NFMA) of 1976, as well as its implementing regulations and other guiding documents. It describes resource management practices, levels of resource production and management, and availability and suitability of lands for resource management. A small portion of the action area (i.e., about 1,200 feet of one trail) is located within the Klamath National Forest, where management direction is provided by the Klamath National Forest LRMP (USDA Forest Service 1995a). Similar to the Rogue River National Forest LRMP, the Klamath National Forest LRMP is consistent with the NFMA and its implementing regulations, as well as other Forest Service guidance documents.

Finally, the proposed action was designed using the procedural and substantive requirements of the NWFP, the Endangered Species Act (ESA), NFMA, NEPA, and other legal requirements. The NWFP provides five principles to guide federal interagency efforts to develop management strategies to protect old-growth related species and produce sustainable levels of timber for the Pacific Northwest. The direction in the NWFP supersedes the LRMP allocations in the Rogue River National Forest LRMP where it is more restrictive or provides greater benefits to late-successional ecosystems. Direction from the LRMP is retained where it is more restrictive or is unaffected by the NWFP. The Klamath National Forest LRMP was not amended by the NWFP (it was signed after the NWFP was released), but incorporates NWFP allocations where appropriate.

The following subsections provide additional context for the management direction specific to the action area. Please refer to Chapter 3, Affected Environment and Environmental Consequences, for a discussion of the consistency of each of the alternatives with the applicable management direction.

1.5.1 Management Allocations

The action area contains three Management Allocations within the Rogue River National Forest LRMP (Late-Successional Reserve, Riparian Reserve, and Administratively Withdrawn) and one Management Allocation (Late-Successional Reserve) within the Klamath National Forest (Figure 1-2). A brief description of the applicable Management Allocations is provided below. More detailed

descriptions can be found in the NWFP and Rogue-River National Forest LRMP, as amended by the NWFP, and the Klamath National Forest LRMP.

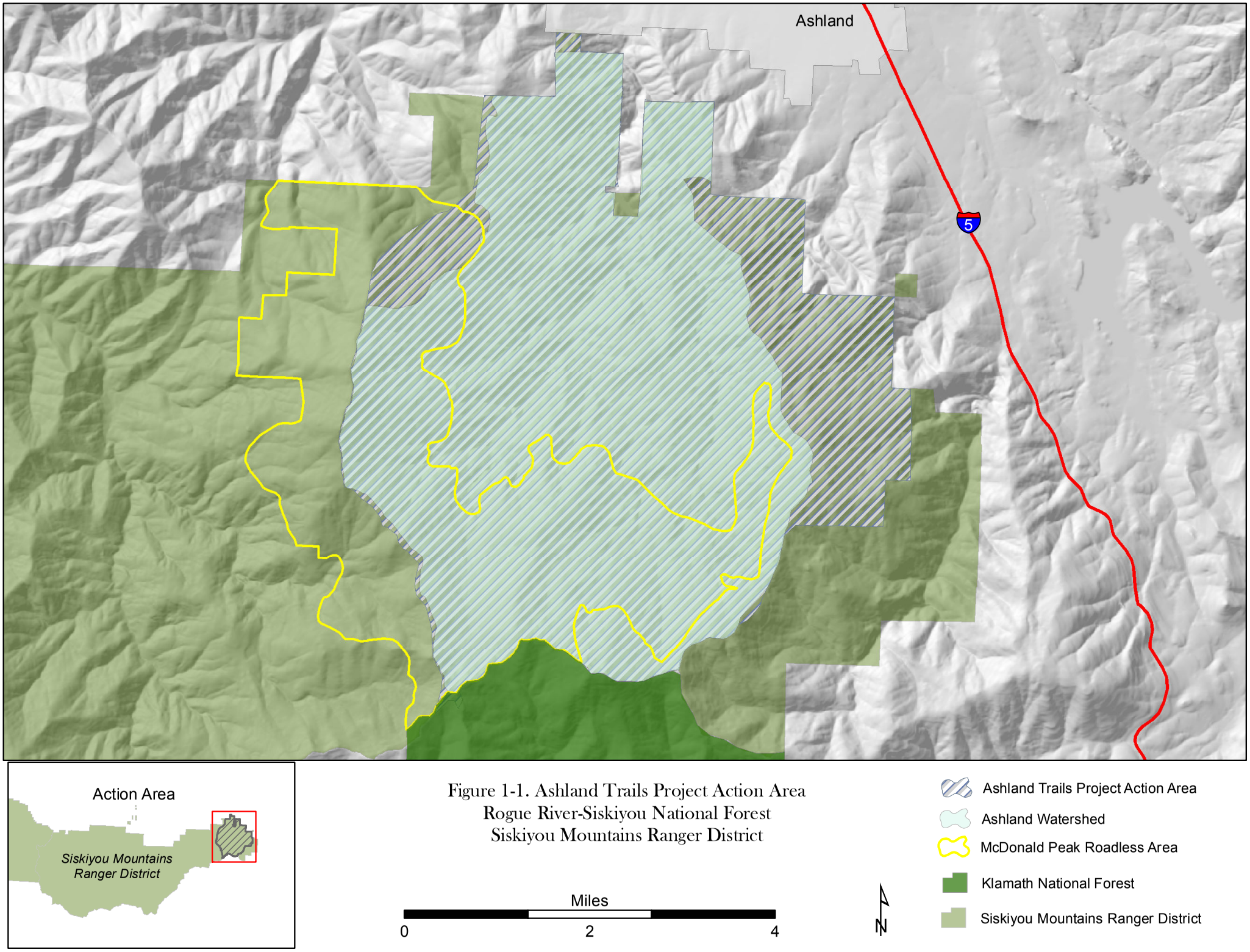


Figure 1-1. Ashland Trails Project Action Area
Rogue River-Siskiyou National Forest
Siskiyou Mountains Ranger District

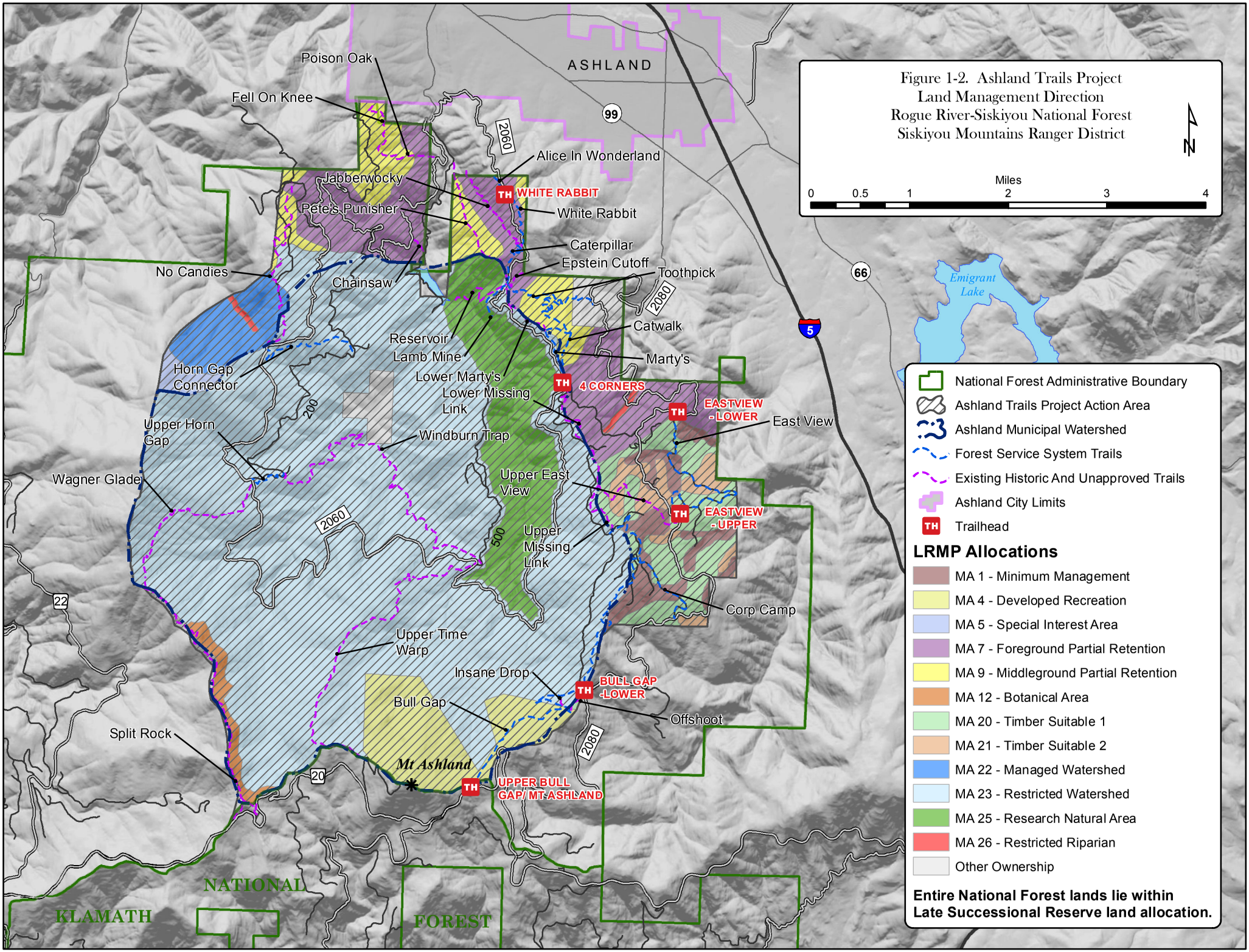


Figure 1-2. Ashland Trails Project
Land Management Direction
Rogue River-Siskiyou National Forest
Siskiyou Mountains Ranger District
N
Miles
0
0.5
1
2
3
4
ASHLAND
99
66
5
22
20
2060
2080
200
500
Emigrant Lake
Poison Oak
Fell On Knee
Alice In Wonderland
Jabberwocky
Pete's Punisher
TH WHITE RABBIT
White Rabbit
Caterpillar
Epstein Cutoff
Toothpick
Chainsaw
No Candies
Catwalk
Reservoir
Lamb Mine
Marty's
Lower Marty's
Horn Gap Connector
Lower Missing Link
TH 4 CORNERS
TH EASTVIEW - LOWER
East View
Upper Horn Gap
Windburn Trap
Wagner Glade
Upper East View
TH EASTVIEW - UPPER
Upper Missing Link
Corp Camp
Upper Time Warp
Insane Drop
TH BULL GAP -LOWER
Bull Gap
Offshoot
Split Rock
Mt Ashland
TH UPPER BULL GAP/ MT ASHLAND
KLAMATH
NATIONAL
FOREST
National Forest Administrative Boundary
Ashland Trails Project Action Area
Ashland Municipal Watershed
Forest Service System Trails
Existing Historic And Unapproved Trails
Ashland City Limits
TH Trailhead
LRMP Allocations
MA 1 - Minimum Management
MA 4 - Developed Recreation
MA 5 - Special Interest Area
MA 7 - Foreground Partial Retention
MA 9 - Middleground Partial Retention
MA 12 - Botanical Area
MA 20 - Timber Suitable 1
MA 21 - Timber Suitable 2
MA 22 - Managed Watershed
MA 23 - Restricted Watershed
MA 25 - Research Natural Area
MA 26 - Restricted Riparian
Other Ownership
Entire National Forest lands lie within Late Successional Reserve land allocation.

Rogue River National Forest Land Resources Management Plan

Late-Successional Reserve

Late-successional reserves are areas to be managed to protect and enhance late successional and old-growth forest ecosystems. Late-successional reserves are intended to provide habitat for species such as the northern spotted owl (*Strix occidentalis*), which live in late-successional forests. The action area lies entirely within the northern portion of the Mt. Ashland LSR, which encompasses a total of 51,512 acres. Nonsilvicultural activities located within LSRs that are neutral or beneficial to the creation and maintenance of late-successional habitat are allowed (NWFP, C-16). New facility development proposals that address public needs or provide public benefits may be approved when adverse effects can be minimized and mitigated (NWFP, C-17).

Within the action area, portions of the LSR within the Ashland Creek Watershed overlay LRMP allocations Management Area (MA)-22, Restricted Watershed; MA-7, Foreground Partial Retention; MA-9, Middleground Partial Retention; and MA-25, Research Natural Area.

- Restricted Watershed (MA-22): The goal of Restricted Watershed is to provide for domestic water supply. Land management activities in these areas are largely restricted to watershed maintenance and protection (with the exception of roads, fuelbreaks and developments required to manage the watershed) to allow the landscape to achieve a near natural condition over time. In Restricted Watershed, trails must be managed in a manner not in conflict with watershed management activities and watershed resource values.
- Foreground Partial Retention (MA-7) and Middleground Partial Retention (MA-9): The goal of Partial Retention is to manage the landscapes seen from selected travel routes (e.g., within the foreground, middleground). Use areas are managed so that, to the casual observer, results of activities may be evident but are visually subordinate to the natural landscape. These areas mainly occur in the area adjacent to the National Forest boundary.
- Research Natural Area (MA-25): The goal of Research Natural Areas is to provide areas for research, observation and study of undisturbed ecosystems. Maintenance of natural processes within the Research Natural Area are the prime consideration, and management activities must be approved by the Director of the Pacific Northwest Research Station.[1]

Riparian Reserves

As allocated under the NWFP, Riparian Reserves include lands along all streams, lakes, ponds, wetlands, unstable areas, and potentially unstable areas that are subject to special Standards and Guidelines designed to conserve aquatic and riparian-dependent species. The NWFP establishes a minimum protection buffer equal to the height of one site-potential tree, along each side of the

[1]Although MS-25 is actually identified as Administratively Withdrawn under the NWFP, the Ashland Creek Research Natural Area is also being managed as LSR.

riparian feature, which in the case of the action area is 150 feet. For perennial fish-bearing streams this distance is two site-potential trees (or 300 feet).

Standards and Guidelines emphasize prohibiting or regulating activities in Riparian Reserves that retard or prevent attainment of the Aquatic Conservation Strategy (ACS) objectives (NWFP, page C-31). Under the ACS, Riparian Reserves are used to maintain and restore riparian structures and functions of perennial and intermittent streams, confer benefits to riparian-dependent and associated species other than fish, enhance habitat conservation for organisms that are dependent on the transition zone between upslope and riparian areas, improve travel and dispersal corridors for many terrestrial animals and plants, and provide for greater connectivity of watersheds (NWFP, B-9).

Portions of the Riparian Reserve network include areas assigned by the LRMP to MA-26, Restricted Riparian. The goals of MA-26 are to protect the unique riparian habitats associated with perennial streams and to protect streams from detrimental changes in water quality. This allocation applies to lands with 100 feet horizontal distance of perennial streams. MA-26 allows for dispersed recreation activities and trails where they do not impact the fisheries resource. Portions of riparian areas that suffer resource damage as a result of recreation activities will be rehabilitated.

Administratively Withdrawn

Administratively Withdrawn areas include areas associated with the LRMP that emphasize recreation, scenery, botanical or other resources. Within the action area, these allocations include MA-4, Developed Recreation (Mt. Ashland Ski Area); MA-5, Special Interest Area; MA-12, Botanical Area; and MA-25, Ashland Creek Research Natural Area.

- Developed Recreation (MA-4): This area includes the Mt. Ashland Ski Area located near the summit of Mt. Ashland. The objective of this area is to provide quality outdoor recreation opportunities within a forest environment that is modified for visitor use, visitor satisfaction, and accommodation of large numbers of visitors. Unlike the Research Natural Area, the Mt. Ashland Ski Area is not within the LSR and therefore not managed for habitat.
- Special Interest Area (MA-5): The goal of the Special Interest Area is to manage and interpret special geological, botanical, zoological, cultural and scenic areas for educational, scientific and public enjoyment purposes. Within the action area, the Siskiyou Crest area is designated for its scenic values.
- Botanical Area (MA-12): The goal of the botanical area is to protect and enhance exceptional botanical values. This allocation also encourages compatible scientific, educational, and recreational use. With the action area, the botanical area is referred to as the McDonald Peak Botanical Area.
- Research Natural Area (MA-25): see the discussion in *Late-Successional Reserves* above.

Klamath National Forest Land Resources Management Plan

Late-Successional Reserve

As described above, LSRs are areas to be managed to protect and enhance late-successional and old-growth forest ecosystems. LSR's overlay allocation MA-5, Special Habitat, in the Klamath National Forest LRMP, with the following Standards and Guidelines applicable to recreational uses:

> "Dispersed recreational uses, including hunting and fishing, generally are consistent with the objectives of LSRs. Use adjustment measures such as education, use limitations, traffic control devices or increased maintenance when dispersed and developed recreation practices retard or prevent attainment of LSR objectives.
>
> Emphasize dispersed recreational opportunities.
>
> Maintain the existing developed recreation sites, trails or other existing facilities as provided for under Transportation and Facilities Management.
>
> Manage recreational settings to generally achieve semi-primitive or roaded natural ROS conditions." (USDA Forest Service 1995b, 4-85).

A 1,200 foot section of the Split Rock Trail is located in the Klamath National Forest and would be subject to the Standards and Guidelines applicable to MA-5 as described in the Klamath National Forest LRMP. However, the portion of the Split Rock Trail located on the Klamath National Forest is located on a ridgeline, where late-successional or old-growth forest ecosystems are not present, and would not be affected by any of the alternatives.

1.5.2 Inventoried Roadless Areas

Portions of the action area are in the McDonald Peak Inventoried Roadless Area (IRA), which is located on the divide between Ashland Creek, Little Applegate River, and Wagner Creek (Figure 1-2). As discussed in Chapter 3, *Affected Environment and Environmental Consequences*, the proposed action has been designed in accordance with the Roadless Area Conservation Rule (Federal Register [FR] 66:9, 12 January 2001, p. 3244-3273) and direction provided by the Chief of the Forest Service on the review process for roadless activities (Tidwell pers. comm.). The proposed action does not propose to cut, sell, or remove timber or to construct roads within the McDonald Peak IRA.

1.5.3 Recreation Opportunity Spectrum

The Recreation Opportunity Spectrum (ROS) is the method used by the Forest Service to inventory and manage outdoor recreation settings and to ensure that a broad mix of these settings remain available to provide the recreating public with experiences ranging from high challenge and remoteness (i.e., Primitive) to highly developed and managed settings found in some Forest Service recreation areas (i.e., Urban) (USDA Forest Service 1979, 1982). The six classes in the ROS (Primitive, Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural, Rural and Urban) are arranged along a continuum and describe recreation opportunities found in an area based on activities, settings and experience.

The proposed action area has two assigned ROS classes depending on the Management Strategy identified for an area in the LMRP. They include Roaded Natural and Semi-Private Non-Motorized.

Developed Recreation (MS-4), Botanical Area (MS-12), Restricted Riparian (MS-26), and Foreground and Middleground Partial Retention (MS-7 and MS-9) all have an assigned ROS of Roaded Natural. A Roaded Natural ROS class is characterized by a predominantly natural-appearing environment with moderate to heavy evidence of the sights and sounds of man. Forest is accessible by foot, horse, mountain bike, and motor vehicle. A well-developed system of roads (generally gravel surfaced) provides access to much of the Forest, although some roads may be closed to specific vehicles. Recreation experiences include both opportunities for group interaction, and isolation from others in different settings and locales.

Restricted Watershed (MS-22), Special Interest Area (MS-5), and Research Natural Area (MS-25) all have an assigned ROS of Roaded Natural to Semi-Primitive Non-Motorized. A Semi-Primitive Non-Motorized ROS class is characterized by a predominately natural appearing environment of moderate to large size. There is evidence of other users, but interaction between users is low and motorized use in not permitted.

All the trails considered in the proposed action would follow the design parameters identified for Trail Class 2 (see Chapter 2, *Proposed Action and Alternatives*) which are appropriate for ROS settings Primitive to Roaded Natural.

1.5.4 Sustainable Recreation

In 2010, the Forest Service's Recreation, Heritage, and Volunteer programs prepared a strategy for developing sustainable outdoor recreational opportunities that meet the environmental, social, and economic needs of present and future generations. As provided in *A Framework for Sustainable Recreation* (USDA Forest Service 2010b), the strategy is intended to "…unite diverse interests, create and strengthen partnerships, focus scarce resources on mission-driven priorities, connect recreation benefits to communities, provide for changing urban populations, and, most importantly, sustain and expand the benefits to America that quality recreation opportunities provide."

Broadly, the goals of a sustainable recreation program are to:

- Provide a diverse range of quality natural and cultural resource based recreation opportunities in partnership with people and communities;
- Protect the natural, cultural, and scenic environment for present and future generation to enjoy;
- Partner with public and private recreation benefit providers to meet public need and expectations;
- Perform and plan by implementing systems and processes to ensure effective decisions, sound investments, and accountability; collaborative approaches to integrated solutions across the landscape; and enhanced professionalism of the Forest Service workforce.

The framework identifies ten "high leverage" focus areas for achieving sustainable recreation programs on Forest Service lands by 2019 (USDA Forest Service 2010b). The proposed action addresses several of these focus areas by collaborating to develop the scope of the proposed action with advocacy groups in and around the City of Ashland; working to resolve "unmanaged recreation" through a planned and properly designed trail system; providing updated and accurate signage; minimizing the use of mechanized equipment to construct and maintain trails; and utilizing volunteer and youth organizations to assist with maintenance and management of the trail system and promote citizen stewardship.

1.6 Additional Documents Incorporated by Reference

In addition to the documents described in Section 1.5, *Management Direction*, the following studies, analyses, assessments, or agreements are related or pertinent to the proposed action or alternatives considered in this EA.

1.6.1 Watershed Analysis and Late-Successional Reserve Assessment

The *Bear Watershed Analysis* was completed in 1995 by the Ashland Ranger District (USDA Forest Service 1995b). The watershed analysis area included federally managed and private lands, as well as forested lands managed by the City of Ashland. The *Mt. Ashland Late Successional Reserve Assessment* was also completed in June 1996 (USDA Forest Service 1996). The objectives for completing the assessment were to gain a better understanding of current conditions within the LSR, to determine how current conditions relate to LSR function and meeting the objectives of the NWFP, and to provide a framework for the management of this LSR consistent with NWFP objectives.

1.6.2 Upper Bear Assessment

The 2003 *Upper Bear Assessment* (USDA Forest Service 2003) was an analytical effort to validate and supplement the environmental condition information for the ecosystem and landscape associated with the Ashland Watershed and the larger Upper Bear Creek analysis area to conditions as of 2003. The assessment organizes vegetation and disturbance factors by plant association groups, contains a fire management assessment and a scientifically based site-specific roads analysis, and contains an Integrated Management Strategy with recommendations and opportunities for future actions. This assessment updates the 1995 Bear Watershed Analysis and the 1996 Mt. Ashland LSR Assessment.

1.6.3 Agreements Between the Forest Service and the City of Ashland

A Cooperative Agreement between the City of Ashland and the Forest Service for the management of the Ashland Watershed was originally created and approved in 1929. An Interim Watershed Management Plan drafted in 1979, providing direction for the protection of the Ashland Municipal Watershed, was replaced by the LRMP in 1990. A Memorandum of Understanding (MOU) was drafted in 1985, and updated in 1996 and 1999. This MOU defines the roles and responsibilities of both the City of Ashland and the Forest Service in the management of the Ashland Watershed. Under these agreements, the Forest Service has the responsibility to administer the Ashland Watershed

consistent with conserving and protecting the City's water supply, and to coordinate and communicate watershed management activities with the City of Ashland. Forest Service responsibilities include:

- Assessing fire danger levels during fire season;
- Administering appropriate watershed closures (i.e., prohibiting camping in the watershed, prohibiting off-road vehicles, prohibiting open fires, implementing road closures, and during extreme fire danger, complete watershed closure);
- Annually providing literature and training to City employees and volunteers concerning fire prevention and watershed policies and procedures;
- Involving the City in planning and implementation of projects in the Ashland Watershed; and
- Providing resource specialists on a contractual basis to the City for projects influencing the Ashland Watershed.

The City of Ashland agrees to make staff available to provide input to the Forest Service during project planning, implementation, and management review; to make staff and personnel available to work in coordination on projects that achieve mutual objectives (such as prescribed underburning and fuel hazard treatment); to make personnel and volunteers available for watershed fire prevention, patrol activities and associated training; and to keep a log of watershed patrol activities.

1.7 Public Involvement (Scoping)

In June 2012, the Forest Service published a legal notice notifying the public of the opportunity to comment on the Ashland Trails Project. The public comment period opened on June 13, 2012 and closed on July 27, 2012. Letters were sent out to agencies and interested groups and citizens explaining the background, purpose and need, and preliminary details and design features of the proposed action, and requesting comments, concerns or issues specific to the Ashland Trails Project be provided to the Forest Service.

Thirty-two comment letters were received during the scoping period. A copy of the Scoping Report, which summarizes the comments received during the scoping period, is provided as Appendix A.

1.8 Issues

Public and internal comments were reviewed by the IDT to identify issues related to the proposed action. For the purposes of this EA, issues are considered points of debate, dispute, or disagreement regarding the anticipated effects of the proposed action. Both *relevant issues* and *other issues* are considered in this EA. Relevant issues are issues that suggest alternative actions, affect the design of the proposed action components, prescribe mitigation measures, and/or describe important and variable environmental effects. Other issues reflect anticipated effects that can be mitigated equally across all alternatives.

1.8.1 Relevant Issues

The following relevant issues are considered in this EA. The Preferred Alternative (Alternative 3), as described in Chapter 2, *Alternatives*, was developed by the IDT to address relevant issues related to LSRs and special-status terrestrial wildlife species, and to reduce potential water quality impacts to the City of Ashland's water supply system. Each relevant issue is considered in Chapter 3, *Affected Environment and Environmental Consequences*. The parenthetical reference provided after each bullet below indicates where within Chapter 3 a description or discussion of the effects of the alternatives relative to that issue is provided.

- Potential effects on water quality due to erosion and sediment delivery (Section 3.3.1)
- Potential effects on late-successional reserves (Section 3.3.2)
- Potential effects on northern spotted owl and their habitat (Section 3.3.3)
- Potential effects on Pacific fisher and their habitat (Section 3.3.4)

1.8.2 Other Issues

As described above, other issues reflect anticipated effects that can be mitigated equally across all alternatives. Table 1-1 summarizes other issues considered in this EA. They are organized by topic. Each of these issues are also considered in Chapter 3, at the locations indicated in Table 1-1.

Table 1-1. Other Issues Considered In Ashland Trails Project EA

Other Issue	*Chapter 3 Discussion*
Potential effects on Forest Service sensitive species, management indicator species, NWFP survey and manage species, migratory birds, and other sensitive terrestrial species	3.4.1
Potential effects on soil resources	3.4.2
Potential effects on geologic slope stability	3.4.3
Potential effects on streams or wetlands	3.4.4
Attainment of ACS objectives	3.4.5
Potential effects on aquatic species and habitats	3.4.6
Potential effects on public recreational fishery access	3.4.7
Potential effects on the McDonald Peak Botanical Area	3.4.8
Potential effects on federally-listed, Forest Service sensitive, NFWP Survey and Manage Species, or locally rare species of vascular plants, bryophytes, lichens, or fungi	3.4.9
Introduction of non-native invasive plant species	3.4.10
Potential effects on the McDonald Peak IRA or potential wilderness areas	3.4.11
Potential effects on cultural resources and/or American Indian access and use	3.4.12
Increased risk of fire	3.4.13

1.8.3 Out-of-Scope Issues

One comment received during the public scoping period suggested trail improvements (e.g., new bridges) in the Applegate Valley of the Siskiyou Mountains. Trail management activities in this portion of the Rogue River-Siskiyou National Forest are not considered in this EA because they would not meet the need of the proposed action, which is to provide a sustainable non-motorized trail system in the vicinity of the City of Ashland commensurate with current public demand, and consistent with natural resource management responsibilities and Forest Service capabilities, that reduces user conflict through trail design, use designation and management. Although within the same National Forest, the Applegate Valley is located well to the west of Ashland and provides recreational opportunities to users in the central / western portions of the National Forest, rather than the eastern portion in the vicinity of Ashland.

No other issues were identified during scoping that were considered outside the scope of the analysis provided in this EA.

CHAPTER 2 – ALTERNATIVES

2.1 Introduction

This chapter describes the three alternatives considered in detail in this Environmental Assessment (EA): Alternative 1 (No Action), Alternative 2 (Proposed Action), and Alternative 3 (Preferred Alternative). These alternatives reflect a reasonable range of alternatives that meet the requirements of the National Environmental Policy Act (NEPA) and the purpose and need of the proposed action, as described in Chapter 1, *Introduction*. This chapter also provides an overview of trail management and design considerations used to generally inform construction, maintenance, and decommissioning work associated with trails on U.S. Forest Service (Forest Service) lands, and which provide the design parameters and construction methods associated with trail management under the action alternatives.

As described in Section 1.3, *Proposed Action*, the action area encompasses an approximate 12,700 acre area in the Rogue River-Siskiyou National Forest, Siskiyou Mountains Ranger District, in Jackson County, Oregon (Figure 1-1). A small portion of the action area occurs on the Klamath National Forest, where about 1,200 feet of one trail (the Split Rock Trail) is located within that National Forest boundary.

2.2 Trail Management and Design Overview

The following provides a general overview of trail management activities performed by the Forest Service, and identifies the design parameters assumed for all trail construction and maintenance in this EA. This section also describes the actions typical of trail construction, trail maintenance, and decommissioning, which are common to all alternatives considered in this document.

2.2.1 National Trail Management Classes

National Trail Management Classes are general categories identified for Forest System trails that prescribe development scale, intended design and management standards. There are five trail classes, ranging from least developed (Trail Class 1) to most developed (Trail Class 5). For the purposes of this EA, trails within the action area are considered "moderately developed," or Trail Class 2.[1] Table 2-1 summarizes the attributes typical of Trail Class 2, as provided in the *Trails Management Handbook*, Forest Service Handbook (FSH) 2309.18.

[1] Although deviations from Trail Class 2 may exist in the action area (e.g., conditions comparable to Trail Class 3), for the purposes of a comprehensive and consistent analysis, the design parameters typical of Trail Class 2 are used in this EA.

Table 2-1. General Attributes of Trail Class 2 – Moderately Developed

Tread & Traffic Flow	*Constructed Features & Trail Elements*	*Signs*	*Obstacles*	*Typical Recreation Environs & Experience*[1]
▪ Tread continuous and discernible, but narrow and rough ▪ Single lane with minor allowances constructed for passing ▪ Typically native materials	▪ Structures of limited size, scale, and quantity; typically constructed of native materials ▪ Structures adequate to protect trail infrastructure and resources ▪ Natural fords ▪ Bridges as needed for resource protection and appropriate access	▪ Route identification signing limited to junctions ▪ Route markers present when trail location is not evident ▪ Regulatory and resource protection signing infrequent ▪ Information and interpretive signing not common	▪ Obstacles may be common, substantial, and intended to provide increased challenge ▪ Blockages cleared to define route and protect resources ▪ Vegetation may encroach into trailway	▪ Natural, essentially unmodified ▪ ROS: Typically Primitive to Roaded Natural Typically

Source: FSH 2309.18; USDA Forest Service 2008a

[1] The Recreation Opportunity Spectrum (ROS) or Wilderness Recreation Opportunity Spectrum (WROS) settings are considered typical of this trail class, although trails in all Trail Classes may and do occur in all settings.

2.2.2 Managed Use, Allowed Use, and Designed Use

Managed use refers to the mode(s) of travel that are actively managed and appropriate for a trail based on its design. There can be more than one managed use for a trail, and managed uses are often a subset of *allowed uses*. For example, on a trail that is closed to all motorized use, the managed uses could include hiker/pedestrian and equestrian uses, while the allowed uses may also include bicycles. The *designed use* of a trail reflects the managed use that requires the most demanding design, construction, and maintenance parameters and that, in conjunction with the applicable trail class, determines which design parameters will apply to the trail.

All non-motorized uses are currently allowed within the action area and would continue to be allowed under the alternatives. However, under the action alternatives, managed uses would vary by trail (as provided in the alternatives), as indicated by signage and enforced by Forest Service personnel. Managed uses would generally fall into three categories: hiker/pedestrian, equestrian, and bicycle.

2.2.3 Design Parameters

Design parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of Forest System trails based on their designed use and trail class, and consistent with

their management intent. Design parameters prescribe tread width, surface, grade, and clearing, among other metrics, for each trail class. For the purposes of this EA, the following design parameters are assumed for all trail construction and maintenance activities.

- Tread Width. Tread width reflects the actual width of the tread down to mineral soil. For Trail Class 2, recommended design tread widths for single-width trails range from 6 to 60 inches, depending on designed use and site specific conditions (e.g., slopes, proximity of precipices) (FSH 2309.18; USDA Forest Service 2008b). For the purposes of this EA, tread width is assumed to be a maximum of 24 inches. This width will accommodate all managed uses on the majority of existing and proposed trails in the action area.

- Clearing Limit. The clearing limit reflects the area over and beside the trail tread that is cleared of trees, limbs, and other obstructions. It is expressed in terms of *clearing height* and *clearing width*. The clearing height is the height of the clearing limit measured vertically from the trail tread, and generally represents the area where vegetation hanging over or across the trail will be removed. The clearing width is the width of the clearing limit measured perpendicular from the trail tread, and generally reflects the area where brush, small trees/saplings, and other obstacles will be removed.

  For Trail Class 2, recommended clearing heights range from 6 to 10 feet and clearing widths range from 24 to 72 inches, depending on designed use (larger widths and heights are generally provided to accommodate pack animals) (FSH 2309.18; USDA Forest Service 2008b). For the purposes of this EA, the maximum clearing height and width are assumed to be 10 feet and 72 inches (6 feet), respectively.

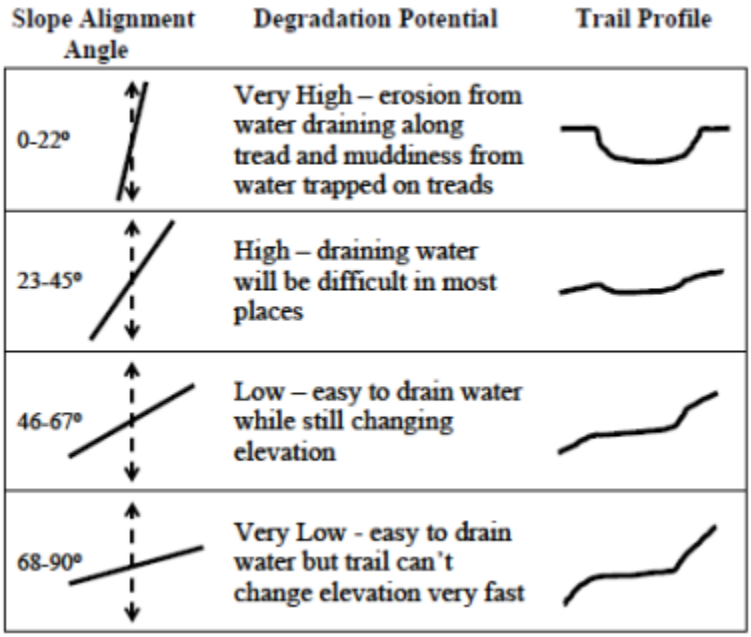
- Trail Target Grade. Trail grade reflects the ascent or descent of a trail segment expressed as a percentage of its length, and is the grade determined to be appropriate over most of a trail to accommodate its managed uses. The short pitch maximum is the steepest grade that is determined to be appropriate based on the managed uses of the trail, and generally occurs for a distance of no more than 200 feet.

  For Trail Class 2, recommended target grades range from 5% to 20%, and the short pitch maximum ranges from 25% to 30%, depending on designed use (USDA Forest Service 2008b). For the purposes of this EA, the trail target grade is assumed to be 10% and the short pitch maximum is assumed to be 25%.

- Surface Material. All proposed trails in the action area would be constructed of native surface materials (e.g., soil, rock, other naturally occurring materials).

- Trail Slope Alignment. Figure 2-1 illustrates the trail profile and degradation potential associated with different slope alignment angles. Trail slope alignments less than 45 degrees would be avoided to the extent practicable. Additional erosion control structures (e.g., waterbars or check dams) may be required where trail slope alignment angles are less than 45 degrees.

Figure 2-1. Representative Slope Alignment Angle, Trail Profile, and Degradation Potential



Some local deviations from these trail design parameters may occur due to trail specific conditions, topography, and/or other factors (such as mitigation of site-specific safety concerns or adjustments to accommodate other resource concerns).

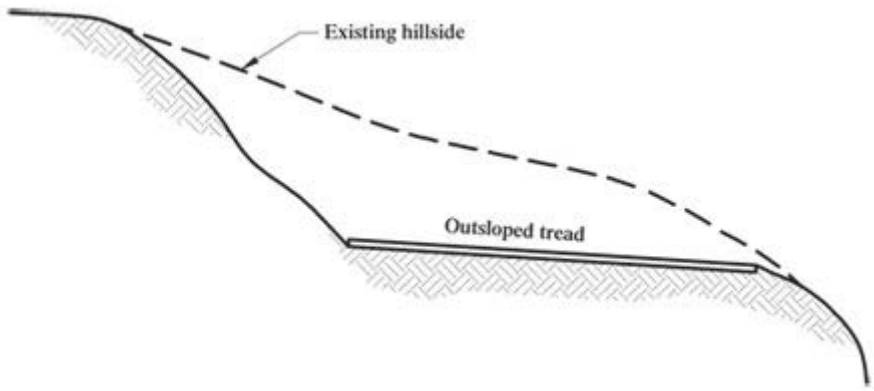
2.2.4 Trail Construction

As provided above, all proposed trails in the action area would be constructed in accordance with FSH 2309.18 and the design parameters provided in Section 2.2.3, *Design Parameters*. To create a more durable surface and to reduce maintenance, trails would be built utilizing a full bench construction where the full width of the trail tread would be cut into the hill side. Trails would also be constructed with an approximately 3% to 5% outslope to the trail tread, which would allow water to sheet across the trail tread naturally (Figure 2-2).

Trails would be constructed by volunteers and youth organizations using hand and power tools. Depending on funding, small mechanized trail building machines, such as SWECO trail dozers, may also be used to construct some trails.

Crossings of intermittent and ephemeral waterways would be accomplished through construction of hard fords; bridges or other man made structures would be constructed to span new perennial stream crossings.

Figure 2-2. Representative Trail Cross-Section



Because the majority of the proposed trail system would incorporate existing roads and trails, the trail segments that meet Forest Service trail standards would be opened to public use soon after a decision on the proposed action is made by the Forest Service. Implementation would be dependent on available funding and could be completed within 3 to 6 years. As individual trail segments are completed, they would be opened for use.

2.2.5 Trail Maintenance

All existing and proposed trails in the action area would be maintained in accordance with FSH 2309.18. Trail maintenance activities may include:

- Tread Maintenance. Removal of slough, berms, and loose rocks.
- Drainage Maintenance. Building and maintaining waterbars and checkdams, maintaining or constructing fords and stream crossings, and cleaning inlets and outlets of culverts. If culverts cannot be cleaned, they may be removed.
- Vegetation Management. Logging out fallen trees, cutting brush to the clearing width of 6 feet, and limbing trees to the clearing height of 10 feet.
- Signage. Installation and maintenance of trail signs.
- The majority of trail maintenance activities would be accomplished using volunteers and by holders of special-use permits for recreation events.

2.2.6 Trail Decommissioning

Trail decommissioning is the physical treatment of an existing trail to rehabilitate it to a relatively natural condition so that it cannot be used again, will not erode, and will quickly regrow native vegetation. Although typically associated with the rehabilitation of Forest Service System Trails, for simplicity purposes, the term *decommissioning* is used in this EA to refer to the closure and removal

of both existing historic and existing unapproved trails, despite the fact that existing unapproved trails have never been "commissioned" by the Forest Service.

For the purposes of this EA, decommissioning work may include:

- Removing culverts and recontouring the streambank to mimic conditions found upstream and downstream of the crossing;
- Installing waterbars in the trail tread to limit further erosion and deter use;
- Re-contouring the trail tread;
- Covering the trail tread with locally available brush and rocks;
- Installing signs;
- Constructing rock or log barriers; and/or
- Planting and seeding appropriate vegetation, as prescribed by the Forest Service botanist.

Trail decommissioning actions would be determined by location, with some locations likely requiring more work to discourage existing use or erosion than others. For example, steeper trails or those using legacy roadbeds may require more extensive decommissioning work due to erosion, resource damage, or the presence of existing culverts that may fail in the future.

2.2.7 Supporting Infrastructure

Access to the trail system within the action area is currently provided at six locations on the east and south side of the Ashland watershed: (1) the White Rabbit Trailhead; (2) the Coggins Saddle (Four Corners) Trailhead; (3) the Lower East View Trailhead; (4) the Upper Eastview Trailhead; (5) the Bull Gap (Lower) Trailhead; and (6) the Upper Bull Gap/Mt. Ashland Ski area Trailhead. Access to trails on the west side of the Ashland watershed is provided by Road 2060 (Figure 2-3).

Parking within the action area is provided at all trailheads, as well as City streets adjacent to the action area and at the Mt. Ashland Ski area, although many recreational users walk or bike directly from their homes/work place to the trail system. Bulletin boards are provided at all trailheads. Bathrooms are not provided at any trailheads or other locations within the Forest boundary.

Access to trails, as well as parking in the general vicinity, is considered sufficient for existing and anticipated recreational uses within the action area. No changes in access, parking, or recreational amenities (i.e., bathrooms) are proposed under any of the alternatives, with the exception that additional signage indicating excluded uses and providing guidance on trail etiquette would be provided on bulletin boards and within the trail system to reduce the potential for user conflicts (see PDC GEN-10).

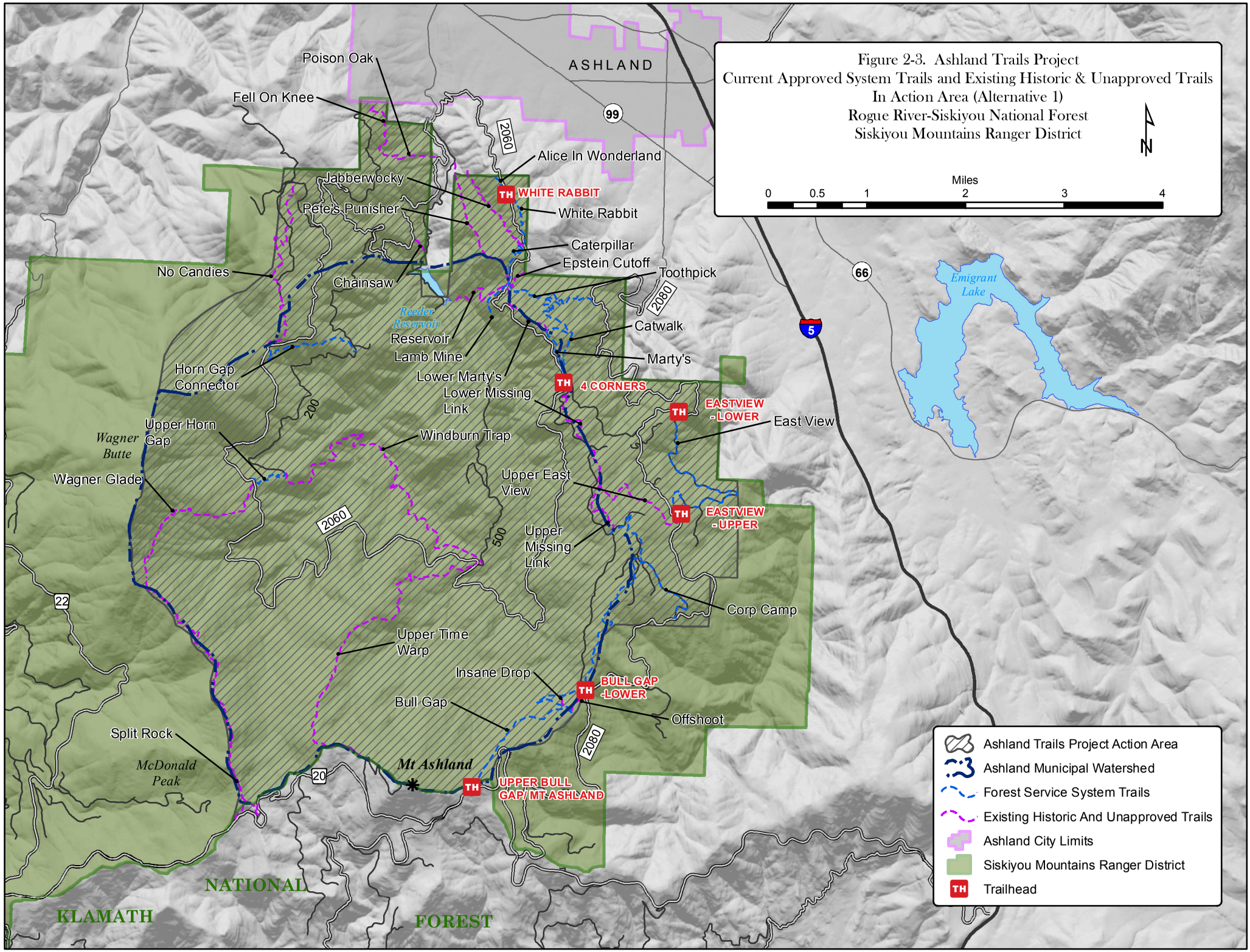


Figure 2-3. Ashland Trails Project
Current Approved System Trails and Existing Historic & Unapproved Trails
In Action Area (Alternative 1)
Rogue River-Siskiyou National Forest
Siskiyou Mountains Ranger District
N
Miles
0
0.5
1
2
3
4
ASHLAND
99
66
5
22
20
2060
2080
200
500
Poison Oak
Fell On Knee
Alice In Wonderland
Jabberwocky
TH WHITE RABBIT
Pete's Punisher
White Rabbit
Caterpillar
Epstein Cutoff
Toothpick
No Candies
Chainsaw
Reeder Reservoir
Reservoir
Lamb Mine
Catwalk
Marty's
Horn Gap Connector
Lower Marty's
Lower Missing Link
TH 4 CORNERS
TH EASTVIEW - LOWER
East View
Wagner Butte
Upper Horn Gap
Windburn Trap
Wagner Glade
Upper East View
TH EASTVIEW - UPPER
Upper Missing Link
Corp Camp
Upper Time Warp
Insane Drop
TH BULL GAP -LOWER
Bull Gap
Offshoot
Split Rock
McDonald Peak
Mt Ashland
TH UPPER BULL GAP/ MT ASHLAND
Emigrant Lake
NATIONAL
KLAMATH
FOREST
Ashland Trails Project Action Area
Ashland Municipal Watershed
Forest Service System Trails
Existing Historic And Unapproved Trails
Ashland City Limits
Siskiyou Mountains Ranger District
TH Trailhead

2.3 Alternatives

The purpose and need for the proposed action and list of relevant issue identified during scoping (see Chapter 1, *Introduction*) were used to develop the alternatives considered in this EA. The range of alternatives are intended to: 1) respond to the purpose and need for the proposed action; 2) respond to scoping comments; 3) respond to management direction, including the LRMP and NWFP; and 4) provide necessary information to the decision maker to inform her decision regarding the proposed action.

The following definitions apply to each of the alternatives considered in this section.

- System Trails. Trails that are part of the system of Forest Service approved trails in the action area and that are currently managed and maintained by the Forest Service. All existing System Trails are multi-use, non-motorized trails that are signed and receive routine maintenance by volunteers and special use permit holders.
- Existing Historic Trails. Trails that were at one time System Trails and that were identified on Forest Service maps but for unknown reasons were dropped from the system. Some of these trails are thought to have been constructed prior to 1910 and accessed fire lookouts and the Siskiyou Crest.
- Existing Unapproved Trails. Trails that were constructed without Forest Service approval or oversight, but are proposed to be added to the system in their current location or a new location (depending on the alternative) due to the recreational opportunity they offer. In some instances, these trails were constructed at a sustainable grade of approximately 10% (e.g., Upper / Lower Missing Link Trails) and would be added as System Trails in their current location; in other instances they seem to follow old prescribed fire lines that have been deemed unsustainable (e.g., Jabberwocky Trail) and would be relocated.
- Proposed Trails. New trails proposed for construction under one or more of the alternatives.
- Decommissioned Trails. Trails that would be closed and rehabilitated because their design is not sustainable (i.e., is resulting in unacceptable adverse impacts to soil, water, cultural, vegetation, and wildlife resources) or they do not offer a desirable recreation opportunity.

The alternatives also generally include the following three strategies for meeting the proposed action purpose of reducing user conflict within the action area:

- Creating new trail loops of different lengths that target specific user groups and disperse use across the action area;
- Providing clear and concise information about designated uses allowed on individual trails, as well as trail etiquette. This information would be provided through trail signage and at trailhead bulletin boards.
- Providing ongoing monitoring and enforcement of managed uses within the action area.

2.3.1 Alternative 1- No Action

Alternative 1 (No Action) provides a baseline from which to analyze the effects of the action alternatives. Guidance provided by the Council on Environmental Quality (CEQ) specific to the "no action alternative" states "…'no action'… mean[s] the proposed activity would not take place, and the resulting environmental effects from taking no action [are] compared with the effects of…the proposed activities or an alternative activity…" (51 CFR 15618); in this case, "no action" assumes ongoing use and management of the current trail system within the action area.

Specifically, under Alternative 1, the Forest Service would continue to manage System Trails in the action area in accordance with current management plans and FSH 2309.18. No new trails would be constructed, and existing historic and unapproved trails would not be incorporated as System Trails. The Forest Service would also continue to discourage use and proliferation of unapproved trails through monitoring and enforcement of managed uses within the action area. However, because it is uncertain how many of existing historic or existing unapproved trails could effectively be removed in the short term, and in consideration of the numerous unsuccessful attempts by the Forest Service to close these trails, the EA conservatively assumes that no trails would be removed or decommissioned under Alternative 1, and that impacts associated with their continued use would continue.

In total, 15.8 miles of System Trails (Table 2-2) and 25.6 miles of existing historic and unapproved trails (Table 2-3) would remain in the action area under Alternative 1. Figure 2-3 illustrates the location of System Trails, existing historic trails, and existing unapproved trails in the action area.

Table 2-2. Current Forest Service System Trails in the Action Area

Trail Name	*Length (miles)*	*Notes*
Bull Gap	5.1	
Caterpillar	1.1	
Catwalk	1.7	
Corp Camp	1.0	
Eastview	2.5	
Horn Gap Connector	1.2	
Lamb Mine	0.7	
Marty's	0.8	
Toothpick	1.0	Ties into trail on private Land
Upper Horn Gap	0.5	Labeled as Potlicker on maps
White Rabbit	0.2	
TOTAL	**15.8**	

Table 2-3. Current Existing Historic Trails and Existing Unapproved Trails in Action Area

Trail Name	*Length (miles)*	*Status*
Alice in Wonderland[1]	0.2	Existing Historic
Upper Time Warp	3.8	Existing Historic
Wagner Glade	2.2	Existing Historic
Winburn Trap[2]	3.7	Existing Historic
Split Rock[3]	3.2	Existing Historic
Lower Marty's[4]	0.9	Existing Unapproved
Jabberwocky[5]	1.2	Existing Unapproved
Fell on Knee	1.0	Existing Unapproved
Upper Missing Link	1.2	Existing Unapproved
Lower Missing Link	1.0	Existing Unapproved
No Candies	2.5	Existing Unapproved
Upper Eastview	1.3	Existing Unapproved
Chain Saw	0.2	Existing Unapproved
Epstein Cut-Off	0.3	Existing Unapproved
Insane Drop	0.1	Existing Unapproved
Offshoot	0.3	Existing Unapproved
Pete's Punisher	1.3	Existing Unapproved
Poison Oak	0.3	Existing Unapproved
Reservoir (East Fork)	0.9	Existing Unapproved
TOTAL	**25.6**	

[1] Represents portion of trail on Forest Service lands. Currently ties into trails on City and private land.

[2] The Winburn Trap Trail has also historically been referred to as the Lower Time Warp Trail.

[3] Split Rock is considered an existing historic trail, but unlike Upper Time Warp, Wagner Glade and Winburn Trap, the trail is barely perceptible at some locations and the trail alignment would need to be reestablished. Mileage in table reflects the entire length of the Split Rock trail, including 0.2 mile that is located on the Klamath National Forest.

[4] Lower Marty's consists of several existing unapproved routes that total approximately 0.9 mile.

[5] About 95% of the existing and unapproved Jabberwocky Trail is considered unsustainable.

2.3.2 Alternative 2 - Proposed Action

Alternative 2 reflects the trail design proposed by the Forest Service during public scoping. This alternative was designed to meet the purpose and need of the proposed action, and reflects many of the aspects of the Trails Master Plan submitted by the Ashland Woodlands and Trails Association (AWTA) in 2011 (AWTA 2011) (see Chapter 1, *Introduction*).

Approximately 30.9 miles of trails would be incorporated into the approved trail network in the action area under this alternative, including about 21.5 miles of existing historic and unapproved trails and 9.4 miles of new proposed trails (Table 2-4). A total of 5.2 miles of existing historic and unapproved trails would be decommissioned under this alternative (Table 2-5).

The need to reduce user conflict in the action area would be addressed under Alternative 2 by designating specific uses on the high-use trails around the City of Ashland; providing signage to clearly mark those uses; and providing for dispersed opportunities on the west side of the action area. In all cases, designated managed uses would guide trail design standards.

Figure 2-4 illustrates the location and disposition of existing and proposed trails under Alternative 2. Figure 2-6 provides more specific detail on trails in the vicinity of the White Rabbit Trailhead under both Alternatives 2 and 3.

Table 2-4. Alternative 2 – Modified Trail Network[1]

Trail Name	*Length (miles)*	*Managed Use*	*Status*
Alice in Wonderland[2]	0.2	Bicycle	Existing Historic/Proposed
Upper Time Warp	3.8	Bicycle	Existing Historic
Wagner Glade	2.2	Hiker/Pedestrian, Bicycle, Equestrian	Existing Historic
Winburn Trap[3]	3.7	Hiker/Pedestrian, Bicycle, Equestrian	Existing Historic/ Proposed
Split Rock[4]	3.2	Hiker/Pedestrian, Bicycle, Equestrian	Existing Historic
Lower Marty's	0.5	Hiker/Pedestrian, Bicycle	Existing Unapproved
Jabberwocky[5]	1.2	Hiker/Pedestrian, Bicycle	Existing Unapproved
Fell on Knee	1.0	Hiker/Pedestrian, Bicycle	Existing Unapproved
Upper Missing Link	1.2	Hiker/Pedestrian, Bicycle	Existing Unapproved
Lower Missing Link	1.0	Hiker/Pedestrian, Bicycle	Existing Unapproved
No Candies	2.5	Hiker/Pedestrian, Bicycle	Existing Unapproved
Upper Eastview	1.3	Hiker/Pedestrian, Bicycle, Equestrian	Existing Unapproved
Ric’s	1.3	Hiker/Pedestrian, Equestrian	Proposed
Freak Went Flyer	0.9	Bicycle	Proposed
RIP 1	0.6	Bicycle	Proposed
Wonder[6]	1.3	Hiker/Pedestrian, Bicycle	Proposed
Red Queen	1.2	Hiker/Pedestrian, Equestrian	Proposed
Lewis Loop	1.1	Hiker/Pedestrian, Equestrian	Proposed
Shaken	0.7	Hiker/Pedestrian, Bicycle, Equestrian	Proposed

Trail Name	*Length (miles)*	*Managed Use*	*Status*
Not Stirred	1.2	Hiker/Pedestrian, Bicycle	Proposed
Lizard	0.4	Bicycle	Proposed
Bandersnatch	0.4	Hiker/Pedestrian, Equestrian	Proposed
TOTAL	**30.9**		

[1]Trails in addition to System Trails (see Table 2-2)

[2]Approximately 0.2 mile of the Alice in Wonderland Trail located on Forest Service land would be closed and rehabilitated and a new re-route constructed on Forest Service lands to connect with a private easement.

[3]Approximately 3.4 miles of the Winburn Trap Trail is an existing historic road and approximately 0.3 mile would be new construction.

[4] Split Rock is considered an existing historic trail, but unlike Upper Time Warp, Wagner Glade and Winburn Trap, the trail is barely perceptible at some locations and the trail alignment would need to be reestablished. Mileage in table reflects the entire length of the Split Rock trail, including 0.2 mile, which is located on the Klamath National Forest.

[5]About 95% of the existing Jabberwocky Trail, is considered unsustainable. The existing trail would be decommissioned and a new trail developed.

[6]Mileage in table reflects portion of trail within Rogue River-Siskiyou National Forest. An additional 1.0 mile of trail would be located outside the Forest boundary.

Table 2-5. Alternative 2 – Trails Proposed for Decommissioning

Trail Name	*Length (miles)*	*Status*
Alice in Wonderland[1]	0.2	Close and Rehabilitate
Lower Marty's	0.4	Even if approved to Lamb Saddle, some of the various tracks down the slope immediately above Lamb Saddle would be closed and rehabilitated.
Jabberwocky [2]	1.2	Close and Rehabilitate
Chain Saw	0.2	Close and Rehabilitate
Epstein Cut-Off[3]	0.3	Close and Rehabilitate
Insane Drop	0.1	Close and Rehabilitate
Offshoot	0.3	Close and Rehabilitate
Pete’s Punisher	1.3	Close and Rehabilitate
Poison Oak	0.3	Close and Rehabilitate
Reservoir (East Fork)	0.9	Close and Rehabilitate
TOTAL	**5.2**	

[1] The existing 0.2 mile of the Alice in Wonderland Trail located on Forest Service lands would be closed and rehabilitated. A new segment would be rerouted to connect with private easements.

[2] Represents unsustainable portion of existing, unapproved trail that would be decommissioned. Length of new trail commissioned provided in Table 2-4.

[3]Length on Forest Service lands

2.3.3 Alternative 3 - Preferred Alternative

Alternative 3 was identified by the Forest Service Interdisciplinary Team (IDT) to minimize potential effects on northern spotted owl (*Strix occidentalis caurina*), Pacific fisher (*Pekania pennanti*

[formerly Martes pennanti]) and Late-Successional Reserves (LSR) function, and to reduce potential water quality impacts to the City of Ashland's water supply system. The IDT also recognized that soil stability and erosion on steep slopes may benefit under Alternative 3. Measures to reduce these potential effects would include decommissioning the existing historic Winburn Trap Trail; rerouting a section of the existing historic Upper Time Warp Trail; altering the location of three proposed trails (Shaken, Not Stirred and Lewis Loop); and removing from consideration two additional proposed trails (RIP 1 and Freak Went Flyer). More specifically, under Alternative 3, the entirety of Winburn Trap Trail (about 3.7 miles) would be decommissioned to avoid northern spotted owl nest patches[2], and to minimize potential water quality concerns in and around Reeder Reservoir, the source of Ashland's water supply, as a result of ongoing trail use. In addition, approximately 1.0 mile of the Upper Time Warp Trail would be rerouted to avoid northern spotted owl habitat. The proposed Not Stirred and Shaken Trails would also be rerouted to avoid Pacific fisher and owl habitat, and the proposed Lewis Loop Trail would be located further uphill to avoid Pacific fisher habitat. Finally, the proposed RIP 1 and Freak Went Flyer Trails would not be constructed due to their steep grade and proximity to fisher habitat.

Similar to Alternative 2, the need to reduce user conflict under Alternative 3 would be addressed by designating specific uses on the high-use trails around the City of Ashland; providing signage to clearly mark those uses; and providing for dispersed opportunities on the west side of the action area. In all cases, designated managed uses would guide trail design standards. In total, approximately 24.9 miles of trails would be incorporated into the approved trail network in the action area under Alternative 3, including 17.5 miles of existing historic and unapproved trails and 7.4 miles of new proposed trails (Table 2-6). Approximately 9.9 miles of existing unapproved trails would also be decommissioned under Alternative 3 (Table 2-7). Figure 2-5 illustrates the location and disposition of existing and proposed trails under the Alternative 3. Figure 2-6 provides more specific detail on trails in the vicinity of the White Rabbit Trailhead under both Alternatives 2 and 3.

[2] Seasonal restrictions to reduce effects on northern spotted owl nest sites were considered by the IDT for routes in owl core areas; however there was low confidence that they would be effectively enforced over the long term. Disturbance from trail use would be particularly detrimental during the breeding season (primarily March – June) for species that are sensitive to human presence and rely on late and mature forest habitat for nesting and denning. As a result, Alternative 3 reflects decommissioning and/or rerouting specific trails that would be located in the vicinity of owl core areas.

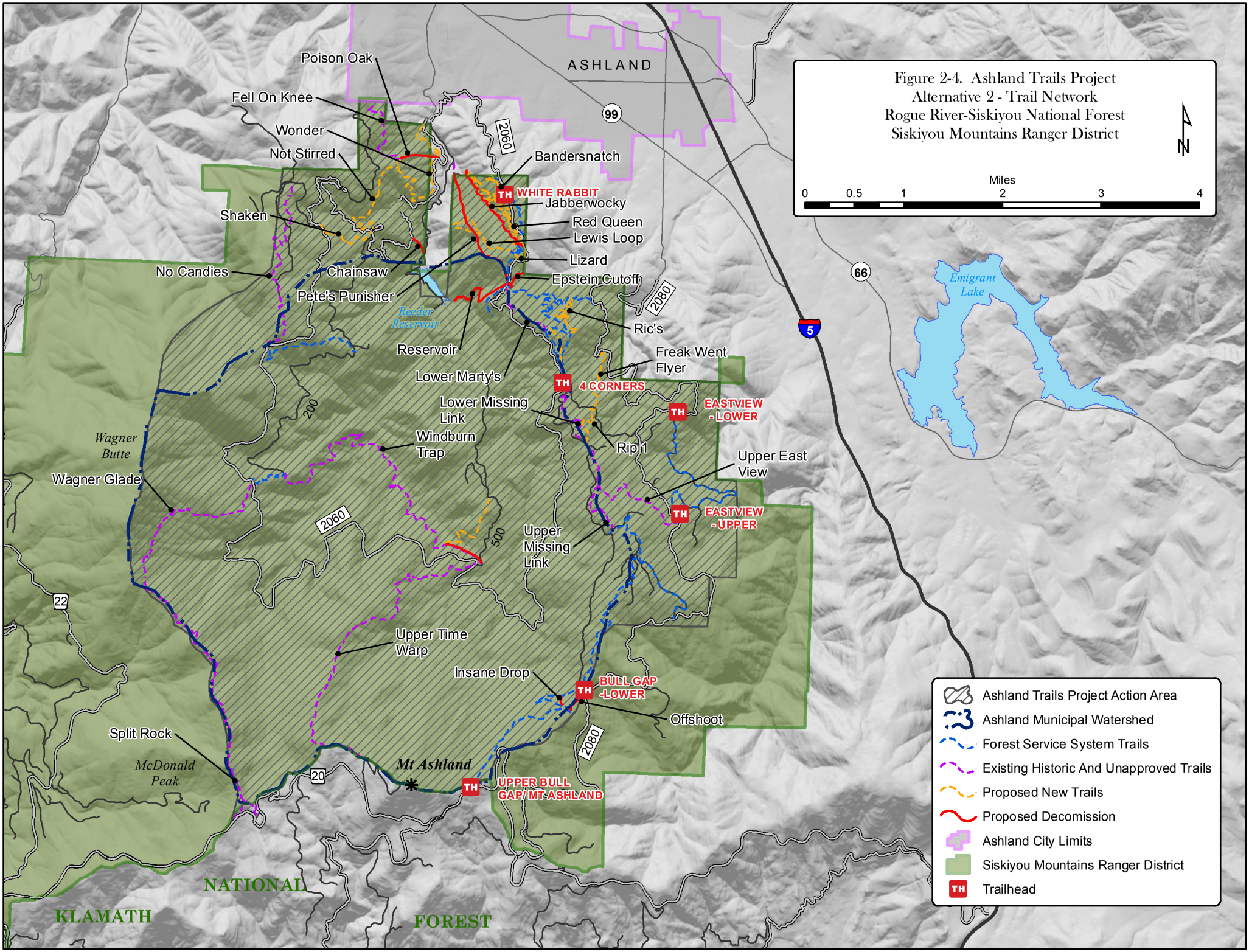


Figure 2-4. Ashland Trails Project
Alternative 2 - Trail Network
Rogue River-Siskiyou National Forest
Siskiyou Mountains Ranger District
N
Miles
0
0.5
1
2
3
4
ASHLAND
99
66
5
2060
2080
200
500
22
20
Poison Oak
Fell On Knee
Wonder
Not Stirred
Shaken
No Candies
Chainsaw
Pete's Punisher
Bandersnatch
WHITE RABBIT
Jabberwocky
Red Queen
Lewis Loop
Lizard
Epstein Cutoff
Ric's
Freak Went Flyer
Reeder Reservoir
Reservoir
Lower Marty's
4 CORNERS
Lower Missing Link
Windburn Trap
Rip 1
EASTVIEW - LOWER
Upper East View
EASTVIEW - UPPER
Upper Missing Link
Wagner Butte
Wagner Glade
Upper Time Warp
Insane Drop
BULL GAP -LOWER
Offshoot
Split Rock
McDonald Peak
Mt Ashland
UPPER BULL GAP/ MT ASHLAND
Emigrant Lake
NATIONAL
KLAMATH
FOREST
Ashland Trails Project Action Area
Ashland Municipal Watershed
Forest Service System Trails
Existing Historic And Unapproved Trails
Proposed New Trails
Proposed Decomission
Ashland City Limits
Siskiyou Mountains Ranger District
Trailhead

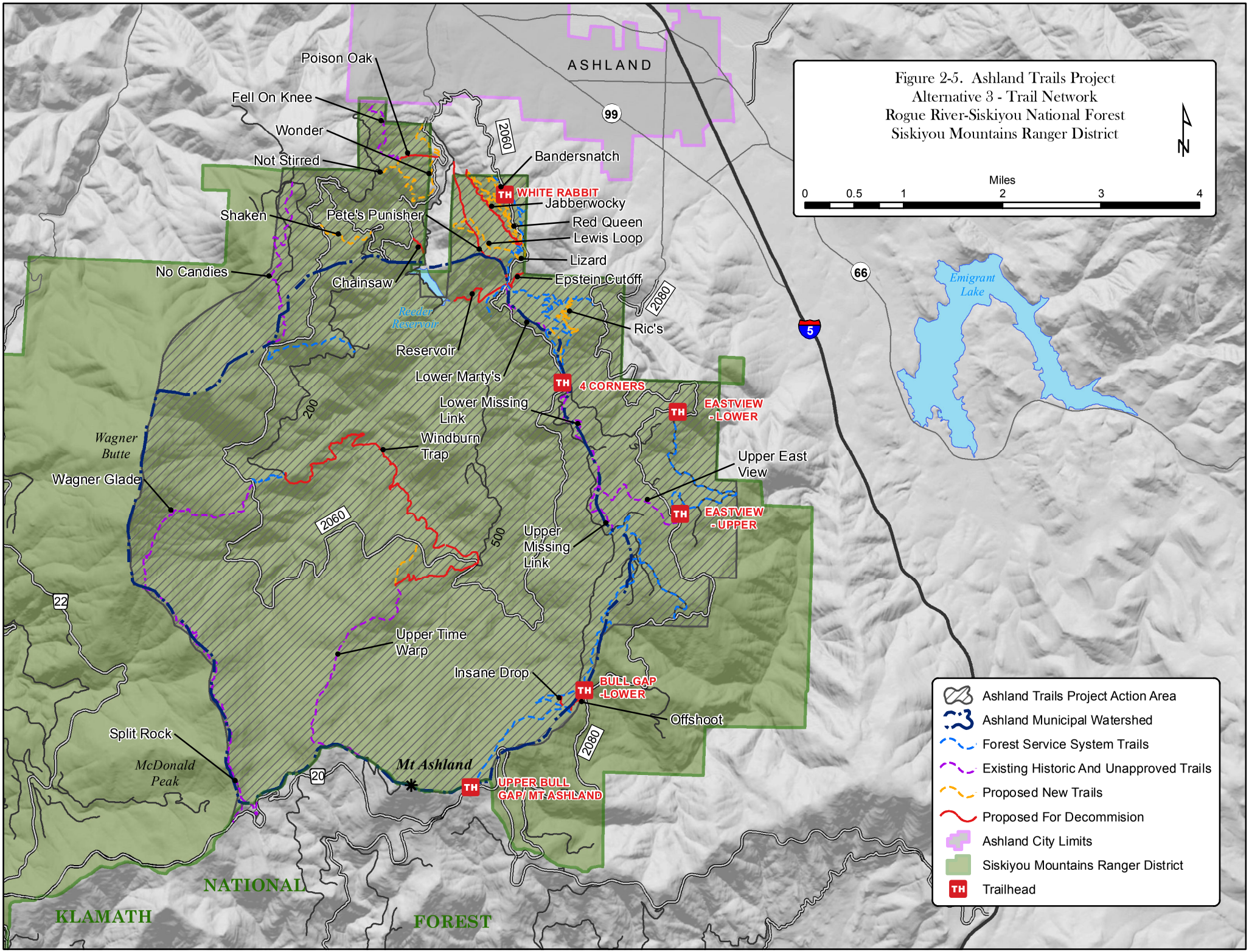


Figure 2-5. Ashland Trails Project
Alternative 3 - Trail Network
Rogue River-Siskiyou National Forest
Siskiyou Mountains Ranger District
N
Miles
0
0.5
1
2
3
4
ASHLAND
99
66
5
2060
2080
200
500
22
20
Poison Oak
Fell On Knee
Wonder
Not Stirred
Shaken
Pete's Punisher
No Candies
Chainsaw
Bandersnatch
WHITE RABBIT
Jabberwocky
Red Queen
Lewis Loop
Lizard
Epstein Cutoff
Ric's
Reeder Reservoir
Reservoir
Lower Marty's
4 CORNERS
Lower Missing Link
Windburn Trap
EASTVIEW - LOWER
Upper East View
EASTVIEW - UPPER
Upper Missing Link
Wagner Butte
Wagner Glade
Upper Time Warp
Insane Drop
BULL GAP -LOWER
Offshoot
Split Rock
McDonald Peak
Mt Ashland
UPPER BULL GAP/ MT ASHLAND
Emigrant Lake
NATIONAL
KLAMATH
FOREST
Ashland Trails Project Action Area
Ashland Municipal Watershed
Forest Service System Trails
Existing Historic And Unapproved Trails
Proposed New Trails
Proposed For Decommision
Ashland City Limits
Siskiyou Mountains Ranger District
Trailhead

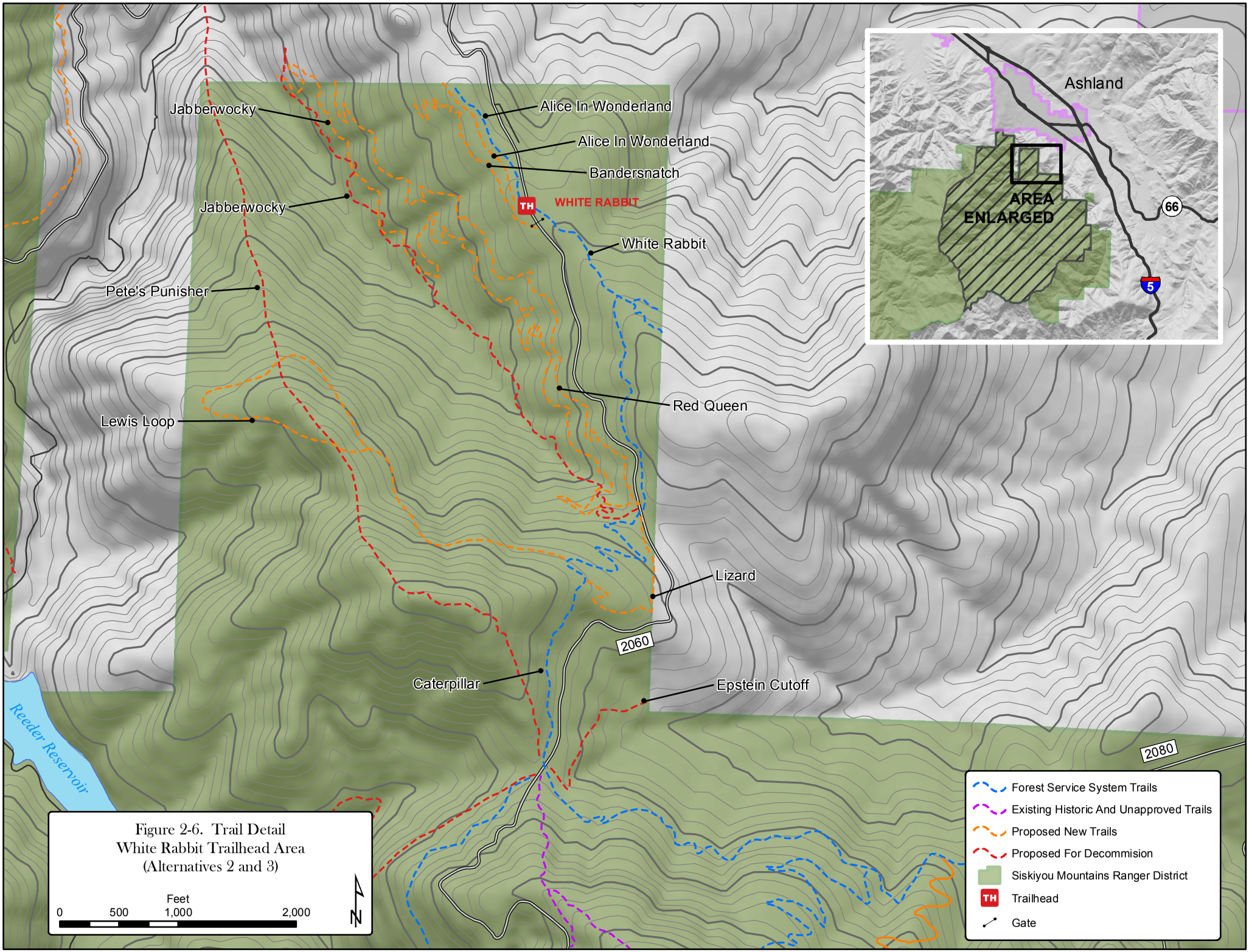


Figure 2-6. Trail Detail
White Rabbit Trailhead Area
(Alternatives 2 and 3)

Table 2-6. Alternative 3 – Modified Trail Network[1]

Trail Name	*Length (miles)*	*Managed Use*	*Status*
Alice in Wonderland[2]	0.2	Bicycle	Existing Historic/Proposed
Upper Time Warp[3]	3.4	Bicycle	Existing Historic/Proposed
Wagner Glade	2.2	Hiker/Pedestrian, Bicycle, Equestrian	Existing Historic
Split Rock[4]	3.2	Hiker/Pedestrian, Bicycle, Equestrian	Existing Historic
Lower Marty's	0.5	Hiker/Pedestrian, Bicycle	Existing Unapproved
Jabberwocky[5]	1.7	Hiker/Pedestrian, Bicycle	Existing Unapproved
Fell on Knee	1.0	Hiker/Pedestrian, Bicycle	Existing Unapproved
Upper Missing Link	1.2	Hiker/Pedestrian, Bicycle	Existing Unapproved
Lower Missing Link	1.0	Hiker/Pedestrian, Bicycle	Existing Unapproved
No Candies	2.5	Hiker/Pedestrian, Bicycle	Existing Unapproved
Upper Eastview	1.3	Hiker/Pedestrian, Bicycle, Equestrian	Existing Unapproved
Ric's	1.3	Hiker/Pedestrian, Equestrian	Proposed
Wonder[6]	1.3	Hiker/Pedestrian, Bicycle	Proposed
Red Queen	1.2	Hiker/Pedestrian, Equestrian	Proposed
Lewis Loop	1.1	Hiker/Pedestrian, Equestrian	Proposed
Shaken	0.7	Hiker/Pedestrian, Bicycle, Equestrian	Proposed
Not Stirred[7]	0.3	Hiker/Pedestrian, Bicycle	Proposed
Lizard	0.4	Bicycle	Proposed
Bandersnatch	0.4	Hiker/Pedestrian, Equestrian	Proposed
TOTAL	**24.9**		

[1] Trails in addition to System Trails (see Table 2-2)

[2] Approximately 0.2 mile of the Alice in Wonderland Trail would be closed and rehabilitated and a new route constructed on Forest Service lands to connect with a private easement.

[3] Approximately 1.0 mile of the existing historic Upper Time Warp Trail would be rerouted to avoid northern spotted owl habitat.

[4] Split Rock is considered an existing historic trail, but unlike Upper Time Warp, Wagner Glade and Winburn Trap, the trail is barely perceptible at some locations and the trail alignment would need to be reestablished. Mileage in table reflects the entire length of the Split Rock trail, including 0.2 mile that is located on the Klamath National Forest.

[5] About 95% of the existing Jabberwocky Trail is considered unsustainable. The existing trail would be decommissioned and a new trail developed.

[6] Mileage in table reflects portion of trail within Rogue River-Siskiyou National Forest. An additional 1.0 mile of trail would be located outside the Forest boundary.

[7] The proposed Not Stirred Trail would connect with Forest Road 2060300 to avoid Pacific Fisher habitat.

Table 2-7. Alternative 3 – Trails Proposed for Decommissioning

Trail Name	*Length (miles)*	*Status*
Alice in Wonderland[1]	0.2	Close and Rehabilitate
Upper Time Warp[2]	1.0	Close and Rehabilitate
Winburn Trap	3.7	Close and Rehabilitate
Lower Marty's	0.4	Even if approved to Lamb Saddle, some of the various tracks down the slope immediately above Lamb Saddle would be closed and rehabilitated.
Jabberwocky	1.2	Close and Rehabilitate
Chain Saw	0.2	Close and Rehabilitate
Epstein Cut-Off[3]	0.3	Close and Rehabilitate
Insane Drop	0.1	Close and Rehabilitate
Offshoot	0.3	Close and Rehabilitate
Pete's Punisher	1.3	Close and Rehabilitate
Poison Oak	0.3	Close and Rehabilitate
Reservoir (East Fork)	0.9	Close and Rehabilitate
TOTAL	**9.9**	

[1]The existing 0.2 mile of Alice in Wonderland Trail located on Forest Service land would be closed and rehabilitated. A new segment would be rerouted to connect with private easements.

[2] Represents the portion of the Upper Time Warp Trail that would be rerouted to avoid northern spotted owl habitat.

[3]Length on Forest Service lands

2.4 Alternative Summary

Table 2-8 provides a comparative summary of how each alternative addresses the purpose and need; its relative effect with respect to the relevant issues identified in Chapter 3; and the proposed trail network (in miles) under each alternative.

Table 2-8. Comparison of Alternatives – Trail Network, Purpose and Need and Relevant Issues

Trail Network (miles)	*Alternative 1*	*Alternative 2*	*Alternative 3*
System Trails[1]	15.8	15.8	15.8
Existing Historic / Unapproved Trails[2]	25.6	21.5	17.5
Proposed Trails	0.0	9.4	7.4
TOTAL Trail Miles[3]	**41.4**	**46.7**	**40.7**
Decommissioned Trails	0.0	5.2	9.9

[1]Reflects currently approved Forest Service System Trails in the action area

[2]Existng historic and unapproved trails under Alternative 1 reflect current conditions, but are not considered approved System Trails and are not currently maintained by the Forest Service. Under the action alternatives, some of these trails (as identified for each alternative) would be incorporated as System Trails.

3Total Trail Miles under Alternatives 2 and 3 reflect the total miles of System Trails that would occur within the action area if that Alternative were implemented. Total Trail Miles for Alternative 1 reflects current System Trails, as well as trails that occur within the action area but that were not approved, and are not currently managed by, the Forest Service (i.e., existing historic and unapproved trails).

Purpose and Need Element	*Indicator*	*Alternative 1*	*Alternative 2*	*Alternative 3*
Provide a Sustainable Non-Motorized Trail System	Decommission unsustainable trails	No trails decommissioned	5.2 miles of trails decommissioned	9.9 miles of trails decommissioned
	General condition of trails (e.g., erosion, deterioration of tread and clearing widths)	Condition of existing historic and unapproved trails would continue to degrade due to lack of maintenance / poor design. System Trails would continue to be maintained to Forest Service standards.	21.5 miles of existing historic and unapproved trails incorporated as System Trails, which would allow for maintenance by the Forest Service. New trails designed to Forest Service standards.	17.5 miles of existing historic and unapproved trails incorporated as System Trails, which would allow for maintenance by the Forest Service. New trails designed to Forest Service standards.

Purpose and Need Element	*Indicator*	*Alternative 1*	*Alternative 2*	*Alternative 3*
Provide a Trail System Commensurate with Public Demand	Miles of System Trails	▪ Total System Trails: 15.8 miles ▪ An additional 24.5 miles of existing historic / unapproved trails not maintained or managed by the Forest Service would remain in the action area.	▪ Total System Trails: 46.7 miles	▪ Total System Trails: 40.7 miles
Reduce User Conflict	Dispersed Use	No change. Use concentrated on east side of action area near Ashland.	Trail additions on the east and west side of the action area would disperse use away from White Rabbit Trailhead area and provide opportunities for loop trails.	Similar to Alternative 2, with the exception that dispersed use opportunities would be reduced because the RIP 1, Freak Went Flyer and Upper Time Warp Trails would not be included as System Trails.
	Total Miles by Managed Use	All non-motorized uses allowed on all trails (i.e., 15.8 miles of System Trails)	Managed uses excluded from some trails in eastern portion of action area to reduce user conflict. Total miles by managed use would include: ▪ 26.9 miles open to all non-motorized uses ▪ 19.9 miles hiker/pedestrian and biker only uses ▪ 4.0 miles hiker /pedestrian, equestrian only uses ▪ 5.9 miles bicycle only use	Managed uses excluded from some trails in eastern portion of action area to reduce user conflict. Total miles by managed use would include: ▪ 23.2 miles open to all non-motorized uses ▪ 9.5 miles hiker/pedestrian and biker only uses ▪ 4.0 miles hiker /pedestrian, equestrian only uses ▪ 4.0 miles bicycle only use

Purpose and Need Element	*Indicator*	*Alternative 1*	*Alternative 2*	*Alternative 3*
Reduce User Conflict	Clear and concise signage	Limited signage provided at White Rabbit and Four Corners trailheads.	Signage on trail use, availability, etiquette and accommodations provided at trailhead bulletin boards and within the trail system.	Same as Alternative 2
Reduce Unapproved Trail Proliferation	Total mileage and allowed uses commensurate with public demand	Current mileage of System Trails (15.8 miles) does not meet public demand, which would continue to promote unapproved trail proliferation.	System Trail mileage would increase by 30.9 miles, and allowed uses would be separated in high use areas. Alternative 2 would better meet public demand and reduce user conflict compared to Alternative 1, which would reduce the potential for unapproved trail proliferation.	Similar to Alternative 2, although total addition to System Trail mileage would be less (24.9 miles).
	Adequate opportunities for enforcement	Unclear information on allowed uses and trail locations would continue to complicate law enforcement efforts.	Clear and concise information and signage on the location, use, and availability of System Trails would simplify enforcement efforts.	Same as Alternative 2.
Effects on Water Quality Due to Erosion and Sediment Delivery	Vegetation and Soil Disturbance in Riparian Reserves	▪ No change. Current area of vegetation and soil disturbance in Riparian Reserves is 7.59 acres and 2.55 acres, respectively. ▪ Use of existing historic and unapproved trails would continue to impact Riparian Reserves.	▪ Net increase in Riparian Reserve vegetation and soil disturbance of 1.53 acres and 0.51 acre, respectively, compared to Alternative 1. ▪ Decommissioning, improvements in design / drainage and maintenance of System Trails would reduce erosion / sediment delivery over long-term.	▪ Net decrease in Riparian Reserve vegetation and soil disturbance of 0.55 acre and 0.18 acre, respectively, compared to Alternative 1. ▪ Decommissioning, improvements in design / drainage and maintenance of System Trails would reduce erosion / sediment delivery over long-term.

Relevant Issue	*Indicator*	*Alternative 1*	*Alternative 2*	*Alternative 3*
Effects on Water Quality Due to Erosion and Sediment Delivery	Stream Crossings	No change. Currently 11 stream crossing associated with System Trails and 20 stream crossings associated with existing historic / unapproved trails.	Alternative 2 would create 13 new stream crossings (primarily over intermittent drainages) and remove 5 existing stream crossings. An additional 15 existing stream crossing would become part of System Trails.	Alternative 2 would create 8 new stream crossings (all over intermittent drainages) and remove 12 existing stream crossings. An additional 8 existing stream crossing would become part of System Trails.
	Exceedance of TMDL	No change. Reeder Reservoir sediment TMDL load allocations could be exceed during flood event if legacy stream crossings fail. Fecal coliform contamination potential from human, pet, and equine use near streams.	Minor potential for sediment contributions at stream crossings. Fecal coliform contamination potential reduced through PDC WQ-6.	Predicted net decrease in annual sediment delivery. Fecal coliform contamination potential reduced through PDC WQ-6.
	Impacts to Quantity / Quality of Ashland Domestic Water Source	Reservoir Trail would continue to provide unauthorized access to East Fork of Ashland Creek and Reeder Reservoir, which could impact water quality.	Reservoir Trail decommissioned. Minor, short-term water quality impacts possible from use at stream crossings. Neutral effects on water quantity.	Same as Alternative 2.
Effects on Late-Successional Reserves	Disturbance Acres in LSRs	No change. Existing disturbance area associated with roads and System Trails is 5,046 acres. Existing historic and unapproved trails contribute an additional 1,558 acres of disturbance in LSRs.	Alternative 2 would result in a net increase of 3.4 acres of long-term habitat modification in LSRs.	Alternative 3 would result in a net decrease of 1.8 acres of long-term habitat modification in LSRs.
	Trail Density	No change. Existing trail densities range from 0.04 to 1.2 miles per square mile.	Trail densities would range from 0.04 to 1.5 miles per square mile.	Comparable to Alternative 2 (differences not notable at watershed scale).

Relevant Issue	*Indicator*	*Alternative 1*	*Alternative 2*	*Alternative 3*
Effects on Late-Successional Reserves	Late-Successional and Large Mid-Successional Habitats within 100 Meters of Roads or Trails	No change. About 3,107 acres (29%) of LSR within 100 meters of roads, System Trails, and existing historic / unapproved trails.	Net increase of 73 acres of LSR within 100 meters of roads and new System Trails compared to Alternative 1.	Net decrease of 159 acres of LSR within 100 meters of roads and new System Trails compared to Alternative 1.
Effects on Northern Spotted Owl and Their Habitat	Disturbance of nest patches or core areas	Long-term disturbance to one nest patch (33 acres) and two core areas (126 acres).	Long-term disturbance to one nest patch (33 acres) and two core areas (142 acres).	No long-term disturbance to nest patches, no net gain in disturbance to core areas.
	Impacts within designated critical habitat	0.1% of Critical Habitat Unit in action area affected.	0.1% of Critical Habitat Unit in action area affected	<0.1% of Critical Habitat Unit in action area affected.
Effects on Pacific Fisher and Their Habitat	Impacts to fisher habitat	Long-term disturbance to 6% of denning/resting habitat, 6% of forage/dispersal habitat in LSR.	Net increase in long-term disturbance to 1% of denning/resting habitat, 3% of forage/dispersal habitat in LSR.	Reduction in total disturbance to denning/resting habitat, net gain in long-term disturbance to 0.1% of forage/dispersal habitat in LSR.

2.5 Project Design Criteria, Mitigation Measures, Monitoring, and Enforcement

2.5.1 Project Design Criteria and Mitigation Measures

Project design criteria (PDC) were used in developing the action alternatives and would be employed during on-the-ground project design/implementation. Project design criteria address the overall objectives (attain the purpose and need) and resource objectives (manage consequences) of a proposed action, and were developed by the IDT to address site-specific environmental site-specific environmental concerns and to meet the Standards and Guidelines in the Rogue River-Siskiyou National Forest Land and Resource Management Plan (LRMP) (USDA Forest Service 1990) (see Section 1.5, *Management Direction*, in Chapter 1). Table 2-9 summarizes the PDC that would be implemented under the action alternatives.

Other elements that would manage the consequences of the action alternatives during implementation are termed Mitigation Measures, and are also summarized in Table 2-9. In general, these mitigation measures are consistent with the water quality best management practices (BMP) provided in the *National Best Management Practices for Water Quality Management on National Forest System Lands* (USDA Forest Service 2012) and *General Water Quality Best Management Practices* (USDA Forest Service 1988) and would be implemented, as appropriate, to ensure compliance with the Federal Clean Water Act (CWA) and state water quality programs.

2.5.2 Monitoring

Monitoring is a required element of all action alternatives and would be carried out according to a Monitoring Plan. A Monitoring Plan would be incorporated by reference and made an attachment to the Decision Notice if an action alternative for the Ashland Trails Project is selected. This sequence allows the Monitoring Plan to be developed specifically for the alternative selected, and to be specific to the area(s) where actions would be authorized.

One component of the Monitoring Plan would consider ongoing trail use. Specifically, use of the trails would be monitored to determine if they are meeting the objectives of the proposed action. Administrative changes may be made to designated managed uses in the future, if necessary, to reduce user conflict or improve recreational experience.

2.5.3 Enforcement

Under all alternatives, the Forest Service would continue to enforce managed uses within the action area consistent with the LRMP, implementing regulations, and other guidance. The following Closure Orders specifically apply to recreation uses within the action area. The enforcement of these closure orders is generally reflected as PDC GEN-12 in Table 2-9 below.

- Order No. RSF-101 – Use of Vehicles Off National Forest System Roads – Rogue River-Siskiyou National Forest. This order prohibits use of vehicles, including non-motorized

vehicles, off Forest Development Roads within the Ashland Watershed, as well as use of motorized vehicles on Forest Development Roads and segments within the Ashland Watershed when the road or segment is posted closed to such vehicles. This order includes an exemption to allow bicycle use on Forest Service trails posted open to bicycle use.

- Order No. RRF-002 – Fire and Occupancy and Use. This order prohibits building, maintaining, attending or using a fire, campfire, or stove fire in the Ashland watershed and general vicinity. It also prohibits camping in the Ashland watershed and general vicinity.

Table 2-9. Project Design Criteria and Mitigation Measures for the Ashland Trails Project

No.	*Project Design Criteria and Mitigation Measures*
General	
GEN-1	The exact location of the trail may be refined in the field to accommodate topography, soils, available materials, degree of trail difficulty, and to avoid sensitive areas, such as seeps, springs, and sensitive plant and wildlife species.
GEN-2	All trails will be constructed to minimize erosion, avoid natural water courses, and avoid sensitive riparian areas and plants to the extent possible.
GEN-3	All trails will be designed to minimize sustained steep pitches, grade reversals, and to reduce the chance for water to gain enough speed to recruit and encourage erosion. Rock needed for trail stabilization, sediment traps, and erosion control will be from on-site sources.
GEN-4	Forest clearing in the proposed trail corridors will be reduced to the extent practical through careful trail design and layout.
GEN-5	All trails will be laid out to avoid removal of trees with a diameter-at-breast height (dbh) greater than 6 inches. Coarse woody debris greater than 6 inches dbh will not be moved, but will have the portion on the trail tread cut to the width of the tread and placed to the side of the trail.
GEN-6	Trail tread will be cleared of all organic material down to mineral soil. When practical, all removed vegetation will be used to revegetate off-trail disturbed areas.
GEN-7	Perennial waters will be avoided or spanned by bridges or similar man-made features, where necessary, based on the width of the crossing, use level, type of use, and stream flow. Bridges, if necessary, will be built using a combination of treated and untreated wood or steel and composite materials. Any use of treated wood will be in accordance with Western Wood Preserves Institute *Best Management Practices for the Use of Treated Wood in Aquatic and Wetland Environments* (WWPI 2011).
GEN-8	Intermittent waters will be crossed by hard fords as necessary.
GEN-9	Revegetation, where applicable, may include topsoil replacement, planting, and seeding, and will occur in accordance with Forest Service botanist prescriptions.
GEN-10	All trails will be signed with uses that are excluded, and all multiuse trails will be signed with trail etiquette guidelines to reduce user conflict.
GEN-11	All trails will be designed to Trail Class 2 standards, as provided in as provided in the *Trails Management Handbook* (FSH 2309.18).
GEN-12	Trail use will be monitored to determine if it is consistent with the managed uses identified for each trail. Closure orders, including user restrictions, may be issued and enforced by Forest Service law enforcement officers if it is determined managed uses are not being adhered to.
Water Quality	
WQ-1	Stream crossing approaches on both new and reconstructed trails will be designed to minimize sedimentation by reducing diversion potential; avoiding deeply incised streams with steep side slopes; using native rock sources to armor approaches on soils with a high erosion rating; and avoiding long approaches that allow water to concentrate, erode trail tread and deliver fine sediment.

No.	*Project Design Criteria and Mitigation Measures*
WQ-2	All trail stream crossings will meet the following to the extent practicable: (1) contain little to no fine fill material; (2) provide for unrestricted stream flows; and (2) avoid stream capture. Stream crossings that must use conveyance structures, such as culverts, will be inspected yearly and maintained when needed.
WQ-3	Legacy sediment sources, such as gullies, head cuts, and fill material in stream crossings, that are associated with existing historic or unapproved trails in the action area will have stabilization techniques applied during trail reconstruction or decommissioning. If trails are re-routed to avoid these areas, stabilization techniques will be applied during the decommissioning process. Example of stabilization techniques include water bars, check dams, waddles, fill and culvert removal, and planting and seeding.
WQ-4	Existing historic and unapproved trail segments proposed for decommissioning will be recontoured where needed to eliminate erosion. All fill will be removed from channels and stream banks will be recontoured to mimic the upstream and downstream banks to the extent possible. Adjacent duff or litter will be moved to cover trail tread and the trail will be obscured by placing branches and small diameter course wood.
WQ-5	During trail maintenance, reconstruction, and decommissioning, all displaced soil or fill materials will be placed in locations where they are unlikely to be discharged to streams, to the extent practicable.
WQ-6	Signs will be installed at the White Rabbit and Four Corners trailheads providing guidance to trail users on the proper disposal of pet and human waste. The signs will indicate that all waste must either be removed using a disposal waste bag, or buried. In all cases, buried waste must be located at least 200 feet from any waterbody and buried at least 6 inches deep.
WQ-7	All gas powered equipment used for trail construction, re-construction, and maintenance will be refueled at least 150 feet from all watercourses (intermittent and perennial).
WQ-8	Trail conditions will be monitored in the wet months for excessive rutting, erosion, or sediment delivery to streams. As necessary, additional erosion control devices may be employed locally to address these conditions, and/or the trail may be closed seasonally to mitigate short-term impacts.
Soils and Slope Stability	
GEO-1	Additional consultation by a geologist or soil scientist will be completed during trail design and layout when any of the following landscape characteristics are found in the vicinity of a proposed alignment. Field review will be used to inform adjustments to segment locations to avoid potentially high risk slope failure areas. ▪ Slope aspect. Northerly and easterly aspects that tend to hold more water on site longer and have developed deeper soil / decomposed granitics layers. ▪ Slope shape. Concave slopes that concentrate surface and ground water, and/or are characterized by deeper soil / decomposed granitics layers. ▪ Position of trail on the slope. Trail locations at or near obvious changes in slope gradient (which are typically inherently less stable). Trails on lower slope positions where there is potential for higher ground water flows. ▪ Slope gradient. Trails being proposed on slopes of 75% or greater, or trails on slopes between approximately 50% and 75%.

No.	Project Design Criteria and Mitigation Measures
	▪ Slope complexity. Simple slope complexity (smooth linear or curvilinear slopes) that have no complex topography to slow and catch soil movement, such that a failure would flow directly to stream channels. ▪ Stream/draw crossings. Multiple crossings of individual drainages. ▪ Trail concentration. Multiple trail segments on an individual slope.
Aquatic Resources	
AQ-1	A fisheries specialist will be consulted prior to constructing any stream crossings on fish-bearing streams.
Botanical Resources and Invasive Plants	
BOT-1	The location of the trail start point(s) and route(s) in the vicinity of Forest Road 20 will be determined with the assistance of a Forest Service botanist so that disturbance to the Howell's tauschia (*Tauschia howellii*) population at that location is minimized. Additional measures, such as rock-lined trail borders or awareness signs, may be used in this area to discourage trail users from leaving the trail.
BOT-2	The Split Rock Trail in the McDonald Peak vicinity will be located to avoid the known population of Howell's tauschia.
BOT-3	The Split Rock Trail route through the two populations of Henderson's horkelia (*Horkelia hendersonii*) will be determined with the assistance of a Forest Service botanist to minimize the loss of horkelia plants.
BOT-4	A Forest Service botanist will assist in choosing the trail route on other sections of Split Rock Trail where it may pass through or near patches of monument plants (*Swertia radiate*), Jaynes Canyon buckwheat (*Eriogonum diclinum*), and Whitney's hazardia (*Haplopappus whitneyi* ssp. *discoideus*).
BOT-5	The Forest Service will periodically monitor the first ½ mile of the Upper Time Warp trail from its start point on the crest to make sure recreational users trying to avoid lingering snowfields on the trail do not create braided routes and/or unduly disturb populations of Henderson's horkelia or Mt. Ashland lupine (*Lupinus aridus* ssp. *ashlandensis*). Preventive measures, such as an early season closure or awareness signs, will be considered if warranted.
BOT-6	A Forest Service botanist will search the Freak Went Flyer Trail route for clustered ladyslipper orchid (*Cypripedium fasciculatum*) and mountain ladyslipper orchid (*Cypripedium montanum*) once it is flagged but before construction begins. If either orchid is found, the trail will be re-routed to avoid them.
BOT-7	Two clustered ladyslipper orchid occurrences will be flagged for avoidance prior to decommissioning activities along the Reservoir Trail to ensure they are not trampled or otherwise damaged by construction activities.
BOT-8	The patch of three-toothed horkelia (*Horkelia tridentate*) on the section of the Winburn Trap Trail proposed for decommissioning will be marked for avoidance prior to decommissioning activities to ensure it is not trampled or otherwise damaged by construction activities.

No.	*Project Design Criteria and Mitigation Measures*
BOT-9	The three-toothed horkelia population occupying the old spur road in the SE ¼ of the NE ¼ of section 28 will be protected to extent practical by narrowing and confining the trend width, so that trail edge plants can survive when the old roadbed, currently unused, becomes part of Lower Marty's Trail.
BOT-10	All proposed new trails not specifically mentioned above and authorized for construction will be surveyed for Forest Service Sensitive and NWFP Survey and Manage vascular plants and bryophytes once routes are flagged but before trail construction begins. If Forest Service Sensitive or Survey and Manage species, or other species of local concern, are found, trails will be re-flagged/re-routed to the extent necessary to avoid impacting the viability of local populations.
BOT-11	New trails will be re-routed, where practical, prior to construction if invasive plants are found to be in the path of proposed new trails and there is concern that trail construction and trail use will lead to spread or expansion of the invasive plant population.
BOT-12	If new trails must be constructed through known invasive plant sites, or if ground-disturbing trail decommissioning or restoration activities must occur in infested areas, workers will be required to clean tools, clothing, and equipment, before moving beyond the infested area.
BOT-13	Before beginning construction of any new trails, workers will be required to check tools, clothing, and equipment for soil or seeds of invasive plants, and clean these items off-Forest or at roadside if contaminated.
Cultural Resources	
CUL-1	A qualified cultural resource specialist will review any changes in the design and location of trail reroutes that may become necessary during implementation due to unforeseen circumstances prior to construction.
CUL-2	A qualified cultural resources specialist will monitor construction of all trail segments where significant cultural resources are known to the vicinity.
CUL-3	If cultural materials are discovered during ground-disturbing activities, all work in that area will stop and the Forest Archaeologist will be contacted to determine the appropriate course of action. The proposed work may not resume in that area until the Forest Archaeologist determines that the activity will not cause an adverse effect to significant cultural resources.

2.6 Alternatives Considered but Eliminated from Detailed Study

In developing the proposed action, the Forest Service considered many different combinations of trails and trail uses within the action area. These initial trail proposals resulted in the eventual development of Alternative 2, derived in large part from AWTA's *Trails Master Plan* (AWTA 2011) and public input on that plan, and Alternative 3, which reflects the IDT's refinement of Alternative 2 to protect federally-listed species, Forest Service sensitive species, and management indicator species, and to better meet the multiple use mandates of the Rogue River National Forest LRMP and NWFP.

Although there are many other trail location and use combinations that could be combined to reflect other "stand alone" alternatives, the Forest Service has determined that the two action alternatives considered in this document reflect a reasonable range of alternatives that accomplish the purpose and need of the proposed action. The Responsible Official has the ability to eliminate specific trails from the selected alternative during the decision making process based on resource concerns, potential use conflicts, or other factors raised during the public comment period. As a result, with the exception of the following two alternatives, other specific trail proposals are not reflected as stand alone alternatives considered but eliminated in this EA.

2.6.1 Decommissioning Existing Unapproved Trails

Under this alternative, the Forest Service would decommission all existing unapproved trails within the action area. Specifically, 12.5 miles of existing unapproved trails would be "restored" to natural conditions, leaving 28.9 total miles of trails (including System Trails and existing historic trails) in the action area.

As described in Section 2.3, *Alternatives*, existing unapproved trails include trails that were constructed without Forest Service approval or oversight, but that may provide important recreational opportunities. Under the action alternatives, the location of some of these trails would be refined to minimize impacts to soil, water, cultural, vegetation and wildlife resources, and to discourage continued, unapproved trail proliferation, consistent with the purpose of the proposed action.

Many of the existing unapproved trails that would be decommissioned under this alternative (e.g., Lower Marty's, Jabberwocky, Upper and Lower Missing Link, Fell on Knee, Pete's Punisher, Poison Oak) are located in close proximity to the City of Ashland, where their loss would likely contribute to increased opportunity for user conflicts. Accordingly, decommissioning these trails would not be consistent with providing a sustainable non-motorized trail system in the vicinity of Ashland commensurate with public demand, and would not be consistent with the need of the proposed project. Moreover, under the action alternatives, where necessary, the location of these trails would be refined to minimize impacts to soil, water, cultural, vegetation and wildlife resources, and to discourage continued, unapproved trail proliferation, consistent with the purpose of the proposed

action. Accordingly, the Forest Service has identified ways to ensure that these trails, if included as System Trails, are sustainable and meet the multiple use mandates of the LRMP.

Because decommissioning existing unapproved trails would not meet the purpose and need of the proposed action, and because the Forest Service has identified ways to generally manage these trails as sustainable System Trails, this alternative was eliminated from detailed consideration in this EA.

2.6.2 Safe Trail Plan Alternative

The Forest Service also considered information provided during the scoping process by equestrian users (i.e., the "Safe Trails Plan for the Ashland Watershed" proposal) in developing the proposed action alternatives. The proposed Safe Trails Plan identified specific actions for the trails in the action area including separating users, removing current uses on existing System Trails, retaining some trails for equestrian use that are proposed for decommissioning, and designating some directional trails.

Many of the general recommendations provided in the Safe Trails Plan have been incorporated into the action alternatives. For example, both action alternatives include new System Trails open to equestrian use on the west and south sides of the action area, which the Safe Trails Plan indicates are the safest and most suitable areas for horses. Specifically, the Split Rock Trail would be open to equestrian use under both action alternatives, and all existing System Trails, including trails on the south and west side of the action area (e.g., Bull Gap Trail, Upper Horn Gap Trail), would remain open to all non-motorized uses, including horses. While the action alternatives do not allow for equestrian use on all west and south side trails requested in the Safe Trails Plan, the Forest Service believes the current alternatives provide adequate opportunities for dispersed and safe use by all user groups.

Both action alternatives also include new loop trails of different lengths that disperse use across the action area. As noted above, some of the trails that would be added as System Trails under the action alternatives (e.g., Split Rock, Wagner Glade) are located on the west side of the action area to direct use away from Ashland. New System Trails would also be added around Ashland, and uses separated to reduce user conflict. As summarized in Table 3-3 in the EA, about 9.9 miles (21.2%) and 8.0 miles (19.6%) of trails in the action area would be managed to "isolate" bicycle use under Alternatives 2 and 3, respectively (i.e., trails would either only allow bikes, or only allow hiker/pedestrians and equestrians). Although the miles of trails where uses would be separated are not as extensive as suggested in the Safe Trails Plan, their locations reflect areas where user conflicts have historically been highest, and where use separation would be a prudent management option. The Forest Service would also continue to monitor managed uses on trails in the action area to determine if additional use separation is necessary to reduce user conflict.

As suggested in the Safe Trails Plan, both action alternatives would also provide signage describing excluded uses and trail etiquette on bulletin boards and within the trail system. The Forest Service agrees this signage is particularly important in the east side of the action area, where use and user conflict are highest.

The Safe Trails Plan also suggests that some trails proposed for decommissioning be re-purposed as equestrian trails, rather than closed to all uses. The trails proposed for decommissioning under the action alternatives were specifically identified for closure and rehabilitation by the IDT because their design is not sustainable (i.e., use is resulting in unacceptable adverse impacts to soil, water, cultural, vegetation, and wildlife resources) or they do not offer a desirable recreation opportunity. For example, the Pete's Punisher Trail was identified to be decommissioned under both action alternatives because the grades are too steep, there is a significant potential for erosion, and there are concerns for impacts to wildlife. Similarly, the Windburn Trap Trail would be decommissioned under Alternative 3 due to its proximity to spotted owl nest sites. Re-purposing trails proposed for decommissioning solely for equestrian uses, as suggested in the Safe Trails Plan, would not be consistent with the purpose of the proposed action: to provide for an adequate and sustainable trail system that minimizes impacts to soil, water, cultural, vegetation, and wildlife resources.

Designating directional trails as suggested in the Safe Trails Plan was not considered in the EA since it is expected that ongoing user conflict issues would be addressed through the addition of new System Trails, including trails that disperse use away from Ashland, and the designation of managed uses on some trails in high use areas. However, as noted above, monitoring would be used to determine if further management actions, such as designating direction trails, would be needed on trails to address continued user conflicts.

Finally, some of the trail specific recommendations provided in the Safe Trails Plan were included in one or more of the action alternatives. For example, under both action alternatives, equestrians and pedestrians would have a loop opportunity on the Bandersnatch and Red Queen Trails that would be free of bikes and that would start at the parking area above Lithia Park. Further distance could be added to this loop by continuing south on the 2060 Road to the Caterpillar Trail (where all non-motorized uses are allowed) and on to the Lewis Loop Trail (where bikes would not be allowed). Other recommendations in the Safe Trails Plan were not considered feasible or incorporated into alternatives in the EA. For example, both action alternatives limit the use of the No Candies Trail to pedestrians and bicycles. The Forest Service believes that the design and alignment of this trail – which is twisty and narrow with very limited site distance - is not best suited as a multiple use trail accommodating horses. The suggestion of removing bikes from the Toothpick Trail would detrimentally affect a large portion of the current use of the trail by requiring bikes to go down Tolman Creek Road, rather than the preferred route of continuing on the Toothpick Trail down to the Caterpillar Trail. Similarly, the suggestion to designate Ric's Trail as a bicycle trail and Catwalk Trail as a pedestrian/hiker and equestrian trail would conflict with longstanding use patterns in the action area, and present additional enforcement and user conflict concerns. In fact, the decision to designate Ric's Trail as a hiker/pedestrian and equestrian use trail was made, in part, to provide hikers and runners an option for accessing the 4 Corners Trailhead off of Tolman Creek Road without the potential for conflict with bicycles and encroachment onto private property. While both of these options may be preferred by equestrian users, the Forest Services believes that maintaining multiple use access in these locations will provide access for as many recreational users as possible in a high demand location.

CHAPTER 3 – AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

This chapter describes the environment that may be affected by the proposed action, as well as the direct, indirect, and cumulative effects of the alternatives. The chapter is organized by the relevant and other issues described in Section 1.8, *Issues*, in Chapter 1, *Introduction*.

The following provides a summary of the action and analysis areas considered in this chapter; the alternatives analyzed in detail; the types of effects considered (direct, indirect, and cumulative); and a list of reasonably foreseeable projects considered in assessing cumulative effects.

3.1.1 Action Area and Analysis Area

As described in Section 1.2, *Purpose and Need*, the area where the proposed action would occur is referred to as the *action area* (Figure 1-1). The action area encompasses approximately 12,700 acres in the Rogue River-Siskiyou National Forest and is generally bound on the northeast by the City of Ashland; on the east and south by the Forest boundary; on the west by the Ashland Municipal Watershed boundary; and on the northwest by the Forest boundary. A small portion of the action area occurs on the Klamath National Forest, where about 1,200 feet of one trail (the Split Rock Trail) is located within that National Forest boundary (Figure 1-1).

The *analysis area*, or the area used to characterize the affected environment and to assess the environmental effects of the alternatives, is also identified for each issue. In some cases, the action area and the analysis area are the same. For other issues, the analysis area extends beyond the boundary of the action area to account for potential effects outside the action area. For example, the analysis area for assessing potential impacts to the McDonald Peak Inventoried Roadless Area (IRA) encompasses the entire 9,425 acres associated with the IRA, including portions within and outside the action area. The analysis area for each issue considered in this Environmental Assessment (EA) is defined in the introduction to its respective section.

3.1.2 Alternatives Evaluated

As described Chapter 2, *Alternatives*, three alternatives are evaluated in detail in this EA: Alternative 1 (No Action), Alternative 2 (Proposed Action), and Alternative 3 (Preferred Alternative). As required by the National Environmental Policy Act (NEPA), Alternative 1, which indicates what would happen if the proposed action were not taken, and provides a baseline to evaluate the impacts of the action alternatives. Refer to Chapter 2 for a detailed description of the actions associated with each alternative.

3.1.3 Direct and Indirect Effects

The direct and indirect effects of each alternative are considered in this chapter. Direct effects are caused by the federal action and occur at the same time and place as the action (40 Code of Federal Regulations [CFR] 1508.8[a]). Indirect effects are those that are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable" (40 CFR 1508.8[b]). Both direct and indirect effects can be *beneficial* (improve or move towards desired future conditions); *neutral* (highly unlikely to be measurable); *negative* (measurable effects, yet beneficial uses supported); or *adverse* (measurable effects, beneficial uses unsupported). The temporal scales for direct and indirect effects are described as being either short- or long-term in duration. Short-term is usually 1 to 3 years, but can be up to 10 years. Long-term is any effect that persists for more than 10 years.

3.1.4 Cumulative Effects

NEPA defines cumulative effects as "the impact on the environment which results from the impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such actions" (40 CFR 1508.7). Table 3-1 summarizes the present and reasonably foreseeable actions that have the potential, when combined with the effects of the proposed action, to result in cumulative effects. These actions are based on their proximity to the action area, or their proximity to a resource-specific analysis area, where that action may have a cumulative effect on a resource potentially affected by the proposed action.

For this analysis, past actions are assumed to have contributed to the current condition described in this chapter and are not specifically listed in Table 3-1.

Table 3-1. Reasonably Foreseeable Actions Considered in Cumulative Effects Analysis

Action	*Location*	*Description*
Ashland Forest Resiliency Project	Rogue River-Siskiyou National Forest	Landscape fuels reduction project to reduce the risk of large-scale fire within the Ashland Municipal Watershed. This project, which involves treatment of 7,600 acres within the Rogue-River Siskiyou National Forest, overlaps the action area associated with the proposed action. Implementation of this project in the spring of 2010. Project completion is anticipated for 2020.
Mt. Ashland Ski Area Expansion Project	Rogue River-Siskiyou National Forest, Ashland Creek Watershed, 7 miles south of the City of Ashland.	Proposal to expand a portion of the Mt. Ashland Ski Area to provide additional recreation opportunities. Specific project components authorized under the Forest Service Special Use Permit include construction of two chairlifts, two surface lifts, and approximately 71 acres of associated new ski terrain; approximately 4 acres of clearing for lift corridors, heliport, and staging area; a 4 acre tubing facility; three guest service buildings and a yurt; additional night lighting; additional maintenance access road segments; additional utility lines and snow fences; an increase in parking by 220 spaces; and several watershed restoration projects. A total of 68 acres of

Action	Location	Description
		trees would be removed. The Forest Service published the NEPA Record of Decision for the Supplemental Environmental Impact Statement for this action in May 2011 (USDA Forest Service 2011). The sponsor is currently soliciting funding for implementation of this project.
Plant Reintroduction Efforts	McDonald Peak Botanical Area	The Forest Service is currently completing several targeted restoration efforts in the McDonald Peak Botanical Area, including revegetation and plant re-introduction efforts. One of those actions, a whitebark pine re-introduction effort would occur in the vicinity of the Split Rock Trail.
City of Ashland Trail Reroutes	City of Ashland	It is anticipated City of Ashland will reroute existing trails adjacent to the action area to realign them with the trail system implemented as a result of the proposed action. This reasonably foreseeable future project is contingent on the alternative selected by the Responsible Official.

3.2 Attainment of Purpose and Need

As described in Section 1.2, *Purpose and Need*, in Chapter 1, *Introduction*, the *need* for the proposed action is to provide a sustainable non-motorized trail system in the vicinity of Ashland commensurate with current public demand, and consistent with natural resource management responsibilities and Forest Service capabilities, that reduces user conflict through trail design, use designation, and management. The *purpose* of the proposed action is to provide for an adequate and sustainable trail system that minimizes impacts to soil, water, cultural, vegetation, and wildlife resources and discourages unauthorized trail proliferation.

This section compares the alternatives and analyzes the extent to which each meet the purpose and need of the proposed action, particularly as it relates to recreation, in and adjacent to the action area. An assessment of the effects of the proposed action on soils, water, cultural, vegetation, and wildlife, and the ability for the alternatives to “minimize” impacts to those resources consistent with the purpose of the proposed action and other Forest Service mandates, is provided in Sections 3.3 and 3.4 of this chapter. For the purpose of this section, the analysis area encompasses all of the trails within the action area and some of the adjacent City trails located outside of Forest Service lands, where those trails connect directly with trails in the action area.

3.2.1 Background

Historic Recreational Uses

Recreation use in the Ashland Watershed was first promoted by the City of Ashland in the early 1900s. The City helped finance a road several miles up Ashland Creek and touted the area as “Ashland’s Grand Canyon.” Tourists and residents traveled by wagons (and later, automobiles) to a saddle on Winburn Ridge. From that point, some visitors followed the Mt. Ashland Trail (now known as the Time Warp Trail) to Mt. Ashland (LaLande 1980).

Other recreational use in the area during this timeframe likely utilized trails that led from the upper Bear Creek Valley to the Siskiyou Crest. These trails included one in the Neil Creek area and one on the main ridgeline that divides Ashland Creek from Neil, Clayton, and Tolman Creeks. Although not constructed for recreation purposes, forest users most likely used these trails for fishing, hunting, and sightseeing.

The next major development that affected recreation use in the analysis area was the construction of Ashland Loop Road by the Civilian Conservation Corps in 1937. This road began above Lithia Park and passed through Four Corners, Bull Gap, and Mt. Ashland before continuing west along the Siskiyou Crest. It terminated near the mouth of Beaver Creek on the Applegate River. Although "built primarily for fire and timber harvest access, the 75-mile long road…provided some magnificent mountain scenery previously available to only a hardy few" (LaLande 1980). This road was no doubt popular with local residents and tourists. It also provided access to a small Civilian Conservation Corps built ski shelter and ski run known as Trail Camp, located just outside the Ashland Watershed near the headwaters of Clayton Creek.

A less significant development was the Bull Gap "Campground" or "Picnic Ground." Civilian Conservation Corps records indicate a start work date of July 1, 1936 for campground construction, although 1937 and 1948 Forest maps do not show a campground at this location. According to long-time locals, there was an established picnic ground at this location by the early 1950s. The picnic ground included five picnic sites, a fence, outhouses, and a small water development (spring box and mortared stone fountain/hydrant). The site was dismantled in the early 1970s and currently serves as a trailhead for the Bull Gap Trail (Johnson pers.com.).

In the late 1950s and early 1960s, additional Forest Roads were constructed in the Ashland Watershed and Neil Creek drainage for timber harvest and fire access purposes. These roads (Roads 2060 and 2080 with their various spurs) provided vehicular access to areas that previously could only be reached by trails. From 1960 to the late 1980s, these roads were used on an increasing basis by the recreating public. Due to resource damage concerns, safety issues, and conflicts between motorized and non-motorized users of these roads, the Forest Service closed most of Road 2060 and its spur roads to motorized use except for administrative purposes. Road 2080 remains open to the public.

Current Recreational Uses

The analysis area currently provides high quality dispersed recreation opportunities, as well as limited developed recreation sites. The three primary dispersed uses are mountain biking, hiking, and running. The Mt. Ashland Ski Area provides a developed winter attraction within the upper reaches of the analysis area. Recent skier visitation figures at the ski area show an average of 70,000 to 80,000 visits per year. Other recreation pursuits include hunting, fishing, horseback riding, Nordic skiing (including backcountry skiing), snowshoeing, dog walking, picnicking, scenery and nature observation, and photography.

Excluding skiers at the Mt. Ashland Ski Area, hikers, runners, and mountain bikers dominate current recreation uses within the analysis area. Hikers have been using the area for over 100 years and this activity remains popular among both residents and tourists. The areas closest to the City are the most

heavily used, with access to Forest Service lands within walking distance (under 2 miles) for many residents who use City streets and trails located in Ashland's urban/wildland interface. Many hikers use Road 2060, which is closed to vehicles throughout its length except for the portion between Morton Street and the White Rabbit trailhead. The heaviest use occurs on the lower reaches of Road 2060 (both ends) and on the BTI, Alice in Wonderland, White Rabbit, Toothpick, Jabberwocky, and Caterpillar Trails, all of which are near or adjacent to the City. This use occurs on a year-round basis. Hiker and runner use generally declines where trails are located further away from the City due to longer access or snow cover. However, during the summer months, almost all trails (and roads closed to vehicle traffic) see use on a daily basis.

Mountain bikers, including both downhill and cross-country cyclists,[1] began using the area in the early to mid-1980s. This recreation activity has grown extensively since the 1980s on a local, national and world-wide basis. Relative to hikers and to some extent runners, this use is more widespread throughout the analysis area. Popular routes include the Lithia Loop, which starts and ends at Lithia Park by following Road 2060 for most of its 24-mile length. Another popular route is the Crest to Crest route, which extends from the Bear Creek Greenway to Mt. Ashland via a series of roads and single-track trails. Other routes and loops in the analysis area follow the Horn Gap, Eastview and Bull Gap Trails.

Of the remaining recreation activities, those walking or running with their dogs comprise the largest percentage of users. During the winter months, the Bull Gap Nordic Trail is a popular destination. Nordic skiers also ski to the City from Mt. Ashland after storm events with low snow levels (2,000-2,500 feet elevation). Equestrians also use the area, but not nearly as frequently as most other users, in large part due to steep roads that are difficult to access and provide limited parking for trailers.

Eight special-use permits are issued each year for running and mountain bike events. Hunting and fishing use has decreased since the 1990s due to more difficult access caused by road closures.

Developed recreation sites are limited to minimally developed trailheads and the Mt. Ashland Ski Area. Camping is not allowed within the Ashland Watershed or portions of the Tolman and Clayton Creek drainages.

Off-Highway Vehicle (OHV) use is prohibited within the Ashland Watershed, and on all System Trails in the analysis area (along with all other motorized uses).

Based on observations by Forest Service personnel and the use of trail counters, overall use was conservatively estimated at 16,000 visits per year in 2000 (USDA Forest Service 2000). However, recreation use has increased substantially since that time. In 2008, it was estimated that visits exceeded 50,000 per year within the Forest boundary (USDA Forest Service 2008). Use within the

[1]The International Mountain Bike Association (IMBA) describes *downhill mountain bikers* as advanced riders who use sophisticated equipment specifically designed for descending challenging trails. Since downhill bikes are heavy, riders tend to seek access to a road for a vehicle shuttle to the top. Similarly, IMBA describes c*ross-country mountain bikers* as experienced cyclists and race-oriented riders who are comfortable in the backcountry, typically self sufficient and carry tools, water, food, clothing, and sometimes a first-aid kit.

urban/wildlife interface on City and private lands is most likely even greater due to its close proximity to homes and businesses. In *Forest at Ashland's Doorstep*, Hess (1986) found that Ashland provides a high quality recreation experience to an increasing number of users in a dispersed setting that is highly valued by local residents and visitors.

Trail Use and Conditions

Table 3-2 summarizes the miles of System, existing historic, and existing unapproved trials within the action area currently (Alternative 1), as well as miles of trails proposed under each action alternative. Refer to Tables 2-2 and 2-3 in Chapter 2, *Alternatives*, for a complete listing of trails and their status.

Table 3-2. Miles of Trails in the Action Area under the Alternatives

	Alternative1		*Alternative2*		*Alternative3*	
Status	***Miles***	***% of Total[1]***	***Miles***	***% of Total***	***Miles***	***% of Total***
System Trails[2]	15.8	38.2	46.7[5]	100	40.7[6]	100
Existing Historic Trails[3]	13.1	31.6	0	0	0	0
Existing Unapproved Trails[4]	12.5	30.2	0	0	0	0
TOTAL	**41.4**	**100**	**46.7**	**100**	**40.7**	**100**

[1] Rounded to the nearest 1/10 of 1%

[2] *System Trails* are trails that are part of the system of approved trails in the action area, and that are currently managed by the Forest Service in accordance with current management plans and FSH 2309.18.

[3] *Existing Historic Trails* are trails that were at one time System Trails and that were identified on Forest Service maps but for unknown reasons were dropped from the system. Some of these trails are thought to have been constructed prior to 1910 and accessed fire lookouts and the Siskiyou Crest.

[4] *Existing Unapproved Trails* are trails that were constructed without Forest Service approval or oversight.

[5] Alternative 2 would also include decommissioning (including rerouting) 5.2 miles of existing historic or unapproved trails.

[6] Alternative 3 would also include decommissioning (including rerouting) 9.9 miles of existing historic or unapproved trails.

Trail System Sustainability and Unapproved Construction

Nearly two-thirds of the existing trails in the action area are unapproved and do not receive annual maintenance.[2] Lack of annual maintenance contributes to erosion and other issues, especially for those trails that were originally built with unsustainable configurations or inappropriate locations. Figure 3-1 provides representative illustrations of *sustainable* and *unsustainable* trails. A sustainable trail reflects a condition where soil movement is limited to that which can be addressed through annual or bi-annual maintenance. Unsustainable sections of trail may need a minor reroute (less than 100 feet), major reroute (greater than 100 feet), or the addition or reworking of drainage structure to dissipate water (e.g., rolling dips, change in grade). It should be noted that many of the existing unapproved trails in the action area that were constructed in this decade are nearly sustainable, or only need minor work. Examples include No Candies and Upper / Lower Missing Link Trails. Other

[2] In very few cases, the Forest Service has authorized some limited maintenance on existing historic trails, primarily Upper Time Warp and Wagner Glade, to address drainage concerns.

existing unapproved trails, such as Insane Drop, are nearly 100% unsustainable. Section 1.5.4, *Sustainable Recreation*, in Chapter 1, *Introduction*, provides additional context for the Forest Service management direction specific to sustainable recreation on Forest Service lands.

About one-third of the trails within the action area are System Trails that receive annual maintenance. Although approved, these trails are not free of problems due to high user rates, and improper design for such high use. Focused drainage work along with minor reroutes of some trail alignments is ongoing.

In 2007, the Forest Service (and others) started observing unapproved trail building and began receiving more and more reports of user conflicts. Since that time, a number of unapproved trails have been constructed and use continues to increase, particularly within the downhill mountain bike community. Unapproved trail construction peaked in 2010, when a mini-excavator was used to construct a series of trails in the area below Coggins Saddle (Four Corners). It became apparent that immediate collaboration with user groups and the City was necessary to address this ongoing problem.

Unapproved trail construction in the analysis area has slowed greatly since 2010, largely due to greater efforts to educate and involve the community in developing a sustainable solution. Increased law enforcement has also led to less "rogue" trail building. However, it is unknown if unapproved construction has completely stopped.

Use and Demand

As described above, over the last decade, running, hiking, and mountain bike use within the analysis area has grown dramatically. Forest Service trail counter data collected between 2001 and 2008, along with more recent data collected by the Ashland Woodlands and Trails Association (AWTA), indicate that yearly visits exceed 50,000.[3] Although some data is suspect due to equipment malfunction and/or operator error, the numbers show an upward trend in use, which has been empirically observed by Forest Service and City employees, trail users, and advocacy groups, such as AWTA and the Rogue Valley Mountain Bike Association. For example, a counter placed on the Toothpick Trail from May through November[4] in 2009 and 2011 recorded an average daily count of 65 visits, which equates to 11,960 visits over a 6 month timeframe. Although use drops on this trail (and other relatively low elevation trails) during the winter months, it picks up again in April. As a result, a conservative estimate of annual use on the Toothpick Trail is 15,000 visits per year.

There are similar use numbers for other low elevation trails, such as White Rabbit, Jabberwocky, and Alice in Wonderland, the latter of which averaged 48 visits per day over a period of 677 consecutive

[3] Trail count data provided in this section has been adjusted to account for "out and back" users, meaning that total counter visits have been divided by two to account for one visitor. Conversely, if a person only passed by the counter once, it would be counted as half a visit. This latter example is a common occurrence in the Caterpillar / White Rabbit Trail areas where a runner may run up Road 2060 to Lamb Saddle, but come back down via the Caterpillar and White Rabbit Trails.

[4] Excludes the month of September.

days in 2007 and 2008. Use is lower at the higher elevation trails due to snowpack and distance from Ashland. However, due to the very high growth rate of downhill mountain biking in the area, use of the Upper Time Warp, Bull Gap, and Upper / Lower Missing Link Trails has increased substantially in the past few years. These trails are used as part of a single track trail from Mt. Ashland to the City of Ashland. Estimated use on the Bull Gap and Upper / Lower Missing Link Trails are conservatively estimated at 4,000 visits per year. Upper Time Warp Trail use is estimated at 2,500 visits per year. Use is substantially less on the Wagner Glade and Split Rock Trails, which are primarily used by hikers, runners, and a few equestrians.

Data and personal observation suggest that 40% to 50% of recreational use in the analysis area occurs on the weekends, which can lead to trail congestion and user conflict between mountain bikers and hikers / runners. As a result of the increased use, users have created a myriad of confusing and unmaintained trails that are not approved by the Forest Service and, in some cases, are impacting natural resources. Similarly, conflicts between user groups are increasing in part due to increased use and the limited availability of authorized Forest Service trails within the analysis area.

Eight recreation events occur between late spring and early fall on trails in the analysis area, including those located on City of Ashland and Forest Service lands. One event, the Mt. Ashland Hillclimb Run has taken place since the 1970s. Approximately 700 runners and 850 bicyclists participate in these events, all of which are under permit to both the City and the Forest Service. These events are enjoyed by some trail users as spectators; others feel displaced to some degree.

User Conflict

Conflict happens when a person's expectations for his or her recreational experience are not met. This can occur as a result of contact with another user or through disturbance from the sound or physical evidence left by another user. Examples might include the sound of a dog barking or horse manure on a trail. The potential for conflict exists among all user groups and even among members of the same user group when personal expectations of the desired experience are not being met.

The primary user conflict in the analysis area is between downhill mountain bikers and pedestrians (hikers, runners, and dog walkers), and to a lesser extent, equestrians. Many pedestrians have expressed their frustration at near misses with mountain bikers, and many equestrians have abandoned single track trails in favor of riding on roads, as have some dog walkers.

Other factors that contribute to user conflict are inadequate trail design and increasing use. Inadequate trail design can contribute to conflict because of inadequate sight distance, sharp switchbacks, narrow trails directly down the fall line, and overall inconsistent design on a particular trail. With respect to increasing use, as described above, there are simply more users of all types on trails in the analysis area. This can be partially attributed to population growth; however, as AWTA provides in their *Trails Master Plan* (AWTA 2011), mountain biking and trail running have hit "critical mass." Recreation events for these two activities attract participants from throughout the country, some of which have moved to Ashland simply for the trail experience at the edge of town.

Photos 1A (left) and 1B (right): Examples of of Sustainably-Built Trail Segments in the Analysis Area (Toothpick & Lamb Mine), and the lack of surface water channelization or soil rutting and minimal surface erosion. Any localized soil movement is captured in immediately adjacent vegetation and litter.

Photos 2A (left) and 2B (right): Examples of Unsustainable, Existing Unauthorized Trails in the Analysis Area (a section of Lower Marty's and a section of Jabberwocky). Experiencing rutting and erosion down the tread due to steep trail gradient.

Photo 3: Example of trail braiding and widening due to rutting, creating excessive erosion and loss of organic matter (Jabberwocky).

Title/Notes:

Representative Sustainable and Unsustainable Trail Sections

Figure:

3-1

In general, user conflict increases the closer the trail is to Ashland, which is where the greatest use occurs. The area of greatest conflict is on the east side of Ashland Creek, in the vicinity of White Rabbit trailhead, on the Alice in Wonderland, White Rabbit, and Caterpillar Trails. Conflicts occur less frequently as users move upslope on the Toothpick and Catwalk Trails, but not significantly.

The level of access to trails also influences the types of recreational users and use levels, which can contribute to the number of conflicts between users. Trails on the east side of the Ashland watershed can be accessed through six locations: the White Rabbit trailhead, the White Rabbit Trail from the Siskiyou Mountain Park, the Toothpick Trail from the Tolman Creek Road, the Coggins Saddle (Four Corners) trailhead, the Bull Gap trailhead and the Mt. Ashland Ski area. Conversely, trails on the west side of the Ashland watershed can only be accessed from the Road 2060. This difference in access results in far more recreational use on the east side of the Ashland watershed than the west side, and influences the types of recreational users. The east side of the watershed sees more downhill mountain bike use since bicyclists are able to shuttle up to Four Corners, Bull Gap or the Mt. Ashland Ski area, whereas the west side is utilized more by cross country mountain bikers, dog walkers, and equestrians utilizing Road 2060.

3.2.2 Purpose and Need Elements

The following considers how well the alternatives address each of the following four recreation-related elements of the purpose and need statement for the proposed action.

- To provide a sustainable non-motorized trail system. This relates to the proposed design and maintenance of the trail system under the alternatives.
- To provide a trail system commensurate with public demand. This relates to current use levels and locations, and how they may change under the alternatives.
- To reduce user conflict. This relates to user conflict and how conflicts may change under the alternatives.
- To reduce unapproved trail proliferation. This relates to the past, ongoing, and anticipated future proliferation of unapproved trail construction in the action area.

As noted above, an assessment of the effects of the proposed action on soils, water, cultural, vegetation, and wildlife, and the ability for the alternatives to “minimize” impacts to those resources consistent with the purpose of the proposed action, is provided in Sections 3.3 and 3.4 of this chapter.

Provide a Sustainable Non-Motorized Trail System

Under Alternative 1, there would be no change in the current system of trails. Existing, unapproved trails (25.6 miles) would continue to degrade due to lack of maintenance and, in some cases, poor design (e.g., trails constructed directly down the slope). Over time, conditions would worsen and would not provide a quality recreation experience to users due to ruts, erosion, and general deterioration of the tread and clearing widths. Authorized System Trails (15.8 miles) would continue to receive maintenance associated with minor and major reroutes, which would contribute to the sustainability of those networks.

The action alternatives would close and rehabilitate between 5.2 miles (Alternative 2) and 9.9 miles (Alternative 3) of existing historic and existing unapproved trails. All of these trails, with the exception of the Reservoir Trail and several trails that would be closed under Alternative 3 to avoid northern spotted owl (*Strix occidentalis caurina*) habitat, are over 90% unsustainable and subject to erosion problems. Although decommissioning these trails would result in some users being displaced, none of the trails proposed for decommissioning receive high use, except for the Jabberwocky Trail, which would be completely relocated to a different alignment with a slope grade more conducive to sustainable, long-term use.

Both action alternatives would also authorize some of the existing historic and existing unapproved trails. Under Alternative 2, 21.5 miles of existing historic and existing unapproved trails would be authorized as System Trails, which would allow for needed maintenance. About 17.5 miles of existing historic and existing unapproved trails would become System Trails under Alternative 3. In addition, new trails would be constructed under both Alternative 2 (9.4 miles) and Alternative 3 (7.4 miles). All new trails would be constructed to sustainable design standards and would be maintained by the Forest Service, with assistance from volunteers and various user groups.

In summary, both action alternatives would address this element of the purpose and need statement through decommissioning between 5.2 and 9.9 miles of existing historic and existing unapproved, poorly designed and maintained trails; incorporating existing historic and existing unapproved trails into the approved Forest Service system to allow for needed maintenance; and by designing all newly proposed trails to standards that allow them to be sustainably managed over time.

Provide a Trail System Commensurate with Current Public Demand

As discussed above, the use of trails in the analysis area has been increasing for a number of years. Under all alternatives, this use is expected to continue to increase, particularly in areas easily accessible from Ashland.[5] Specifically, it is anticipated that the White Rabbit "bottleneck" area will become more congested over time, as will other eastside trails further upslope (Toothpick and Catwalk Trails) below the Four Corners area.

One measure of the ability of a trail system to meet public demand is total trail miles. Under Alternative 1, the Forest Service would continue to manage and maintain 15.8 miles of System Trails, although an additional 25.6 miles of existing historic and unapproved trails (not subject to maintenance or management by the Forest Service) would remain in the action area (Table 3-2). Under Alternative 2, a total of 46.7 miles of System Trails would be authorized in the action area. A total of 40.7 miles of System Trails would be authorized under Alternative 3 (Table 3-2). This increase in the total mileage of System Trails under both of the action alternatives (when considered

[5] The anticipated rate of growth is difficult to predict or quantify, and dependent on a number of factors, including the growth rate of the downhill mountain biking and ultra running communities, and ongoing demand by the local and regional community for access to high quality, outdoor recreational opportunities in and near the City of Ashland. One method of predicting use is through past and present population changes. From 1980 to 2005, Jackson County and southern Oregon's population grew by 47% and 106%, respectively (Jackson County 2007). For Jackson County, this reflected an average annual growth rate of 1.55%. In turn, Jackson County (2007) predicts an average annual growth rate of 1.47% through the year 2026, which equates to nearly 70,000 new residents between 2005 and 2026.

in combination with the opportunities for dispersed recreation, loop trails, and management for specific uses, as described in the following section) would better meet ongoing and future public demand compared to Alternative 1.

Reduce User Conflict

As the number of users and differing types of use continue to increase, it is likely that user conflict will also increase. As described above, both action alternatives would increase the mileage of System Trails in the action area compared to Alternative 1 by between 24.9 miles (Alternative 3) and 30.9 miles (Alternative 2). Moreover, both action alternatives would spread users over a greater geographic area, thereby lessening trail use density and contact with other users, and would limit allowed uses on some trails to reduce the potential for user conflict.

Specifically, in the east side of the action area, the addition of the Ric's, Upper Eastview, Upper / Lower Missing Link, and Freak Went Flyer (Alternative 2 only) Trails would direct more users to the Tolman Creek area, away from the White Rabbit trailhead, where use – and the potential for user conflict - are highest. The addition of these trails to the approved system would also offer several loop opportunities that would provide for improved recreational experience. Trail additions on the west side of the action area would also disperse users and provide loops of varying lengths by connecting the 2060 road system with the Wonder, Fell on Knee, Shaken, Not Stirred, and No Candies Trails. Further out, the Split Rock, Wagner Glade, Wagner Butte, and Upper Time Warp (Alternative 2 only) Trails would offer out and back and loop opportunities with the 2060 road system and could attract users from the more highly utilized trailheads around the City of Ashland.

User conflict would also be reduced under the action alternatives by developing trails systems that target and separate user groups in the eastside of the action area where use is the highest. Specifically, in the White Rabbit trailhead area, hikers/pedestrians and equestrians would be provided a loop opportunity with the Bandersnatch and Red Queen Trails, while bicycles would be provided access to the Jabberwocky Trail. In the Tolman Creek area, hikers/pedestrians and equestrians could utilize Ric's Trail, while bicycles would be provided access to Lower Marty's Trail. Existing System Trails, including the White Rabbit, Caterpillar, Alice in Wonderland, Catwalk, and Toothpick Trails, would remain open to all non-motorized uses, but would also offer new loop opportunities of various lengths with new System Trails under both action alternatives.

Table 3-3 summarizes miles of trails by managed use under each alternative. Under Alternative 1, all trails would continue to be managed for all non-motorized uses, including hiker/pedestrian, bicycle, and equestrian uses. Under the action alternatives, approximately 57% of trails within the action area would remain open to all non-motorized uses; about 21% (Alternative 2) and 23% (Alternative 3) would be managed for hiker/pedestrian and bicycle use; about 9% would be managed for hiker/pedestrian and equestrian use; and between 10% (Alternative 3) and 12% (Alternative 2) would be managed for bicycle use. It is anticipated that separating and managing uses in higher use areas (in combination with increasing the total trail mileage and dispersing use) would reduce the potential for user conflict under the action alternatives compared to Alternative 1. Importantly, as described in Section 2.5.2, *Monitoring*, both action alternatives would include a commitment by the Forest Service to monitor recreational use within the action area to (1) determine if the trail system is

meeting the objectives of the proposed action and (2) alter designated managed uses, if necessary, to reduce user conflict.

Finally, clear and concise information on trail use and availability, trail etiquette and accommodations would be developed in support of the action alternatives. Specifically, all trails would be signed with uses that are excluded, and all multi-use trails would be signed with trail etiquette guidelines to reduce user conflict. This information would be located at trailhead bulletin boards and within the trail system to improve user's knowledge.

In summary, it is expected that both action alternatives would reduce user conflict when compared to Alternative 1 by providing additional opportunities for dispersed recreation, specifying allowed uses on some trails, and providing clear and concise information on trail use, opportunity, and etiquette. Commitments to monitoring under both action alternatives would also be used to assess how well the proposed trail system and managed uses are meeting public demand and reducing user conflict. Although this element of the purpose and need may be better met under Alternative 2 due to the inclusion of the Winburn Trap, RIP 1 and Freak Went Flyer Trails, the frequency of user conflicts between bicycles and pedestrians would likely decrease under both action alternatives when compared to Alternative 1.

Table 3-3. Miles of Trails by Managed Use under the Alternatives

Status	*Alternative 1*		*Alternative 2*[3]		*Alternative 3*[4]	
	Miles	*% of Total*	*Miles*	*% of Total*	*Miles*	*% of Total*
All Non-Motorized Uses[1]	41.4[2]	100	26.9	57.6	23.2	57.0
Hiker/Pedestrian, Bicycle	0	0	19.9	21.2	9.5	23.4
Hiker/Pedestrian, Equestrian	0	0	4.0	8.6	4.0	9.8
Bicycle	0	0	5.9	12.6	4.0	9.8
TOTAL	**41.4**	**100**	**46.7**	**100**	**40.7**	**100**

[1] Includes hiker/pedestrian, bicycle, and equestrian

[2] Includes 25.6 miles of non-System Trails (i.e., existing historic and existing unapproved trails) that are not currently managed or maintained by the Forest Service.

[3] Refer to Table 2-4 in Chapter 2 for a summary of managed use for each trail under Alternative 2. All existing System Trails would continue to be managed for all non-motorized uses.

[4] Refer to Table 2-6 in Chapter 2 for a summary of managed use for each trail under Alternative 3. All existing System Trails would continue to be managed for all non-motorized uses.

Reduce Unapproved Trail Proliferation

Although unapproved trail proliferation has substantially been reduced since 2010, Alternative 1 would still present the greatest potential for a return to some level of unapproved trail construction in the future. The current system of trails (authorized and unapproved) is not meeting public demand. User conflict is increasing, and trail design is lacking for different groups. Despite increased law enforcement presence and education efforts by the Forest Service, AWTA, the Rogue Valley Mountain Bike Association, and the Ashland Forest Resiliency Partnership, it is anticipated that some individuals will attempt completely new trail construction, or will relocate portions of existing

trails. This is particularly likely in areas where existing trails are almost completely unsustainable (e.g., Insane Drop and Offshot), and difficult to either ride or walk.

Both action alternatives have less potential for unapproved trail proliferation compared to Alternative 1. Proper trail design and use designation would lessen the likelihood of new construction and would simplify enforcement efforts within the action area. The addition of between 24.9 miles (Alternative 3) and 30.9 miles (Alternative 2) of new System Trails under the action alternatives, and the separation of managed uses in high use areas, would better meet public demand and improve recreational experiences, which would also lessen the probability of trail proliferation. Although none of the alternatives would eliminate the potential for unproved trail construction, the action alternatives best address the root causes - over use and user conflicts – that drive the creation of many non-System trails.

3.2.3 Summary

Alternative 1 would result in the fewest miles of sustainable trails in the action area. This alternative does not meet current public demand, has the greatest potential for increased user conflict, and the highest likelihood of unapproved trail proliferation.

The action alternatives would provide a more sustainable trail system that would better meet current public demand while reducing user conflicts and unapproved trail proliferation. Of the two action alternatives, Alternative 2 would provide the most trail mileage within the action area (Table 3-2), and would provide additional opportunities for dispersed use in the eastern and southern portions of the action area. Increased mileage of System Trails over a greater geographic area with carefully designed and managed uses under the action alternatives would meet the purpose and need of the proposed action to a greater extent than Alternative 1.

3.3 Affected Environment & Environmental Consequences of Relevant Issues

As described in Section 1.8, *Issues*, in Chapter 1, *Introduction*, relevant issues are issues that suggest alternative actions, affect the design of the proposed action components, prescribe mitigation measures, and/or describe important and variable environmental effects. Four relevant issues were identified by the Interdisciplinary Team (IDT) for consideration in this EA.

- Potential effects on water quality due to erosion and sediment delivery (Section 3.3.1)
- Potential effects on late-successional reserves (Section 3.3.2)
- Potential effects on northern spotted owl and their habitat (Section 3.3.3)
- Potential effects on Pacific fisher and their habitat (Section 3.3.4)

3.3.1 Issue – Potential Effects on Water Quality Due to Erosion and Sediment Delivery

Background

The proposed action would occur within the Bear Creek 5th –field watershed of the Rogue River Basin. About 63% of the System Trails and existing historic and unapproved trails in the action area are within the Ashland Creek 6th-field subwatershed. The remaining trails within the action area are within the Neil Creek (24%), Hamilton Creek-Bear Creek (10%), Wagner Creek (2%), Upper Applegate River (<1%) and Cow Creek-Beaver Creek (1%) 6th-field subwatersheds. Figure 3-2 illustrates the location of the System Trails and other existing trails in reference to subwatershed boundaries. Table 3-4 lists the mileage of System Trails and existing / historic trails within the action area by hydrologic unit code (HUC).[6]

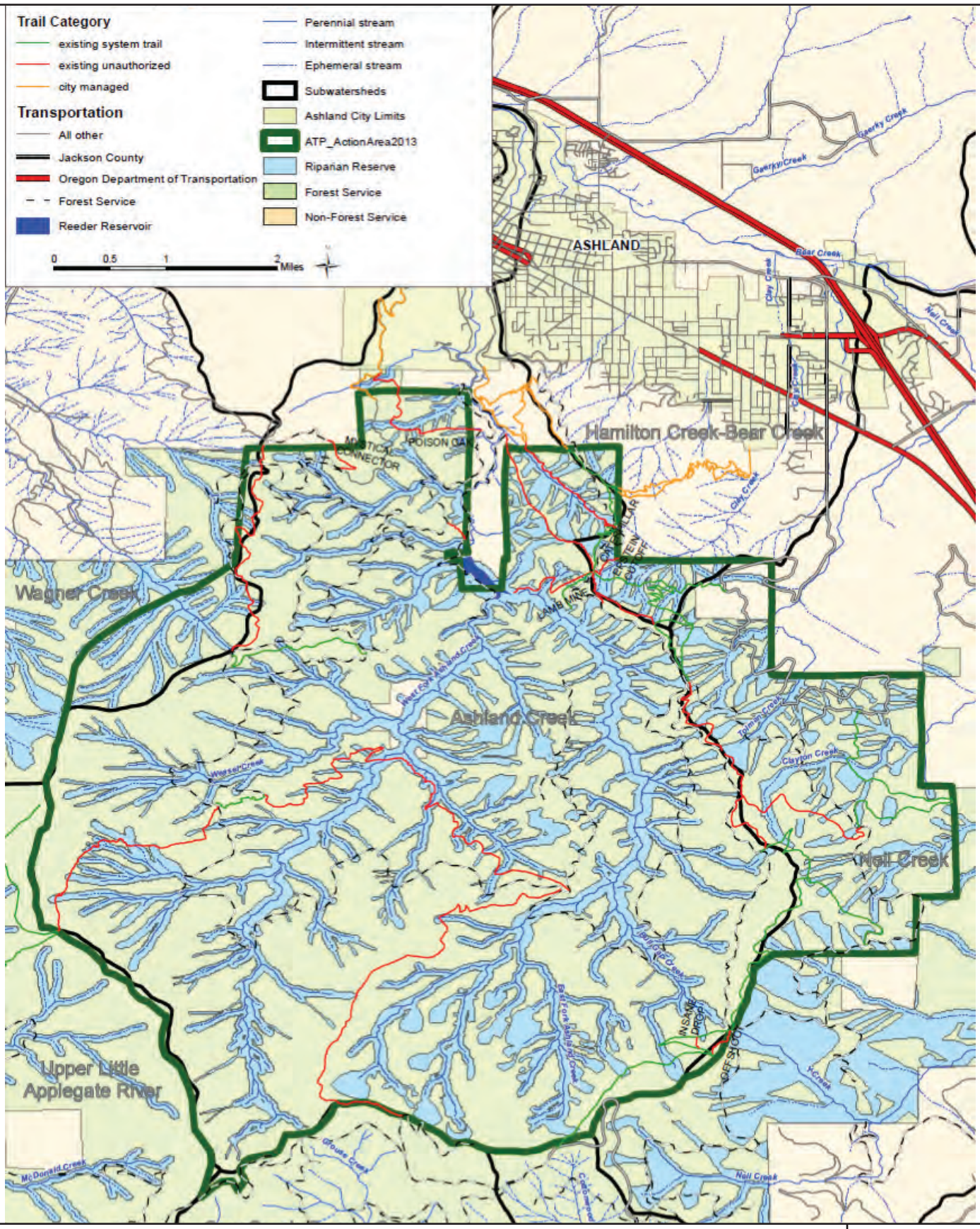
The analysis area considered for assessing potential impacts to water quality from erosion and sediment delivery in this section is concurrent with the Bear Creek 5th-field watershed of the Rogue River Basin.

Table 3-4. Miles of Existing System and Historic/Unapproved Trails in the Action Area by Hydrologic Unit Code

HUC12 Code	*HUC12Name*	*Drainage Area (acres)*	*Trail Category (miles)*[1]	
			System	*Non-System*
171003080104	Neil Creek	13,566	6.5	2.9
171003080105	Hamilton Creek-Bear Creek	12,120	2.5	1.1
171003080106	Ashland Creek	15,800	6.8	19.0
171003080108	Wagner Creek	15,012	--	0.8
171003090301	Upper Little Applegate River	25,573	--	1.6
180102060901	Cow Creek-Grouse Creek	20,294	--	0.2
		TOTAL	**15.8**	**25.6**

[1] Refer to Table 2-2 for a list of existing System Trails within the action area. "Non-System" trails include existing historic and existing unapproved trails, as provided in Table 2-3.

[6] A hydrologic unit code (HUC) is the unique identifier assigned to each hydrologic unit in the U.S. based the four levels of classification in the U.S. Geological Survey's hydrologic unit system (i.e., regions, sub-regions, accounting units, and cataloging units) (USGS 2013).



Title/Notes:

System and Existing Trails within the Analysis Area with Watershed Overlay

Figure:

3-2

Water Quality Limitations

Table 3-5 lists the Clean Water Act (CWA) Section 303(d) listed water bodies[7] within or downstream of the analysis area, including Total Maximum Daily Load (TMDL) status. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. TMDLs typically set numeric targets for listed pollutants as the goal for 303(d) de-listing. The *loading capacity* is the maximum allowable measure to meet water quality standards. Non-point source load allocations for Forest Service lands and "natural background" are determined from what's left over once waste load allocations (point sources) and the "margin of safety" are deducted from the loading capacity.

Water Quality Management Plans (WQMP) have also been completed for many subwatersheds within the analysis area. In these plans, the Oregon Department of Environmental Quality established TMDL criteria for different pollutants and developed strategies for improving the condition of the degraded constituent. Based on these WQMPs and TMDLs, most of the creeks have been removed from the 303(d) list. TMDLs that would not be affected by the proposed action are not discussed further in this section.

Table 3-5. Clean Water Act 303(d) Listed Waterbodies within or Downstream of the Analysis Area

Subbasin	*Waterbody*	*River Miles*	*Pollutant*	*TMDL*
Middle Rogue	Ashland Creek	0 - 2.8	Ammonia	1992 Bear Creek
Middle Rogue	Ashland Creek	0 - 2.8	Phosphorus	1992 Bear Creek
Middle Rogue	Ashland Creek	0 - 2.8	Fecal Coliform	2007 Bear Creek
Middle Rogue	Ashland Creek	0 - 5.4	Temperature	2007 Bear Creek
Middle Rogue	Ashland Creek	0 - 5.4	Dissolved Oxygen	TMDL needed
Middle Rogue	Ashland Creek/Reeder Reservoir	4.9 - 5.4	Sedimentation	2007 Bear Creek
Middle Rogue	Bear Creek	0 - 26.3	Aquatic Weeds & Algae	1992 Bear Creek
Middle Rogue	Bear Creek	0 - 26.3	Dissolved Oxygen	1992 Bear Creek
Middle Rogue	Bear Creek	0 - 26.3	Phosphorus	1992 Bear Creek
Middle Rogue	Bear Creek	0 - 26.3	E. Coli	2007 Bear Creek
Middle Rogue	Bear Creek	0 - 26.3	Temperature	2007 Bear Creek
Middle Rogue	Bear Creek	0 - 27.4	Arsenic	TMDL needed
Middle Rogue	Neil Creek	0 - 4.8	Dissolved Oxygen	1992 Bear Creek

[7] Refers to waters listed as impaired under Section 303(d) of the Clean Water Act.

Subbasin	*Waterbody*	*River Miles*	*Pollutant*	*TMDL*
Middle Rogue	Neil Creek	0 - 4.8	Temperature	2007 Bear Creek
Middle Rogue	Wagner	0 - 7.4	Temperature	2007 Bear Creek
Middle Rogue	Wagner	0 - 7.3	Dissolved Oxygen	TMDL needed
Applegate	Little Applegate River	0 - 20.9	Temperature	2003 Applegate Sub-basin
Applegate	Little Applegate River	0 - 20.9	Dissolved Oxygen	TMDL needed
Upper Klamath	Beaver Creek and Cottonwood Creek	all	Nutrients	2010 Klamath River
Upper Klamath	Beaver Creek and Cottonwood Creek	all	Dissolved Oxygen	2010 Klamath River
Upper Klamath	Beaver Creek and Cottonwood Creek	all	Temperature	2010 Klamath River
Upper Klamath	Beaver Creek	all	Sedimentation	TMDL needed

Most temperature TMDLs use surrogate loading capacity measures of stream shade target conditions for intermittent and perennial streams, sedimentation reduction treatments, or both (ODEQ 2007, NCRWQCB 2010). Other bacteria and nutrient TMDLs use loading capacity measured by instream water quality monitoring data. Bacterial non-point sources from Forest Service lands include dispersed and developed human recreation and wildlife. The Bear Creek TMDL recognizes the lack of data within the watershed on background bacterial concentrations and references research in other watersheds, indicating that bacterial sources from the Forest Service lands are very minimal (ODEQ 2007). Nutrient non-point sources on Forest Service lands are derived from road-related runoff. The TMDL loading capacity for Reeder Reservoir/Ashland Creek has been set to natural background levels or an erosion rate of 3.62 cubic yards per day (CY/day) or 1,320 CY annually (ODEQ 2007). Figure 3-3a, Photo 1, illustrates sediment deposition in the East Fork Ashland Creek above a sediment catchment basin immediately above Reeder Reservoir.

Peak flow, Runoff and Channel Conditions

Two-year peak flows of approximately 70 cubic feet per second (cfs) at the East and West Fork Ashland Creek gauging stations were estimated using frequency analysis of data recorded (USDA Forest Service 2010a). Runoff is generally greatest during spring snowmelt; however, the largest runoff events on record have occurred from rain-on-snow events during winter months. Sediment budgets mostly come from natural sources, with roads, past/present timber harvest, fuels treatments, and trails contributing sequentially less sediment volumes. The granitic parent materials underlying the watersheds in the analysis area produce a small yet continuous sediment flux interrupted by much larger episodic sediment pulses during larger flood events. Sediment pulses are typified by debris flows coalescing from headwall failures, landslides, and entrainment of bulked sediment in ephemeral draws and low order stream channels. Stream sediment monitoring indicates elevated surface (10% to 15%) and subsurface fine (greater than 33% embedded) sediment, mostly as a result

of the 1997 flood event (ODEQ 2007). Figures 3-3a and 3-3b, Photos 1, 2, 3, 4 and 8, illustrate sediment deposition and debris flow source areas.

Existing Trail Conditions

Existing System Trails within the action area are generally considered sustainable and meet Forest Service Trails Management Handbook (Forest Service Handbook [FSH] 2309.18) policy and guidance. Sustainable trails result in little to no water quality impacts due to their location, design, and frequently maintained erosion control structures.

User created unapproved trails in the action area range from being fully sustainable to unsustainable (USDA Forest Service 2010a, AWTA 2011). Unapproved trails account for approximately 63% of the total area of trails located within Riparian Reserves[8] (both stream buffer and Landslide Hazard Zones [LHZ])[9]. Of the subwatersheds in the action area, Ashland Creek contains approximately 74% of the excising historic and existing unapproved trail area located in Riparian Reserves (Table 3-6). The Winburn Trap Trail accounts for the most area of disturbance in Riparian Reserves in the action area (about 1.3 acres). Other existing historic or unapproved trails result in between 0.0 and 0.7 acre of disturbance in Riparian Reserves in the action area.

Table 3-6. Trail-Related Vegetation and Soil Disturbance in Riparian Reserves within the Action Area by Subwatershed

Hydrologic Unit Code Name	*Riparian Reserve (acres)*	*Current Vegetation Disturbance in Riparian Reserves (acres)*[1,2]		*Current Soil Disturbance in Riparian Reserves (acres)*[1,2]	
		System Trails	*Non-System Trails*	*System Trails*	*Non-System Trails*
Neil Creek	3,678	1.39	0.56	0.47	0.19
Hamilton Creek-Bear Creek	3,252	0.84	0.53	0.28	0.18
Ashland Creek	5,011	0.53	3.57	0.18	1.19
Wagner Creek	7,303	--	0.17	--	0.06
Neil Creek	3,678	1.39	0.56	0.47	0.19
TOTAL	**32,731**	**2.76**	**4.83**	**0.93**	**1.62**

[1] Disturbance acres were calculated in ArcGIS by overlaying the following layers: National Hydrography Dataset streams and Reeder Reservoir buffered 150 feet; Rogue River-Siskiyou National Forest Riparian Reserve; Landslide Hazard Zones from the Upper Bear Assessment and Ashland Forest Resiliency; and trails buffered by 2 feet for soil and 6 feet for vegetation disturbances.

[2] Refer to Table 2-2 for a list of System Trails. Non-system trails include both existing unapproved and historic trails, as listed in Table 2-3.

[8] Riparian Reserves include lands along all streams, lakes, ponds, wetlands, unstable areas, and potentially unstable areas that are subject to special Standards and Guidelines designed to conserve aquatic and riparian-dependent species. See Section 1.5, *Management Allocations*, in Chapter 1.

[9] Refer to Section 3.4.2 for a discussion of Landslide Hazard Zones.

Approximately 65% of all trail stream crossings in the action area are associated with existing historic or existing unapproved trails. The Ashland Creek subwatershed contains approximately 85% of these trail stream crossings in the action area (Table 3-7). Of the existing historic / unapproved trails in the action area, the Winburn Trap Trail has the most streams crossings with a total of 7. Other existing historic / unapproved trails have from 0 to 3 stream crossings each.

Table 3-7. Stream Crossings within the Action Area by Stream Type and Subwatershed

Hydrologic Unit Code Name	*Stream Type*	*Number of Stream Crossings*[1,2]	
		System Trails	*Non-System Trails*
Neil Creek	Intermittent	1	1
Hamilton Creek-Bear Creek	Ephemeral	7	1
Ashland Creek	Intermittent	2	12
	Perennial	1	5
Wagner Creek	Ephemeral	--	1
	TOTAL	**11**	**20**

[1] Number of stream crossings calculated in ArcGIS using an intersection of a field adjusted copy of the National Hydrography Dataset stream layer and the existing trail system.

[2] Refer to Table 2-2 for a list of System Trails. Non-system trails include both existing unapproved and historic trails, as listed in Table 2-3.

The Water Erosion Prediction Project (WEPP) forest road erosion predictor model was used to estimate annual sediment delivery at stream crossings under a range of trail lengths, gradients and use intensities (USDA Forest Service 1999). Annual sediment delivery predicted by WEPP ranges from 0.0007 to 0.013 CY per stream crossing. Therefore, total annual sediment delivery in the action area from existing stream crossings (associated with both System Trails and existing historic and unapproved trails) ranges from 0.023 to 0.41 CY. Appendix B summarizes the results of the WEPP prediction model.

Most of the streams crossed by trails are steep gradient, dissected ephemeral draws, and intermittent streams common of the underlying granitic terrain. Most stream crossing fill volumes are almost too small to measure, averaging approximately 0.1 CY. The exception is where existing historic or unapproved trails utilize existing legacy roadbeds, particularly along the eastern half of the Winburn Trap Trail where fill volumes range from 25 to 250 CY. See Figures 3-3a and 3-3b, Photos 4-8, 10, 11, 13, and 14 for examples of stream crossings associated with existing historic and unapproved trails.

Photo 1: The East Fork of Ashland Creek's sediment catchment basin located immediately above Reeder Reservoir shows sediment deposition and is nearly full of sediment.

Photo 2: East Fork Ashland Creek stream gauging station located approximately 300 feet upstream of sediment basin pictured in Photo 1. Sediment deposition is evident in pool at gauging station.

Photo 3: Sediment deposition is visibly evident in the West Fork Ashland Creek at a location approximately 1000 feet upstream of the Weasel Creek confluence or approximately 1.5 miles upstream of Reeder Reservoir.

Photo 4: Unauthorized Reservoir trail ephemeral crossing with debris flow source area scarps likely from the 1997 flood. Draw is mapped as Riparian Reserves under the Landslide Hazard Zone 1 (LHZ1) designation. Red line traces the trails location.

Photo 5: Unauthorized Reservoir trail intermittent channel crossing. Site is mapped as LHZ1 and connected to the site in Photo 4.

Photo 6: Unauthorized Fell on Knee trail perennial channel crossing on an existing roadbed. Site has wetland characteristics as illustrated by boggy conditions and abundant horsetail.

Photo 7: Unauthorized Fell on Knee trail intermittent channel crossing on an existing roadbed. Head cutting is evident where trail/ existing roadbed crosses stream. Site is mapped as LHZ1.

Title/Notes:

Representative Photos – Water Resources in Analysis Area

Figure:

3-3a

Photo 8: Unauthorized Fell on Knee trail ephemeral crossing with debris flow source area scarps. Site is mapped as LHZ1.

Photo 9: Approximate location of the new Not Stirred trail crossing of a perennial stream proposed under Alternative B. Trail would not cross stream under Alternative C.

Photo 10: Approximate location of the Not Stirred trail crossing of a perennial stream/wetland proposed under Alternative B. Trail would not cross stream under Alternative C.

Photo 11: Winburn Trap existing road bed ephemeral channel crossing catch basin is becoming full of sediment. Crossing inlet is poised to plug and fail during the next high flow event.

Photo 12: Winburn Trap existing road bed intermittent channel crossing catch basin is becoming full of sediment and debris. Crossing inlet is poised to plug and fail during the next high flow event.

Photo 13: Winburn Trap existing road bed ephemeral channel crossing inlet is mostly plugged. Gully erosion is evident on fill slope at outlet and is discharging sediment to perennial tributary of West Fork Ashland Creek.

Photo 14: Intermittent stream crossing on the legacy roadbed used for the unauthorized Winburn Trap trail.

Title/Notes:

Representative Photos – Water Resources in Analysis Area

Figure:

3-3b

Cumulative Watershed Effects Analysis

A comprehensive Cumulative Watershed Effects (CWE) analysis was recently completed for the analysis area subwatersheds within the Roger River Basin in support of the *Ashland Forest Resiliency Project Final Environmental Impact Statement* (USDA Forest Service 2008). The analysis area subwatersheds draining to the Klamath River Basin are mostly managed by the Klamath National Forest who conducts annual CWE updates (USDA Forest Service 2010b). Both The Rogue River-Siskiyou and Klamath National Forests utilized a similar equivalent roaded area (ERA) modeling process to analyze the combined effects of past, present and reasonably foreseeable future actions and roads on Forest Service and all other landownerships (USDA Forest Service 1988). However, trails have typically been excluded from these analyses.

To assess the potential effects of the existing trail system in the action area, trails were added to the CWE analysis by assuming that the area occupied by trail tread (assumed to be a maximum of 24 inches wide) equivalent to a road, and vegetation clearing (assumed to be a maximum of 72 inches wide) equivalent to the non-commercial hand thinning assumed in the Ashland Forest Resiliency Project analysis. Following these assumptions, acres of trail tread and trail vegetation clearing were multiplied by ERA coefficients equal to 1.0 and 0.001, respectively. Table 3-8 summarizes the existing CWE analyses updated for the proposed action by adding trails. With trails added, the resulting baseline risk ratios increased by no more than 0.01.

Table 3-8. Summary of Updated Cumulative Watershed Effects Analysis

Hydrologic Unit Code Name	*Drainage Area (acres)*	*Threshold of Concern*[4]	*Equivalent Roaded Area*				*Baseline (% ERA)*[6]	*Baseline Risk Ratio*[6]
			Veg. Mgmt. and Road[4]	*City Trails*[5]	*Trails on Forest Service Lands*[5]	*Total Baseline*[6]		
Neil Creek	13,599	9.0	1,197		2.28	1199.3	8.8	0.98
Hamilton Creek[1]	4,128	11.0	1,263	1.1	2.04	1266.1	30.7	2.79
Ashland Creek	15,788	8.5	726	1.0	7.06	734.1	4.6	0.55
Upper Wagner Creek[1]	5,874	9.0	335	--	0.21	335.2	5.7	0.63
Upper Little Applegate River[2]	25,573	n/a	n/a	--	1.07	n/a	n/a	n/a
Upper Cottonwood Creek[3]	11,960	9.4	617	--	0.01	617.2	5.2	0.55
Cow Creek-Grouse Creek[3]	20,294	8.7	957	--	0.01	957.2	4.7	0.54

[1] Hamilton Creek and Upper Wagner Creek are smaller 7th –fields catchments delineated for the Ashland Forest Resiliency Project.

[2] Upper Little Applegate River did not have existing CWE data available; it is assumed that its impacts are similar to Cow Creek-Grouse Creek.

[3] Upper Cottonwood and Cow Creek-Grouse Creek are mostly on the Klamath National Forest.

Hydrologic Unit Code Name	Drainage Area (acres)	Threshold of Concern[4]	Equivalent Roaded Area				Baseline (% ERA)[6]	Baseline Risk Ratio[6]
			Veg. Mgmt. and Road[4]	City Trails[5]	Trails on Forest Service Lands[5]	Total Baseline[6]		

[4] Threshold of Concern and the Vegetation Management and Road ERA taken from Ashland Forest Resiliency Project Final EIS (USDA Forest Service 2008) and Klamath National Forest CWE Analysis (USDA Forest Service 2010b).

[5] Trails managed by the City of Ashland and Forest Service both used ERA coefficients previously described.

[6] Total Baseline ERAs = [Veg Mgmt. and Road ERAs] + [City Trails ERAs] + [Trails on Forest Service Lands ERAs]; Baseline %ERAs = [Total Baseline ERAs] / [Drainage Area]; Baseline Risk Ratio = [Baseline %ERAs] / [Threshold of Concern].

Effects Mechanisms and Analytic Framework

The direct, indirect and cumulative effects of the alternatives were analyzed using geographic information system (GIS) data and modeling informed by field reconnaissance of the action area. Field review focused on locations where existing historic and unapproved trail routes crossed stream channels and LHZs.

For the purposes of this section, potential effects on water quality would occur if the alternatives would result in increased disturbed or exposed soils that could deliver sediment to streams or waterways; an exceedance of TMDL non-point source load allocation for 303(d) listed pollutants; or increased erosion or sedimentation affecting the quantity or quality of the City of Ashland's domestic water source. The analytic framework (indicators) for assessing these effect mechanisms considered if the alternatives would result in additional vegetation or soil disturbance in Riparian Reserves; require new or reconstructed stream crossings and associated fill; or contribute to increased sedimentation at stream crossings, as predicted by the WEPP model.

The analysis in this section also considers the type of use (hiker/pedestrian, bicycle, or equestrian) proposed on each trail, supplemented with information from peer-reviewed literature. Finally, effects described in this section are put into context using the following spatial scales:

- Site – direct and indirect effects located in stream channels adjacent to or near the treatment area and that do not extend downstream;
- Reach – direct and indirect effects that can extend downstream for less than 300 feet; and
- Watershed – direct, indirect, and cumulative effects can be measured in the response reach of a 6th-field subwatershed.

Alternative1

Direct and Indirect Effects

Overview

Under the Alternative 1, erosion and sediment delivery to streams and riparian areas from trail management and use would be the same as what is currently occurring. Use of existing historic and unapproved trails would continue to impact Riparian Reserves where sedimentation has been observed. Stream crossings on existing roadbeds utilized as unapproved trails would continue to

slowly erode or catastrophically fail during flood events when unmaintained culverts plug (see Figure 3-3b, Photos 10, 11, 13 and 14). The Reeder Reservoir sediment TMDL load allocations for non-point sources on Forest Service managed land could be exceeded during a flood event should these legacy sites on existing roadbeds remain in their current condition.

Effects on stream shade under the Alternative 1 are unlikely since trail use and management typically only result in the removal of a small amount of vegetation, which provides little to no shade for streams. However, existing roadbed stream crossings may not be at site potential for stream shade, and accelerated sedimentation is linked to stream temperature impairment through reduced pool volume, widened channels, and removal of riparian shade during debris flow events.

Ongoing use and additional proliferation of unapproved trails under Alternative 1 may also affect other chemical and biologic pollutants resulting from waste entering the stream system. Many of the existing historic and unapproved trails are located in Riparian Reserves and cross stream channels, which may increase the potential for contamination. While hikers and bicyclists are less likely to defecate near water during recreational activities, a larger threat may be associated with illegal campsites likely to occur near water sources, and/or horse manure or dog feces introduced into waterways at stream crossings. Finally, the Reservoir Trail would continue to provide unauthorized access and threaten water quality of the perennial East Fork of Ashland Creek and Reeder Reservoir under Alternative 1.

Alternative 2

Direct and Indirect Effects

Overview

Alternative 2 would authorize use of approximately 80% of the existing historic and unapproved trail miles within the action area. Most newly authorized trails would require improvements, short re-routes and programmatic maintenance to become fully sustainable, all of which would be accomplished in accordance with the *Trails Management Handbook* (FSH 2309.18). The remaining 20% of the existing unapproved trail miles and segments closed due to re-routes would be decommissioned.

Alternative 2 would also allow for construction of entirely new trails, including some major re-routes of existing historic and unapproved trails. All new trails added to the system, and all major re-routes, would be located, designed and/or improved in accordance with FSH 2309.13.

The general and water quality specific Project Design Criteria (PDC) summarized in Table 2-9 would reduce potential water quality impacts associated with Alternative 2. These include allowances that trail alignments may be refined to avoid sensitive areas, such as seeps and springs (PDC GEN-1); that all trails be constructed to minimize erosion and to avoid natural water courses and sensitive riparian vegetation, where possible (PDC GEN-2); that specific design considerations be employed at or near stream crossings (PDC WQ-1, WQ-2); that improvements to trails using legacy roadbed stream crossings be implemented where needed (PDC WQ-3); and that soils displaced during trail

management activities be placed in locations where they are unlikely to be discharged to streams (PDC WQ-5).

Erosion and Sediment Delivery

As summarized in Table 3-9, new trail construction under Alternative 2 would result in an additional 3.22 acres and 1.08 acres of vegetation and soil disturbance, respectively, in Riparian Reserves in the action area. Existing historic and unapproved trails proposed for decommissioning would improve vegetation and soil conditions on 1.69 acres and 0.57 acre, respectively, in Riparian Reserves. When considered in combination, new trail construction and trail decommissioning under Alternative 2 would result in a net increase in Riparian Reserve vegetation and soil disturbance of 1.53 acres and 0.51 acre, respectively. However, trail decommissioning in the Hamilton Creek-Bear Creek subwatersheds would result in a net reduction in Riparian Reserve disturbance. When compared to the total area in Riparian Reserve in each watershed, Alternative 2 would result in a net increase in vegetation and soil disturbance no greater than 0.02% and 0.007%, respectively, relative to Alternative 1.

Table 3-9. Vegetation and Soil Disturbed (or Improved) in Riparian Reserves - Alternative 2

Hydrologic Unit Code Name[1]	*Riparian Reserve (acres)*	*Riparian Reserve Vegetation Acres Disturbed (+) or Improved (-)*			*Riparian Reserve Soil Acres Disturbed (+) or Improved (-)*		
		New Trail Construction	*Decom-missioning*	*Net*	*New Trail Construction*	*Decom-missioning*	*Net*
Neil Creek	3,678	0.70	-0.08	0.62	0.23	-0.03	0.21
Hamilton Creek-Bear Creek	3,252	0.21	-0.25	-0.04	0.07	-0.08	-0.01
Ashland Creek	5,011	2.31	-1.36	0.96	0.77	-0.45	0.32
TOTAL	**11,941**	**3.22**	**-1.69**	**1.53**	**1.08**	**-0.57**	**0.51**

[1] Watersheds within the analysis area without any additional disturbances or improvements in Riparian Reserve area are not included.

The ongoing effects of existing unapproved and historic trails in the analysis area, as described for Alternative 1, would likely continue in the short-term under Alternative 2 because many trails would be in need of additional vegetation and soil clearing depending on designated use and current condition. However, improvements in design and drainage (or decommissioning), combined with ongoing maintenance, would reduce erosion and sediment delivery from these trails over the long-term. When compared to Alternative 1, Alternative 2 would resulting in a long-term beneficial effect on soils in Riparian Reserves where unapproved trails are added as System Trails since they would be built to be sustainable with lower erosion potential. Trail decommissioning could cause some very short-term disturbance to soils, but would also result in a net beneficial effect when compared to Alternative 1. The adverse effects described above would be at the site scale, but would be neutral at the reach and watersheds scales.

Riparian Reserve disturbance according to proposed managed under Alternative 2 is summarized in Table 3-10. Literature reviews indicate that trails traveled by horses have the greatest sedimentation potential when compared to hiker/pedestrian or bicycle traffic (Olive and Marion 2009, Cole and Spildie 1995, DeLuca et al. 1998). Although disturbance widths in Riparian Reserves assumed the maximum width needed for equestrian use, such use would occur over the least amount of the area (36%). Hiker/pedestrian use would occur over most of the disturbed Riparian Reserve area (85%) with bicycle use accounting for the median use type (69%).

Table 3-10. Riparian Reserve Disturbance Area by Managed Use – Alternative 2

Managed Use[1]	*Riparian Reserve Disturbance Area (acres)*	
	Vegetation	*Soil*
Bicycle	0.48	0.16
Bicycle, Hiker/Pedestrian	1.57	0.53
Equestrian, Hiker/Pedestrian	1.00	0.33
Bicycle, Equestrian, Hiker/Pedestrian	0.17	0.06
TOTAL	**3.22**	**1.08**

[1] Please refer to Table 2-4 for a list of managed uses by trail name under Alternative 2.

Most studies could not find a statistically significant difference in disturbance area between hikers/pedestrians and bicycles (Cessford 1995, Thurston and Reader 2001). Some studies actually found that bicycle traffic had less impact than hikers, contrary to social perception (Marion and Olive 2006, Wilson and Seney 1994). However, bicyclists are mostly responsible for the existing unapproved trail construction in the action area, and are therefore considered more likely to continue unapproved trail construction under Alternative 2 (AWTA 2011).

Exceedance of Non-Point Source Load Allocations for 303(d) Listed Pollutants

Field observations indicate very little soil erosion and transport to stream channels in Riparian Reserves, except for the very short section of the trails where they approach streams. Therefore, trails in Riparian Reserves do not typically cause increased sedimentation except where they cross or are located adjacent to streams. Table 3-11 displays the number of trail stream crossings by treatment type under Alternative 2. New trail construction would create 13 new stream crossings, most over intermittent streams. Trail decommissioning under this alternative would remove five stream crossings from use, resulting in a net increase of eight stream crossings. However, the net increase would be in intermittent stream crossings only, with no net increase in ephemeral and perennial stream crossings. All new and previously unapproved stream crossings added to the system under Alternative 2 would be designed to reduce sediment discharge potential, which could reduce load allocations to streams in the analysis area compared to Alternative 1.

Table 3-11. Stream Crossings Removed From or Added to Action Area – Alternative 2

Hydrologic Unit Code Name[1]	*Stream Type*	*Number of Trail Stream Crossings Added (+) or Removed (-)*		
		Proposed New Trail Construction	*Proposed Decommissioning*	*Net*
Hamilton Creek-Bear Creek	Ephemeral	1	-1	0
Ashland Creek	Intermittent	10	-2	8
	Perennial	2	-2	0
	Total	**13**	**-5**	**8**

[1] Watersheds within the analysis area without trail stream crossings added or removed are not included.

Table 3-12 summarizes stream crossings by managed use and stream type. Equestrian use would not be authorized on new perennial stream crossings. Pedestrian use would occur on all new stream crossings, with bicycle use occurring on all but one stream crossing. Alternative 2 would also authorize use on 15 previously unapproved stream crossings (20 unapproved less 5 decommissioned). Many of these crossings would have been previously inaccessible to equestrians.

Table 3-12. Stream Crossings by Managed Use – Alternative 2

Managed Use[1]	*Stream type*	*Stream Crossings*[2]	
		Added to System	*New Construction*
Bicycle	Intermittent	1	0
Bicycle, Hiker/Pedestrian	Perennial	1	2
	Intermittent	4	8
	Ephemeral	1	0
Equestrian, Hiker / Pedestrian	Ephemeral	0	1
Bicycle, Equestrian, Hiker / Pedestrian	Intermittent	6	2
	Perennial	2	0
	TOTAL	**15**	**13**

[1] Please refer to Table 2-4 for a list of managed uses by trail name under Alternative 2.

[2] Stream crossing 'added to the System' reflect stream crossings previously associated with existing historic or unapproved trails that would be added to System Trails under Alternative 2. 'New construction' stream crossings are those associated with proposed new trails under this alternative.

Any increase in sedimentation would typically be the greatest after the first large winter storm following treatment, with an incrementally smaller yet re-occurring annual discharge of soil particles dislodged from trail use during the dry seasons. The results of the net WEPP model for Alternative 2

predicted annual sediment delivery at stream crossings would range from 0.006 to 0.11 CY, which is equal to a 25% increase from existing conditions. This estimated increase in sediment is far below the loading capacity set for Reeder Reservoir (i.e., 3.28 CY/day or 1,328 CY/year), and is not anticipated to exceed 2 CY/year due to proposed improvements to existing historic and unapproved trail crossings and trail decommissioning under this alternative.

Other TMDL load allocations for pollutants such as temperature, dissolved oxygen, nutrients, and bacteria are unlikely to be affected under Alternative 2. Stream shade as a surrogate for stream temperature would remain intact since trail construction and maintenance activities would retain all trees greater than 6 inches diameter-at-breast height (dbh). Therefore, mid- and over-story canopy cover would be retained, which would continue to provide nearly all of the shade to streams along trail alignments in the action area. Shade would be decreased at stream crossings but the effect would be negligible.

Similar to Alternative 1, horse manure, dog feces and human waste have the potential to deliver bacteria and nutrients near new stream crossings and previously unapproved stream crossings receiving more use. As noted above, Alternative 2 would add 13 new and 15 newly authorized stream crossings. Although there is a low probability that bacteria and nutrient input at these new stream crossings would result in increases in TMDL monitored stream reaches when compared to Alternative 1, implementation of PDC WQ-6, which would require signage at trailheads providing guidance on the proper disposal of pet and human waste to reduce the risk of bacterial contamination of water from human, equine, or pet wastes, would reduce this impact to nominal levels.

Impacts to Quantity or Quality of City of Ashland's Domestic Water Source

The preceding discussion of potential direct and indirect effects on water quality is also applicable to potential water quality impacts to the City of Ashland's domestic water source. In summary, soil disturbance and associated sedimentation from construction, use and management of the trail system in the action area under Alternative 2 would only have minor effects on water quality in the analysis area. In fact, in areas where existing historic and unapproved trails cross streams, water quality conditions may improve slightly because these crossing would be designed and maintained in accordance with the Forest Service guidelines, or decommissioned. As a result, the effects of Alternative 2 on the quality of the City's domestic water source would be minimal, and may be slightly improved compared to Alternative 1.

Indirect effects on water quantity under Alternative 2 are considered using the ERA methodology (i.e., any change in ERAs or risk ratio). As seen in Table 3-13, the ERA increases for Alternative 2 are very small, inferring neutral effects on water quantity.

Table 3-13. Cumulative Watershed Effects Analysis – Alternative 2

Hydrologic Unit Code Name	Drainage Area (acres)	Threshold of Concern[1]	Equivalent Roaded Area			Base-line (% ERA)[2]	Baseline Risk Ratio[2]	Change in Risk Ratio
			Baseline[2]	Addtl [3]	Total			
Neil Creek	13,599	9.0	1199.3	0.35	1199.7	8.8	0.98	0.0003
Hamilton Creek[4]	4,128	11.0	1266.1	0.03	1266.1	30.7	2.79	0.0001
Ashland Creek	15,788	8.5	734.1	0.85	735.9	4.7	0.55	0.0004
Upper Wagner Creek[4]	5,874	9.0	335.2	-0.06	335.1	5.7	0.63	-0.0001
Upper Little Applegate River	25,573	n/a	n/a	0.26	n/a	n/a	n/a	n/a
Upper Cottonwood Creek	11,960	9.4	617.2	0.00	617.2	5.2	0.55	0.0
Cow Creek-Grouse Creek	20,294	8.7	957.2	0.08	957.3	4.7	0.54	-0.00002

[1]Threshold of Concern and Vegetation Management and Road ERA taken from the Ashland Forest Resiliency Project Final EIS (USDA Forest Service 2008) and the Klamath National Forest CWE Analysis (USDA Forest Service 2010b).

[2] See Table 3-8 for summary of CWE Analysis of 'existing conditions'.

[3] Additional ERAs attributable to Alternative 2.

[4] Hamilton Creek and Upper Wagner Creek are smaller 7th –fields catchments delineated for the Ashland Forest Resiliency Project.

Alternative 3

Direct and Indirect Effects

Overview

Alternative 3 would authorize 4.0 fewer miles of existing historic or unapproved trails as System Trails, and would decommission nearly twice the mileage (5.2 miles versus 9.9 miles) of existing historic and unapproved trails, compared to Alternative 2. All existing historic or unapproved trails incorporated as System Trails may require improvements, short re-routes and programmatic maintenance to become fully sustainable, all of which would be accomplished in accordance with the *Trails Management Handbook* (FSH 2309.18).

Alternative 3 would also allow for construction of entirely new trails, including some major re-routes of existing unapproved trails. Trail reroutes proposed under Alternative 3 to minimize potential impacts on special-status wildlife would also eliminate several stream crossings associated with Alternative 2, including two perennial stream crossings associated with the Not Stirred Trail. All new trails and trail re-routes would also be located and designed in accordance with FSH 2309.13.

Similar to Alternative 2, the general and water-quality specific PDCs summarized in Table 2-9 would reduce potential water quality impacts associated with Alternative 3. These include allowances that trail alignments may be refined to avoid sensitive areas, such as seeps and springs (PDC GEN-1); that all trails be constructed to minimize erosion and to avoid natural water courses and sensitive

riparian vegetation, where possible (PDC GEN-2); that specific design considerations be employed at or near stream crossings (PDC WQ-1 and WQ-2); that improvements to trails using legacy roadbed stream crossings be implemented where needed (PDC WQ-3); and that soils displaced during trail management activities be placed in locations where they are unlikely to be discharged to streams (PDC WQ-5).

Erosion and Sediment Delivery

New trail construction under Alternative 3 would cause short- and long-term direct and indirect negative effects on vegetation and soils in Riparian Reserves. As summarized in Table 3-14, new trail construction would result in an additional 2.37 acres and 0.79 acre of vegetation and soil disturbance in Riparian Reserves, respectively, compared to Alternative 1(which would be 25% less disturbance than anticipated under Alternative 2). Trails proposed for decommissioning under Alternative 3 would improve vegetation conditions within 2.92 acres and soil conditions on 0.97 acre (Table 3-14). When considered in combination, new trail construction and trail decommissioning under Alternative 3 would result in a net decrease in Riparian Reserve vegetation and soil disturbance in both the Hamilton Creek-Bear Creek and Ashland Creek watersheds.

Table 3-14. Vegetation and Soil Disturbed (or Improved) in Riparian Reserves - Alternative 3

Hydrologic Unit Code Name[1]	*Riparian Reserve (acres)*	*Riparian Reserve Vegetation Acres Disturbed (+) or Improved (-)*			*Riparian Reserve Soil Acres Disturbed (+) or Improved (-)*		
		New Trail Construction	*Decom-missioning*	*Net*	*New Trail Construction*	*Decom-missioning*	*Net*
Neil Creek	3,678	0.25	-0.08	0.17	0.08	-0.03	0.05
Hamilton Creek-Bear Creek	3,252	0.21	-0.25	-0.04	0.07	-0.08	-0.01
Ashland Creek	5,011	1.91	-2.59	-0.68	0.64	-0.86	0.22
TOTAL	**11,941**	**2.37**	**-2.92**	**-0.55**	**0.79**	**-0.97**	**-0.18**

[1] Watersheds within the analysis area without any additional disturbances or improvements in Riparian Reserve area are not included.

As described for Alternative 2, existing unapproved and historic trails in the action area would continue to have some additional short-term negative effects on water quality because many would likely be in need of additional vegetation and soil clearing, depending on designated use and current condition. However, improvements in design and drainage (or decommissioning), combined with ongoing maintenance would reduce erosion and sediment delivery from these trails over the long-term. When compared to Alternative 1, there would be a long-term beneficial effect on soils in Riparian Reserves where existing historic and unapproved trails are added as System Trails since they would be built to be sustainable with lower erosion potential. Trail decommissioning could cause some very short-term disturbance to soils, but would result in a net beneficial effect when compared to Alternative 1. The adverse effects described above would be at the site scale, but would be neutral at the reach and watersheds scales.

The difference in Riparian Reserve disturbance under Alternative 3 according to proposed managed use is summarized in Table 3-15. As described for Alternative 2, although disturbance widths in Riparian Reserves assumed the maximum width needed for equestrian use, such use would occur over the least amount of area under Alternative 3 (46%). Hiker/pedestrian use would occur over most of the disturbed Riparian Reserve area (99%), with bicycle use accounting for the median use type (57%). The difference in Riparian Reserve disturbance by managed use between the action alternatives is attributable to fewer new trails through Riparian Reserves under Alternative 3.

Table 3-15. Riparian Reserve Disturbance Area by Managed Use – Alternative 3

Managed Use[1]	*Riparian Reserve Disturbance Area (acres)*	
	Vegetation	*Soil*
Bicycle	0.03	0.01
Bicycle, Hiker/Pedestrian	1.26	0.42
Equestrian, Hiker/Pedestrian	1.02	0.34
Bicycle, Equestrian, Hiker/Pedestrian	0.06	0.02
TOTAL	**2.37**	**0.79**

[1] Please refer to Table 2-6 for a list of managed uses by trail name under Alternative 3.

Exceedance of Non-Point Source Load Allocations for 303(d) Listed Pollutants

New trail construction under Alternative 3 would require eight new stream crossings (5 fewer than the Alternative 2), all of which would occur over intermittent streams (Table 3-16). Trail decommissioning under this alternative would remove 12 crossings (including four on perennial streams), which would be seven more than Alternative 2 and would result in a net decrease of four stream crossings in the action area (Table 3-16). All new and previously unapproved stream crossings added to the system under Alternative 3 would be designed to reduce sediment discharge potential, which could reduce load allocations to streams in the analysis area compared to Alternative 1.

Table 3-16. Stream Crossings Removed From or Added to Action Area – Alternative 3

Hydrologic Unit Code Name[1]	*Stream Type*	*Number of Trail Stream Crossings Added (+) or Removed (-)*		
		Proposed New Trail Construction	*Proposed Decommissioning*	*Net*
Hamilton Creek-Bear Creek	Ephemeral	1	-1	0
Ashland Creek	Intermittent	7	-7	0
	Perennial	0	-4	-4
TOTAL		**8**	**-12**	**-4**

[1] Watersheds within the analysis area without trail stream crossings added or removed are not included.

Table 3-17 summarizes stream crossings by managed use and stream type. Equestrian use would occur on 73% less stream crossings under Alternative 3 compared to Alternative 2, and pedestrian and bicycle use would occur on about 40% to 45% fewer stream crossings.

Table 3-17. Stream Crossings by Managed Use –Alternative 3

Managed Use[1]	*Stream type*	*Stream Crossings*[2]	
		Added to System	*New Construction*
Bicycle	Intermittent	1	0
Bicycle, Hiker/Pedestrian	Perennial	1	0
	Intermittent	4	6
	Ephemeral	1	0
Equestrian, Hiker/Pedestrian	Ephemeral	0	1
Bicycle, Equestrian, Hiker/Pedestrian	Intermittent	1	1
	Perennial	0	0
	TOTAL	**8**	**8**

[1]Please refer to Table 2-6 for a list of managed uses by trail name under Alternative 3.

[2] Stream crossing 'added to the System' reflect stream crossings previously associated with existing historic or unapproved trails that would be added to System Trails under Alternative 3. 'New construction' stream crossings are those associated with proposed new trails under this alternative.

The results of the WEPP model predicted a net decrease in annual sediment delivery within the analysis area of 12% under Alternative 3 compared to Alternative 1. This decrease would move the Ashland watershed towards meeting the TMDL target for reduced sediment loading, and would represent an improvement compared to both Alternative 1 and Alternative 2. Similar to Alternative 2, other TMDL load allocations for pollutants such as temperature, dissolved oxygen, nutrients, and bacteria, are unlikely to be affected under Alternative 3.

Horse manure, pet feces and human wastes would continue to have the potential to deliver bacteria and nutrients near new stream crossings and previously unapproved stream crossings receiving more use. As noted above, Alternative 3 would add eight new and eight newly authorized stream crossings (Table 3-17). Similar to Alternative 2, although there is a low probability that bacteria and nutrient input at these stream crossings would result in increases in TMDL monitored stream reaches, implementation of PDC WQ-6, which requires signage at trailheads providing guidance on the proper disposal of pet and human waste, would reduce this potential impact to a nominal level.

Impacts to Quantity or Quality of City of Ashland's Domestic Water Source

As described above, Alternative 3 would have only minor effects on water quality in the analysis area, including impacts to the City's domestic water source. In areas where previously unapproved trails cross streams, water quality conditions may improve slightly because these crossing would be designed and maintained in accordance with Forest Service guidelines. As a result, the effects of

Alternative 3 on the quality of the City's domestic water source would be minimal, and may be slightly reduced compared to Alternatives 1 and 2 (because the number of perennial stream crossings would be reduced).

Indirect effects on water quantity under Alternative 3 were also considered using the ERA methodology. As summarized in Table 3-18, the ERA increase for Alternative 3 is very small, inferring neutral effects on water quantity.

Table 3-18. Cumulative Watershed Effects Analysis –Alternative 3

HUC Name	*Drainage Area (acres)*	*Threshold of Concern*[1]	*Equivalent Roaded Area*			*Base-line (% ERA)*[2]	*Baseline Risk Ratio*[2]	*Change in Risk Ratio*
			Baseline [2]	*Addtl* [3]	*Total*			
Neil Creek	13,599	9.0	1199.3	0.02	1199.3	8.8	0.98	0.0002
Hamilton Creek[4]	4,128	11.0	1266.1	0.03	1266.1	30.70	2.79	0.0001
Ashland Creek	15,788	8.5	734.1	-0.15	733.9	4.6	0.55	-0.0001
Upper Wagner Creek[4]	5,874	9.0	335.2	-0.06	335.1	5.7	0.63	-0.0001
Upper Little Applegate River	25,573	n/a	n/a	0.26	n/a	n/a	n/a	n/a
Upper Cottonwood Creek	11,960	9.4	617.2	0.00	617.2	5.2	0.55	0
Cow Creek-Grouse Creek	20,294	8.7	957.2	0.08	957.3	4.7	0.54	-0.00002

[1]Threshold of Concern and Vegetation Management and Road ERA taken from Ashland Forest Resiliency Project Final EIS (USDA Forest Service 2008) and the Klamath National Forest CWE Analysis (USDA Forest Service 2010b).

[2] See Table 3-8 for summary of CWE Analysis of 'existing conditions'.

[3] Additional ERAs attributable to Alternative 3.

[4] Hamilton Creek and Upper Wagner Creek are smaller 7th –fields catchments delineated for the Ashland Forest Resiliency Project.

Cumulative Effects

The cumulative effects of Alternative 1 are similar to those described for existing conditions and summarized in Table 3-8. Additional proliferation of unapproved trails under Alternative 1 may result in increased erosion and sediment delivery to streams, which could increase the cumulative effects of Alternative 1.

Table 3-13 summarizes the CWE analysis for Alternative 2. Model results indicate this alternative would increase watersheds risk ratios by less than 0.0005, which indicates neutral cumulative watershed effects. Upper Wagner Creek, Upper Little Applegate River and Cow Creek-Grouse Creek would have a net reduction in ERAs since only trail improvements are proposed on unapproved trails added to the system (i.e., no new trail construction is proposed in these watersheds). Upper Cottonwood Creek would have no proposed treatments, and, as a result, no additional ERAs. In addition, no notable cumulative effects are anticipated as a result of short trail reroutes by the City of

Ashland to coordinate proposed changes to the Forestry Service trail system. These cumulative effects would be comparable to those described for Alternative 1.

Table 3-18 summarizes the CWE analysis for Alternative 3. Model results indicate this alternative would increase watersheds risk ratios by less than 0.0003, or a neutral cumulative watershed effect. Ashland Creek, Upper Wagner Creek, Upper Little Applegate River and Cow Creek-Grouse Creek would have a net reduction in ERAs due to a net reduction in cumulative trail ERAs. Upper Cottonwood Creek would have no proposed treatments, and, as a result, no additional ERAs. As noted above, no notable cumulative effects are anticipated as a result of short trail reroutes by the City of Ashland to coordinate proposed changes to the Forestry Service trail system. The cumulative effects of Alternative 3 would be minor and comparable to those associated with Alternative 1.

3.3.2 Issue -Potential Effects on Late-Successional Reserves

Background

The following provides an overview of applicable management direction for actions within Late-Successional Reserves (LSR), as well as general information on roads and trails within the analysis area, their current use, and late-successional species and habitats known to the analysis area.

The analysis area considered in this section is concurrent with the boundary of LSR RO-248, or the portion of the Mt Ashland LSR on the Rogue River-Siskiyou National Forest (Figure 3-4). Where necessary for context, the analysis in this section also refers to potential effects within the entire Mt. Ashland LSR.

Management Direction

Rogue River National Forest Land and Resource Management Plan

The following management direction on LSRs is provided in the Rogue River National Forest Land and Resource Management Plan (LRMP), as amended by the Northwest Forest Plan (NWFP):

> "As a general guideline, non-silvicultural activities located in Late-Successional Reserves that are neutral or beneficial to the creation and maintenance of late-successional habitat are allowed. While most existing uses and development are envisioned to remain, it may be necessary to modify or eliminate some current activities in Late-Successional Reserves that pose adverse impacts. This may require the revision of management guidelines, procedures, or regulations governing these multiple-use activities. Adjustments in standards and guidelines must be reviewed by the Regional Ecosystem Office." (USDA Forest Service and USDI Bureau of Land Management 1994, p. C-16)

> "Developments - Development of new facilities that may adversely affect Late-Successional Reserves should not be permitted. New development proposals that address public needs or provide significant public benefits, such as power lines, pipelines, reservoirs, recreation sites, or other public works projects will be reviewed on a case-by-case basis and may be approved when adverse effects can be minimized and mitigated. These will be planned to have the least possible

> adverse impacts on Late-Successional Reserves. Developments will be located to avoid degradation of habitat and adverse effects on identified late-successional species…" (USDA Forest Service and USDI Bureau of Land Management 1994, p. C-17)

On January 3, 2001, a memorandum was issued to federal agency offices under the NWFP to provide further instruction and interpretation regarding new developments in LSRs (USDA Forest Service and USDI Bureau of Land Management 2001a). The evaluation process outlined in that memorandum was used in this analysis and in developing alternatives to the proposed action.

LSR RO-248 (Mt Ashland LSR)

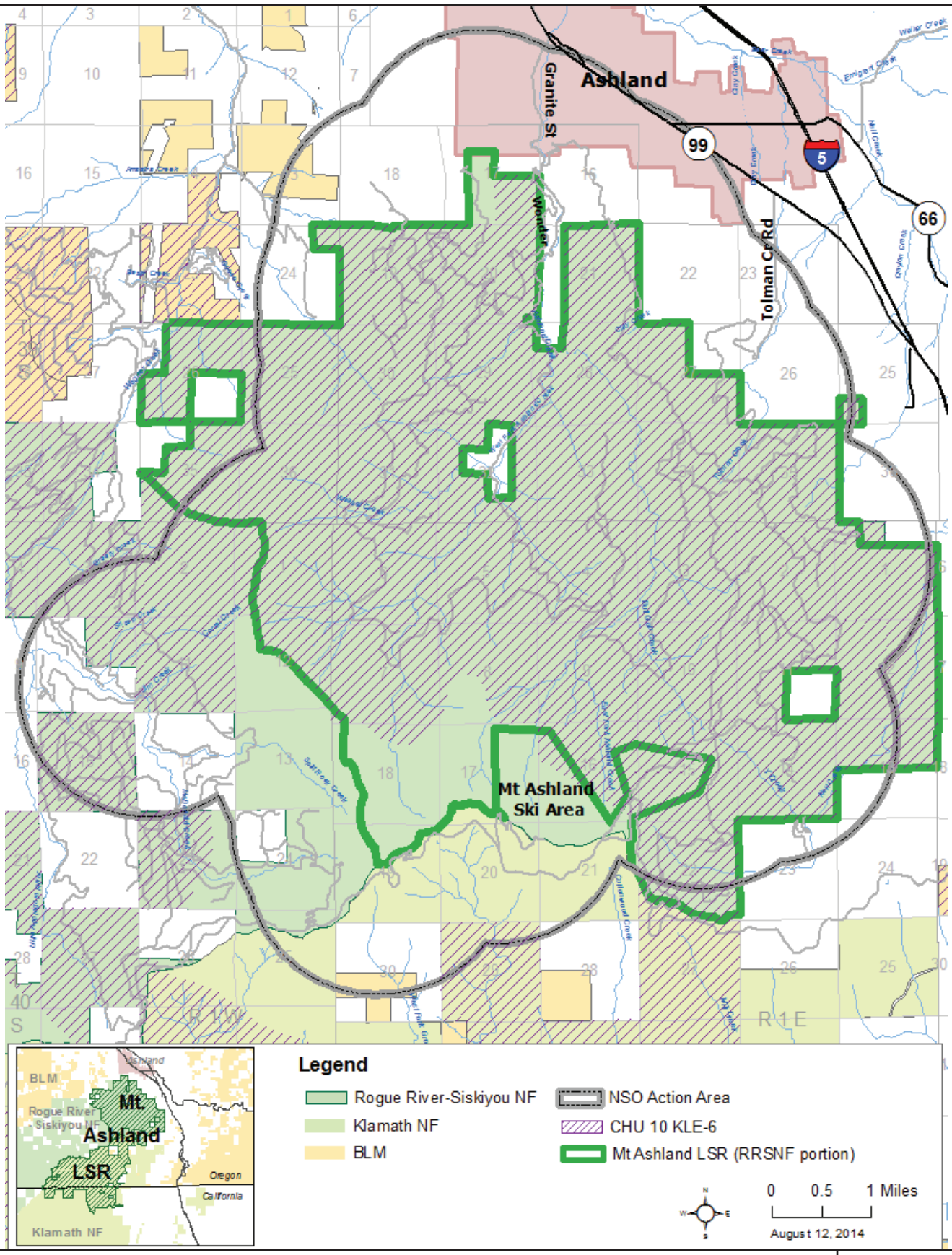
The proposed action lies almost entirely within the northern portion of the Mt Ashland LSR on the Rogue River-Siskiyou National Forest (Figure 3-4). The 51,512 acre Mt Ashland LSR straddles the Siskiyou Crest, with the Rogue River –Siskiyou National Forest to the north and the Klamath National Forest to the south. It provides a linkage for species dispersal and migration between the high elevation Siskiyou Range of the Klamath Province with the Southern Oregon Cascades. The northern portion drains into the Rogue River Basin via Ashland and Bear Creeks and the southern portion drains into the Klamath River Basin via Beaver Creek.

The 1996 Mt Ashland Late-Successional Reserve Assessment provides an evaluation of issues thought to influence the long-term functionality of this LSR USDA (Forest Service 1996). This assessment evaluated the northern portion of the LSR on the Rogue River-Siskiyou National Forest separately from the southern portion on the Klamath National Forest. Management of the area on each Forest had different emphasis under each Forest's Land Management Plan prior to LSR designation under the NWFP. The Rogue River-Siskiyou National Forest portion of the LSR is the Ashland Creek Municipal Watershed that provides water to the City of Ashland. This portion of the LSR is mostly north-facing in orientation and supports larger contiguous areas of late-successional habitat than the southern portion which has more south facing orientation, and has experienced more intensive timber harvest and road and railroad construction.

Transportation System (Roads and Trails) and Current Use

Roads impact the quality of late-successional habitat by fragmenting larger blocks of habitat, increasing edge and reducing interior habitat, and increasing wildlife harassment from human activity related to road use. The 1996 *Mt. Ashland Late-Successional Reserve Assessment* (USDA Forest Service 1996) reviewed road density analyses from the Bear Watershed Analysis on the Rogue River-Siskiyou National Forest and the Beaver Creek Preliminary Watershed Analyses on the Klamath National Forest. The road density analyses in the Bear Watershed Assessment identified considerably higher road densities in the subbasins at lower elevations around Ashland with lower proportions of National Forest land and below the elevation of late-successional habitat, and lower road densities in higher subbasins. Further, the LSR assessment considered the effects of dispersed recreation on LSR function:

> "Under normal use regimes and due to the buffering effects of the steep topography, *current recreational use* is not expected to impact LSR function. One exception is activities related to road use in areas of high road density" (USDA Forest Service 1996, p. 31).



Title/Notes:

Mt. Ashland Late-Successional Reserves and Northern Spotted Owl Designated Critical Habitat (CHU 10 KLE-6) within the Rogue River-Siskiyou National Forest

Figure:

3-4

Management recommendations from the Mt Ashland LSR Assessment regarding access and travel management include reducing road densities in subbasins that exceed 2 miles per square mile; maintaining adequate fire suppression response times; and providing recreation access and travel in a manner that is compatible with LSR, wildlife, and fire management objectives, as well as protection of other resources (USDA Forest Service 1996, p. 53).

Recreation trail densities were not analyzed in the Bear Watershed Assessment, however densities of existing Forest Service system and city managed trails within the 5HU12 watershed in the northern portion of the LSR range from 0.04 to 0.48 miles per square mile, with three watersheds at approximately 0.3 miles per square mile and the highest density of 0.48 in the Ashland Creek HU12 watershed.

According to GIS road data for the Rogue River-Siskiyou National Forest, the northern portion of the Mt Ashland LSR contains approximately 62.5 miles of Forest Service jurisdiction roads and about 1 mile of county road. Forest Service roads include 15 miles of roads open to public motorized traffic and 47.5 miles of roads closed to motorized traffic or roads not maintained and closing naturally. The open road miles are on the east side of the LSR and offer access to dispersed campsites, trailheads and the Mt Ashland Ski Area. Approximately 4 miles of the closed roads were converted to Forest Service non-motorized System Trails in 2002. Among the remaining 34 miles of roads, several spur roads have nearly closed themselves with re-vegetation, and roads that are still passable are used by non-motorized recreationists and for administrative uses. In fact, the ongoing Ashland Forest Resiliency Project, which has accomplished thinning and fuels treatments of approximately 4,500 acres to date in the Ashland Watershed, has required motorized use of the main roads since 2010.

In addition to roads used by recreationists, the Forest maintains approximately 16 miles of non-motorized trails mostly in the north and east parts of the LSR closest to Ashland. Approximately 12.5 miles of existing unapproved trails and 13.1 miles of existing historic trails in the watershed are not identified as Forest Service System Trails, and none have any regulation regarding LSR standards and guidelines applied to them (Table 2-2 and 2-3; Figure 2-3). An approximate 3.5 mile segment of one existing historic trail on the west boundary of the LSR (Split Rock) is hardly discernible at this time and receives little to no use. Two other historic trails, Winburn Trap and Upper Time Warp, are located within two extant northern spotted owl core areas and one historic owl core area.

Many existing unapproved trails are located on old fire lines or logging roads built by the Forest Service in the past that were not fully rehabilitated or decommissioned. These and other existing historic trails make up the majority of trails proposed for authorization as System Trails under the alternatives. Some trails actually built by recreationists without Forest Service authorization, such as Jabberwocky, Pete’s Punisher and Poison Oak, are proposed for decommissioning to reduce resource damage. New alignments that would meet Forest Service standards are proposed for some of these trails in an effort to meet recreation demand. Due to the close proximity to the City of Ashland and City-managed trails, and world renowned publicity about recreational opportunities in the area, recreational use of the LSR has increased significantly over the last 10 years.

Late Successional Species

Northern spotted owl and Pacific fisher (*Pekania pennanti [*formerly *Martes pennanti]*) are perhaps the most studied late-successional forest-related species in the Mt Ashland LSR. The Mt Ashland LSR Assessment also selected the following wildlife species that occur in the northern portion or the LSR as indicators for functional late-successional vegetation: hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), northern flying squirrel (*Glaucomys sabrinus*), dusky footed woodrat (*Neotoma fuscipes*), American marten (*Martes americana*), tailed frog (*Ascaphus montanus*), Northern bald eagle (*Haliaeetus leucocephalus*), western wood-pewee (*Contopus sordidulus*), Hammond's flycatcher (*Empidonax hammondii*), western bluebird (*Sialia mexicana*), pileated woodpecker (*Dryocopus pileatus*), northern goshawk (*Accipiter gentilis*), and great gray owl (*Strix nebulosa*). These species utilize features such as large snags and large down logs, large trees with large branches or mistletoe brooms for nests, high canopy closure, forest edge habitat and riparian habitat.

Other important prey species found in late-successional habitat are red tree vole (*Arborimus longicaudus*), deer mice (*Peromyscus* spp.), Douglas' squirrel (*Tamiasciurus douglasii*), Townsend's chipmunk (*Neotamias townsendii*), and Pacific shrew (*Sorex pacificus*), among others.

Late-Successional Habitat

The Mt Ashland LSR Assessment describes the condition of late-successional habitat relative to elevation and land allocation:

> "…[t]he more structurally complex late-successional vegetation occurs primarily below 5,000 feet in elevation. The understory and sometimes the overstory is often composed of various hardwood species…important to the function of late successional habitat by contribution to the overall canopy closure (usually > 60%) and to structural diversity" (USDA Forest Service 1996, p. 19).

Late-successional habitat above 5,000 feet elevation consists of smaller average tree diameters (<24 inches dbh) and less understory vegetation. Furthermore, in the northern portion of the LSR, the distribution of late-successional habitat is in large contiguous blocks primarily due to the predominance of north-facing slopes and limited vegetation removal in the restricted [municipal] watershed.

Gradient Nearest Neighbor (GNN) maps are developed by the Landscape Ecology, Mapping, and Analysis (LEMMA) team, a collaborative effort of the Forest Service's Pacific Northwest Research Station and Oregon State University. The 2000 GNN vegetation dataset developed for the Klamath Province was used for the LSR habitat analysis presented in this section (Oregon State University and USDA Forest Service 2000). The GNN vegetation dataset indicates that approximately 5,472 acres of late-successional habitat (tree dbh >24 inches) occurs in the LSR. Large mid-successional forest (tree dbh 17 to 24 inches) comprises approximately 7,122 acres of the LSR. Together, these habitats comprise approximately 59% of the northern portion of the LSR.

Effects Mechanisms and Analytic Framework

Indicators and metrics used in this section to analyze the effects of the proposed action on LSRs include acres of LSR directly affected by trail construction and by disturbance from trail use. As noted above, the 2000 GNN vegetation dataset for the Klamath Province was used for this analysis.

The following considerations inform the general analysis of wildlife and habitat disturbance related to non-motorized recreation and road and existing System Trail use. This information also informs the analysis provided in Sections 3.3.4, 3.3.5, and 3.3.6.

Disturbance Related to Non-Motorized Recreation

Many studies document disturbance to wildlife species in response to non-motorized human recreation. In general, typical immediate response to disturbance by many wildlife species is flight or sometimes "freezing" or feigning death (Gabreilsen and Smith 1995). It is presumed that measureable increases in stress hormone levels of animals responding to human recreationists would lead to negative consequences on reproduction and physical health if the disturbance is long-term (MacAurthur et al. 1982, Gabreilsen and Smith 1995, Wasser et al. 1997, Marra and Holberton 1998 *in* Gaines et al., 2003).

The distance at which wildlife flee from recreationists varies by species and the type of recreation (Taylor and Knight 2003, Papouchis et al. 2001, Spahr 1990, Van der Zande et al. 1984 *in* Marion and Wimpey 2007, Swarthout and Steidl 2001, numerous authors cited *in* Gaines et al. 2003, Wisdom et al. 2004). Studies have also documented long-term spatial or temporal displacement of species from habitat in areas with regular human recreation, such as avoidance of suitable habitat and shifts in the time of use of habitat from day to night (Wisdom et al. 2004, George and Crooks 2006, Riley 2006). Miller et al. (1998) recorded long-term changes in the composition of bird species within certain distances of recreation trails including an increase in predators and bird nest predation, which corroborated findings of other similar studies in edge habitats along narrow open corridors and recreation areas (Paton 1994, Hickman 1990, Rich et al. 1994 and several other authors *in* Miller et al. 1998, Hansen et al. 2005, Reed and Merenlender 2008).

Long-term effects of recreation to large carnivores are uncertain. Few studies have focused on the effects of recreational activities such as hiking, biking and equestrians on species such as black bear (*Ursus americanus*), mountain lion (*Puma concolor*), fisher and marten (Gaines et al. 2003). Findings have differed in studies of bobcat (*Lynx rufus*) and gray fox (*Urocyon cinereoargenteus*) use of habitat relative to urban areas and recreation (George and Crooks 2006, Riley 2006, Markovchick-Nicholls et al. 2008), but generally conclude that these animals continue to use such areas to some extent likely related to food and water availability, and mostly at night. Reed and Merenlender (2008) found that the abundance of bobcats and all carnivores was reduced in recreation areas as visitor numbers increased, which interestingly equated to an increased number of dogs visiting the areas.

Potential impacts of recreation to prey species for forest raptors and carnivores include habitat avoidance, direct and indirect mortality, and disruption of normal activities (feeding, resting, etc.). In addition, studies show that dogs also increase the zone of influence of recreationist's disturbance to

wildlife. Lenth et al. (2008) found reduced activity by squirrels and rabbits within 50 meters of trails, and mule deer activity was significantly lower within 100 meters of trails that allowed dogs compared to those in areas that prohibited dogs. Recreationists in the Mt Ashland LSR are often accompanied by unleashed dogs.

Furthermore, few studies have focused on non-motorized recreation effects to other late-successional associated species such as spotted owls, marten, fisher and flying squirrels or species associated with old ponderosa pine, such as pygmy nuthatches (*Sitta pygmaea*), white-breasted nuthatches (*S. carolinensis*) and white-headed woodpeckers (*Picoides albolarvatus*) (Gaines et al. 2003).

Swarthout and Steidl (2001) found that juvenile and adult Mexican spotted owls flushed when approached by hikers at 12 meters and 24 meters respectively, and neither age class were likely to respond at all when hikers were 55 meters or more away. In another study by the same authors in 2003, female Mexican spotted owls were found to alter their daily activities in response to hikers that passed within 11 to 64 meters of a nest every 15 minutes within 4 hours, three times a day. As a result, they recommend restrictions on the number of hikers near owl nests within the breeding season especially where there may be 50 or more hikers per day. Delaney et al. (1999) found that Mexican spotted owls would not flush when noise from chainsaws or helicopters was greater than 105 meters away. A study of nine male California spotted owls by Temple and Guttierez (2003) found the owls did not flush from a roost when a chainsaw was operated for an hour at a 100 meter distance and shielded from the owl's sight.

For other species of forest birds, Miller et al. (1998) found a zone of influence between 75 to 100 meters from recreation trails where bird species composition changed and predation increased. In contrast, a 400 to 500 meter radius is recommended to protect northern goshawk nests from disturbance during the breeding season (Jones 1979 *in* Gaines et al. 2003).

Gaines et al. (2003) used a 100 meter buffer of non-motorized trails to evaluate effects of displacement, avoidance and disturbance of late-successional associated species caused by human activities in non-winter seasons. This distance was selected to compare potential effects of non-motorized recreation disturbance to wildlife under each alternative considered in this EA.

Disturbance Related to Road and Existing System Trail Use

Approximately 16 miles of roads are open to the public in the eastern portion of the action area and are used heavily for recreation access (e.g., trailheads, dispersed camping, ski area). Approximately 35 miles of existing roads in the LSR are closed to public motorized use and receive non-motorized recreation use that would continue under all of the alternatives, in addition to occasional motorized administrative use. These roads were buffered by 100 meters to determine the approximate area of existing disturbance associated with their ongoing use. Approximately 1,192 acres on the east side of the action area are located with the 100 meter buffer associated with open roads. An additional 2,942 acres are located within the 100 meter buffer of existing roads closed to public motorized access, but used for non-motorized recreation within the action area. In addition to the disturbance acres

estimated for roads in the action area, existing System Trails add approximately 912 acres of area subject to disturbance.[10]

Each alternative considered in this EA is expected to result in some degree of disturbance to wildlife in the action area, particularly species that are dependent on late-successional habitat. The following analysis assumes that disturbance would occur within 100 meters of existing roads, System Trails, historic trails, and unapproved trails in the action area, regardless of alternative, and provides a comparison of the effects of existing unapproved trails, historic trails, and proposed new trail construction and decommissioning for non-motorized recreation under each alterative.

Alternative 1

Direct and Indirect Effects

As described in Chapter 2, Alternative 1 anticipates continued use of all System Trails (15.8 miles) in the action area along with existing unapproved (12.5 miles) and existing historic (13.1 miles) trails that are not managed or maintained by the Forest Service. It is assumed that use of all trails within the action area would likely increase over time given current population trends in southwest Oregon and the popularity of recreation opportunities near Ashland. This would be expected to have long-term adverse effects on the quality of wildlife habitat in areas with heavy use. The Forest Service would continue to maintain existing System Trails, support ongoing events associated with the trails, and provide enforcement as possible with limited daily patrol. The potential for the public to self-patrol unapproved use based on education and awareness of natural resource values would diminish without an effort by the Forest Service to make trail system improvements and modifications that would address user demand and conflicts.

In addition to the disturbance acres estimated for existing roads and System Trails in the action area (i.e., 5,046 acres; see *Disturbance Related to Road and Existing System Trail Use* above), existing unapproved and historic trails contribute approximately 785 acres and 773 acres to the disturbance footprint, respectively. The total existing disturbance acres in the action area for use of these non-system trails is approximately 1,558 acres.

The northern portion of the Mt Ashland LSR encompasses approximately 21,278 acres. Approximately 38.2 miles of System Trails and existing unapproved and historic trails within this area have modified approximately 28 acres (6 foot trail clearance) to some degree. This represents less than 1% of the entire northern Mt Ashland LSR.

Existing trail densities in the five HU12 watersheds in the analysis area range from 0.4 to 1.2 miles per square mile, with three of the five watersheds at approximately 0.4 miles per square mile. The greatest density is in the Ashland Creek watershed, which is the nearest access from Ashland.

As noted above, the 2000 GNN vegetation dataset indicates that approximately 5,472 acres of late-successional habitat and 7,122 acres of large mid-successional forest occur in the LSR. In total, these

[10] This acreage accounts for overlap in disturbance acreages associated within existing roads.

habitats comprise approximately 59% of the northern portion of the LSR and 47% of the 14,890 acres of late-successional habit in the entire LSR.

About 29% of the Rogue River-Siskiyou National Forest portion of the Mt Ashland LSR is within 100 meters of all mapped roads, System Trails, and existing historic or unapproved trails. Specifically:

- Approximately 1,919 acres (15%) of late-successional and large mid-successional habitats are within 100 meters of existing roads in the LSR.
- Approximately 477 acres (7%) are within 100 meters of System Trails.
- Approximately 711 acres are within the 100 meter buffer to existing unapproved and historic trails, including 207 acres within 100 meters of existing unapproved trails and 504 acres within 100 meters of existing historic trails.

Under Alternative 1, disturbance from continued use of existing unapproved and historic trails would affect approximately 10% of late-successional and large mid-successional habitats in the Rogue River-Siskiyou National Forest portion of the Mt Ashland LSR, and approximately 5% of late-successional habitat in the entire LSR. Continued unregulated recreational trail development and increasing trail use would negatively affect LSR values over the long term. Resource damage has been documented as a result of the construction and use of existing unapproved trails, and as recreation use increases, it is anticipated there would be a higher degree of disturbance in areas already used, and likely additional habitat disturbance in areas not presently impacted. This would be particularly detrimental during the breeding season (primarily March – June) for species that rely on late and mature forest habitat for nesting and denning.

Finally, continued, unauthorized trail proliferation could also impact late-successional habitats and species, and in particular small mammals, birds, and invertebrates associated with understory vegetation and the forest floor. The extent of this impact is difficult to estimate, but could be notable as the number of recreationists in the action area increase and the existing trail system fails to meet public demand.

Alternative 2

Direct and Indirect Effects

Alternative 2 would result in authorization of 30.9 miles of new System Trails, including 8.7 miles of existing unapproved trails, 12.8 miles of existing historic trails, and 9.4 miles of newly constructed trails, and would decommission 5.2 miles of existing unsustainable or undesirable trails in the action area. The addition of existing historic and unapproved trails as System Trails would account for approximately 27 acres (6 foot trail clearance) of existing habitat modified within the LSR to some degree. Construction of new trails would result in approximately 7.0 acres of habitat modification, while trail decommissioning would result in 3.6 acres of existing historic and unapproved trails being closed and rehabilitated. In total, Alternative 2 would result in a net increase of 3.4 acres of long-term habitat modification.

Trail densities under Alternative 2 would range from 0.04 to 1.5 miles per square mile within the five affected HU12 watersheds. The density in four of the watersheds would be less than 0.6 miles per square mile. Trail density in the Ashland Creek watershed would be 1.5 miles per square mile.

Minimal vegetation removal would be required for new trail construction (limited to 6 foot clearance width), and large down wood greater than 6 inches dbh would be avoided during trail layout and construction where possible (although, over time, trail maintenance may require that sections of fallen trees be removed from the width of the trail tread and placed to the side of the trail).

The impact of habitats modified by trail development under Alternative 2 would most directly affect late-successional habitat-related small mammals, birds, and invertebrates associated with understory vegetation and the forest floor. The total amount of trail clearance under Alternative 2 would occur within less than 1% of the entire northern portion of the LSR.

As described under Alternative 1, 711 acres lie within the 100 meter buffer of existing unapproved and historic trails within the action area. Under Alternative 2, a portion of the Split Rock Trail (168 acres of the 711 acres of disturbance associated with existing trails) would be reconstructed. New trail construction under the Alternative 2 would result in an additional 120 acres of disturbance, although 47 acres of disturbance would be removed where trails are decommissioned. The net increase in disturbance in the LSR for Alternative 2 as a result of new trail construction would be 73 acres, for a total acreage of disturbance of 784 acres (representing approximately 11% of late-successional and large mid-successional habitat within the Rogue River-Siskiyou National Forest portion of the LSR and approximately 5% of late-successional habitat in the entire LSR).

It is assumed that late-successional species that use habitat within these areas of added disturbance may be displaced when approached by recreationists, and would avoid these areas when recreation use is persistent. This may cause some animals to shift their use of these areas from daytime to night or move into non-disturbed habitat.

Alternative 2 addresses existing resource damage by proposing to close and rehabilitate certain trails. However, the proposed net increase in disturbance from new trail construction, and lack of seasonal restrictions for trails within known northern spotted owl nest sites, would be expected to negatively affect LSR values over the long term. This would be particularly detrimental during the breeding season (primarily March – June) for species that are sensitive to human presence and rely on late and mature forest habitat for nesting and denning.

Alternative 3

Direct and Indirect Effects

Alternative 3 would result in authorization of 24.9 miles of new System Trails, including 9.2 miles of existing unapproved trails, 8.3 miles of existing historic trails, and 7.4 miles of newly constructed trails, and would decommission 9.9 miles of existing unsustainable or undesirable trails in the action area. Many of the existing unapproved trails and portions of those proposed for new construction (e.g., Shaken) exist as old logging roads or fire lines. These trails account for approximately 12.5 acres (6 foot trail clearance) of existing habitat already modified within the LSR to some degree.

New trail construction, in large part intended to re-route existing unapproved or historic trails to minimize resource damage (e.g., Upper Time Warp, Red Queen, Jabberwocky, Alice in Wonderland), would impact approximately 5.4 acres. Trail decommissioning would impact 7.2 acres. In total, Alternative 3 would result in a net decrease of 1.8 acres of long-term habitat modification.

Trail densities under Alternative 3 would be comparable to those for Alternative 2 (0.04 to 1.5 miles per square mile within the five affected HU12 watersheds) because the trail mileage differences between the two alternatives are relatively small at a watershed scale.

As described for the Alternative 2, minimal vegetation removal would be required for new trail construction (limited to 6 foot clearance width), and large down wood greater than 6 inches dbh would be avoided during trail layout and construction where possible (although, over time, trail maintenance may require that sections of fallen trees be removed from the width of the trail tread and placed to the side of the trail). The impact of habitats modified by trail construction would most directly affect late-successional habitat-related small mammals, birds, and invertebrates associated with understory vegetation and the forest floor. The total amount of trail clearance under Alternative 3 would occur within less than 0.1% of the entire northern portion of the LSR.

Similar to Alternatives 1 and 2, Alternative 3 would include the existing 711 acres of disturbance associated with exiting unapproved and historic trails in the action area. A portion of the Split Rock Trail (168 acres of the 711 acres of disturbance associated with existing trails) would be reconstructed under this alternative, and new trail construction would result in an additional 76 acres of disturbance, although the effects of this disturbance would be reduced during trail decommissioning activities (which would affect 235 acres). In total, Alternative 3 would result in 552 acres of long-term disturbance (or approximately 8% of late-successional and large mid-successional habitat within the Rogue River-Siskiyou National Forest portion of the LSR and less than 4% of the late-successional habitat in the entire LSR). This disturbance would be less than the 711 acres of disturbance associate with Alternative 1 and 784 acres of disturbance under Alternative 2.

Alternative 3 addresses existing resource damage and disturbance to late-successional species by re-routing trails to locations with less or no impact, and rehabilitating or closing problem trail segments. The mileage of trails that would be decommissioned under this alternative would reduce the overall amount of disturbance within the LSR when compared to Alternatives 1 and 2. For these reasons, the effects of Alternative 3 are expected to be neutral to LSR values.

Cumulative Effects

The Ashland Forest Resiliency Project, which began in 2009, involves vegetation treatment over 8,150 acres that overlap with the Ashland Trails Project action area. The Ashland Forest Resiliency Project was estimated to downgrade 3-4% of the existing late-successional and large mid-successional habitat within the LSR due to thinning that would reduce canopy and simplify multiple storied stands, or fuel reduction activities that could result in reductions of shrub and small tree layers as well as small woody material. The benefit expected from implementation of the Ashland Forest Resiliency Project is long-term late-successional habitat persistence in the watershed.

Disturbance related to Ashland Forest Resiliency Project activities is considered relatively short-term (5-10 years) with the first 5 years (beginning in 2010) resulting in the most disturbance as a result of timber harvest (helicopter yarding, log hauling, chain-saw use, slash piling, etc.). Activities that create noise above ambient levels are restricted during the northern spotted owl breeding season within specified distances of nest sites (March 1 – June 30). When timber harvest activities conclude, disturbance would be intermittent and primarily related to fuel reduction actions, such as pile burning, and associated traffic that would also be restricted during the breeding season.

The Mt. Ashland Ski Area Expansion Project adjacent to the Mt. Ashland LSR would remove approximately 44 acres of late or large mid-successional habitat and increase human presence within the approximate 400 acre expansion area during the winter time. The Biological Evaluation for that project disclosed that increased human presence and night lighting associated with the expansion may alter habitat use by certain species associated with higher elevations and late-successional habitat (pacific fisher, spotted owl) within the expansion area during the winter.

Finally, trail reroutes within the City of Ashland property to connect proposed action trails would be minor (less than 0.1 mile) and would have no impact on LSR values.

Under Alternative 1, the direct and indirect effects of continued use of existing historic and unapproved trails (and the associated, ongoing resource damage) may cumulatively contribute to adverse effects on late and mid-successional habitat when considered in combination with thinning and fuel treatments in the Mt Ashland LSR under the Ashland Forest Resiliency Project, and the removal of habitat and increased human presence as a result of the ski area expansion. The cumulative effects of Alternative 1 and Ashland Forts Resiliency Project would be associated with disturbance and would occur for the duration of the vegetation management project. The cumulative effects of Alternative 1 and ski area expansion project would similarly be related to disturbance, both during construction and after the resort is operational. The nearest existing non-System to the Mt Ashland ski area expansion project area is the Upper Time Warp Trail, which is generally not accessible during the winter time. This trail is located on a ridgeline over 400 meters away from the boundary of the ski area expansion; however, for late-successional species that traverse high elevations in the spring, such as martens and fishers, continued use of this trail under Alternative 1 may add to the cumulative effects of increased human presence from the ski area expansion.

Under the Alternative 2, increased habitat disturbance from new trail construction (i.e., a net gain of 166 acres in the Mt Ashland LSR) would contribute to the cumulative short-term downgrade of 3-4% of late and mid-successional habitat due to thinning and fuel treatments associated with the Ashland Forest Resiliency Project and the removal of late and large mid-successional habitat as a result of the ski area expansion. Similar to Alternative 1, the cumulative effects of Alternative 2 and Ashland Forts Resiliency Project would be associated with disturbance and would occur for the duration of the vegetation management project, although the cumulative effects would be somewhat greater than Alternative 1 due to the increased, new disturbance associated with Alternative 2. The cumulative effects of Alternative 2 and the ski area expansion project would also be similar to those described for Alternative 1 and would result from the cumulative effects of increased human presence and disturbance under both actions.

Cumulative effects on LSR habitat from new trail construction are not anticipated under Alternative 3 due to the net decrease in trail mileage and disturbance anticipated under this alternative. The cumulative effects of Alternative 3 and the ski area expansion project would be similar to those described for Alternative 1 and Alternative 2 and would result from the cumulative effects of increased human presence and disturbance under both actions.

Summary

Of the three alternative considered in this EA, Alternative 3 best addresses the LRMP Standards and Guidelines for LSRs, as amended by the NWFP, by mitigating existing negative impacts to LSR values through closing and rehabilitating trails with erosion issues; re-routing and closing trails to reduce and minimize disturbance to late-successional wildlife; and closing and rehabilitating an equal amount of trail miles as those proposed for new construction. The net effect of the Preferred Alternative when compared to existing conditions, the No Action Alternative, and Proposed Action Alternative is considered neutral to LSR values.

3.3.3 Issue – Potential Effects on Northern Spotted Owl and Their Habitat

Background

This section addresses the potential impacts of the proposed action on northern spotted owl and their habitat. The analysis area considered in this section encompasses 36,075 acres within Jackson County, Oregon and comprises all lands within 1.3 miles of existing and proposed trails and 5 provincial home ranges (1.3 mile radius) associated with known spotted owl activity centers. The analysis area also overlaps Critical Habitat Unit (CHU) 10, sub-unit KLE-6. KLE-6 covers approximately 167,849 acres in Jackson County, Oregon and Siskiyou County, California and includes most of the northern portion of the Mt. Ashland LSR. Approximately 69% (24,913 acres) of the analysis area is on Rogue River-Siskiyou National Forest lands. Spotted owls are documented to occur across the contextual forested lands within and surrounding the analysis area boundary, which lies within the Oregon Klamath physiographic province.

The northern spotted owl is federally-listed as endangered and is a Management Indicator Species (MIS) for the Rogue River-Siskiyou National Forest (USDA Forest Service 1990). In compliance with Section 7 of the Federal Endangered Species Act (ESA), the Forest Service prepared a Biological Assessment (BA) addressing potential effects on northern spotted owl and their habitat as a result of the proposed action (as modified under Alternative 3) for consideration by the U.S. Fish and Wildlife Service (USFWS). In February 2014, USFWS issued a letter of concurrence that implementation of Alternative 3 was not likely to adversely affect spotted owl or its critical habitat (Thrailkill pers. comm. 2014).

The following provides a summary of management direction specific to northern spotted owl in the analysis area, as well as general information on the status, distribution, and threats to the species; their occurrence in the analysis area; their habitat characteristics and use; population status and trends; designated critical habitat; and their occurrence/habitat in both the Mt. Ashland LSR and the Bear Creek Section 7 Watershed.

Management Direction

Rogue River National Forest Land and Resource Management Plan

The following is a summary of the Standards and Guidelines from Chapter 4 of the LRMP pertaining to northern spotted owl and their habitat:

> "Legal and biological requirements for the conservation of listed and proposed endangered, threatened and sensitive plant and animal species shall be met. Habitat for existing federally-listed species shall be managed to achieve objectives of recovery plans."
>
> "Biological evaluations (Forest Service Manual [FSM] 2672.4) shall be prepared for each project authorized, funded or conducted on the Forest… to determine possible effects on listed and proposed endangered, threatened and sensitive species".
>
> "If endangered, threatened or proposed species are found in a project area, consultation requirements with the USDI Fish and Wildlife Service shall be met in accordance with the Endangered Species Act (Public Law 93-205) and FSM 2671.4."
>
> "If sensitive species are found in a project area, avoidance or other mitigation to minimize impacts to local populations shall be used for those species whose viability has been identified as a concern (FSM 2670.32). At a minimum, no action shall result in loss of species viability or create significant trends toward Federal listing (FSM 2670.32)."

Northern Spotted Owl Recovery Plan

The USFWS finalized the Recovery Plan for the northern spotted owl on June 28, 2011 (USFWS 2011). The Revised Recovery Plan has 34 Recovery Actions. The Forest Service is actively participating in inter-agency efforts to consistently implement Recovery Plan Actions across land ownership boundaries consistent with Forest Service laws and regulations. Recovery Action 10 has the most applicability to activities associated with the proposed action:

> Recovery Action 10 - Conserve spotted owl sites and high value spotted owl habitat to provide additional demographic support to the spotted owl population.
>
> The intent of this recovery action is to protect, enhance and develop habitat in the quantity and distribution necessary to provide for the long-term recovery of spotted owls. The Service will use the results of this effort to inform subsequent recommendations or decisions regarding the quantity and spatial configuration of habitat necessary to support the recovery of spotted owls. The spatial depiction informed by the habitat modeling efforts will better identify areas where land managers should consider protecting, enhancing and developing habitat to support recovery of spotted owls and, where appropriate, will seek additional public review and comment (e.g., as part of proposed critical habitat) (USFWS 2011).

Status, Distribution, and Threats to the Species

A detailed account of the taxonomy, ecology, and reproductive characteristics of the spotted owl is found in the 1987 and 1990 USFWS Status Reviews (USFWS 1987, 1989, 1990a); the Inter-Agency

Scientific Committee Report (Thomas et al. 1990); and the final rule designating the spotted owl as a threatened species (USFWS 1990b). Demographic studies between 1990 and 2008 indicate that the northern spotted owl population (range wide) was declining by approximately 3% to 4% per year (Anthony et al. 2006, Forsman et al. 2011). The NWFP was expected to limit the extent of this trend by protecting all spotted owl sites within LSRs and by providing spotted owl dispersal habitat through matrix lands and adaptive management areas. As habitat developed within the LSRs, spotted owl populations were expected to stabilize across its range.

The range expansion of barred owl (*Strix varia*) into spotted owl territories is a complicating factor, and competition between the species is listed as an important threat to spotted owl in the most recent Recovery Plan (USFWS 2011). Barred owls are native to eastern North America, but have slowly moved west into spotted owl habitat. Since barred owls are less selective about the habitat they use and the prey they feed on, they are out competing northern spotted owls for habitat and food.

Barred owls have increased in southwest Oregon but not to the extent of other areas within the range of the spotted owl. The latest monitoring report for the Klamath demographic study area (KSA) which evaluated barred owl presence, spotted owl presence and spotted owl fecundity from 1990-2011 indicates that when the presence of barred owls exceeded 10% of known owl sites in 2003, the number of spotted owl juveniles produced and the number of spotted owl detections began to fall (Davis et al. 2012). Spotted owl detections in the KSA have steadily decreased since 2002 and were at their lowest in 2011. The negative association between barred owl presence and spotted owl reproduction in the KSA is consistent with findings by Forsman et al. (2011).

In the Ashland watershed, barred owl detections are known from four locations. Galea Wildlife Consulting located barred owls near Quartz Creek and East Fork Ashland Creek in 2002. Forest Service biologists located barred owls near East Fork Ashland Creek in 2004. Oregon State University surveyors detected barred owls in the watershed in 2006 and 2007. Barred owls were also detected during the 2007 surveys in the vicinity of the Pair #20071 and on the east side of the Forest's Resources Natural Area just north of Pair #20019. In 2001, a pair of barred owls was detected in the northeast portion of the analysis area near historic spotted owl site #20050.

Other new threats of Sudden Oak Death and West Nile virus are thought to be potential stressors to the northern spotted owl population. Sudden Oak Death, or Phytopthora canker disease, kills or injures many species of trees and shrubs and may affect habitat components important to spotted owls and their prey. However, Sudden Oak Death is only known for the coastal region of northwest California and southwest Oregon. West Nile virus infects birds. As of April 2005, no wild spotted owl infections have been documented, although West Nile virus has been detected in Jackson County. It is unknown when and to what extent this threat may become a risk for the spotted owl.

Occurrence in the Analysis Area

Documented spotted owl sites are defined as locations with evidence of continued use by spotted owls, including breeding, repeated location of a pair or single bird during a single season or over several years; presence of young before dispersal; or some other strong indication of continued occupation. Documented spotted owl sites are tracked in the Forest's northern spotted owl database.

Spotted owl protocol surveys from the early 1990's through 1995 documented 13 to 15 spotted owl activity centers in the northern portion of the Mt Ashland LSR. Recent (2001-2012) surveys, however, have not detected as many spotted owl activity centers in the analysis area and at least four barred owls have been detected in the watershed. Spotted owl protocol surveys (USFWS 1992) of all spotted owl nesting, roosting, and foraging (NRF) habitat within the Ashland watershed were conducted during 2001, 2002, and 2004 by Forest Service personnel and Galea Wildlife Consulting. Protocol reproductive surveys were also conducted at six historical sites in the analysis area by Smeltz Specialty Contracting in 2004. In 2005, protocol surveys of the entire Ashland Forest Resiliency Project area, which overlaps the Ashland Trails Project action area, were conducted by the Siskiyou Cooperative.

Beginning in 2006, a spotted owl telemetry study was initiated by the Forest Service and Oregon State University to investigate the response of spotted owl to the Ashland Forest Resiliency Project. Eleven spotted owls have been radioed and monitored since the summer of 2006. The Forest Service continued monitoring through the summer of 2008 (Schilling 2009), and for two years post-implementation of some treatments, to study how spotted owls respond to fuels reduction treatments within their respective home ranges. In conjunction with the telemetry study, Oregon State University personnel have conducted protocol surveys in the entire Ashland Forest Resiliency Project area for the last five years. Four of the five documented spotted owl sites used for this analysis have persisted since the surveys done in the 1990's and one is a relatively new site. All sites will continue to be monitored for the foreseeable future.

Northern Spotted Owl Habitat

For the purposes of this analysis, spotted owl habitat is comprised of four categories of distinct and non over-lapping Forest lands within the analysis area.

Nesting, Roosting, and Foraging Habitat

NRF habitat for the northern spotted owl consists of habitat used by owls for nesting, roosting, and foraging. NRF habitat also functions as dispersal habitat. Generally, this habitat is multi-storied, 80 years old or more (depending on stand type and structural condition), and usually includes a high incidence of large trees with various deformities (e.g., large cavities, broken tops, mistletoe infestations, and other evidence of decadence); large snags; large accumulations of fallen trees and other woody debris on the ground; and sufficient open space below the canopy for owls to fly (Thomas et al. 1990). The canopy closure generally exceeds 60%, but canopy closure or age alone does not qualify a stand as NRF. NRF habitat in southwest Oregon varies greatly but is typically mixed-conifer habitat with recurrent fire history, patchy habitat components, and a higher incidence of woodrats, a high quality spotted owl prey species in the area.

The Mt. Ashland LSR Assessment identified stands which supported spotted owls as greater than 17 inch average dbh and greater than 60% canopy closure (USDA Forest Service 1996). This typically represents habitat used by owls for nesting and roosting. In addition, the Forest considers stands with 17 inches dbh and 40% to 60% canopy closure suitable for foraging. Together, these habitats are referred to as NRF habitat.

Dispersal Habitat

Dispersal habitat includes forested habitat with canopy closure more than 40%, average tree diameters greater than 11 inches dbh, and flying space for owls in the understory, but which lacks some of the components found in NRF habitat. It provides temporary shelter for owls moving between NRF habitat and some opportunity for owls to find prey, but does not provide all of the requirements to support an owl throughout its life (Thomas et al. 1990). Dispersal habitat is used in this EA to refer to habitat that does not qualify as NRF habitat, but has adequate cover to facilitate movement between blocks of NRF habitat.

As noted above, owls also disperse through NRF habitat. The term "all-dispersal" is used when both dispersal and NRF habitat are collectively referred to.

Capable Habitat

Capable habitat for northern spotted owl includes Forest land that is currently not habitat but can become NRF or dispersal habitat in the future as trees mature and canopy fills in.

Non-Habitat

Non-habitat includes areas that do not have the capability to produce NRF or dispersal habitat due to physical limitations. Non-habitat includes areas above 6,000 feet in the analysis area.

Table 3-19 lists the existing acreage of northern spotted owl habitat within the analysis area by ownership and NWFP land allocation.

Table 3-19. Northern Spotted Owl Habitat within the Analysis Area (acres)

Northwest Forest Plan	*Total Acres*	*NRF Habitat (% Total)*	*Capable Habitat (% Total)*	*Dispersal Habitat (% Total)*
Ownership				
All Ownerships	36,075	16,155 (45%)	4,225 (12%)	6,152 (17%)
Federal	26,380	15,113 (57%)	3,721 (14%)	5,702 (22%)
Land Allocation – Federal[1]				
Congressionally Reserved or Administratively Withdrawn Areas[2]	15,198	9,123 (60%)	1,522 (10%)	3,745 (25%)
Late-Successional Reserves[3]	7,548	3,759(50%)	1,647(22%)	1,282 (17%)
100-Acre Spotted Owl Core Areas in the Matrix	94	34 (36%)	18 (19%)	38 (40%)
Riparian Reserves[4]	1,743	1,133 (65%)	282 (16%)	267 (15%)
Matrix/Adaptive Management Areas	1,797	1,064 (59%)	252 (14%)	370 (21%)

[1]Hierarchal, no acres double-counted
[2]Includes Ashland Managed Watershed
[3] Mapped Late-Successional Reserve
[4]Matrix and Adaptive Management Area acres only

Designated Critical Habitat

Designation of critical habitat serves to identify lands considered essential for the conservation and recovery of listed species. The functional value of critical habitat is to preserve options for the species' eventual recovery. Critical habitat for the northern spotted owl was first designated in 1992 with the most recent revision finalized on December 4, 2012 (and effective January 3, 2013) (77 Federal Register [FR] 233: 71876-72068).

Critical habitat is defined as (1) specific areas within the geographical area occupied by the species at the time it is listed on which are found those physical or biological features that are essential to the conservation of the listed species and which may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by the species at the time it is listed that are essential for the conservation of a listed species. Regulations focus on the "primary constituent elements," or PCEs, in identifying these physical or biological features. The physical or biological features essential to the conservation of the northern spotted owl are forested lands that are used or likely to be used for nesting, roosting, foraging, and/or dispersing.

As noted above, the analysis area overlaps CHU 10, sub-unit KLE-6. This subunit is expected to function primarily for north-south connectivity between subunits, but also for demographic support. This subunit is determined to be essential for the conservation of the species to meet the recovery criterion that calls for continued maintenance and recruitment of northern spotted owl habitat by providing for population growth, successful dispersal and buffering competition with the barred owl (77 FR 233: 71935).

Approximately 2 miles of the Split Rock Trail, 2 miles of the Upper Time Warp Trail, and 0.4 mile of the Bull Gap Trail are outside CHU 10. These trails are mostly above 6,000 feet or located in non-habitat areas.

Table 3-20 summarizes the distribution of northern spotted owl habitat (e.g., NRF, capable, and dispersal habitats) in the analysis area and within designated critical habitat.

Table 3-20. Northern Spotted Owl Critical Habitat within the Analysis Area (acres)

Designated Critical Habitat	*Total Acres*	*NRF Habitat (% of Total)*	*Capable Habitat (% of Total)*	*Dispersal Habitat (% of Total)*
CHU 10 KLE-6	21,462	13,103 (61%)	2,828 (13%)	4,808 (22%)

Northern Spotted Owl Habitat in the Mt. Ashland LSR

The Mt. Ashland LSR (LSR RO-248) encompasses 51,512 acres. The northern portion of the Mt. Ashland LSR (i.e., the portion within the Rogue River-Siskiyou National Forest) encompasses approximately 21,211 acres and is located entirely within the analysis area (Figure 3-4)[11]. Table 3-21

[11]The entirety of this acreage is not displayed as LSR in Table 3-22 because 64% of the LSR on the Rogue River-Siskiyou National Forest is overlapped by administratively withdrawn areas, such as the Ashland municipal watershed, special interest areas, and research natural area.

summarizes owl habitat within the northern portion of the Mt. Ashland LSR. The Mt. Ashland LSR Assessment identified 13 spotted owl activity centers within the northern portion. Of those, 5 sites are currently known to be active.

Table 3-21. Northern Spotted Owl Habitat and Activity Centers within the Northern Portion of the Mt. Ashland LSR (acres)

	Total Acres	*NRF Habitat*	*Dispersal Habitat*	*Dispersal /NRF Habitat*	*Capable Habitat*	*Activity Centers (LSR Analysis)*	*Current Active Sites (2012)*
LSR RO-248*	21,211	11,538	4,841	16,379	2,244	13	5
*Portion within the Rogue River-Siskiyou National Forest							

Bear Creek Section 7 Watershed

The proposed action falls within the Bear Creek Section 7 Watershed, which encompasses 40,440 acres, of which approximately 21,657 acres (53% of the watershed) are on National Forest lands (Table 3-22). Of these acres, 14,281 are NRF habitat and 16,590 acres function as dispersal and NRF habitat. Approximately 19,275 acres (89% of the entire watershed) of Forest lands within the watershed capable of providing owl habitat are within LSR or are administratively withdrawn from scheduled timber harvest (Table 3-22).

Table 3-22. Northern Spotted Owl Habitat in the Bear Creek Section 7 Watershed on National Forest Lands (acres)

Watershed	*Total Acres*[1]	*Capable Habitat (% Total)*	*NRF Habitat (% Total)*	*Dispersal Habitat (% Total)*	*Dispersal/NRF Habitat (% Total)*
Bear Creek	21,657	19,275 (89%)	14,281 (66%)	2,309 (11%)	16,590 (76%)
[1]Total acreage on Forest Lands					

Effects Mechanisms and Analytic Framework

Indicators and metrics used in this section to analyze the effects of the proposed action on northern spotted owl and their habitat include numbers of known individuals or reproductive sites (i.e., nests) that may be affected and acres of habitat directly affected by trail construction and/or disturbance from trail use. The analytic framework utilized for this analysis incorporates the following datasets/methodologies:

- To assess potential effects on northern spotted owl habitat, the 2000 GNN vegetation dataset was used (Oregon State University and USDA Forest Service 2000). NRF habitat below 6,000 feet in elevation was used as suitable NRF habitat in the analysis area. The elevation break was used because forest stands above 6,000 feet in the analysis area lack the typical structural diversity of spotted owl habitat.

- GIS models developed by USFWS of high potential nesting habitat ("the abiotic model") and relative habitat suitability were used to develop alternatives to the proposed action (i.e., re-route segments of existing unapproved trails) to avoid high potential owl nesting habitat and decommission trail segments currently within owl nesting habitat (as reflected in Alternative 3). The use of these models to inform the project design is consistent with Recovery Action 10.

Refer to Section 3.3.2, *Effects Mechanism & Analytic Framework - Disturbance Related to Non-Motorized Recreation*, for a discussion of wildlife and habitat disturbance related generally to non-motorized recreation and more specifically to road and trail use in the action area, which applies to northern spotted owl and their habitat.

Alternative 1

Direct and Indirect Effects

Currently, about 13.25 miles of existing System, unapproved and historic trails are located within the 1.3 mile radius home ranges of the five documented owl sites in the analysis area. Table 3-23 displays trail miles within the home ranges, core areas and nest patches for these five sites.

Table 3-23. Existing Trails within the Home Range, Core Area, and Nest Patch of Known Spotted Owl Nest Sites

NSO Site	*Trail Category*	*Trail Miles within 1.3 Mile Home Ranges*	*Trail Miles within 550 Acre Core Areas*	*Trail Miles within 70 Acre Nest Patches*
500 Road	System Trail	3.8	0	0
	Existing Unapproved	1.2	0	0
	Existing Historic	2.5	0	0
Bull Gap	System Trail	4.3	0	0
	Existing Unapproved	0.4	0	0
Lightning Strike	System Trail	1.3	0.5	0
	Existing Unapproved	0.3	0.5	0
	Existing Historic	3.5	0	0
Sheep Creek	System Trail	3.8	0	0
	Existing Historic	0.1	0	0
Ski	Existing Unapproved	4.3	2.1	0.4

Upper Horn Gap, an existing System Trail, and two existing historic trails, Upper Time Warp and Winburn Trap, are located within two current spotted owl core areas (0.5 mile radius buffer). The Upper Time Warp Trail is also located within a spotted owl nest patch (300 meter radius buffer) and the Winburn Trap Trail is located within a historic nest patch for Lightning Strike. As described in

Section 3.3.2, female Mexican spotted owls have been found to be negatively affected when hikers approach within 11 to 64 meters of a nest. Currently, there are no seasonal restrictions on recreational use in the action area, and seasonal restrictions would not occur under Alternative 1. Recreational use of these trails is fairly low compared to trails with closer parking access, and use primarily occurs in summer and fall when the trails are clear of snow.

Table 3-24 provides the estimated acres of disturbance using a 100 meter buffer of existing trails within the home range, core area, and nest patch of spotted owls known to the action area. Of the five sites, the Ski site has the most disturbance followed by Lightning Strike, both of which have considerable overlap with the Winburn Trap Trail. The Upper Time Warp Trail also contributes to potential disturbance within the Ski nest patch.

Table 3-24. Estimated Acres of Disturbance within A 100 Meter Buffer of Existing Trails within the Home Range, Core Area, and Nest Patch of Known Northern Spotted Owl Nest Sites

NSO Site	*Trail Category*	*Disturbance Acres within 1.3 Mile Home Ranges*	*Disturbance Acres within 550 Acre Core Areas*	*Disturbance Acres within 70 Acre Nest Patches*
500 Road	System Trail	133	0	0
	Existing Unapproved	49	0	0
	Existing Historic	138	0	0
Bull Gap	System Trail	170	0.06	0
	Existing Unapproved	21	0	0
Lightning Strike	System Trail	37	3	0
	Existing Unapproved	8	0	0
	Existing Historic	230	17	0
Sheep Creek	System Trail	283	0	0
	Existing Historic	8	0	0
Ski	Existing Unapproved	275	109	33

As discussed previously, increasing recreational trail use and long-term disturbance within late-successional habitat under Alternative 1 would be expected to result in a gradual decline of habitat quality for prey species within spotted owl home ranges. The extent of potential unregulated trail development within suitable NRF habitat for spotted owls is unknown. Direct and indirect effects of habitat disturbance to spotted owls and their prey under Alternative 1 would be expected to cause gradual decline of habitat quality, particularly within the Ski site, which could result in displacement of this site over the long-term.

Northern Spotted Owl Critical Habitat

Alternative 1 would have minimal effects on vegetation and the primary constituent elements of critical habitat for spotted owls, such as large snags and multistory late-successional forest habitat. Existing vegetation clearance associated with existing historic and unapproved trails would continue to affect 14.7 acres of NRF habitat, 8.1 acres of dispersal habitat, and 5.7 acres of capable habitats within CHU 10. This represents a total of 28.5 acres (0.1%) of available habitat in CHU 10 (Table 3-20).

Alternative 2

Direct and Indirect Effects

While there would be minimal direct impacts to vegetation under Alternative 2, a slight increase in suitable spotted owl habitat affected by disturbance, when compared to Alternative 1, would occur due to a net increase in trail mileage without a seasonal restriction. As summarized in Table 3-25, trail mileages within the home ranges of the 500 Road, Ski and Sheep Creek sites would increase as a result of new trail construction, with consideration for trail decommissioning. In addition, the existing historic Upper Time Warp and Winburn Trap Trails, which would be incorporated as System Trails under Alternative 2, are located within two spotted owl core areas (500 meter radius buffer). The Upper Time Warp Trail is also located within the Ski spotted owl nest patch (300 meter radius buffer). As discussed previously, female Mexican spotted owls have been found to be negatively affected when hikers approach within 11 to 64 meters of a nest, and Alternative 2 would not include seasonal restrictions on recreational use. Although recreational use of these trails is fairly low compared to trails with closer parking access, and use primarily occurs in summer and fall when the trails are clear of snow, a small segment of new construction for the Winburn Trap Trail would result in a loop trail, which could increase recreational use of that trail when compared to Alternative 1. Increased use of the Winburn Trap Trail or Upper Time Warp Trail, either as a result of a modified loop design or simply due to additional recreation in the action area, with no seasonal restrictions would likely be detrimental to spotted owl nest sites and may cause displacement of owls over the long-term.

Table 3-25. Miles of Trails Proposed For Authorization, Construction, or Decommissioning Under Alternative 2 and within the Home Range, Core Area, and Nest Patch of Known Spotted Owl Nest Sites

NSO Site	*Trail Action**	*Trail Miles within 1.3 Mile Home Ranges*	*Trail Miles within 550 Acre Core Areas*	*Trail Miles within 70 Acre Nest Patches*
500 Road	Decommission	0.7	0.03	0
	Authorize	3.1	0	0
	Construct	0.9	0	0
Bull Gap	Decommission	0.4	0	0
	Authorize	0	0	0

NSO Site	Trail Action*	Trail Miles within 1.3 Mile Home Ranges	Trail Miles within 550 Acre Core Areas	Trail Miles within 70 Acre Nest Patches
	Construct	0	0	0
Lightning Strike	Decommission	0	0	0
	Authorize	3.7	0.5	0
	Construct	0	0	0
Sheep Creek	Authorize	0.07	0	0
	Construct	0.03	0	0
Ski	Decommission	0.4	0.4	0
	Authorize	3.8	1.6	0.4
	Construct	0.9	0.3	0

* "Authorize" reflects incorporation of existing historic and unapproved trails as System Trails. "Construct" reflects construction of proposed new trails.

Table 3-26 summarizes the estimated acres of disturbance within 100 meters of trails proposed for authorization, construction, and decommissioning within the home range, core area, and nest patch of spotted owls known to the action area. Of the five owl sites known to the area, the Ski site would have the most disturbance, followed by Lightning Strike, both of which have considerable overlap with the Winburn Trap Trail. The Upper Time Warp Trail would also contribute to potential disturbance within the Ski nest patch.

Table 3-26. Estimated Acres of Disturbance within 100 Meters of Trails Proposed for Authorization, Construction, or Decommissioning Under Alternative 2 and within the Home Range, Core Area, and Nest Patch of Known Northern Spotted Owl Nest Sites

NSO Site	Trail Action*	Disturbance Acres within 1.3 Mile Home Ranges	Disturbance Acres within 550 Acre Core Areas	Disturbance Acres within 70 Acre Nest Patches
500 Road	Decommission	24	3	0
	Authorize	168	0	0
	Construct	64	0	0
Bull Gap	Decommission	11	0	0
	Authorize	0	0	0
	Construct	0	0	0
Lightning Strike	Decommission	0	0	0
	Authorize	248	36	0

NSO Site	Trail Action*	Disturbance Acres within 1.3 Mile Home Ranges	Disturbance Acres within 550 Acre Core Areas	Disturbance Acres within 70 Acre Nest Patches
	Construct	0	0	0
Sheep Creek	Decommission	0	0	0
	Authorize	1	0	0
	Construct	0.2	0	0
Ski	Decommission	17	34	0
	Authorize	261	118	33
	Construct	64	22	0
* "Authorize" reflects incorporation of existing historic and unapproved trails as System Trails. "Construct," reflects construction of proposed new trails.				

Similar to Alternative 1, increasing recreational trail use and long-term disturbance within late-successional habitat under Alternative 2 would be expected to result in a gradual decline of habitat quality for prey species within spotted owl home ranges. Alternative 2 would include some trail decommissioning within spotted owl home ranges; however the amount of additional disturbance from new trail authorization would be considerably more than the reduction from decommissioning. The direct and indirect effects of habitat disturbance on spotted owls and their prey under Alternative 2 would be expected to cause gradual decline of habitat quality, particularly within the Ski nest patch, which could result in displacement of this site over the long-term.

It is anticipated that implementation of Alternative 2 "may affect and is likely to adversely affect" northern spotted owls because long-term disturbance from new trail authorization with no seasonal restrictions would likely adversely affect the Ski nest patch and the Ski and Lightning Strike core areas.

Northern Spotted Owl Critical Habitat

Similar to Alternative 1, Alternative 2 would have minimal effects on vegetation and the primary constituent elements of critical habitat for spotted owls. Vegetation clearance for new trail construction would treat and maintain a total of approximately 2.4 acres of NRF habitat, 2.7 acres of dispersal habitat, and 3.4 acres of capable habitat within CHU 10 (for a total of 8.5 acres). The addition of existing historic and unapproved trails to the trail system under Alternative 2 would treat and maintain approximately 5.9 acres of NRF, 2.7 acres of dispersal and 1.7 acres of capable habitats within the CHU. In total, long-term vegetation clearance for trails added as System Trails under Alternative 2 would treat and maintain 18.8 acres of capable, dispersal and NRF habitats (0.1%) available in the CHU.

Vegetation clearance for trails under Alternative 2 would not measurably impact any primary constituent elements of critical habitat. PDC GEN-5 would require no disturbance or removal of snags or down woody debris greater than 6 inches dbh for trail construction. Large trees that fall on trails may be cut from the width of the trail, and that cut section would be set to the side of the trail.

Alternative 3

Direct and Indirect Effects

Alternative 3 would result in minimal direct vegetation impacts to northern spotted owl habitat. The Winburn Trap Trail would not be authorized for recreational use under this alternative, which remove ongoing disturbance to known owl nest sites in the vicinity, which would reduce impacts to spotted owls compared to Alternatives 1 and 2.

As summarized in Table 3-27, with consideration of trail decommissioning, there would be no net increase in trail mileage from new construction or authorization of existing trails within any owl home ranges under Alternative 3. Decommissioning of the Winburn Trap Trail would occur within the Lightning Strike and Ski core areas. Authorization of the historic Wagner Glade Trail would include 0.3 miles in the Lightning Strike core area. The 0.5 mile of new construction in the Ski core area would be associated with the proposed reroute of a 0.4 mile portion of the historic Upper Time Warp Trail to be decommissioned in the Ski nest patch. Existing NRF and dispersal habitat that overlaps new trail construction would be maintained.

Table 3-27. Miles of Trails Proposed for Authorization, Construction, or Decommissioning Under Alternative 3 and within the Home Range, Core Area, and Nest Patch of Known Spotted Owl Nest Sites

NSO Site	*Trail Action**	*Trail Miles within 1.3 Mile Home Ranges*	*Trail Miles within 550 Acre Core Areas*	*Trail Miles within 70 Acre Nest Patches*
500 Road	Decommission	2.1	0	0
	Authorize	1.3	0	0
	Construct	0.5	0	0
Bull Gap	Decommission	0.4	0	0
	Authorize	0	0	0
	Construct	0	0	0
Lightning Strike	Decommission	1.9	0.2	0
	Authorize	1.8	0.3	0
	Construct	0	0	0
Sheep Creek	Authorize	0.1	0	0
	Construct	0	0	0
Ski	Decommission	3	1.8	0.4
	Authorize	1.1	0.2	0
	Construct	0.5	0.5	0

* "Authorize" reflects incorporation of existing historic and unapproved trails as System Trails. "Construct" reflects construction of proposed new trails.

Table 3-28 summarizes the estimated acres of disturbance within 100 meters of trails proposed for authorization, construction and decommissioning within the home range, core area, and nest patch of spotted owls known to the action area. Of the five owl sites known to the action area, the Ski site would have the most disturbance, followed by Lightning Strike, both of which would overlap with historic trails proposed for authorization. The Upper Time Warp Trail would contribute the majority of disturbance to the Ski core area and home range under Alternative 3, while the Wagner Glade Trail would contribute the majority of disturbance to the Lightning Strike core area and home range. Both of these trails currently receive recreational use and there is also a road and a System Trail within the Lightning Strike core area that connect to the Wagner Glade Trail.

Alternative 3 would remove potential disturbance within the nest patches of all known owl sites and result in no net increase in disturbance within core areas, except for a very small amount within the Lightning Strike core area. At the home range scale, the mileage and acreage of trails to be decommissioned under Alternative 3 would result in a reduction in disturbance for all affected owl sites. As a result, the direct and indirect effects of Alternative 3 on spotted owls and their prey would be neutral and potentially beneficial, with an overall reduction in the amount of habitat disturbance from recreational use.

It is anticipated Alternative 3 “may affect and is not likely to adversely affect” northern spotted owls because habitat would be maintained by new trail construction and there would be no net gain (and in some cases a reduction in disturbance acres) for all spotted owl home ranges, core areas and nest patches. This finding is consistent with the Letter of Concurrence provided by USFWS for the proposed action (Thrailkill pers. comm. 2014).

Table 3-28. Estimated Acres of Disturbance within 100 Meters of Trails Proposed for Authorization, Construction, or Decommissioning Under Alternative 3 and within the Home Range, Core Area, and Nest Patch of Known Northern Spotted Owl Nest Sites

NSO Site	*Trail Action**	*Disturbance Acres within 1.3 Mile Home Ranges*	*Disturbance Acres within 550 Acre Core Areas*	*Disturbance Acres within 70 Acre Nest Patches*
500 Road	Decommission	118	0	0
	Authorize	87	0	0
	Construct	28	0	0
Bull Gap	Decommission	10	0.05	0
	Authorize	0	0	0
	Construct	0	0	0
Lightning Strike	Decommission	127	9.5	0
	Authorize	112	9.7	0
	Construct	0	0	0

NSO Site	Trail Action*	Disturbance Acres within 1.3 Mile Home Ranges	Disturbance Acres within 550 Acre Core Areas	Disturbance Acres within 70 Acre Nest Patches
Sheep Creek	Decommission	0	0	0
	Authorize	6	0	0
	Construct	1	0	0
Ski	Decommission	178	94	27
	Authorize	89	11.4	0
	Construct	33	30	0
* "Authorize" reflects incorporation of existing historic and unapproved trails as System Trails. "Construct" reflects construction of proposed new trails.				

Northern Spotted Owl Critical Habitat

Similar to Alternative 1, Alternative 3 would have minimal effects on vegetation and the primary constituent elements of critical habitat for spotted owls. Vegetation clearance for new trail construction would treat and maintain a total of approximately 1.6 acres of NRF habitat, 2.1 acres of dispersal habitat, and 2.7 acres of capable habitat within CHU 10 (for a total of 6.4 acres). The addition of existing historic and unapproved trails to the trail system under Alternative 3 would affect approximately 4.0 acres of NRF, 2.0 acres of dispersal and 1.0 acre of capable habitats within the CHU. In total, long-term vegetation clearance for trails added as System Trails under Alternative 3 would treat and maintain 13.5 acres of capable, dispersal and NRF habitats (less than 0.1%) available in the CHU.

Vegetation clearance for trails under Alternative 3 would not measurably impact any primary constituent elements of critical habitat. PDC GEN-5 would require no disturbance or removal of snags or down woody debris greater than 6 inches dbh for trail construction. Large trees that fall on trails may be cut from the width of the trail, and that cut section would be set to the side of the trail.

Cumulative Effects

Ashland Forest Resiliency Project activities overlap three of the owl home ranges that occur in the action area (Lightning Strike, Ski, 500 Road) and that would be affected by the proposed action. The Mt Ashland Ski Area Expansion would overlap two home ranges (Ski, 500 Road) common to the proposed action. The direct and indirect effects of long-term disturbance from continued use of existing historic and unapproved trails under Alternative 1, particularly at the Ski site, may contribute cumulatively to the short-term negative effects associated with the Ashland Forest Resiliency Project and the long-term increased human presence during winter resulting from the ski area expansion. In addition, disturbance related to ongoing use of existing historic and unapproved trails within suitable spotted owl habitat and known spotted owl nest patches may contribute cumulatively to the adverse impacts of barred owl presence within the Mt. Ashland LSR.

These cumulative effects would be similar under Alternative 2, although associated with authorized use of newly incorporated System Trails.

Cumulative effects to northern spotted owl under Alternative 3 would be minor. New trail construction to re-route the Upper Time Warp Trail would maintain suitable NRF and dispersal habitat for northern spotted owls, and reduce the potential for a combined cumulative effect when considered in combination with the Ashland Forest Resiliency Project and Mt. Ashland Ski Area Expansion Project.

None of the alternatives would measurably contribute to cumulative effects on designated critical habitat for spotted owls.

Summary

Table 3-29 provides a summary and comparison of the potential effects of the alternatives on northern spotted owl and their habitat, including acres of habitat disturbance and effects on designated critical habitat. Disturbance acres for Alternative 1 are based on current use of existing historic and unapproved trails, while the action alternatives acreages reflect the net gain or reduction of disturbance relative to Alternative 1. Refer to Sections 3.3.4 through 3.3.6 for the supporting analysis specific to the other species listed in Table 3-29.

Table 3-29. Summary and Comparison of Effects of Alternatives on Wildlife Species

Species[1]	*Alternative 1*	*Alternative 2*	*Alternative 3*
Federally Threatened Species			
Northern spotted owl	Long-term disturbance to one nest patch (33 acres) and two core areas (126 acres).	Long-term disturbance to one nest patch (33 acres) and two core areas (142 acres).	No long-term disturbance to nest patches, no net gain in disturbance to core areas.
Northern spotted owl designated critical habitat	0.1% of CHU in action area affected.	0.1% of CHU in action area affected.	<0.1% of CHU in action area affected.
Forest Service Sensitive Species			
Pacific fisher	MIIH – long-term disturbance to 6% of denning/resting habitat, 6% of forage/dispersal habitat in LSR.	MIIH – net gain in long-term disturbance to 1% of denning/resting habitat, 3% of forage/dispersal habitat in LSR.	MIIH – reduction in total disturbance to denning/resting habitat, net gain in long-term disturbance to 0.1% of forage/dispersal habitat in LSR.
Black salamander	MIIH – unknown number of individuals or habitat impacted.	MIIH – less than 1% of available habitat in LSR affected.	MIIH – less than 1% of available habitat in LSR affected.
Northern bald eagle	MIIH – long-term disturbance to potential roost habitat.	MIIH – long-term disturbance to potential roost habitat.	MIIH – long-term disturbance to potential roost habitat.

Species[1]	*Alternative 1*	*Alternative 2*	*Alternative 3*
Oregon shoulderband	MIIH – unknown number of individuals or habitat affected.	MIIH – less than 1% of available habitat in LSR affected.	MIIH – less than 1% of available habitat in LSR affected.
Chace sideband	MIIH – unknown number of individuals or habitat affected.	MIIH – less than 1% of available habitat in LSR affected.	MIIH – less than 1% of available habitat in LSR affected.
Traveling sideband	MIIH – unknown number of individuals or habitat affected.	MIIH – less than 1% of available habitat in LSR affected.	MIIH – less than 1% of available habitat in LSR affected.
Siskiyou hesperian	MIIH – unknown number of individuals or habitat affected.	MIIH – less than 1% of available habitat in LSR affected.	MIIH – less than 1% of available habitat in LSR affected.
Gray blue butterfly	MIIH – unknown number of individuals or habitat impacted.	MIIH – low likelihood of direct mortality.	MIIH – low likelihood of direct mortality.
Mardon skipper	MIIH – unknown number of individuals or habitat impacted.	MIIH – low likelihood of direct mortality.	MIIH – low likelihood of direct mortality.
Franklin's bumblebee	MIIH – unknown number of individuals or habitat impacted.	MIIH – low likelihood of direct mortality.	MIIH – low likelihood of direct mortality.
Western bumblebee	MIIH – unknown number of individuals or habitat impacted.	MIIH – low likelihood of direct mortality.	MIIH – low likelihood of direct mortality.
California shield-backed bug	MIIH – unknown number of individuals or habitat impacted.	MIIH – < 1 acre of habitat removed.	MIIH – < 1 acre of habitat removed.
Siskiyou short-horned grasshopper	MIIH – unknown number of individuals or habitat impacted.	MIIH – < 1 acre of habitat removed.	MIIH – < 1 acre of habitat removed.
Management Indicator Species			
Black-tailed deer	Minimal impact to 0.4% forest-wide habitat	Minimal impact to 0.1% thermal cover, 0.2% forage habitat forest-wide	Minimal impact to 0.1% forest-wide habitat
Roosevelt elk	Minimal impact to 0.4% forest-wide habitat	Minimal impact to 0.1% thermal cover, 0.2% forage habitat forest-wide	Minimal impact to 0.1% forest-wide habitat
American marten	Minimal impact to 0.6% forest-wide habitat.	Minimal impact to 0.7% to forest-wide habitat.	Minimal impact; no net gain in disturbance, reduction of existing disturbance to 0.5% of forest-wide habitat.

Species[1]	*Alternative 1*	*Alternative 2*	*Alternative 3*
Pileated woodpecker and other woodpeckers	No detectable impact to forest-wide habitat	No detectable impact to forest-wide habitat	No detectable impact to forest-wide habitat
Other Selected Species			
Osprey	No known nests in action area	No known nests in action area	No known nests in action area
Northern goshawk	No known nests in action area	No known nests in action area	No known nests in action area
Migratory Birds			
	1,558 acres of long-term habitat disturbance from existing historic and unapproved trails.	596 acres net increase in long-term habitat disturbance	186 acres net increase in long-term habitat disturbance

[1]Refer to Table 3-37 for scientific names of species listed in this table.
MIIH – may impact individuals or habitat

Summary

Of the three alternatives considered in this EA, Alternative 3 best addresses significant issues related to impacts to LSR and northern spotted owls in the action area by minimizing habitat disturbance from increasing recreational use of trails and neutralizing negative impacts to LSR values. Alternative 3 also meet all LRMP Standards and Guidelines for wildlife and management allocations.

3.3.4 Issue – Potential Effects on Pacific Fisher and Their Habitat

Background

This section addresses the potential effects of the proposed action on Pacific fisher. The analysis area considered in this section is concurrent with the boundary of LSR RO-248, or the portion of the Mt Ashland LSR on the Rogue River-Siskiyou National Forest.

Pacific fisher is a federal candidate species, a Forest Service sensitive species, and is designated as critical in the State of Oregon. The following provides a summary of the status, distribution, and occurrence of the species within the analysis area and its habitat characteristics and use. Refer to the Management Direction discussion in Section 3.3.3 for a description of the LRMP Standards and Guidelines that pertain to Pacific fisher.

Status, Distribution, and Occurrence within the Analysis Area

Currently, there are two documented populations of Pacific fisher in southern Oregon, which appear to be genetically isolated from each other (Aubry et al. 2004). This is thought to be due to the presence of potentially strong ecological and anthropogenic barriers, including the white oak savanna habitat of the Rogue Valley and I-5. Based on DNA analyses, individuals in the southern Oregon Cascades appear to be descendants of animals re-introduced from British Columbia (primarily) and

Minnesota during the late 1970s and early 1980s by the Oregon Department of Fish and Wildlife (ODFW) (Drew et al. 2003). Fishers located in the eastern Siskiyou Mountains of Oregon are genetically related to indigenous individuals in the northwestern California population (Farber and Franklin 2005, Wisely et al. 2004). Two recent surveys that have incorporated hair snaring and subsequent DNA analysis as a component have identified fishers near the Mt. Ashland LSR as members of the indigenous population (Aubry et al. 2005, Farber and Criss 2005).

Female dispersal distances are used for potential population estimates because dispersal distances for juvenile male fishers are widely variable, are likely influenced by intra-specific competition with resident males, and males in some populations have been shown to have non-breeding season home ranges separate from the general population (Aubry and Raley 2006). Because the local population in the Mt. Ashland LSR is at the northern extreme of the California population, female fisher home ranges are expected to be between approximately 10-20 square kilometers (km^2) and male home ranges between approximately 25-45 km^2. The northern portion of the Mt Ashland LSR is 86 km^2. This equates to approximately 4-8 female home ranges and 2-3 male home ranges. Assuming the habitat is evenly distributed, fully occupied, and there is no overlap between territories, the local population estimate is 6-11 individuals.

An ongoing radio-telemetry study of fisher began in the Ashland watershed in 2010. To date, 23 fishers have been captured and 16 individuals have been collared in this watershed. Many individuals captured in the telemetry study have been juveniles and have not fully established breeding territories. Carlos Carroll estimated the entire northern California-southwestern Oregon fisher population (total) as 1,000-2,000 individuals (Center for Biological Diversity 2000).

Pacific Fisher Habitat

Fishers have been described as one of the most habitat-specialized mammals in western North America (Buskirk and Powell 1994). However, more recent research has shown that specialization appears to be tied primarily to patches or stands of mature and older forests with complex structure(s) for denning and resting habitats. The varied diet of fishers suggests they may forage in a broader range of forested habitats.

Fishers are generally associated with low- to mid-elevation forest environments (Aubry and Houston 1992, Buskirk and Zielinski 2003). Mid- to high-canopy closures appear to be important to fisher. In British Columbia, Weir and Courbold (2010) found that a 5% increase in open areas within a potential home range decreased the relative probability of occupancy by 50%. Fishers use landscapes at different spatial scales for different behaviors and activities (Powell 1994, Weir and Harestad 2003). For example, fishers may establish their home ranges at the landscape scale, forage at the patch scale, and select habitat for resting or denning at the patch scale as well as at a finer scale of habitat characteristics within a patch (Powell 1994, Powell and Zielinski 1994, Weir and Harestad 2003).

Resting Habitat

Several studies have shown that fishers appear to be highly selective of resting structures. In California, Zielinski et al. (2004) found that resting structures were in the largest diameter trees

available. Average dbh was 117 centimeters (cm) (46 inches) for live conifers, 120 cm (47 inches) dbh for conifer snags, and 69 cm (27 inches) dbh for hardwoods. On the Hoopa Valley and Shasta-Trinity study areas, Yeager (2005) determined that rest trees used by fisher had a significantly larger dbh than the average dbh of the four largest trees on the rest site plots. In southwest Oregon, Aubry and Raley (2006) reported that the average diameter of live trees used by females for resting was slightly greater than those used by males: 88 cm (35 inches) dbh versus 64 cm (25 inches) dbh.

In California, Zielinski et al. (2004) found that fishers select rest sites with significantly higher canopy closure immediately adjacent to the rest site (93.4%) when compared to random sites (88.8%). Yeager (2005) reported that on the Hoopa Valley study area, 86.8% of all rest sites had more than 50% canopy cover and 59.7% had greater than 75% canopy cover. At Shasta- Trinity, 97.6% of all rest sites had more than 50% canopy cover and 87.5% had greater than 75% canopy cover. In southwestern Oregon, fishers selected rest sites with canopy closure greater than 80% (Aubry and Raley 2006).

In the southern Oregon Cascades, Aubry and Raley (2006) located and typed 641 different resting structures. Both male and female fishers primarily used live trees for resting. Use of logs and cull piles by females and males was similar. Females used a greater proportion of snags for resting than males. Both male and female fishers used mistletoe brooms in live trees more than any other micro-site (females 31%, males 21%). Mistletoe brooms in live trees were suspected rest sites for an additional 44% of live trees used by females, and 33% of live trees used by males. Rodent nests were used in 24% of the trees used by male fishers. Large trees provide platform-type resting structures such as mistletoe brooms, clumped branches that support rodent nests, or rust brooms that can support the weight of fishers. Current telemetry work in the Ashland watershed indicates that approximately 80% of all rest sites located were in mistletoe brooms.

Removal of understory and mid-story canopies around large structures may reduce the effectiveness of the structure as a secure rest site because they contribute to the microclimate of the site and to hiding cover.

Den Structures

As with resting structures, both conifers and hardwoods provide habitat for fisher dens. Yeager (2005) categorized 18 fisher dens in the Hoopa and Shasta-Trinity study sites. Sixteen were located in hardwoods and two in conifers. Of these 18 dens, all but three were located in live trees. On both study areas, black oaks (*Quercus velutina*) were used in 50% of all dens categorized. Other species used were tanoak (*Notholithocarpus densiflorus*), white oak (*Quercus alba*), canyon live oak (*Quercus chrysolepis*), chinquapin (*Quercus muehlenbergii*), Douglas-fir (*Pseudotsuga menziesii*), and ponderosa pine (*Pinus ponderosa*). More recent work in the southern Sierras confirms the high amount of use of hardwoods by fisher as dens (Thompson pers. comm.). In addition, one confirmed natal den tree found in the Ashland fisher study area in 2013 was in an approximate 12 inch dbh black oak with heart rot; another natal den was located in an approximate 20 inch dbh live ponderosa pine with a cavity. Maternal dens located in 2013 included a large (30+ inch) black oak and a 30+ inch madrone (*Arbutus menziesii*).

In the southwestern Oregon Cascade Mountains, Aubry and Raley (2006) located 13 natal and 18 maternal dens. For natal dens, fishers used both live trees and snags with openings that accessed hollows created by heartwood decay. Structures used for maternal dens were more variable than those used for natal dens and included cavities in the bole or butt of large live trees and snags and large hollow logs (Aubry and Raley 2006). Natal den trees need to be large enough to accommodate a cavity capable of containing an adult female fisher and multiple kits (Aubry and Raley 2006). In the southern Cascades of Oregon, the average dbh and height of live trees used for natal dens was 92 cm (36 inches) and 40 meters (131 feet) respectively. The average dbh and height of snags used for natal dens was 89 cm (35 inches) and 26 meters (85 feet) respectively (Aubry and Raley 2006).

Foraging Habitat

Based on their diverse diet, fishers appear to be a generalist predator that is opportunistic in its foraging strategies (Aubry and Raley 2006, Zielinski and Duncan 2004, Aubry et al. 2002, Zielinski et al. 1999, Powell 1993). There is some indication of seasonal variation in the fisher's diet (Zielinski et al. 1999) which is likely linked to seasonal abundance of prey and forage species. While fishers require structures provided by older aged or residual stands for denning and resting, they appear to use a broad array of stand conditions for foraging.

Weir and Harestad (2003) found that fishers exhibited selectivity for stands and patches with high volumes of coarse woody material and specific closures of high and low shrub layers. However, they hypothesize that an overly complex forest floor may affect the hunting success of fishers by reducing the likelihood of capturing prey. Fishers avoided stands with >80% closure of the low shrub layer. Jones and Garton (1994) found that fishers did not use non-forested sites while resting or hunting, but did use pole-sapling forests for hunting significantly more than for resting. The inclusion of berries in the fisher's diet suggests that they do forage, at least occasionally or seasonally, in forest gaps or along edges of forested stands where many fruit-bearing shrubs and forbs are found.

Habitat Distribution and Mapping

Fisher denning/resting habitat is defined as forest with greater than 60% canopy closure, trees greater than 17 inches dbh, and below 6,000 feet in elevation, which corresponds with northern spotted owl NRF habitat (see Section 3.3.3). Fisher foraging and dispersal habitat includes forest (sapling/pole or larger) with greater than 60% canopy closure, or forest with trees greater than 17 inches dbh with greater than 60% canopy closure above 6,000 feet in elevation. Table 3-30 summarizes Pacific fisher habitat distribution and known individuals within the analysis area. Approximately 84% of the LSR consists of suitable habitat for fishers.

Table 3-30. Pacific Fisher Habitat and Known Individuals within the Analysis Area (acres)

	Total Acres	*Denning/Resting Habitat*	*Forage/Dispersal Habitat*	*Known Individuals*
LSR RO-248*	21,211	10,524	7,406	23

Source: Oregon State University and USDA Forest Service 2000
*Portion within the Rogue River-Siskiyou National Forest

Over two years of telemetry data collected on fisher is being used to investigate species responses to existing recreational use in the watershed. In many cases, fishers seem to avoid areas of high recreational use except at night. Generally, the avoidance is at least 100 meters from trails or non-motorized use roads. As mentioned above, mistletoe in the canopy of Douglas-fir trees is used 80% of the time as rest sites, and rest sites tend to generally be in the lower portions of the drainages. In the east side of the action area, where recreational use is highest, rest sites tend to be generally at least 100 meters from trails or roads. On the west side of the action area, where recreational use is lower, this avoidance area does not seem to apply.

Effects Mechanisms and Analytic Framework

Indicators and metrics used in this section to analyze the effects of the proposed action on Pacific fisher include numbers of known individuals or reproductive sites (e.g., dens) that may be affected, and acres of habitat directly affected by trail construction and/or by disturbance from trail use. The 2000 GNN vegetation dataset (Oregon State University and USDA Forest Service 2000) was used to assess potential effects on Pacific fisher denning, resting, foraging, and dispersal habitat.

Refer Section 3.3.2, *Effects Mechanism & Analytic Framework - Disturbance Related to Non-Motorized Recreation*, for a discussion of wildlife and habitat disturbance related to generally to non-motorized recreation and more specifically to road and trail use in the action area, which also applies to Pacific fisher and their habitat.

Alternative 1

Direct and Indirect Effects

Given that there are 23 known individual Pacific fisher in the Ashland watershed, fishers are assumed to use suitable habitat throughout the action area. Table 3-31 displays the amount of fisher habitat within the 6 foot clearance width of existing trails. Table 3-32 displays habitats within a 100 meter disturbance buffer of existing trails.

Based on GNN data, the 6 foot clearance buffer of existing historic and unapproved trails impacts approximately 13.8 acres of denning/resting habitat and 10.9 acres of foraging/dispersal habitat for fishers (Table 3-31). These acreages represent less than 1% of these habitats available within the LSR. Furthermore, approximately 623 acres of denning/resting habitat and 460 acres of foraging/dispersal habitats are within the 100 meter disturbance buffer of existing historic and unapproved trails (Table 3-32). These acreages represent approximately 6% of these habitats available in the LSR. These acreages would remain relatively consistent under Alternative 1.

Table 3-31. Estimated Acres of Pacific Fisher Habitat within 6-Foot Clearance Width of Existing Historic and Unapproved Trails in the Action Area

Trail Category	*Denning / Resting (acres)*	*Foraging / Dispersal (acres)*
Exiting Unapproved	4.2	8
Existing Historic	9.6	2.9
TOTAL	**13.8**	**10.9**

Table 3-32. Estimated Acres of Pacific Fisher Habitat within 100 Meter Disturbance Buffer of Existing Historic and Unapproved Trails in the Action Area

Trail Category	*Denning / Resting (acres)*	*Foraging / Dispersal (acres)*
Exiting Unapproved	169	289
Existing Historic	454	171
TOTAL	**623**	**460**

The response of fishers to recreation disturbance is not well documented, however, it is expected that fishers would avoid human activity when it reaches a certain threshold of proximity and unnatural loudness. As with most wildlife, disturbance during the breeding season when females are in dens or with young kits may be the most stressful and potentially detrimental. In the southern Oregon Cascades, fisher females give birth in late March and generally move kits from natal dens to maternal dens at about 8-10 weeks. Near the end of July when kits are approximately 4 months old, are more mobile and begin to travel with their mothers (Aubry and Raley 2006 *in* Lofroth et al. 2010).

Two known (2013) fisher natal den locations are more than 100 meters from the nearest existing trails. In addition, the majority of fisher daytime resting locations on the east side of the action area, as documented by global position system (GPS) collar monitoring, are in mistletoe brooms located 30 feet or more above the ground and at least 100 meters away from existing trails. The same has not been observed on the west side of the action area which has less recreation use, indicating that fishers may be responding to high recreation use and avoiding trails on the east side during the daytime.

Fishers have a more diverse diet than spotted owls; however the anticipated increase in trail use and potential for ongoing, unauthorized trail development under Alternative 1 would likely result in degradation of prey habitat, diversity, and availability, which would negatively affect fishers over the long term. It is likely that potential increased trail use under Alternative 1 would result in gradual displacement and decline of Pacific fishers in the action area.

Alternative 2

Direct and Indirect Effects

The acreage of fisher habitat that would be disturbed within the 6 foot clearance width of all trails proposed for authorization, construction, or decommissioning under Alternative 2 is summarized in

Table 3-33. Trail clearance under Alternative 2 would involve approximately 5.4 acres of denning/resting habitat and 8.3 acres of foraging/dispersal habitat in the action area. New trail construction and the incorporation of existing historic and unapproved trails as System Trails under this alternative would require very little vegetation clearance, and large snags, large woody debris or trees with large mistletoe brooms, habitat elements important to fisher, would not be removed. New trail construction would affect approximately 4.3 acres more than what would be recovered by trail decommissioning (Table 3-33). This would represent less than 0.5% of these habitats available in the LSR.

Table 3-33. Estimated Acres of Pacific Fisher Habitat within 6 Foot Clearance Width of Trails Proposed for Authorization, Construction, and Decommissioning under Alternative 2

Trail Category	*Denning / Resting (acres)*	*Foraging / Dispersal (acres)*
Authorize	4.8	4.6
Construct	1.5	5.8
Decommission	0.9	2.1
TOTAL	**5.4**	**8.3**

* "Authorize" reflects incorporation of existing historic and unapproved trails as System Trails. "Construct" reflects construction of proposed new trails.

Table 3-34 displays habitats within the 100 meter disturbance buffer of trails proposed for authorization, construction, and decommissioning under Alternative 2. Approximately 479 acres of denning/resting habitat and 262 acres of foraging/dispersal habitat are within the 100 meter disturbance buffer of existing historic and unapproved trails that would be authorized as System Trails under this alternative. Fishers are suspected to already avoid trails during the daytime based on preliminary analysis of GPS collar data and locations of known fisher rest sites and den locations on the east side of the LSR. A net increase in disturbance of 111 acres of denning/resting habitat and 244 acres of foraging/dispersal habitat would result from proposed new trail construction under Alternative 2 after accounting for trail decommissioning (Table 3-34). These acreages represent approximately 1% of denning/resting habitat and 3% of foraging/dispersal habitats available in the LSR. Some of the proposed new trails would be located within known fisher home ranges. The amount of disturbance anticipated from use of these new trails would be expected to result in some degree of habitat avoidance and possibly gradual degradation of foraging habitat in these areas.

Table 3-34. Estimated Acres of Pacific Fisher Habitat within 100 Meter Disturbance Buffer of Trails Proposed for Authorization, Construction, and Decommissioning under Alternative 2

*Trail Category**	*Denning / Resting (acres)*	*Foraging / Dispersal (acres)*
Authorize	479	262
Construct	151	338
Decommission	40	94
TOTAL	**590**	**506**

* "Authorize" reflects incorporation of existing historic and unapproved trails as System Trails. "Construct" reflects construction of proposed new trails.

Long-term increased habitat disturbance from certain proposed new trails under Alternative 2 may result in gradual displacement and decline of Pacific fishers in the action area. Due to a net gain of long-term habitat disturbance effects within fisher home ranges, it is anticipated that Alternative 2 "may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the local population (Siskiyou Mountains) or species."

Alternative 3

Direct and Indirect Effects

The acreage of fisher habitat that would be disturbed within the 6 foot clearance width of all trails proposed for authorization, construction, or decommissioning under Alternative 3 is summarized in Table 3-35. Trail clearance under Alternative 3 would involve approximately 4.1 acres of denning/resting habitat and 8.1 acres of foraging/dispersal habitat for fishers within the action area. Similar to Alternative 2, the new trail construction and the incorporation of existing historic and unapproved trails as System Trails under this alternative would require very little vegetation and large snags, large woody debris or trees with large mistletoe brooms would not be removed. New trail construction would affect less denning/resting habitat and 1.5 acres more foraging/dispersal habitat than would be recovered by trail decommissioning (Table 3-35). This would represent less than 0.1% of these habitats available in the LSR (see Table 3-30).

Table 3-35. Estimated Acres of Pacific Fisher Habitat within 6 Foot Clearance Width of Trails Proposed for Authorization, Construction, and Decommissioning under Alternative 3

Trail Category	*Denning / Resting (acres)*	*Foraging / Dispersal (acres)*
Authorize	3.1	3.4
Construct	1	4.7
Decommission	2.4	3.2
TOTAL	**1.7**	**4.9**

* "Authorize" reflects incorporation of existing historic and unapproved trails as System Trails. "Construct" reflects construction of proposed new trails.

Table 3-36 displays habitats within the 100 meter disturbance buffer of trails proposed for authorization, construction, and decommissioning under Alternative 3. Approximately 383 acres of denning/resting habitat and 239 acres of foraging/dispersal habitat are within the 100 meter disturbance buffer of existing historic and unapproved trails that would be authorized as System Trails under this alternative. In fact, decommissioning would reduce the overall amount of disturbance from existing historic and unapproved trails to 318 acres (Table 3-36). However, there would be a 67 acre net gain in disturbance of foraging and dispersal habitat due to new trail construction, which may result in avoidance of this habitat by fishers when recreational use is high. This increase represents approximately 0.1% of foraging/dispersal habitat within the LSR.

Table 3-36. Estimated Acres of Pacific Fisher Habitat within 100 Meter Disturbance Buffer of Trails Proposed for Authorization, Construction, and Decommissioning under Alternative 3

*Trail Category**	*Denning / Resting (acres)*	*Foraging / Dispersal (acres)*
Authorize	383	239
Construct	116	251
Decommission	181	184
TOTAL	**318**	**306**

* "Authorize" reflects incorporation of existing historic and unapproved trails as System Trails. "Construct" reflects construction of proposed new trails.

Some trails proposed for construction under Alternative 2 that would be located within known fisher home ranges were removed from Alternative 3. This and the additional trails to be decommissioned would result in a reduction in the amount of denning/resting habitat disturbed. Overall, when compared to Alternatives 1 and 2, Alternative 3 would result in a considerable reduction in disturbance acres to Pacific fisher habitats in the analysis area.

The additional 67 acres of disturbance in foraging/dispersal habitat from new trail construction may result in localized effects on fishers, although, overall, Alternative 3 would result in a reduction in

habitat disturbance compared to Alternatives 1 and 2. Therefore, Alternative 3 “may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the local population (Siskiyou Mountains) or species” for Pacific fisher.

Cumulative Effects

Over the long-term, ongoing disturbance of fisher habitat under Alternative 1 may result in a cumulative effect on Pacific fisher when considered in combination with short-term disturbance associated with the Ashland Forest Resiliency Project. In addition, fisher dispersal habitat is available along ridgelines within the action area and within the Mt Ashland Ski Area Expansion Project area. In the southern Oregon Cascades, movement of adult fishers has been documented to increase between February and April when males become more active and start to move beyond their non-breeding home ranges and juveniles begin to disperse. Therefore long-term habitat disturbance associated with Alternative 1 may also contribute to a cumulative effect on fisher when considered in combination with the proposed expansion of the Mt. Ashland ski area, particularly in late winter and early spring due to long-term increased human presence.

These cumulative effects would be similar under Alternatives 2 and 3, although somewhat less under Alternative 3 given the relocation of several proposed and existing trails away from known and suitable fisher habitats.

Summary

Table 3-29 provides a summary and comparison of the potential effects of the alternatives on Pacific fisher, including acres of habitat disturbance. Disturbance acres for Alternative 1 are based on current use of existing historic and unapproved trails, while the action alternatives acreages reflect the net gain or reduction of disturbance relative to Alternative 1. Of the three alternatives considered in this EA, Alternative 3 best addresses significant issues related to impacts to fishers in the action area by minimizing habitat disturbance from increasing recreational use of trails and neutralizing negative impacts to LSR values. Alternative 3 also meets the LRMP Standards and Guidelines for wildlife and management allocations.

3.4 Affected Environment & Environmental Consequences of Other Issues

As described in Section 1.8, *Issues*, in Chapter 1, *Introduction*, other issues reflect anticipated effects that can be mitigated equally across all alternatives. Thirteen other issues were identified by the IDT for consideration in this EA (see Table 1-1).

3.4.1 Issue - Potential Effects on Forest Service Sensitive Species, Management Indicator Species, NWFP Survey and Manage Species, Migratory Birds, and Other Sensitive Terrestrial Species

Background

This section addresses the potential effects of the proposed action on Forest Service sensitive species and the viability of MIS and their habitat, as defined in the LRMP (see below). In addition, species identified as Survey and Manage, Protection Buffer, or for which additional mitigation measures are defined by the NWFP Record of Decision (USDA Forest Service and USDI Bureau of Land Management 2001b) are addressed in this section. This section also considers the effects of the proposed action on migratory birds.

The analysis area considered for assessing impacts to special-status species in this section is generally concurrent with the action area.

The following provides a summary of the management direction specific to the noted "special-status" species with the analysis area, as well as general information on the status, distribution, and threats to the species; their habitat characteristics and use; and their occurrence in the analysis area.

Management Direction

Region 6 Sensitive Species

For Region 6 of the Forest Service, sensitive species are defined as those plant and animal species identified by a Regional Forester for which population viability is concern, as evidenced by significant current or predicated downward trends in population numbers or density and habitat capability that would reduce a species' existing distribution (FSM 2670.5). Management of sensitive species "must not result in a loss of species viability or create significant trends toward federal listing" (FSM 2670.32). The Regional Forest is responsible for identifying sensitive species and shall coordinate with federal and state agencies and other sources, as appropriate, in order to focus conservation management strategies and to avert the need for federal or State listing as a result of forest management activities.

Table 3-37 lists Forest Service Region 6 sensitive species, as well as other sensitive terrestrial species considered in the LRMP and their potential to occur within the analysis area. Species shaded in grey in the table are either present or have habitat within the analysis area. For all other species, the analysis area is either outside the range of the species or does not provide the habitat necessary to support the species. In addition, for some species that might otherwise occur or have habitat in the analysis area, the nature of the proposed action is such that impacts to the species are not anticipated (see below). For these species, the proposed action would have no impact and they are not addressed further.

- Northwestern pond turtle. Reeder Reservoir provides the only potential habitat for northwestern pond turtles within the action area. None of the alternatives would remove or modify habitat for this species.

- American peregrine falcon. There are no peregrine falcon nest sites known to the action area. In addition, there is little potential habitat for peregrine falcons in the action area, and none within 100 meters of any existing trails. None of the alternatives would remove or modify potential habitat for peregrine falcons.
- Lewis' woodpecker and white-headed woodpecker. None of the alternatives would result in removal or modification of pine or other species of snags, which provide suitable habitat or impact important food sources for Lewis' or white-headed woodpeckers. Both species are somewhat tolerant of humans and have been seen foraging in urban settings (British Columbia Ministry of Environment, Lands and Parks 1997, Cooper et al. 1998).
- Purple martin. Purple martins require snags in openings or artificial nest structures (at least 6 meters from a tree canopy), next to water that provide suitable breeding habitat (Horvath 2000). This habitat is uncommon in the analysis area. There have been no documented active purple martin colonies in Jackson County since the 1940s (Horvath 2000). None of the alternatives would result in removal or modification of suitable habitat for purple martins and the proposed action would have no impact on the species.
- Tri-colored blackbird. Tri-colored blackbirds are primarily native to California with scattered distribution in Oregon, including southern Jackson County. Breeding colonies are associated with riparian and wetland habitat that provides cattails, Himalayan blackberries, grainfields, willows, and cottonwoods. Good quality foraging habitat includes irrigated pastures and lightly grazed rangelands, where birds forage on locally abundant insects such as grasshoppers, grains and snails (Beedy and Hamilton 1999). There is little suitable habitat for tri-colored blackbirds in the analysis area. None of the alternatives would modify or remove suitable habitat for tri-colored blackbirds and the proposed action would have no effect on the species.
- Pallid bat, Townsend's big-eared bat, and fringed myotis. All trails considered under the proposed action are located more than 200 meters from mines known to be used by fringed myotis, pallid bats or Townsend's big-eared bats. None of the alternatives would remove or modify any potential habitat (large snags or mines) for these species.
- California wolverine. There is no documented population of this species in the analysis area and use of the action area by wolverines is unlikely due the high level of human presence.
- Johnson's hairstreak. Johnson's hairstreak butterfly is associated with Douglas-fir mistletoe and adults also spend much of their time in the canopy. None of the alternatives would remove, modify or disturb potential habitat for this species.

Table 3-37. Forest Service Sensitive, Management Indicator, Survey and Manage and Other Sensitive Terrestrial Species Addressed in Rogue River National Forest Land and Resource Management Plan

Species		*Habitat or Species Present in Analysis Area?*
Common Name	*Scientific Name*	
Federally Listed		
Northern spotted owl[1]	*Strix occidentalis caurina*	Yes; Designated Critical Habitat
Marbled murrelet	*Brachyramphus marmoratus*	No
Forest Service Sensitive Species		
Pacific fisher	*Pekania pennanti (formerly Martes pennanti)*	Yes
Black salamander	*Aneides flavipunctatus*	Yes
California slender salamander	*Batrachoseps attenuates*	No
Siskiyou Mountain salamander[2]	*Plethodon stormi*	No
Foothill yellow-legged frog	*Rana boylii*	No
Oregon spotted frog	*Rana pretiosa*	No
Northwestern pond turtle	*Actinemys marmorata marmorata*	Yes
Northern bald eagle	*Haliaeetus leucocephalus*	Yes
American peregrine falcon	*Falco peregrinus anatum*	Yes
Harlequin duck	*Histrionicus histrionicus*	No
Lewis' woodpecker	*Melanerpes lewis*	Yes
White-headed woodpecker[2]	*Picoides albolarvatus*	Yes
Purple martin	*Progne subis*	Yes
Tri-colored blackbird	*Agelaius tricolor*	Yes
Northern waterthrush	*Seiurus noveboracensis*	No
Pallid bat	*Antrozous pallidus*	Yes
Townsend's big-eared bat	*Corynorhinus townsendii*	Yes
Fringed myotis	*Myotis thysanodes*	Yes
California wolverine	*Gulo gulo luteus*	Yes
Western ridged mussel	*Gonidea angulate*	No
Evening fieldslug[2]	*Deroceras hesperium*	No
Klamath Rim pebblesnail[2]	*Fluminicola* sp. nov.	No

Species		Habitat or Species Present in Analysis Area?
Common Name	***Scientific Name***	
Oregon shoulderband[2]	*Helminthoglypta hertleini*	Yes
Chace sideband[2]	*Monadenia chaceana*	Yes
Green sideband	*Monadenia fidelis beryllica*	No
Traveling sideband	*Monadenia fidelis celeuthia*	Yes
Crater Lake tightcoil[2]	*Pristiloma arcticum crateris*	No
Siskiyou hesperian	*Vespericola sierranus*	Yes
Highcap lanx	*Lanx alta*	No
Scale lanx	*Lanx klamathensis*	No
Robust walker	*Pomatiopsis binneyi*	No
Pacific walker	*Pomatiopsis californica*	No
Johnson's hairstreak	*Callophrys johnsoni*	Yes
Hoary elfin	*Callophrys polios maritime*	No
Insular blue butterfly	*Plebejus saepiolus littoralis*	No
Gray blue butterfly	*Plebejus podarce Klamathensis*	Yes
Mardon skipper	*Polites mardon*	Yes
Coronis fritillary	*Speyeria coronis coronis*	No
Franklin's bumblebee	*Bombus franklini*	Yes
Western bumblebee	*Bombus occidentalis*	Yes
California shield-backed bug	*Vanduzeeina borealis californica*	Yes
Siskiyou short-horned grasshopper	*Chloealtis aspasma*	Yes
Management Indicator Species		
Black-tailed deer	*Odocoileus hemionus colubianus*	Yes
Roosevelt elk	*Cervus elephus roosevelti*	Yes
American marten	*Martes americana*	Yes
Pileated woodpecker and other woodpeckers	*Dryocopus pileatus*	Yes
Survey and Manage, Protection Buffer and Other NWFP Special-Status Species		
Oregon red tree vole (Xeric zone)	*Arborimus longicaudus*	No
Del Norte salamander	*Plethodon elongatus*	No
Flammulated owl	*Otus flammeolus*	Yes

Species		***Habitat or Species Present in Analysis Area?***
Common Name	***Scientific Name***	
Great gray owl	*Strix nebulosa*	Yes
Bats (fringed, long-eared, and long-legged myotis; silver-haired, pallid, and Townsend's big-eared bats)		Yes
Osprey	*Pandion haliaetus*	No
Northern goshawk	*Accipiter gentilis*	Yes[3]

Shading in table indicates species either present, or whose habitat is present within the analysis area.

[1]Northern spotted owl is also a Forest Management Indicator Species (MIS).

[2]Species is also a Survey and Manage species.

3 The LRMP provides management direction to protect active goshawk nests during the nesting season (LRMP, 4-193), however, there are no known goshawk nests in the action area. As a result, impacts to northern goshawk in this section are considered in the context of migratory birds.

Rogue River National Forest Land and Resource Management Plan

The following is a summary of the Standards and Guidelines from Chapter 4 of the LRMP pertaining to MIS. Refer to the Management Direction discussion in Section 3.3.3 for a description of other Standards and Guidelines that apply to federally-listed or proposed species, or other wildlife sensitive species that may occur in the analysis area.

> "Five forest wildlife species and one group have been selected as management indicator species (MIS). An indicator species acts as a barometer, indicating the health of the habitat they represent and will be monitored to quantify habitat changes predicted by implementation of this plan."

The LRMP also provides management direction to protect active osprey and goshawk nests during the nesting season (LRMP, page 4-182, 4-193); however, there are no known nests of either species in the action area that would require protective measures during the nesting season.

Survey and Manage Species

The proposed action lies within the range of certain Survey and Manage species listed in the 2001 NWFP Record of Decision (USDA Forest Service and USDI Bureau of Land Management 2001b) with pre-disturbance requirements (Category A, B, or C) whose known or suspected range includes the Rogue River-Siskiyou National Forest and Siskiyou Mountains Ranger District. These species include Oregon red tree vole (*Arborimus longicaudus*), great gray owl (*Strix nebulosa*), Chace sideband (*Monadenia chaceana*), Oregon shoulderband (*Helminthoglypta hertleini*), and Siskiyou Mountain salamander (*Plethodon stormi*) (Table 3-37). Surveys were not triggered for any of these species, as described in detail in the Biological Evaluation and Specialist Report for the Ashland Trails Project. Management recommendations for the known sites of Chase sideband within the action area (as described below) would be implemented to maintain suitable habitat.

A discussion of the potential effects of the proposed action on Survey and Manage species with potential to occur in the analysis area (see Table 3-37) – regardless of pre-disturbance survey requirements – is provided in this section.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions between the U.S., Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. A migratory bird is any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle. Under the act it is unlawful to pursue, hunt, take, capture (or kill) a migratory bird except as permitted by regulation (16 U.S. Code (USC) 703-704). The regulations prohibit take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, or possessing migratory birds, including nests and eggs, except under a valid permit or as permitted in the implementing regulations.

USFWS is the lead federal agency responsible for managing and conserving migratory birds in the U.S; however, under Executive Order (EO) 13186, all other federal agencies are charged with the conservation and protection of migratory birds and the habitats on which they depend. In response to EO 13186, the Bureau of Land Management (BLM) and Forest Service have implemented management guidelines that direct migratory birds to be addressed in the NEPA process when actions have the potential to negatively or positively affect migratory bird species of concern. The EO directs federal agencies to avoid or minimize the negative impact of their actions on migratory birds, and to take steps to protect birds and their habitat.

EO 13186 also requires federal agencies to develop Memorandum of Understandings (MOU) with USFWS to conserve birds, including taking steps to restore and enhance habitat, preventing or abating pollution affecting birds, and incorporating migratory bird conservation into agency planning processes whenever possible. The MOU requires the Forest Service to complete the following:

> Within the NEPA process, evaluate effects of agency actions on migratory birds, focusing first on species of management concern along with their priority habitats and key risk factors. To the extent practicable:
>
> a. Evaluate and balance long-term benefits of projects against any short- or long-term adverse effects when analyzing, disclosing, and mitigating the effects of actions.
>
> b. Pursue opportunities to restore or enhance the composition, structure, and juxtaposition of migratory bird habitats in the project area.
>
> c. Consider approaches, to the extent practicable, for identifying and minimizing take that is incidental to otherwise lawful activities, including such approaches as:
>
> 1. altering the season of activities to minimize disturbances during the breeding season;
> 2. retaining snags for nesting structures where snags are underrepresented;
> 3. retaining the integrity of breeding sites, especially those with long histories of use;
> 4. giving due consideration to key wintering areas, migration routes, and stop-over habitats; and

5. minimizing or preventing the pollution or detrimental alteration of the environments utilized by migratory birds whenever practical by assessing information on environmental contaminants and other stressors relevant to migratory bird conservation.

Species Descriptions

The following provides a brief description of the distribution, habitat characteristics, and occurrence of the species considered in this section with potential to occur in the analysis area (Table 3-37). Background information on these species is derived primarily from the Region 6 Interagency Special Status and Sensitive Species Program website (USDA Forest Service 2013), USFWS Species Fact Sheets, Species Conservation Assessments, and the Ashland Forest Resiliency Project Biological Evaluation (VonKienast 2008), all on file in the record for the proposed action.

Refer to Section 3.3.2 and 3.3.3 for a discussion of northern spotted owl and Pacific fisher, respectively.

Forest Service Sensitive Species

Black Salamander

The black salamander (*Aneides flavipunctatus*) ranges from a limited distribution in southern Oregon into Santa Cruz and Santa Clara counties, California. In Oregon, the few records available indicate a small range in extreme southern Jackson and southeastern Josephine counties (Leonard et al. 1993). Black salamanders are found in coniferous forests, mixed deciduous-coniferous forests, and open hillsides from sea level up to at least 1,700 meters in elevation (Nussbaumet et al. 1983). Black salamanders are most likely to be found in the moist crevices of decaying logs or stumps, within moist to wet talus slopes, or under surface objects during wet weather (Leonard et al. 1993).

Three specimens residing in the Southern Oregon University Reptile and Amphibian collection were tentatively identified as black salamander by Dr. Stephen Cross. These specimens were taken in May 1971 from a mine shaft along the eastern border of the Forest's Resource Natural Area (Cross 1973). Six individuals (1 adult male, 2 adult females, 1 subadult, 2 juveniles) were located by Forest Service and USFWS biologists conducting herpetological surveys for the Ashland Forest Resiliency Project in April 2004 over 200 meters from the nearest trail. The adults and sub-adult were located under a large boulder and the juveniles were found under debris associated with a large downed log. All of the individuals were found within a 10 meter radius within a dry, fairly open site. These habitat features are located throughout the analysis area.

Northern Bald Eagle

Information on the ecology of the northern bald eagle is contained within the draft site-specific management plan for the Emigrant Lake bald eagle nest site (Popp and Isaacs 1995); the *Working Implementation Plan for Bald Eagle Recovery in Oregon and Washington* (ORWA Interagency Wildlife Committee 1989); and within the *Pacific Bald Eagle Recovery Plan* (USFWS 1986).

Most bald eagles nest within 0.6 to 1.2 miles of aquatic foraging areas, which is typically a lake, reservoir, large river, or coastal estuary (Anthony et al. 1982, Stalmaster 1987, Anthony and Isaacs 1989, Garrett et al. 1993). Nest trees are usually the dominant trees in the stand, often much larger than the surrounding trees (Anthony et al. 1982, Stalmaster 1987). The nest trees provide adequate support for the large nests, an open flight path to the nest, and a view of the surrounding terrain. Young stands are avoided, but eagles do desire large openings in the canopy provided by lakes, rivers, and meadows (Stalmaster 1987).

Roosting and perching habitat is also important. Roost trees are often the largest trees in the stand (Anthony et al. 1982). When selecting roost trees, eagles choose trees providing greater shelter versus trees close to food (Stalmaster 1987). Trees used for perching are usually near water and food and are used for resting, hunting, and eating. The species of tree is less important than the location and form of the tree (Stalmaster 1987).

An active bald eagle nest (Nest 1034) is located east of the action area on BLM managed lands around Emigrant Lakethe nest is located in a dominant ponderosa pine within the Slide Creek drainage (Arthur pers. comm. *in* USDA Forest Service 2008). A Bald Eagle Consideration Area encompasses a portion of Forest Service managed lands in the action area within the Neil and Ashland Creek drainages (Popp and Isaacs 1995). A Bald Eagle Management Area is located on BLM and private ownerships (Popp and Isaacs 1995). An adult bald eagle was observed roosting in the Neil Creek drainage in 1994 and adult eagles were observed flying toward the Neil Creek drainage several times during the evening. It is unknown whether eagles roost in the drainage, use it to access the nest stand, or both (Popp and Isaacs 1995).

Bald eagles are fairly tolerant of human activity, but high levels of noise or disturbance can dissuade them from important breeding area or winter roost sites, particularly during the early nesting season. Individual pairs have widely variable responses to disturbance. Seasonal and distance protection are generally effective in reducing the adverse effects of human disturbance activities on bald eagles. Habitat protection is generally effective if large trees that support nesting and roosting are maintained within the nesting or wintering stand and any disruptive activity is scheduled outside of sensitive periods (USFWS 2007).

Oregon Shoulderband

The Oregon shoulderband snail (*Helminthoglypta hertleini*) is known from rocky areas, including talus deposits and outcrops, which contain stable interstitial spaces large enough for snails to enter. Within rocky habitat, the species is associated with herbaceous vegetation and deciduous leaf litter, generally within 30 meters (98 feet) of stable talus deposits or other rocky areas in shrublands or rocky inclusions in forest habitat, often adjacent to areas with substantial grass or seasonal herbaceous vegetation. Woody debris is often used as refugia in moist situations.

The type locality for this species is along Highway 66 east of Ashland. It is known from the Klamath Province, including Jackson County, Oregon, on BLM Medford District and sites along the Shasta River in Siskiyou County, California. This species is expected to be found as far north as Douglas County, Oregon.

Protocol surveys conducted by Siskiyou Co-op Inc. in 2006 and 2007 of 8,731 acres within the Ashland Forest Resiliency Project area did not locate any individuals of this species.

Chace Sideband

The Chace sideband (*Monadenia chaceana*) is associated with forested and open talus or rocky areas. Vegetation types include dry conifer and mixed conifer/hardwood forest communities as well as oak communities. Mollusks that inhabit rocky habitats also utilize the surrounding forest areas for foraging and dispersal during moist, cool conditions. Seasonal deep refugia include talus deposits and outcrops, which contain stable interstitial spaces large enough for snails to enter. These seasonal refugia also provide protection from fire and predation during inactive periods. Within rocky habitat, the species is also associated with subsurface water, herbaceous vegetation and deciduous leaf litter. In some forested sites, especially in the Oregon Cascades Province, the species has been found associated with down wood where few rock substrates occur (Duncan 2005).

Known chance sideband sites are from the Shasta and Little Shasta River Drainages in Siskiyou County, California and as far north as Douglas County, Oregon. Two individual specimens were located by a contractor conducting herptile surveys for Ashland Forest Resiliency Project in 2004. These individuals were positively identified by Nancy Duncan (Region 6 mollusk expert). Protocol surveys were conducted on approximately 1,500 acres of the Ashland Watershed Protection Project in 1999. Protocol level surveys conducted in 2006 and 2007 on approximately 8,730 acres associated with the Ashland Forest Resiliency Project identified and collected five specimens with the survey area.

Traveling Sideband

The traveling sideband snail (*Monadenia fidelis celuthia*) is found at low elevation in unaltered, somewhat dry and open forested terrain (Frest and Johannes 2000). It can be found in basal talus and rock outcrops with oak and maple overstory component; along spring runs in rocks and moist vegetation and moss within mixed conifer-hardwood forest (western red cedar and maple); and very moist, silty alluvial bench adjacent to creeks in mixed conifer-hardwood forest (western red cedar, Douglas fir and big-leaf maple) (Duncan 2005). Known traveling sideband sites are from Jackson and Josephine counties in Oregon.

Surveys conducted in 2006 and 2007 on approximately 8,730 acres associated with the Ashland Forest Resiliency Project identified and collected 19 specimens within the surveyed area.

Siskiyou Hesperian

The Siskiyou hesperian (*Vespericola sierranus*) was originally found throughout southern Oregon, northern California, and northern Nevada at broadly scattered sites. Today it is found in northern California and southern Oregon. Distribution in Oregon includes sites near Upper Klamath Lake, Crater Lake National Park, and the Klamath River drainage in the Rogue River National Forest and Medford District BLM (Frest and Johannes 1996, Roth 1993). There are no known locations in the action area.

The Siskiyou hesperian is primarily a riparian associate found in perennially moist habitat, including spring seeps and deep leaf litter along streambanks and under debris and rocks. Moist valley, ravine, gorge, or talus sites are preferred, near the lower portions of slopes in areas that are not subject to regular flooding. It may occur in areas with running water or alongside streams and spring pools (Frest and Johannes 1996, Roth 1993).

Gray Blue Butterfly

Gray blue butterfly (*Plebejus podarce klamathensis*) is found in the southern Cascades and eastern Siskiyou Mountains in Douglas, Jackson, and Klamath counties, including Mt. Ashland, Diamond Lake, Crater Lake, and Old Man Camp west of Mt. Bailey. Adults can be abundant where they occur but populations are locally distributed (Warren 2005). This species was very common and reliable just east of the Grouse Gap Shelter on the south side of Mt. Ashland in the 1990's and early 2000's (Runquist pers. comm.), but additional localities in the Siskiyou and northern Klamath mountain ranges are not known (Runquist pers. comm., Pyle pers. comm.). Although they have been collected on Ball Mountain (far northern California Cascades), intensive surveys (1999-2004) of butterfly diversity in the adjacent Cascade-Siskiyou National Monument (Jackson County, Oregon) did not reveal this species, probably due to the lack of host plant and suitable subalpine wet meadows (Runquist pers. comm.).

This species occurs at high elevation wet montane meadows from 1,554 meters (5,100 feet) to over 1,981 meters (6,500 feet). Appropriate habitat is described as "marshy slopes and meadows that are lushly overgrown with deep grasses and dense stands of false hellebore (*Veratrum viride*)" (Dornfeld 1980). Shooting stars (*Dodecatheon jeffreyi* and *D. alpinum*) are the larval food plant in the Trinities and Sierra Nevada of California (Pyle 2002, Warren 2005). Adults are very local and do not appear to wander much beyond their meadow habitat (Opler and Wright 1999).

Mardon Skipper

Mardon skippers (*Polites mardon*) use a variety of early successional meadow habitats, which appear to vary by region (Kerwin and Huff 2007). Populations in southern Oregon occupy small (less than 0.5 to 10 acres) high-elevation (4,500 to 5,100 feet) grassy meadows within mixed conifer forests (USFWS 2010).

Seven or eight locations are known from the Cascade Mountains in southwest Oregon, most bordering the Cascade-Siskiyou National Monument, with populations ranging from a few to approximately 200 individuals (Kerwin and Huff 2007). In 2005, searches and surveys of populations on BLM and Forest Service lands in southern Oregon discovered several new sites. There are now a total of 23 known sites in southern Oregon. One site is on the Rogue River-Siskiyou National Forest and is approximately 8 kilometers (km) north of the nearest site on BLM lands. Another locality is a complex of sites on both BLM and Forest Service lands north of Dead Indian Memorial Road. Several more sites were located adjacent to known sites on BLM lands. One day counts at sites ranged from one butterfly to over 70 butterflies (Kerwin and Huff 2007). Surveys for various alpine butterflies were conducted from May thru August 1996 along the Siskiyou Crest, including the Mt. Ashland area (Nice and VanBuskirk 1996). Mardon skippers were not detected along the Siskiyou Crest with this effort.

Franklin's Bumblebee

Franklin's bumblebee (*Bombus franklini*) is a typical primitively eusocial bumble bee. Females are generalist foragers for pollen, especially from lupine (*Lupinus*) and California poppy (*Eschscholzia*), and for nectar, especially from horsemint (*Agastache*) and mountain penny-royal (*Monardella*). They may collect both pollen and nectar from vetch (*Vicia*) and rob nectar from it (P. Schroeder pers. comm.). Its nesting biology is unknown, but it probably nests in abandoned rodent burrows as is typical for other members of the subgenus *Bombus sensu stricto* (Hobbs 1968). Its flight season is from mid-May to the end of September (Thorp et al. 1983).

Franklin's bumblebee has the most limited geographic distribution of any bumble bee in North America and possibly the World (Williams 1998). It is known only from southern Oregon (Douglas, Jackson, and Josephine counties) and northern California (Siskiyou and Trinity counties) between the Coast and Sierra-Cascade Ranges. Stephen (1957) recorded it from the Umpqua and Rogue River Valleys of Oregon. Thorp et al. (1983) also recorded it from northern California and suggested its restriction to the Klamath Mountain region of southern Oregon and northern California. Elevations of localities where it has been found range from 540 feet (162 meters) in the north to above 7,800 feet (2,340 meters) in the south of its historic range. Its entire distribution, including recent range extensions, can be covered by an oval of about 190 miles north to south and 70 miles east to west between 122° to 124° west longitude and 40° 58' to 43° 30' north latitude (Thorp 2005).

There is a known site located on the south side of Mt. Ashland. Recent surveys by Dr. Thorpe have failed to detect any individuals at any historical sites except for one lone individual located at the Mt. Ashland site in 2006.

Western Bumblebee

The western bumblebee (*Bombus occidentalis*) was widespread and common throughout the western United States and western Canada before 1998 (Xerces Society 2009). The species former range within the U.S. extended through northern California, Oregon, Washington, Alaska, Idaho, Montana, western Nebraska, western North Dakota, western South Dakota, Wyoming, Utah, Colorado, northern Arizona, and New Mexico. Since 1998, populations of this bumblebee have declined drastically throughout parts of its former range. In Alaska and east of the Cascades in the Canadian and U.S. Rocky Mountains, viable populations still exist. Populations of the western bumblebee in central California, Oregon, Washington and southern British Columbia have mostly disappeared. It is difficult to accurately assess the magnitude of these declines since most of this bee's historic range has not been sampled systematically.

The following excerpt from Evans et al. (2008) describes survey efforts conducted in southern Oregon:

> "Robbin Thorp has extensively searched several sites in southern Oregon and northern California where *B. occidentalis* used to be common. He has only found one *B. occidentalis* individual since 2002 (Thorp 2008). In yearly surveys of southern Oregon and northern California sites in which a total of 15,573 bumble bees were observed from 1998 to 2007, 102 *B. occidentalis* were observed in 1998, nine in 1999, one in 2000, one in 2001, one in 2002, and none in 2003, 2004, 2005,

2006, or 2007 (Thorp 2008, Figure 9). In 2008, a single *B. occidentalis* specimen was captured on Mt. Ashland in Oregon in a survey that included over 2,000 bees that were caught in blue vane traps (R. Thorp, personal communication, September 2008). An additional 2,000 bumble bees were examined foraging at flowers. No additional *B. occidentalis* were observed, indicating that although present, *B. occidentalis* is still extremely rare."

California Shield-Backed Bug

The California shield-backed bug (*Vanduzeeina borealis californica*) is known only from California (Yosemite National Park and Cisco, just west of Donner Pass) and Oregon (Mt. Hood area, Hood River County and H. J. Andrews Experimental Forest, eastern Lane County). This subspecies has been documented on the Willamette National Forest and either on or near (less than 1.6 km away from) Mt. Hood National Forest. It is suspected in the Umpqua, Siuslaw, and Rogue River-Siskiyou National Forests, and on BLM land in the Eugene, Salem, Roseburg, Medford, Lakeview, and Coos Bay Districts (Lattin pers. comm.). In the Eugene District, it may inhabit BLM land in the McKenzie Resource Area (Applegarth 1995).

A tall grass prairie specialist, this subspecies inhabits high elevation (i.e., 900 meters) natural balds and meadows (Applegarth 1995). Wagner Glade and some open grassy areas along the proposed Split Rock Trail may provide potential habitat for this species.

Siskiyou Short-Horned Grasshopper

Siskiyou short-horned grasshopper (*Chloealtis aspasma*) distribution is in two general areas: one from southern Oregon near the California border and the other in Benton County. The type locality is in the Siskiyou Mountains of Jackson County, Oregon where specimens were collected on a ridge between 5,000 and 5,800 feet elevation, in a treeless summit covered with an almost impenetrable brushy scrub, through which were scattered grassy areas (Rehn and Hebard 1919).

This species occurs in grassland/herbaceous habitats. It appears to be associated with elderberry plants (*Sambucus* spp.), which are native from Alberta, Canada to Mexico and grow in gravelly, rather dry soils on stream banks, margins of fields and woodlands. Females lay eggs in the pith of elderberry stems in the summer (Foster 1974, BLM 1995). The eggs hatch the following year. Juvenile stages forage in open meadows near the ground. Juveniles look similar to the adults except the wings are much shorter and the individuals are smaller.

There are no known occurrences of this species in the action area, however potential habitat is present in the southern portion of the analysis area along the Wagner Glade, Upper Time Warp and Split Rock Trails.

Management Indicator Species

Management Indicator Species associated with the LRMP represent the issues, concerns, and opportunities to support recovery of federally-listed species, provide continued viability of Forest Service Sensitive species, and enhance management of wildlife and fish for commercial, recreational, scientific, subsistence, or aesthetic values or uses. Management indicators representing overall objectives for wildlife, fish, and plants may include species, groups of species with similar habitat

relationships, or habitats that are of high concern (FSM 2621.1). The current condition of habitat and trends for all MIS species is discussed in the Rogue River-Siskiyou National Forest MIS Forest-wide analysis document (USDA Forest Service 2012).

An indicator species represents all other wildlife species, which utilize a similar habitat type. Indicator species act as a barometer for the health of various habitats and are monitored to quantify habitat changes predicted by implementation of the Forest Plan (1989 pages IV-10 and 11, FEIS page III-102). Management Indicator Species and habitats specific to the Rogue River-Siskiyou National Forest include northern bald eagle (habitat along major rivers); osprey (*Pandion haliaetus*) (habitat along large rivers); northern spotted owl (late-successional forest); pileated woodpecker and American marten (mature/interior forest); black-tailed deer (*Odocoileus hemionus colubianus*) and Roosevelt elk (*Cervus elephus roosevelti*) (early successional forest stages); and woodpeckers/cavity nesters (wildlife trees [snags]). Bald eagle and spotted owl are discussed in an earlier section. Osprey habitat is not present in the action area and is not addressed in this analysis.

Black-Tailed Deer

Black-tailed deer are year-round residents of the action area and rely upon several different successional stages of vegetation to meet their life needs. Areas with heavy canopy closure are used during all seasons. In summer, areas of heavy canopy closure are used to facilitate thermal regulation during periods of high temperatures. During winter, heavy canopy closure moderates temperatures and intercepts snowfall during winter storms. The reduction of snow depth under heavy canopy reduces energetic expenditure during movements of deer and provides areas of browse that would normally be under the snow surface. Areas with little or no overstory canopy cover are important for deer as forage areas. Forest gaps and natural openings provide optimal conditions for shrubs and forbs to grow, which deer depend on for forage.

Quality deer ranges provide both forested conditions for thermal regulation and hiding/escape cover interspersed with open areas for optimal foraging conditions. Within the action area, deer probably use all elevations during the snow-free period, but are forced to use lower elevations during the winter where snow depths are diminished or absent. A mature buck that was captured by ODFW near the summit of Mt. Ashland was fitted with a radio-collar and was found to winter just above Reeder Reservoir (Oredson pers. comm.). The ODFW conducts an annual census of deer in the East Applegate Game Management Unit, but there are no current survey routes within the Ashland Watershed.

Based on ODFW estimates of the total deer population and the percentages of suitable habitat within the three Oregon Wildlife Units on the Rogue River-Siskiyou National Forest, the Forest's population was estimated to be approximately 12,000 animals. The Forest Service used a population model that, based upon seral stages, predicted an existing population of approximately 21,000 deer Forest-wide. The model was indexed to the figures derived from ODFW surveys. The model was not capable of predicting actual carrying capacity of deer, but was an index of overall habitat quality expressed in numbers of animals (USDA Forest Service 1990a, III-86 *in* USDA Forest Service 2012).

Roosevelt Elk

Currently, use of the analysis area by elk is thought to be seasonal. Roosevelt elk herds have been infrequently reported crossing the Mt. Ashland access road (S. Johnson pers. comm. *in* USDA Forest Service 2008). It is assumed that a herd that winters in the Colestine area of California typically enters the analysis area in mid-summer seeking the cooler conifer stands above Road 2060 and west of the Road 2080. Data from ODFW's elk census (ODFW 2010) shows annual fluctuations, but in general, show a steady increase in elk numbers throughout the 1980's. Elk numbers peaked in the early 1990's and remained relatively stable until the early 2000's when they show a slight decline. Elk herds in the Ashland area are increasing and there is currently a large herd that resides in the Valley View area (M. Vargas pers. comm. *in* USDA Forest Service 2008). It is unlikely that elk will reside year-round or frequently in the action area in the near future.

Cover is an important component of elk habitat and provides both thermal and hiding properties. During summer it provides cooler, shaded areas for elk to bed during the heat of the day. During winter it provides a warmer, protected environment out of the cold, wind, rain, or snow. Lichens and other plants associated with cover can be an important source of forage for wintering animals. Adequate thermal cover reduces the energy needed by elk and contributes to over winter survival (ODFW 2003).

Elk typically prefer a grass and forb diet during spring and early summer, and rely on browse species after herbaceous plants become senescent. Forage for these animals is probably provided by the meadows and glades above Road 2060. Elk requirements for thermal cover and forage areas are similar to black-tailed deer.

Rogue River-Siskiyou National Forest Elk and Deer Habitat Condition

Currently forage habitat for elk and deer is the primary limiting factor on the Rogue River-Siskiyou National Forest, constituting less than 10% of the Forest land base. The west side of the Forest provides good forage in designated big game winter range for black-tail deer (there are very few if any elk on that side of the Forest) due to a preponderance of low elevation non-conifer forest lands and an active fuels and habitat enhancement program (over 5,500 acres of big game winter range on the Siskiyou Mountains Ranger District have been treated in the last 5 years). However, the Cascade portion of the Forest, due to different forest types and management activities, is depauparate in the amount of forage habitat available elk and deer. Elk and deer thermal and hiding cover have increased significantly across the Forest although in some areas of big game winter range, they are still not at the amount prescribed in the original LRMP.

Table 3-38 displays the amounts of available thermal cover and foraging habitat for deer and elk on the Rogue River-Siskiyou National Forest.

Table 3-38. Thermal Cover and Foraging Habitat Available for Deer and Elk on the Rogue River-Siskiyou National Forest

Deer and Elk Habitat	*Total Acres*
Thermal Cover	
Young; 11-19.9 inch dbh; >70% closed canopy	141,625
Mature; >20 inch dbh; >60% closed canopy	203,402
Total Thermal Cover	**345,027**
Foraging Habitat	
Grass/Shrub/Sparse Vegetated	8,837
Seed/Sap/Pole; 3-11 inch dbh; <40% closed canopy	35,830
Young; 11-19.9 inch dbh; <40% closed canopy	15,728
Mature; >20 inch dbh; <40% closed canopy	6,066
Total Foraging Habitat	**66,451**
Source: USDA Forest Service 2012, PMR Dataset	

American Marten

Hargis et al. (1999) stated that in North America, American martens are closely associated with mature conifer stands with complete canopy closure, and small (<100 meter), limited, and interspersed openings that are used as forage areas. However, during helicopter surveys for wolverine in Sky Lakes and Thielsen Wilderness areas, marten tracks are frequently seen at and near timber line and in areas of more open (<60%) canopy closure. In Oregon, martens are distributed in the portions of the Coast Range and throughout the Cascade Range. A single marten was detected near Rough and Ready Creek on the Illinois Valley Ranger District of the Rogue River-Siskiyou National Forest in 2001 (Slauson and Zielinski 2001). Martens have been documented on numerous occasions in areas above 4,000 feet elevation during forest carnivore surveys on the High Cascades Ranger District of the Rogue River-Siskiyou National Forest. Marten have been documented south of Highway 140 by Forest Service personnel and near Howard Prairie Lake during carnivore surveys conducted by the Medford District BLM (Stephens pers. comm.).

The diet of American marten is highly diverse. Zielinski and Duncan (2004) found that in the southern Sierra Nevada, diets of both marten and fisher were more diverse than previously reported for North America. Of the major taxonomic groups, mammals were most common followed by insects and plants (mostly fruits). In the western United States in winter, most prey are captured beneath the snow surface, but squirrels may be caught in trees (Buskirk and Ruggiero 1994). Snags, downfall, and large woody material provide cover, denning sites, and access points to forage areas below the snow (subnivean habitat).

The Medford District BLM and the Rogue River-Siskiyou National Forest conducted several remote camera surveys on Mt. Ashland in 2001, 2002, and 2005, but no marten were detected. In the spring of 2012, a female marten was captured by Forest Service biologists in the Tolman Creek drainage

during fisher surveys in the Ashland watershed. Preliminary DNA testing identified this individual as part of an undocumented population (Clayton pers. comm., Pilgrim and Schwartz 2013)

Based on 2000 GNN vegetation data, suitable habitat for marten (represented by mature and late-successional forest) on the Rogue River-Siskiyou National Forest encompasses approximately 116,883 acres, of which 90,923 acres (78%) are located in reserve land allocations with no programmed timber harvest (Oregon State University and USDA Forest Service 2000). In addition, there are ninety-five 100-acre spotted owl core areas totaling 9,500 acres, identified outside of LSRs on the Cascade side of the Forest. These core areas also provide suitable habitat for marten.

Currently there is far more marten denning and resting habitat available and more habitat within reserve land allocations for marten than was planned for in the original LRMP. It is very likely that the forest is providing a sufficient amount of habitat and in a spatial juxtaposition for far more marten pairs than the 93 originally thought to be needed across the Forest to provide for long term viability for this species. The Forest Service believes that the population trend for this species is likely stable and that population viability will be provided for within reserve lands on the forest.

Pileated Woodpecker and Other Woodpeckers

The pileated woodpecker is generally associated (feeds and breeds) with the mixed forest habitat type, and is present in the oak habitat type. Habitat for the pileated woodpecker represents over 160 wildlife species, which utilize mature forest habitat. The pileated woodpecker is a primary cavity excavator and dwelling species, which use large standing dead trees (snags) and mature/old-growth (older forest) habitat for nesting and roosting. This species has been detected in the action area.

The acorn woodpecker (*Melanerpes formicivorus*) is associated with oak trees and snags. Some of the action area provides marginally suitable habitat for this species, however the species was not detected during surveys associated with the Ashland Forest Resiliency Project.

The black-backed woodpecker (*Picoides arcticus*) is moderately associated with the mixed conifer-hardwood forest habitat, but has not been detected in the action area. This species occurs primarily in the Cascade Mountains. The highest densities of black-backed woodpeckers are known to be in recently burned forests where they forage on larvae of wood-boring beetles that typically infest such landscapes. The action area does not currently offer this kind of habitat and this species is unlikely to inhabit the action area.

The downy woodpecker (*Picoides pubescens*) is generally associated with deciduous riparian woodlands and lowland deciduous forest (alder, cottonwood, willow, aspen, oaks). It is also found in urban parks and orchards. They nest primarily in dead trees. This species has been detected within the action area and may forage and reproduce in the action area provided deciduous, decadent trees are present for feeding.

The hairy woodpecker (*Picoides villosus*) is associated with dry and wet coniferous forests at low to mid-elevations. This species also uses deciduous forest and riparian areas, especially if they are located adjacent to coniferous forest. Hairy woodpeckers use all ages of forest stands, although some authors report preference for older stands for nesting. The species nests primarily in moderately

decayed snags. This species has been detected within the action area and may forage and reproduce in the action area, provided deciduous trees are present.

According to the 2000 GNN vegetation dataset, suitable habitat for woodpeckers (represented by mature and late-successional forest) on the Rogue River-Siskiyou National Forest encompasses approximately 203,402 acres, of which 133,163 acres (56%) are located in reserve land allocations with no programmed timber harvest. There are 153,100 acres of spotted owl core areas, including 15,300 acres outside of LSRs. These core areas also provide suitable habitat for woodpeckers.

Currently, there is far more woodpecker habitat available and more habitat within reserve land allocations than was planned for in the LRMP. It is very likely that the Forest is providing habitat for far more woodpecker pairs than originally thought to be needed to provide for long-term viability for these species. The Forest Service believes that the population trend for this species group is up and that viability will be provided for within reserve lands on the Forest.

Survey and Manage, Protection Buffer and Other NWFP Special-Status Species

Flammulated Owl

The flammulated owl (*Otus flammeolus*) is closely associated with the mixed-forest habitat type. These owls use cavities created by woodpeckers and sometime naturally occurring cavities. Management recommendations for woodpeckers are assumed to provide for suitable flammulated owl habitat. Although not known to the action area, the action area does provide suitable habitat for the species.

Great Grey Owl

In the western U.S., great gray owls are known to occupy montane forests where suitable nesting, cover and foraging habitat exists. These owls hunt from perches mostly within meadows and other areas with open forest canopy (< 60%) (Quintana-Coyer et al. 2004). Their diet in the western U.S. includes a variety of small rodents, such as pocket gophers, chipmunks and voles. These owls do not construct nests and depend on existing nests such as those constructed by ravens, hawks and squirrels, or substrates such as broken top snags and large platforms of dwarf mistletoe.

Protocol surveys of potential great gray owl habitat in the Ashland watershed were conducted in 1996, 1997 and 1998 for the Ashland Watershed Protection Project and the Mt Ashland Ski Area Expansion Project. No great gray owls were detected in those surveys. The Forest Natural Resources Inventory System database contains three incidental observations of great gray owls within the action area. Two of these were in 1985 in the vicinity of the Eastview Trail. There are no meadows or natural openings near these observations in the action area. The third observation was in 1992 about 0.2 mile from the Lithia Loop Road 2060. This location is 0.5 mile southeast of Wagner Glade, which is a natural forest opening approximately 100 acres in size. It ranges from 5,400 to just above 6,000 feet in elevation and may provide suitable habitat for great gray owls. The existing historic Wagner Glade Trail is located at the north and western edges of the glade.

Bats - Fringed, Long-Eared, and Long-Legged Myotis; Silver-Haired, Pallid, and Townsend's Big-Eared Bats

Five of these species, including fringed myotis (*Myotis thysanodes*), long-eared myotis (*M. evotis*), long-legged myotis (*M. volans*), silver-haired bat (*Lasionycteris noctivagans*), and pallid bats (*Antrozous pallidus*), rely on standing snags and large mature trees with crevices for roosting habitat. There is strong association with ridges and roosting sites. Four species (fringed myotis, long-eared myotis, long-legged myotis and Townsend's big-eared bats) use mines and caves for breeding, roosting and winter hibernacula.

Bat surveys conducted in 1996 confirmed presence of fringed myotis, long-eared myotis and long-legged myotis in Lamb Mine which is within the action area. Two species, fringed myotis and one uncertain *Myotis* spp., were found in the Ashland Loop Mine, which is also in the action area.

Another important habitat component for all bat species is the availability of open water for drinking. Reeder Reservoir and Skyline Pond provide standing water in the action area known to be used by bats. The 1996 bat surveys detected fringed myotis, long-eared myotis and long-legged myotis at Reeder Reservoir. Bat surveys conducted at Skyline Pond in the Ashland watershed in July 2013 confirmed positive reproductive status for fringed myotis, long-eared myotis and three other bat species with mist net capture.

Migratory Birds

The Klamath Bird Observatory used standardized bird and vegetation monitoring methods (Ralph et al. 1993) to measure bird abundance and distribution in the Ashland Forest Resiliency Project area between 2005 and 2007 (USDA Forest Service 2008). These surveys documented a variety of species associated with various attributes of mature conifer forests including golden-crowned kinglet (*Regulus satrapa*), brown creeper (*Certhia americana*), hermit warbler (*Dendroica occidentalis*), pacific-slope flycatcher (*Empidonax difficilis*), winter wren (*Troglodytes hiemalis*), red-breasted nuthatch (*Sitta Canadensis*), yellow-rumped warbler (*Dendroica coronate*), and pileated woodpecker (Stephens and Alexander 2005, 2006, 2008).

The proposed action falls within Bird Conservation Region 5, the Northern Pacific Forest. Those species and habitats identified as USFWS priority Birds of Conservation Concern (BCC) or Partners in Flight Conservation Plan Focal Species (PIF CPLAN) in the Partners in Flight Conservation Plan for Oregon and Washington (Altman and Alexander 2012) within the analysis area – and that were not previously addressed in this section - are listed in Table 3-39.

Table 3-39. Migratory Birds Identified as Birds of Conservation Concern or Partners in Flight Conservation Species Within the Analysis Area

Bird Species		*Preferred Habitat*
Common Name	***Scientific Name***	
Northern goshawk[1]	*Accipiter gentilis*	Mature forests with larger trees; relatively closed canopies; and open understories
Varied thrush[2]	*Ixoreus naevius*	Mature forests mid-story tree layers
Wilson's warbler[2]	*Wilsonia pusilla*	Mature forest with deciduous understory
Winter wren[2]	*Troglodytes hiemalis*	Mature forest floor complexity
Olive-sided flycatcher[1]	*Contopus cooperi*	Natural or man-made openings with tall trees or snags
Nashville warbler[2]	*Vermivora ruficapilla*	Mixed conifer-hardwood forest with dense shrub understory
Hermit thrush	*Catharus guttatus*	Mixed conifer-hardwood forest with shrub-herb understory
Rufous hummingbird	*Selasphorus rufus*	Forest edges and openings with a diversity of flowering plants
Purple finch	*Carpodacus purpureus*	Pine-oak canopy, moderately moist open or semi open coniferous forests
Blue (sooty) grouse	*Dendragapus obscuru*	Landscape mosaic forests/edges with berry producing plants
Western tanager	*Piranga ludoviciana*	Mixed conifer-hardwood forest canopy edges

[1] USFWS priority birds of conservation concern (BCC)
[2] Partners in Flight Conservation Plan focal species (PIF CPLAN)

Effects Mechanisms and Analytic Framework

Indicators and metrics used in this section to analyze the effects of the proposed action on special-status species include numbers of known individuals or reproductive sites (e.g., nests, dens) that may be affected, and acres of habitat directly affected by trail construction and/or by disturbance from trail use. For some species, impacts to specific habitat elements, such as snags, are indicators of project effects. The scale and methodology for evaluating the indicators and metrics differ by species based on their habitat requirements and the type of status they have. These are described in more detail in the effects analysis for each species.

Refer to Section 3.3.2, *Effects Mechanism & Analytic Framework - Disturbance Related to Non-Motorized Recreation*, for a discussion of wildlife and habitat disturbance related to generally to non-motorized recreation and more specifically to road and existing trail use in the action area, which also applies to the species and habitats considered in this section.

Alternative 1

Direct and Indirect Effects

Forest Service Sensitive Species

Black Salamander, Oregon Shoulderband, Chace Sideband, Traveling Sideband, and Siskiyou Hesperian

These species all require moist rocky areas or large woody debris that retains moisture near the ground. These habitats are available throughout the action area. Disturbance of this habitat during use of existing unapproved and historic trail has already occurred, in some cases, many years ago. One known site for Chace sideband is approximately 40 meters from an existing unapproved trail. Use of this trail was evident before the mollusk site was located in 2007. All other known sites are located at least 100 meters from existing unapproved or historic trails.

Alternative 1 may also result in direct mortality and potential habitat disturbance if pressure from increased recreation use of trails results in additional unauthorized trail development in existing habitat for these species. However, potential impacts to these species from ongoing and future trail use under Alternative 1 are not anticipated to be great enough to contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of black salamander, Oregon shoulderband, Chace sideband, traveling sideband or Siskiyou hesperian.

Northern Bald Eagle

Alternative 1 is not expected to result in removal or modification of potential habitat for bald eagles in the action area (i.e., large trees and snags or major waterbodies, such as Reeder Reservoir). There are no known bald eagle nests in the action area, and the closest nest is located within 1 mile of the easternmost portion of the action area. If bald eagles roost in the action area, they may be flushed by recreationists that approach them. They also may avoid roosting in areas of heavy recreation use over the long-term.

The potential for disturbance of nesting and roosting bald eagles under Alternative 1 would low and the same as existing conditions. As such, this alternative would not likely contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of northern bald eagles.

Gray Blue Butterfly and Mardon Skipper

Portions of the Wagner Glade, Upper Time Warp and Split Rock Trails occur within suitable high elevation meadow and grassy habitats for gray blue butterfly and mardon skipper. These butterflies often aggregate in mud puddles to obtain liquid nutrients from the soil. While trails provide mud puddles that are beneficial for butterflies, continued recreational use may result in direct mortality from bicycles, horses and pedestrians crushing them.

Although continued recreational use of these existing historic trails may impact individual butterflies, it is not anticipated that use would be high enough, or impacts severe enough, that Alternative 1

would contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of gray blue butterfly or mardon skipper.

Franklin's Bumblebee and Western Bumblebee

Portions of the Wagner Glade, Upper Time Warp and Split Rock Trails occur within suitable high elevation meadow habitats for Franklin's bumblebee and western bumblebee. Although these species are very rarely seen, many bumblebee species use these habitats within the action area. Bumblebees require water sources such as streams, springs and seeps, but do not tend to aggregate and linger in mud puddles like butterflies.

It is possible that a bee can be killed if impacted by a bicyclist travelling at high speed; humans also tend to swat at bees from fear of being stung. Because these two bee species are rarely seen, continued recreational use of these existing historic trails under Alternative 1 would likely have only a minor impact, and would not contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of Franklin's or Western bumblebee.

California Shield-Backed Bug

The California shield-backed bug inhabits the bases of grasses. There are no known occurrences of this species in the action area but potential habitat exists along portions of the Split Rock and Upper Time Warp Trails. The potential for impacts to this species or habitat from continued recreational use under Alternative 1 would be most likely on the portion of the Split Rock Trail that is vegetated with grasses and has no bare soil tread. However, because this species is very rare, the likelihood of direct mortality from being crushed by recreationists is very low. Alternative 1 would not contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of California shield-backed bug.

Siskiyou Short-Horned Grasshopper

Potential habitat for Siskiyou short-horned grasshopper is present along portions of the Split Rock and Upper Time Warp Trails. The potential for impacts to this species or habitat would be more likely on the portion of the Split Rock Trail that is vegetated with grasses and has no bare soil tread. In addition, because this species is rare and grasshoppers can move away from a threat very quickly, the likelihood of direct mortality from being crushed by recreationists is very low. Alternative 1 would not contribute to a trend towards Federal listing or cause a loss of viability to the local population of Siskiyou short-horned grasshopper.

Management Indicator Species

Black-Tailed Deer and Roosevelt Elk

Maintenance of System Trails in the action area could result in limited removal or modification of thermal or foraging habitat for deer and elk, although these effects would be minimal because trail tread is already established. However, disturbance from increasing use of existing historic and unapproved trails, or potential new unauthorized trail development, under Alternative 1 would be expected to reduce the habitat available to these species as a result of habitat avoidance, particularly

where dogs become increasingly present. This disturbance would have more of an adverse impact during winter months when deer and elk are driven to lower elevations by snow.

An analysis of 2000 GNN vegetation data indicates there are approximately 1,358 acres of thermal cover (canopy cover >65%) and 277 acres of forage habitat (canopy cover less than 40%) within the 100 meter disturbance buffer of existing unapproved and historic trails. This represents approximately 0.4% of available thermal cover and 0.4% of available forage Forest-wide that may be avoided by these species due to ongoing recreational use under Alternative 1.

At the Forest scale, Alternative 1 would have a slight negative effect on habitat availability for black-tailed deer and Roosevelt elk (0.4%) but would not likely contribute to a detectable negative trend in viability for these species on the Rogue River portion of the Rogue River-Siskiyou National Forest.

American Marten

Suitable habitat for American marten includes late-successional and large mid-successional habitat with high canopy cover, similar to NRF habitat for spotted owls. Alternative 1 would not remove or modify suitable habitat for this species. As discussed previously in the LSR evaluation (see Section 3.3.2), approximately 711 acres of late-successional and large mid-successional habitat are within the 100 meter disturbance buffer of all existing historic and unapproved trails in the Rogue River-Siskiyou National Forest portion of the Mt Ashland LSR. This area, which may be avoided by marten due to ongoing recreational use, represents 0.6% of the 116,883 acres of marten habitat available Forest-wide.

At the Forest scale, marten are more commonly found in the Cascade Mountains than on the Mt. Ashland/Siskiyou Crest. Alternative 1 would have a slight negative effect on habitat availability for American marten (0.6%) but would not likely contribute to a detectable negative trend in viability for the species on the Rogue River portion of the Rogue River-Siskiyou National Forest.

Pileated Woodpecker and Other Woodpeckers

Large conifer and hardwood snags required by various woodpecker species are present throughout the action area. Alternative 1 would not remove or modify habitat for these species. In addition, woodpeckers tend to be somewhat tolerant of human presence. No direct or indirect impacts to these species are anticipated under Alternative 1.

At the Forest scale, Alternative 1 would have no detectable impact on habitat availability for pileated and other MIS woodpeckers that would contribute to a negative trend in viability for these species on the Rogue River portion of the Rogue River-Siskiyou National Forest.

Survey and Manage, Protection Buffer and Other NWFP Special-Status Species

Flammulated Owl

Continued use and maintenance of trails in the action area under Alternative 1 is not expected to impact habitat availability for flammulated owls because no snags greater than 6 inches dbh would be removed, and closed canopy conditions would remain intact. As a result, Alternative 1 would have

no detectable impact on individual flammulated owls and would maintain sufficient habitat for the species within the action area.

Great Gray Owl

A great gray owl was observed 0.5 mile southeast of Wagner Glade, a natural forest opening approximately 100 acres in size, in 1992. Wagner Glade, which ranges from 5,400 feet to just above 6,000 feet in elevation, may provide suitable habitat for great gray owls. The Wagner Glade Trail is located at the north and western edges of the glade. This trail has primarily been used for at least the last five years by hikers and runners during the summer and fall. Use is generally low compared to other trails in the action area because it is 3 miles from the nearest trailhead or parking area. The trail is not usually accessible during the winter and spring until the snow is mostly gone in May.

Noise above ambient levels associated with use of the trail during the breeding season (February through mid-July) would not likely be repetitive or continuous under Alternative 1 because trail use wood likely remain very low early in the season and would not generate noise above ambient levels consistently (repetitive) or continuously later in the season. As a result, Alternative 1 would have no detectable impact on individual great gray owls, and would have no effect on their habitat.

Bats - Fringed, Long-Eared, and Long-Legged Myotis; Silver-Haired, Pallid, and Townsend's Big-Eared Bats

Five of these species, including fringed myotis, long-eared myotis, long-legged myotis, silver-haired bat, and pallid bats, rely on standing snags and large mature trees with crevices for roosting habitat. There is strong association with ridges and roosting sites. Four species (fringed myotis, long-eared myotis, long-legged myotis and Townsend's big-eared bats) use mines and caves for breeding, roosting, and winter hibernacula, including the Lamb and Ashland Loop mines in the action area. Bats have also been detected at Reeder Reservoir and Skyline Pond in the action area.

Continued use and maintenance of trails in the action area under Alternative 1 is not expected to impact habitat availability for bats because no snags or trees greater than 6 inches dbh would be removed, and there would be no new trail construction near existing mines or water sources that would result in increased human use of these areas. Lower Marty's Trail is well over 200 meters upslope on the ridge above Lamb and Ashland Loop Mines, and the No Candies Trail is located on a ridgeline at least 100 meters from Skyline Pond. Although the Reservoir Trail provides unapproved access to Reeder Reservoir, its current use is minimal and not anticipated to affect bats. As a result, Alternative 1 would have no detectable impact on bats and would have no effect on their habitat.

Migratory Birds

Alternative 1 would not remove or modify mature forest habitat canopy structures used by the northern goshawk, varied thrush, Wilson's warbler, purple finch, western tanager and olive-sided flycatcher. Development and use of unapproved trails would have localized adverse effects on shrub and herb understories used by the Nashville warbler and hermit thrush and on forest floor habitat used by the winter wren. Potential impacts to rufous hummingbird and blue grouse habitats, which include forest edges and associated berries and flowering plants, would be neutral.

Many of these bird species are not tolerant of persistent human presence, particularly during the breeding season, and may avoid habitat near trails that receive heavy recreation use and presence of dogs. Continued use of existing historic and unapproved trails under Alternative 1 would add approximately 1,558 acres of long-term disturbance to habitats for these birds within the action area.

Alternative 2

Direct and Indirect Effects

Forest Service Sensitive Species

Black Salamander, Oregon Shoulderband, Chace Sideband, Traveling Sideband, and Siskiyou Hesperian

As described for Alternative 1, disturbance of moist rock areas or large woody debris that retains moisture near the ground as a result of trail construction, maintenance, or use under Alternative 2 has the potential to affect these species. Five Chace sidebands were collected and identified in the Ashland Forest Resiliency Project survey area, which overlaps the action area. The locations closest to trails include one within 95 meters of the Wonder Trail and one within 40 meters of the Missing Link Trail. The Missing Link location had evidence of use before the 2007 mollusk surveys, so authorization of this trail would not be expected to impact the existing Chance sideband site. Consistent with PDC GEN-1, the site near the proposed Wonder Trail would be identified prior to trail construction to assure that it is not disturbed. Nonetheless, an unknown number of individuals may be unintentionally harmed during trail construction.

Suitable habitat for these species would be similar to spotted owl NRF habitat in terms of the presence of late-successional structure, such as large down wood, high canopy density, hardwoods, leaf litter and associated moisture retention on the ground. The 6 foot trail clearance for new trail construction under Alternative 2 would affect approximately 3.1 acres of NRF habitat suitable for these species, which represents less than 1% of suitable habitat available in the action area. Proposed new trail construction, with a maximum average tread width of 3 feet and clearance of 6 feet, would not result in a significant decrease in canopy closure (i.e., no live trees or snags greater than 6 inches dbh would be removed; see PDC GEN-5) that would change shade or moisture in existing habitat for these species. As such, potential impacts to these species under Alternative 2 would be low, and would not likely contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of black salamander, Oregon shoulderband, Chace sideband, traveling sideband or Siskiyou hesperian.

Northern Bald Eagle

Potential effects on northern bald eagle under Alternative 2 would be the same as those described for Alternative 1. No potential nesting or roosting habitat would be removed or modified as a result of trail construction or maintenance and disturbance would be minimal and limited to eagles potentially roosting in areas with high recreational use. As such, potential impacts to this species under Alternative 2 would be low, and would not likely contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of northern bald eagles.

Gray Blue Butterfly and Mardon Skipper

As described for Alternative 1, portions of the Wagner Glade, Upper Time Warp and Split Rock Trails (which would be incorporated as System Trails under Alternative 2) occur within suitable high elevation meadow and grassy habitats for gray blue butterfly and mardon skipper. Heavy recreational use of these trails has the potential to result in direct mortality if that use occurs when butterflies aggregate in mud puddles within the trail. However, similar to Alternative 1, although recreational use of these trails under Alternative 2 my impact individual butterflies, it is not anticipated that use would be high enough, or the impacts severe enough, to contribute to a trend towards Federal listing or cause a loss of viability to the local population or species" of the gray blue butterfly and mardon skipper.

Franklin's Bumblebee and Western Bumblebee

As described for Alternative 1, portions of the Wagner Glade, Upper Time Warp and Split Rock Trails (which would be incorporated as System Trails under Alternative 2) occur within suitable high elevation meadow habitats for Franklin's bumblebee and western bumblebee. Although these species are very rarely seen, it is possible they could be killed by a bicyclist travelling at high speed, or by an individual swatting or killing a bee from fear of being stung. As a result, similar Alternative 1, recreational use of these trails under Alternative 2 may impact individuals or habitat, but would not likely contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of Franklin's bumblebee or Western bumblebee.

California Shield-Backed Bug

As described for Alternative 1, potential habitat for the California shield-backed bug exists along portions of the Split Rock and Upper Time Warp Trails (which would be incorporated as System Trails under Alternative 2). The potential for impacts to this species and its habitat would be more likely on the portion of the Split Rock Trail where reconstruction would occur in grassy areas; however the amount of potential habitat removed for trail tread would be very small (<1 acre for 2 miles of 3 foot tread) compared to what would remain. In addition, because this species is very rare, the likelihood of direct mortality from being crushed by recreationists is very low and similar to that described for Alternative 1. As a result, Alternative 2 may impact individuals of this species, but would not likely contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of California shield-backed bug.

Siskiyou Short-Horned Grasshopper

As described for Alternative 1, potential habitat for Siskiyou short-horned grasshopper is present along portions of the Split Rock and Upper Time Warp Trails (which would be incorporated as System Trails under Alternative 2). The potential for impacts to this species or its habitat would be more likely on the portion of the Split Rock Trail that would be reconstructed; however the amount of potential habitat removed for trail tread would be very small (<1 acre for 2 miles of 3 foot tread) compared to what would remain. In addition, because this species is rare and grasshoppers can move away from a threat very quickly, the likelihood of direct mortality from being crushed by recreationists is very low and similar to that described for Alternative 1. As a result, while recreational use under Alternative 2 may impact individuals of this species, it would not likely

contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of Siskiyou short-horned grasshopper.

Management Indicator Species

Black-Tailed Deer and Roosevelt Elk

Similar to Alternative 1, vegetation removal or modification necessary to incorporate existing trails as System Trails under Alternative 2 would be limited and would result in minimal effects on thermal or foraging habitat for deer and elk. New trail construction would impact up to 10.8 acres, while decommissioning would occur on approximately 3.8 acres throughout the action area. New trail construction would affect approximately 6.5 acres of thermal cover and 1.4 acres of forage habitat for these species.

It is assumed that deer and elk have already adjusted to disturbance from use of existing unapproved and historic trails. Approximately 93 acres of thermal cover and 6.7 acres of forage habitat would be recovered by trail decommissioning under Alternative 2. There are approximately 424 acres of thermal cover and 137 acres of forage within the 100 meter disturbance buffer of proposed new trails under this alternative. New trail construction under Alternative 2 would result in approximately 0.1% of available thermal cover and 0.2% of available forage Forest-wide that may be avoided by these species due to use of the new trails.

At the Forest scale, Alternative 2 would have a slight negative effect on habitat availability for black-tailed deer and Roosevelt elk (approximately 0.2%) but would not contribute to a detectable negative trend in viability for these species on the Rogue River portion of the Rogue River-Siskiyou National Forest. This impact would be comparable to Alternative 1.

American Marten

Similar to Alternative 1, Alternative 2 would not remove or modify suitable habitat for American marten. It is assumed that marten have already adjusted to disturbance from ongoing use of existing historic and unapproved trails in the action area, including use on trails that would be authorized under Alternative 2 (which includes approximately 711 acres of habitat suitable for marten). New trail construction would add approximately 120 acres of disturbance to suitable habitat for marten within the action area while proposed decommissioning would remove approximately 47 acres from disturbance. In total, Alternative 2 would result in a net increase of 73 acres of disturbance (representing approximately 0.7% of the 116,883 acres of marten habitat Forest-wide) that may be avoided by marten due to recreational use.

At the Forest scale, Alternative 2 would have a slight negative effect on habitat availability for American marten (0.1%) but would not contribute to a detectable negative trend in viability for these species on the Rogue River portion of the Rogue River-Siskiyou National Forest. This impact would be comparable to (if not slightly less than) Alternative 1.

Pileated Woodpecker and Other Woodpeckers

Similar to Alternative 1, Alternative 2 would not remove or modify habitat for pileated woodpeckers or other MIS woodpecker species. Because these species are somewhat tolerant of human presence and have been observed in the action area in recent years, direct or indirect effects to these species under Alternative 2 are not anticipated.

At the Forest scale, Alternative 2 would have no detectable impact on habitat availability for pileated and other MIS woodpeckers that would contribute to a negative trend in viability for these species on the Rogue River portion of the Rogue River-Siskiyou National Forest.

Survey and Manage, Protection Buffer and Other NWFP Special-Status Species

Flammulated Owl

Similar to Alternative 1, construction, maintenance, and use of trails in the action area under Alternative 2 is not expected to impact habitat availability for flammulated owls because no snags greater than 6 inches dbh would removed and closed canopy conditions would remain intact. Alternative 2 would have no detectable impact on individual flammulated owls and would maintain sufficient habitat for the species within the action area.

Great Gray Owl

A great gray owl was observed 0.5 mile southeast of Wagner Glade in 1992. Under Alternative 2, the Wagner Glade Trail, which is located at the north and western edges of the glade, would be authorized as a System Trail. As described for Alternative 1, use of this trail would likely remain generally low compared to other trails in the action area because it is 3 miles from the nearest trailhead or parking area and is not usually accessible during the winter and spring until the snow is mostly gone in May. Noise above ambient levels associated with use of the trail during the breeding season (February through mid-July) would not likely be repetitive or continuous because trail use wood likely remain very low early in the season and would not generate noise above ambient levels consistently (repetitive) or continuously later in the season. As a result, similar to the Alternative 1, Alternative 2 would have no detectable impact on individual great gray owls, and would have no effect on their habitat.

Bats - Fringed, Long-Eared, and Long-Legged Myotis; Silver-Haired, Pallid, and Townsend's Big-Eared Bats

As described for Alternative 1, construction, maintenance, and use of trails in the action area under Alternative 2 is not expected to impact habitat availability for bats because no snags or trees greater than 6 inches dbh would be cut, and there would be no new trail construction near existing mines or water sources that would result in increased human use of these areas. Both Lower Marty's and No Candies Trails – the trails located in closest proximity to Lamb and Ashland Loop Mines and Skyline Pond, respectively – would be authorized as System Trails under Alternative 2. However, similar to Alternative 1, both trails are located far enough away from suitable habitat (i.e., 100-200 meters) that impacts to bats or their habitat would not be anticipated. In addition, under Alternative 2, the

Reservoir Trail would be decommissioned, limiting the potential for human disturbance to bats at Reeder Reservoir.

Alternative 2 would have no detectable impact on bats and would have no effect on their habitat.

Migratory Birds

Similar to Alternative 1, Alternative 2 would not remove or modify mature forest habitat canopy structures used by the northern goshawk, varied thrush, Wilson's warbler, purple finch, western tanager and olive-sided flycatcher. Approximately 10.8 acres of habitat affected by new trail construction would have localized adverse effects on shrub and herb understories used by the Nashville warbler and hermit thrush and forest floor habitat used by the winter wren. Potential impacts to rufous hummingbird and blue grouse habitats, which include forest edges and associated berries and flowering plants, would be neutral.

Many of these bird species are not tolerant of persistent human presence, particularly during the breeding season and may avoid habitat near trails that receive heavy recreation use and presence of dogs. Recreational use of new trails under Alternative 2 would result in a total net gain of approximately 596 acres of long-term disturbance to habitats for these birds within the action area with consideration for acres removed by trail decommissioning.

Alternative 3

Direct and Indirect Effects

Forest Service Sensitive Species

Black Salamander, Oregon Shoulderband, Chace Sideband, Traveling Sideband, and Siskiyou Hesperian

As described under Alternative 1, disturbance of moist rock areas or large woody debris that retains moisture near the ground as a result of trail construction, maintenance, or use under Alternative 3 has the potential to affect these species. The known locations of Chace sidebands closest to trails include one within 95 meters of the Wonder Trail and one within 40 meters of the Missing Link Trail. The Missing Link location had evidence of use before the 2007 mollusk surveys, so authorization of this trail under Alternative 3 would not be expected to impact the existing Chace sideband site. Consistent with PDC GEN-1, the site near the Wonder Trail would be identified prior to trail construction to assure that it is not disturbed. Nonetheless, an unknown number of individuals may be unintentionally harmed during trail construction.

As noted above, suitable habitat for these species would be similar to spotted owl NRF habitat. Under Alternative 3, the 6 foot trail clearance for new trail construction would affect approximately 1.8 acres of NRF habitat suitable for these species, which represents less than 1% of suitable habitat available in the action area. Proposed new trail construction would not result in a significant decrease in canopy closure that would change shade or moisture in existing habitat for these species. As such, it is anticipated that Alternative 3 may impact individuals or habitat for these species, but would not

likely contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of black salamander, Oregon shoulderband, Chace sideband, traveling sideband or Siskiyou hesperian.

Northern Bald Eagle

Potential effects on northern bald eagle under Alternative 3 would be the same as those described for Alternatives 1 and 2. No potential nesting or roosting habitat would be removed or modified as a result of trail construction or maintenance and disturbance would be minimal and limited to eagles potentially roosting in areas with high recreational use. Accordingly, Alternative 3 would not likely contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of northern bald eagles.

Gray Blue Butterfly and Mardon Skipper

As described for Alternatives 1 and 2, portions of the Wagner Glade, Upper Time Warp and Split Rock Trails (which would be incorporated as System Trails under Alternative 3) occur within suitable high elevation meadow and grassy habitats for gray blue butterfly and mardon skipper. Heavy recreational use of these trails has the potential to result in direct mortality if that use occurs when butterflies aggregate in mud puddles within the trail. As a result, recreational use of these trails under Alternative 3 may impact individuals or habitat for these species, but would not likely contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of gray blue butterfly or mardon skipper. This potential impact would be comparable to Alternatives 1 and 2.

Franklin's Bumblebee and Western Bumblebee

As described for Alternatives 1 and 2, portions of the Wagner Glade, Upper Time Warp and Split Rock Trails (which would be incorporated as System Trails under Alternative 3) occur within suitable high elevation meadow habitats for Franklin's bumblebee and western bumblebee. Although these species are very rarely seen, it is possible they could be killed by a bicyclist travelling at high speed, or by an individual swatting or killing a bee from fear of being stung. As a result, recreational use of these trails under Alternative 3 may impact individuals or habitat for these species, but would not likely contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of Franklin’s bumblebee or western bumblebee. This potential impact would be comparable to Alternatives 1 and 2.

California Shield-Backed Bug

As described for Alternatives 1 and 2, potential habitat for the California shield-backed bug exists along portions of the Split Rock and Upper Time Warp Trails (which would be incorporated as System Trails under Alternative 3). The potential for impacts to this species or habitat would be more likely on the portion of the Split Rock Trail where reconstruction would occur in grassy areas; however the amount of potential habitat removed for trail tread would be very small (<1 acre for 2 miles of 3 foot tread) compared to what would remain. In addition, because this species is very rare, the likelihood of direct mortality from being crushed by recreationists is very low and similar to that described for Alternatives 1 and 2. As a result, although Alternative 3 may impact individuals or

habitat for this species, it would not likely contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of California shield-backed bug.

Siskiyou Short-Horned Grasshopper

As described for Alternatives 1 and 2, potential habitat for Siskiyou short-horned grasshopper is present along portions of the Split Rock and Upper Time Warp Trails (which would be incorporated as System Trails under Alternative 3). The potential for impacts to this species or habitat would be more likely on the portion of the Split Rock Trail that would be reconstructed; however the amount of potential habitat removed for trail tread would be very small (<1 acre for 2 miles of 3 foot tread) compared to what would remain. In addition, because this species is rare and grasshoppers can move away from a threat very quickly, the likelihood of direct mortality from being crushed by recreationists is very low and similar to that described for Alternatives 1 and 2. As a result, although Alternative 3 may impact individuals or habitat for this species, it would not likely contribute to a trend towards Federal listing or cause a loss of viability to the local population or species of Siskiyou short-horned grasshopper.

Black-Tailed Deer and Roosevelt Elk

Similar to Alternatives 1 and 2, vegetation removal or modification necessary to incorporate existing trails as System Trails under Alternative 3 would be limited and would result in minimal effects on thermal or foraging habitat for deer and elk. New trail construction would impact up to 9 acres, while decommissioning activities would occur on approximately 6.8 acres. There would be more potential thermal habitat recovered from decommissioning than affected by new trail construction under this alternative. New trail construction would remove or modify approximately 1.8 acres of foraging habitat over what would be recovered from decommissioning.

Proposed new trails would increase disturbance on approximately 650 acres within the action area while decommissioning would remove disturbance within 463 acres. Collectively, disturbance acres, or the area that may be avoided by deer and elk as a result of recreational use, would increase by 187 acres under Alternative 3. This disturbance would be likely to more adversely affect these species during winter months when deer and elk are driven to lower elevations by snow.

An analysis of GNN vegetation data indicates there are approximately 311 acres of thermal cover and 89 acres of forage habitat within the 100 meter disturbance buffer of proposed new trails under this alternative. This represents approximately 0.1% of both available thermal cover and available forage habitat Forest-wide that may be avoided by these species due to recreational use under Alternative 3.

At the Forest scale, Alternative 3 would have a slight negative effect on habitat availability for black-tailed deer and Roosevelt elk (approximately 0.1%) but would not contribute to a detectable negative trend in viability for these species on the Rogue River portion of the Rogue River-Siskiyou National Forest. This impact would be comparable to (if slightly less than) Alternatives 1 and 2.

American Marten

Similar to Alternatives 1 and 2, Alternative 3 would not remove or modify suitable habitat for American marten. It is assumed that marten have already adjusted to disturbance from ongoing use of

existing historic and unapproved trails in the action area, including use on trails that would be authorized under Alternative 3 (i.e., 711 acres of late-successional and mid-successional habitat in the action area). However, marten may avoid areas of new trail construction proposed under Alternative 3.

New trail construction would add approximately 76 acres of disturbance in habitat that would be suitable for marten in the action area while proposed decommissioning would remove approximately 235 acres from disturbance. In total, Alternative 3 would reduce disturbance acres in the action area to 552 acres, which represents 0.5% of the 116,883 acres of marten habitat Forest-wide that may be avoided by marten due to recreational use.

At the Forest scale, Alternative 3 would have a slight localized negative effect on marten due to new trail construction, but would reduce overall habitat disturbance to 0.5% of the available habitat forest-wide. Alternative 3 would not contribute to a negative trend in viability for this species on the Rogue River portion of the Rogue River-Siskiyou National Forest. This impact would be less than Alternatives 1 and 2.

Pileated Woodpecker and Other Woodpeckers

Similar to Alternatives 1 and 2, Alternative 3 would not remove or modify habitat for pileated woodpeckers or other MIS woodpecker species. Because these species are somewhat tolerant of human presence and have been observed in the action area in recent years, direct or indirect effects to these species under Alternative 3 are not anticipated.

At the Forest scale, Alternative 3 would have no detectable impact on habitat availability for pileated and other MIS woodpeckers that would contribute to a negative trend in viability for these species on the Rogue River portion of the Rogue River-Siskiyou National Forest.

Survey and Manage, Protection Buffer and Other NWFP Special-Status Species

Flammulated Owl

Similar to Alternatives 1 and 2, construction, maintenance, and use of trails in the action area under Alternative 3 is not expected to impact habitat availability for flammulated owls because no snags greater than 6 inches dbh would be removed and closed canopy conditions would remain intact. As a result, Alternative 3 would have no detectable impact on individual flammulated owls and would maintain sufficient habitat for the species within the action area.

Great Gray Owl

The effects on great gray owl under Alternative 3 would be the same as those described for Alternatives 1 and 2. Use of the Wagner Glade Trail as a System Trail under this alternative would likely remain very low in the early season and would not generate noise above ambient levels consistently (repetitive) or continuously later in the season, when owl may be nesting. As a result, Alternative 3 would have no detectable impact on individual great gray owls, and would have no effect on their habitat.

Bats - Fringed, Long-Eared, and Long-Legged Myotis; Silver-Haired, Pallid, and Townsend's Big-Eared Bats

The effects on these bat species under Alternative 3 would be the same as those described for Alternatives 1 and 2. Construction, maintenance, and use of trails in the action area would not impact habitat availability for bats because no snags or trees greater than 6 inches dbh would be cut, and there would be no new trail construction near existing mines or water sources that would result in increased human use of these areas. Both the Lower Marty's and No Candies Trails – the trails located in closest proximity to Lamb and Ashland Loop Mines and Skyline Pond, respectively – would be authorized as System Trails under Alternative 3. However, as described for Alternatives 1 and 2, both trails are located far enough away from suitable habitat that impacts to bats would not be anticipated. In addition, the Reservoir Trail would be decommissioned under Alternative 3, limiting the potential for human disturbance to bats at Reeder Reservoir.

Alternative 3 would have no detectable impact on bats and would have no effect on their habitat.

Migratory Birds

Similar to Alternatives 1 and 2, Alternative 3 would not remove or modify mature forest habitat canopy structures used by the northern goshawk, varied thrush, Wilson's warbler, purple finch, western tanager and olive-sided flycatcher. Approximately 9 acres of habitat affected by new trail construction would have localized adverse effects on shrub and herb understories used by the Nashville warbler and hermit thrush and forest floor habitat used by the winter wren. Potential impacts to rufous hummingbird and blue grouse habitats, which include forest edges and associated berries and flowering plants, would be neutral.

Many of these bird species are not tolerant of persistent human presence, particularly during the breeding season and may avoid habitat near trails that receive heavy recreation use and presence of dogs. New trail construction under Alternative 3 would add approximately 650 acres of long-term disturbance to habitats for these birds within the entire action area while proposed decommissioning would remove approximately 464 acres from disturbance, resulting in a 186 acre increase in disturbance compared to Alternative 1.

Cumulative Effects

The following summarizes potential cumulative effects to the special-status species considered in this section.

- Black Salamander, Oregon Shoulderband, Chace Sideband, Traveling Sideband, and Siskiyou Hesperian. Existing trail use under Alternative 1 may result in cumulative effects on these species when considered in combination with wood removal and burning operations during Ashland Forest Resiliency Project implementation, in that those activities may impact unknown occurrences of these species. In addition to cumulative impacts associated with the Ashland Forest Resiliency Project, limited trail work by the City of Ashland in proximity to action area may also contribute to minimal cumulative impacts to these species (i.e., habitat disturbance) when considered in combination with new trail construction and maintenance

proposed under Alternatives 2 and 3. Cumulative impacts under all alternatives would likely be minimal.

- Northern bald eagle. Trail use under all of the alternatives may result in minor cumulative effects on northern bald eagle when considered in combination with short-term disturbance from the Ashland Forest Resiliency Project, or use of City of Ashland Trails. These potential cumulative effects would be the same for all alternatives.
- Gray Blue Butterfly, Mardon Skipper, Franklin's Bumblebee, Western Bumblebee, California Shield-Backed Bug, Siskiyou Short-Horned Grasshopper. There would be no cumulative effects on these species because there is no overlap of trails where these species and the area of effect associated with the Ashland Forest Resiliency Project, Mt. Ashland Ski Area Expansion Project, of Ashland trail reroute efforts would occur.
- Black-Tailed Deer and Roosevelt Elk. The long-term disturbance effects of ongoing trail use under Alternative 1 may contribute to cumulative effects on black-tailed deer and Roosevelt elk when considered in combination with short-term disturbance from Ashland Forest Resiliency Project activities. Cumulative effects would be slightly increased under Alternatives 2 and 3 due to increased disturbance associated with new trail construction. Increased human activity at the ski area would not likely result in cumulative effects because elk and deer are already influenced by snow to move down from higher elevation habitat during the winter.
- American marten. The long-term disturbance effects of ongoing trail use under Alternative 1 may contribute to cumulative effects on American marten when considered in combination with short-term disturbance from Ashland Forest Resiliency Project activities. The cumulative effects would be slightly increased under Alternatives 2 and 3 due to increased disturbance associated with new trail construction. Marten are active in the winter time and are known to forage under the snow. Their home ranges are generally large compared to other mammals, and in the Blue Mountains of Oregon, are known to range from 393-2,738 acres for females and 1,237 to 4,750 acres for males (Bull and Heater 2001). The proximity of the Upper Time Warp Trail to the proposed expansion of the Mt. Ashland ski area is within this range of area. Therefore, long-term disturbance effects on marten from use of the Upper Time Warp Trail under all of the alternatives may result in a cumulative impact when considered in combination with the increased human presence anticipated as a result of the ski area expansion.
- Pileated Woodpecker and Other Woodpeckers. No cumulative effects on pileated woodpeckers or other woodpeckers are anticipated.
- Flammulated Owl. None of the alternatives would result in detectable direct or indirect effects on flammulated owl. Therefore, no cumulative effects are anticipated.
- Great Gray Owl. None of the alternatives would result in detectable direct or indirect effects on great gray owl. Therefore, no cumulative effects are anticipated.

- Fringed, Long-Eared, and Long-Legged Myotis; Silver-Haired, Pallid, and Townsend's Big-Eared Bats. None of the alternatives would result in detectable direct or indirect effects on bats. Therefore, no cumulative effects on these species are anticipated.
- Migratory Birds. Long-term disturbance to migratory birds from ongoing trail use under Alternative 1 may contribute to cumulative effects on migratory birds when considered in combination with the short-term disturbance and habitat modification from the Ashland Forest Resiliency Project, Mt. Ashland Ski Area Expansion Project, and use of a modified trail system around the City of Ashland, particularly during the breeding season. Cumulative effects may be somewhat increased under Alternatives 2 and 3 due to new trail construction disturbance and more dispersed use.

Summary

Table 3-29 provides a summary and comparison of the potential effects of the alternatives on the wildlife species considered in this section, many of which relate to acres of habitat disturbance. Disturbance acres for Alternative 1 are based on current use of existing historic and unapproved trails, while the action alternatives acreages reflect the net gain or reduction of disturbance relative to Alternative 1.

Of the three alternatives considered in this EA, Alternative 3 best addresses significant issues related to impacts to LSR, northern spotted owls, fishers and other special-status wildlife in the action area by minimizing habitat disturbance from increasing recreational use of trails, and neutralizing negative impacts to LSR values. Alternative 3 also meets the LRMP Standards and Guidelines for wildlife and management allocations within the action area.

The proposed action is consistent with the LRMP, as amended by the 2001 Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl (USDA and USDI 2001b), using the 2001 Survey and Manage species list and survey requirements described in the most recent survey protocols for each species (and reflecting modifications resulting from a 2011 Settlement Agreement)[12]. Surveys were not triggered for any Survey and Manage vertebrate or non-vertebrate animal species by the proposed action, as documented in the Wildlife Biological Evaluation and Specialist Report for the proposed action (Allison 2014). Management recommendations for the known sites of Chace sideband within the action area would be implemented to maintain suitable habitat.

[12] On December 17, 2009, the U.S. District Court for the Western District of Washington issued an order in *Conservation Northwest et al. v. Sherman et al.*, No. 08-1067-JCC (W.D. Wash.), granting Plaintiffs' motion for partial summary judgment and finding NEPA violations in the Final Supplemental to the 2004 Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines (USDA and USDI June 2007). In response, parties entered into settlement negotiations in April 2010, and the Court filed approval of the resulting Settlement Agreement on July 6, 2011. Projects that are within the range of the northern spotted owl are subject to the survey and management standards and guidelines in the 2001 ROD, as modified by the 2011 Settlement Agreement.

3.4.2 Issue - Potential Effects on Soil Resources

Background

This section describes soils and site productivity in the analysis area, and considers the effects trail use, management, and maintenance would have on those resources. This section also considers the location of both LHZ 1 and 2 areas in assessing the potential for surface soil erosion and/or mass wasting contributing to or resulting from surface soil erosion. Please refer to Section 3.4.3 for a more complete discussion of LHZ and management prescriptions.

The analysis area considered for assessing impacts to soils and site productivity in this section is concurrent with the action area.

Management Direction

As described in Chapter 1, the LRMP guides all natural resource management activities and establishes management Standards and Guidelines for the Rogue River-Siskiyou National Forest. With respect to soils and geology, the LRMP includes Standards and Guidelines for detrimental soil displacement, compaction, puddling, severe burning, mass wasting and surface soil erosion, landslide hazard evaluation, and retention of effective ground cover. The NWFP also requires that all unstable areas and potentially unstable areas be managed as Riparian Reserves (USDA Forest Service and USDI Bureau of Land Management 1994).

In addition, specific authorities governing Forest Service soil management are outlined in FSM 2550 – Soil Management. Regional direction for maintaining and protecting soil resources from detrimental disturbance to soil productivity is provided in FSM 2520 – Watershed Protection and Management.

Soils and Site Productivity

Soils within the analysis area were mapped as part of the *Rogue River National Forest Soil Resource Inventory* (Badura and Jahn 1977). In addition, both the *Upper Bear Assessment* (USDA Forest Service 2003) and *Ashland Forest Resiliency Project Final Environmental Impact Statement* (USDA Forest Service 2008) provide soils information encompassing the analysis area. The relevant portions of those assessments are incorporated by reference and cited below.

Figure 3-5 displays soils mapped in the Soils Resource Inventory and within the analysis area. Soils in the analysis area are developing from parent materials of the Ashland Pluton, a granitic rock body that includes quartz diorite, tonalite, granite, diorite, quartz monzonite and granodiorite (USDA Forest Service 2003). Soils are weathering to sandy loam topsoils and gravelly, sandy loam subsoils (ranging between 15% and 60% gravels and cobbles) and are typically well to excessively drained. Soils in the highest elevations of the analysis area have been influenced in their development by glacial activity (USDA Forest Service 2003) (Figure 3-5).

Topsoil varies by aspect, slope and topography but generally ranges in depth from 5-10 inches. Depth to bedrock typically ranges from 2-4 feet but is often deeper below rock outcrops and in colluvial deposits. Northerly and easterly aspects and concave slopes that concentrate surface and groundwater

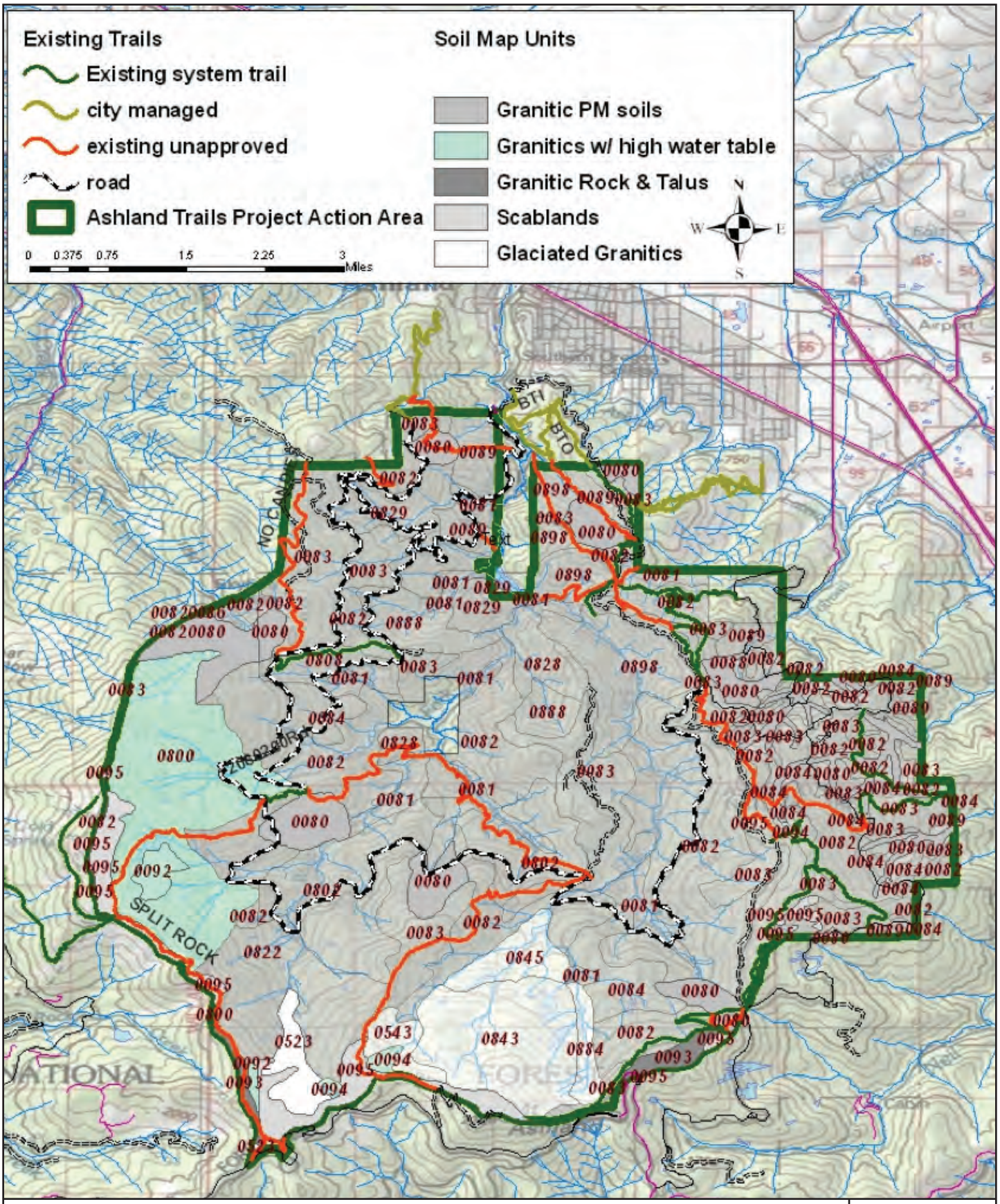
also tend to develop deeper soils and underlying decomposing granitics through weathering (Wilson 1975). Duff and litter layers vary between 1.5-3.5 cm (0.6 and 1.4 inches) thick, and on most sites, cover greater than 90% of the soil surface (USDA Forest Service 2008, page III-58).

Figure 3-6 displays the soil erosion potential for soils in the analysis area. Soil erosion potential is based on expected losses of surface soil when all vegetation cover, including litter, is removed (Badura and Jahn 1977). As illustrated in that figure, soils within the analysis area are very susceptible to erosion processes, particularly due to their naturally non-cohesive, coarse sandy textures and lack of clay. Slope steepness becomes an important driver differentiating potential for surface soil erosion. WEPP soil erosion model runs completed for the Ashland Forest Resiliency Project show that erosion rates can more than double as slope gradients increase from 25% to 75% gradients (USDA Forest Service 2008, page III-58).

Existing Trail Conditions

As described in Section 3.2.1, *Background - Trail System Sustainability and Unapproved Construction*, in general, existing System Trails are considered sustainable and result in little to no surface soil erosion due to their location, design, and frequently maintained erosion control structures. Field review of System Trails in the analysis area confirmed that surface soil erosion off of trails built with proper design features is very localized, if present at all. The well to excessively drained nature of the granitic soils in the analysis area aids in trail drainage and helps to minimize erosion on properly constructed trails since water is not prone to collect and puddle, but instead percolates readily into the subsoil (See Figure 3-1, Photos 1A and 1B). Localized soil displacement does tend to occur where mountain bikes “bank” corners; however, where these features are properly designed, displacement is limited and quickly intercepted by adjacent vegetation and litter. Properly designed and maintained System Trails in the analysis area do not exhibit a level of erosion that would be considered detrimental.

As a result of use over time, soils within trail treads are generally compacted (i.e., bulk density increases). The level of change in bulk density from natural conditions can vary depending on soil textures, level of use, and type of use. Due to the sandy, coarse textures and low clay content of granitic soils in the analysis area, compaction is less of an issue than in finer-textured, clayey soils. Vegetation adjacent to System Trails is not typically impacted enough to measurably affect site productivity, particularly at a level that would be considered detrimental, due to the narrow (average of 2 feet wide) linear nature of trail-related compaction over the landscape. If the trails stopped being used, the narrowness of the compaction along the trail length would be broken up over time through growth of roots from adjacent vegetation into the subsoil of trail treads. Organic matter is typically mostly uniform across the ground and is present except for where annual deposition of overstory litter gets worn away in the active tread of the trail.



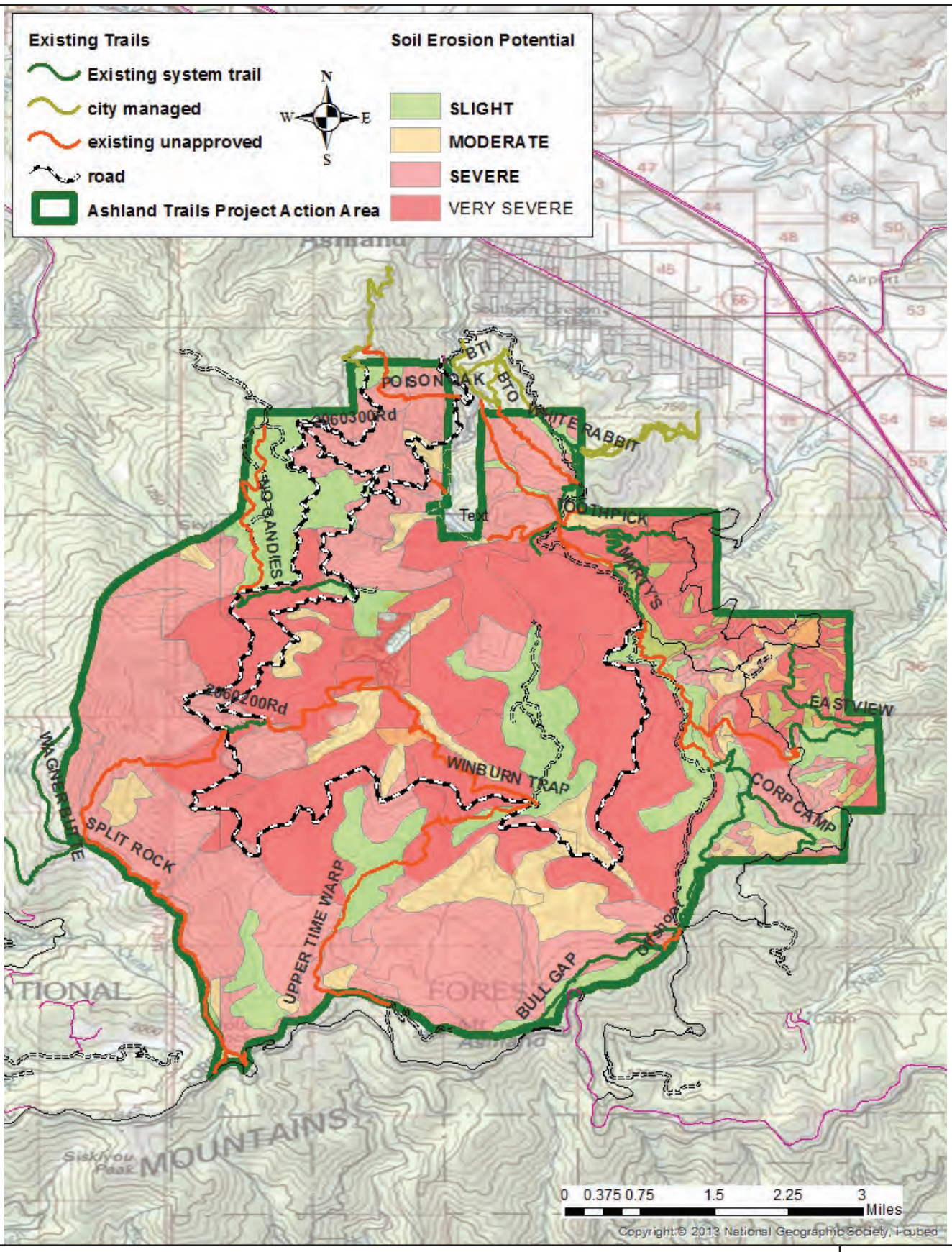
Title/Notes:

Soil Map Units in the Analysis Area

All map unit numbers are displayed, but map units are color-coded to show relation to each other based on parent materials, influence of shallow groundwater, and/or glacial processes.

Figure:

3-5



Title/Notes:

Soil Erosion Potential in the Analysis Area

Figure:

3-6

Existing historic and unapproved trails in the analysis area range from being fully sustainable to unsustainable (USDA Forest Service 2010a, AWTA 2011). Where trails have been developed without proper design features, it is common to see soil rutting and soil displacement off the trail tread, particularly where trails are descending steep slopes (See Figure 3-1, Photos 2A and 2B). Where effective groundcover has been lost in these areas, and water channelized down steep bare slopes within the trail treads, the naturally erosive nature of the granitic soils result in rilling and gullying. The loose, non-cohesive nature of these soils makes them very susceptible to displacement on steeper slopes from foot, bike, and equestrian traffic. Multiple trail treads form as users create new paths to avoid deeply rutted trails. This trail braiding and subsequent expansion of exposed soil has the potential to increase erosion and loss of organic matter to a level that could be considered detrimental. Multiple examples of this condition can be seen on the current Jabberwocky Trail (See Figure 3-1, Photo 3).

Table 3-40 summarizes the total length and acreage of soils in the analysis area that are directly committed as trail tread, as well as the length of each trail that is within soils that have severe or very severe erosion potential and, therefore, are more susceptible to surface soil erosion when effective groundcover is lost. Table 3-40 also summarizes the length of each trail that is within LHZ 1 or 2 areas and, therefore, more susceptible to mass wasting events if not designed and maintained properly, and/or laid out to avoid LHZ 1 and 2 areas to the extent possible. The percentage of total trail length in severe and very severe erosion potential soils, as well as LHZ 1 & 2 areas, indicate the level of risk individual trails have of becoming unsustainable over time.

Table 3-40. Existing Trails within the Analysis Area and Their Level of Interaction with Soils and Slope Stability Characteristics

Trail Name	*Soil Map Units*[1]	*Trail Length (mi.) / Total Area (ac.)*	*Trail Length (ft.) in LHZ 1 or 2 / % of Trail Length*	*Trail Length (ft.) in Severe or Very Severe Soil Erosion Potential / % of Trail Length*
System Trails				
Bull Gap	80, 82, 83, 93, 95	5.1 mi. / 1.24 ac.	1,950 ft. / 7%	7,700 ft. / 29%
Caterpillar	80, 81, 82, 83, 89	1.1 mi. / 0.27 ac.	1,673 ft. / 29%	1,865 ft. / 32%
Catwalk	82, 83, 898	1.7 mi. / 0.41 ac.	3,285 ft. / 37%	7,009 ft. / 78%
Corp Camp	82, 83, 89	1.0 mi. / 0.24 ac.	1,045 ft. / 20%	2,560 ft. / 48%
Eastview	80, 82, 83, 84	2.5 mi. / 0.61 ac.	4,310 ft. / 33%	6,945 ft. / 53%
Horn Gap Connector	82, 83, 808, 888	1.2 mi. / 0.29 ac.	0 ft. / 0%	5,470 ft. / 86%
Lamb Mine	828, 898	0.7 mi. / 0.17 ac.	420 ft. / 11%	3,696 ft. / 100%
Marty's	83, 898	0.8 mi. / 0.19 ac.	70 ft. / 2%	4,224 ft. / 100%
Toothpick	81, 82	1.0 mi. / 0.24 ac.	2,445 ft. / 46%	4,405 ft. / 83%

Trail Name	*Soil Map Units*[1]	*Trail Length (mi.) / Total Area (ac.)*	*Trail Length (ft.) in LHZ 1 or 2 / % of Trail Length*	*Trail Length (ft.) in Severe or Very Severe Soil Erosion Potential / % of Trail Length*
Upper Horn Gap	82, 800	0.5 mi. / 0.12 ac.	0 ft. / 0%	2,640 ft. / 100%
White Rabbit	83	0.2 mi. / 0.05 ac.	0 ft. / 0%	0 ft. / 0%
TOTAL (System Trails)		**15.8 mi. / 3.83 ac.**	**15,198 ft. / 18%**	**46,514 ft. / 56%**
Existing Historic and Unapproved Trails				
Alice in Wonderland[2]	80, 83	0.2 mi. / 0.05 ac.	0 ft. / 0%	230 ft. / 22%
Upper Time Warp[3]	82, 83, 95, 543, 802, 822	3.8 mi. / 0.92 ac.	0 ft. / 0%	12,275 ft. / 61%
Wagner Glade	82, 95, 800	2.2 mi. / 0.53 ac.	1,717 ft. / 15%	11,616 ft. / 100%
Winburn Trap[3]	80, 81, 82, 83, 802	3.7 mi. / 0.90 ac.	4,460 ft. / 23%	18,525 ft. / 95%
Split Rock	93, 95, 800	3.2 mi / 0.77 ac.	0 ft. / 0%	9,475 ft. / 60%
Lower Marty's[2]	82, 83, 828, 898	0.9 mi. / 0.22 ac.	1,365 ft. / 29%	3,195 ft. / 67%
Jabberwocky	80, 89, 898	1.2 mi. / 0.29 ac.	3,530 ft. / 56%	6,000 ft. / 95%
Fell on Knee	80, 83	1.0 mi. / 0.24 ac.	925 ft. / 18%	2,560 ft. / 48%
Missing Link (Upper & Lower)	82, 83, 95	2.2 mi. / 0.53 ac.	660 ft. / 6%	2,385 ft. / 21%
No Candies	83	2.5 mi. / 0.61 ac.	0 ft. / 0%	0 ft./ 0%
Upper Eastview	80, 82, 83, 84	1.3 mi. / 0.31 ac.	1,410 ft. / 21%	4,010 ft. / 58%
Chain Saw[2]	89	0.2 mi. / 0.05 ac.	110 ft. / 10%	1,056 ft. / 100%
Epstein Cut-Off[2]	81	0.3 mi. / 0.07 ac.	555 ft. / 35%	0 ft. / 0%
Insane Drop[2]	82	0.1 mi. / 0.02 ac.	0 ft. / 0%	528 ft. / 100%
Offshoot[2]	80	0.3 mi. / 0.07 ac.	615 ft. / 39%	1,584 ft. / 100%
Pete's Punisher[2]	82, 83, 898	1.3 mi. / 0.31 ac	1,755 ft. / 26%	4,888 ft. / 71%
Poison Oak[2]	80, 89	0.3 mi. / 0.07 ac.	530 ft. / 33%	1,584 ft. / 100%
Reservoir (East Fork)[2]	81, 898	0.9 mi. / 0.22 ac.	1,585 ft. / 33%	4,752 ft. / 100%
TOTAL (Existing Historic / Unapproved Trails)		**25.6 mi. / 6.21 ac.**	**19,217 ft. / 14%**	**84,663 ft. / 63%**
TOTAL		**41.4 mi. / 10.04 ac.**	**34,415 ft. / 16%**	**131,177 ft. / 60%**

[1] Refer to Figure 3-5 for the location of soil map units within the analysis area.

[2]These trail alignments are proposed for decommissioning under Alternatives 2 and 3.

[3]Winburn Trap Tail and 1.0 mile of Upper Time Warp Trail are proposed for decommissioning under Alternative 3. The portion of the Upper Time Warp Trail proposed for decommissioning includes 3,376 feet within very severe / severe erosion potential areas.

Effects Mechanisms and Analytic Framework

Soil productivity can be impacted by management actions that reduce effective ground cover, displace soil, cause soil compaction or otherwise negatively impact soil structure, destabilize slopes, and change nutrient cycling processes through vegetation, organic matter and down wood manipulation. Specific activities related to the proposed action that have the potential to impact soil productivity include new trail construction and trail decommissioning.

For the purposes of this section, potential effects on soil erosion and site productivity would occur if the alternatives would result in an increased area of disturbed or exposed soils; decreased site productivity as a result of disturbance; or improved sit productivity (or decreased erosion) as a result of proposed restoration activities. The analytic framework (indicators) for assessing these effect mechanisms considered if the alternatives would modify the length of trails crossing through severe or very severe erosion potential soils, result in more or less soil disturbance as a result of proposed trail management activities and use, or rehabilitate or improve site productivity.

The direct, indirect and cumulative effects of the alternatives were analyzed using GIS analysis informed by field reconnaissance of the analysis area. All trail lengths and area calculations are based on GIS analysis and are approximate.

Alternative 1

Direct and Indirect Effects

Potential effects on soil erosion and site productivity under Alternative 1 would be the same as existing conditions. As summarized in Table 3-40, System Trails would continue to commit 3.83 acres to trail tread, and 56% of System Trails would be located on soils with severe or very severe erosion potential. However, because most System Trails in the analysis area are sustainably constructed, excessive soil erosion associated with continued use and maintenance of these trails is not anticipated.

Unapproved use of existing, unapproved trails under Alternative 1 would continue to result in localized surface soil erosion and displacement where those trails are not built sustainably. Where trails are experiencing braiding and widening due to erosion issues, localized site productivity may be negatively affected as the disturbed area expands in size from continued use. Existing historic and unapproved trails currently directly impact about 6.1 acres of soils within the analysis area (Table 3-40). About 63% of the length of these trails is on soils with severe or very severe erosion potential. At locations where trail design is not sustainable (e.g., where they descend steep slopes), these unapproved trails would continue to cause erosion from loss of organic matter and surface water channelization. Indirectly, localized areas of trail widening and excessive trail gullying would result in areas of reduced or lost soil productivity over time.

Alternative 2

Direct and Indirect Effects

Table 3-41 summarizes the distribution of the trail system under Alternative 2 relative to soil and slope stability characteristics. Approximately 7.5 acres of additional System Trails would occur in the analysis area after implementation of this alternative. These trails would be constructed and maintained in accordance with FSH 2309.18 and the project-specific design parameters described in Chapter 2.2.3, *Design Parameters* to minimize or prevent erosion and to prevent trail widening and braiding over time. In addition, the general PDC summarized in Table 2-9 would reduce potential erosion-related impacts associated with Alternative 2. In particular, PDC GEN-3 would require that trails be designed to minimize steep pitches, grade reversals and to reduce the chance for water to gain enough speed to recruit and encourage erosion.

Alternative 2 would also close and rehabilitate 5.2 miles of existing historic and unapproved trails in the analysis area. Rehabilitation would restore surface organics to exposed soils and stabilize eroding soils, including approximately 4.5 miles of trail tread through severe and very severe erosion potential areas (Table 3-41). Site productivity in these areas would improve over time as litter and vegetation reclaim disturbed areas.

In total, approximately 11.3 acres of soils would be committed to the trail system under Alternative 2, and 63% of this trail system would be on soils with severe or very severe erosion potential. Although this acreage and percentage would be higher than those associated with Alternative 1 (3.83 acres and 56%, respectively), excessive soil erosion associated with continued use and maintenance of these trails is not anticipated. This is largely due to improvements that would be made to existing historic and unapproved trails within the analysis area; sustainable construction techniques; and the Forest Service's ongoing commitment to maintenance of these trails. In addition, the narrow (average 2 foot width) and linear nature of the soil commitment associated within each trail alignment would ensure the footprint at any point on the landscape would not be large enough to cause detrimental impacts to soil productivity in adjacent soils and vegetation. The impacts of the trail tread on soil structure, organic matter, or exposed soils would not be spatially large enough, or deep enough into the soil profile, to impact development of tree roots under trail tread, or to reduce the productivity of vegetation adjacent to the trails.

Table 3-41. Alternative 2 – Authorized Trail System Effects on Soils and Slope Stability Characteristics[1]

Trail Name	*Soil Map Units[2]*	*Trail Length (mi.) / Total Area (ac.)*	*Trail Length (ft.) in LHZ 1 or 2 / % of Trail Length*	*Trail Length (ft.) in Severe or Very Severe Soil Erosion Potential / % of Trail Length*
System Trails (Existing)				
Bull Gap	80, 82, 83, 93, 95	5.1 mi. / 1.24 ac.	1,950 ft. / 7%	7,700 ft. / 29%
Caterpillar	80, 81, 82, 83, 89	1.2 mi. / 0.27 ac.	1,673 ft. / 29%	1,865 ft. / 32%

Trail Name	*Soil Map Units*[2]	*Trail Length (mi.) / Total Area (ac.)*	*Trail Length (ft.) in LHZ 1 or 2 / % of Trail Length*	*Trail Length (ft.) in Severe or Very Severe Soil Erosion Potential / % of Trail Length*
Catwalk	82, 83, 898	1.7 mi. / 0.41 ac.	3,285 ft. / 37%	7,009 ft. / 78%
Corp Camp	82, 83, 89	2.0 mi. / 0.24 ac.	1,045 ft. / 20%	2,560 ft. / 48%
Eastview	80, 82, 83, 84	2.5 mi. / 0.61 ac.	4310 ft. / 33%	6,945 ft. / 53%
Horn Gap Connector	82, 83, 808, 888	1.2 mi. / 0.29 ac.	0 ft. / 0%	5,470 ft. / 86%
Lamb Mine	828, 898	0.7 mi. / 0.17 ac.	420 ft. / 11%	3,696 ft. / 100%
Marty's	83, 898	0.8 mi. / 0.19 ac.	70 ft. / 2%	4,224 ft. / 100%
Toothpick	81, 82	1.0 mi. / 0.24 ac.	2,445 ft. / 46%	4,405 ft. / 83%
Upper Horn Gap (Potlicker)	82, 800	0.5 mi. / 0.12 ac.	0 ft. / 0%	2,640 ft. / 100%
White Rabbit	83	0.2 mi. / 0.05 ac.	0 ft. / 0%	0 ft. / 0%
TOTAL (Existing System Trails)		**15.8 mi. / 3.83 ac.**	**15,198 ft. / 18%**	**46,514 ft. / 56%**
Trails Added to Forest Service System				
Upper Time Warp	82, 83, 95, 543, 802, 822	3.8 mi. / 0.92 ac.	0 ft. / 0%	12,275 ft. / 61%
Wagner Glade	82, 95, 800	2.2 mi. / 0.53 ac.	1,717 ft. / 15%	11,616 ft. / 100%
Winburn Trap	80, 81, 82, 83, 802	3.7 mi. / 0.90 ac.	4,860 ft. / 25%	19,346 ft. / 99%
Split Rock	93, 95, 800	3.2 mi. / 0.77 ac.	0 ft. / 0%	9,475 ft. / 60%
Lower Marty's	82, 83, 828, 898	0.5 mi. / 0.12 ac.	1,365 ft. / 52%	2,640 ft. / 100%
Jabberwocky	80, 89, 898	1.2 mi. / 0.29 ac.	2,980 ft. / 47%	6,336 ft. / 100%
Fell on Knee	80, 83	1.0 mi. / 0.24 ac.	925 ft. / 18%	2,560 ft. / 48%
Missing Link (Upper & Lower)	82, 83, 95	2.2 mi. / 0.53 ac.	660 ft. / 6%	2,385 ft. / 21%
No Candies	83	2.5 mi. / 0.61 ac.	0 ft. / 0%	0 ft./ 0%
Upper Eastview	80, 82, 83, 84	1.3 mi. / 0.31 ac.	1,410 ft. / 21%	4,010 ft. / 58%
Ric's	82, 83	1.3 mi. / 0.31 ac.	3,035 ft. / 44%	6,864 ft. / 100%
Freak Went Flyer	80, 82, 83	0.9 mi. / 0.22 ac.	1,210 ft. / 25%	4,752 ft. / 100%
RIP 1	80, 83, 84	0.6 mi. / 0.14 ac.	2,035 ft. / 64%	2,025 ft. / 64%
Wonder	80, 81, 89	1.3 mi. / 0.31 ac.	1,305 ft. / 19%	6,364 ft. / 93%
Red Queen	83, 89, 898	1.2 mi. / 0.29 ac.	1,305 ft. / 21%	5,915 ft. / 93%
Lewis Loop	80, 82, 83, 898	1.1 mi. / 0.27 ac.	2,780 ft. / 48%	4,515 ft. / 78%

Trail Name	*Soil Map Units*[2]	*Trail Length (mi.) / Total Area (ac.)*	*Trail Length (ft.) in LHZ 1 or 2 / % of Trail Length*	*Trail Length (ft.) in Severe or Very Severe Soil Erosion Potential / % of Trail Length*
Shaken	83, 829	0.7 mi. / 0.17 ac.	340 ft. / 9%	2,030 ft. / 55%
Not Stirred	80, 89, 829	1.2 mi. / 0.29 ac.	1,210 ft. / 19%	6,336 ft. / 100%
Lizard	83	0.4 mi. / 0.10 ac.	0 ft. / 0%	0 ft. / 0%
Alice in Wonderland	80	0.2 mi. / 0.05 ac.	0 ft. / 0%	0 ft. / 0%
Bandersnatch	83, 89	0.4 mi / 0.10 ac.	410 ft. / 19%	355 ft. / 17%
TOTAL (New System Trails)		**30.9 mi. / 7.49 ac.**	**27,547 ft. / 17%**	**109,799 ft. / 67%**
TOTAL		**46.7 mi. / 11.32 ac.**	**42,745 ft. / 17%**	**156,313 ft. / 63%**

[1] Shaded areas highlight differences between the Alternatives 1 and 2 (i.e., existing trails that would be added to the System but would undergo some route changes).

[2]Refer to Figure 3-5 for the location of soil map units within the analysis area.

Alternative 3

Direct and Indirect Effects

Table 3-42 summarizes the distribution of the trail system under Alternative 3 relative to soil and slope stability characteristics. Approximately 6.0 acres of additional System Trails would occur in the analysis area after implementation of this alternative. Similar to Alternative 2, trails would be constructed and maintained to minimize or prevent erosion, trail widening, and braiding, and the general PDC summarized in Table 2-9 (e.g., PDC GEN-3) would be implemented to reduce potential erosion-related impacts during project construction.

Alternative 3 would close and rehabilitate 9.9 miles of existing historic and unapproved trails in the analysis area, including approximately 8.8 miles of trail tread through severe and very severe erosion potential areas (Table 3-42). As described for Alternative 2, rehabilitation would restore surface organics to exposed soils and stabilize eroding soils, which would improve site productivity in these areas over time as litter and vegetation reclaim disturbed areas.

In total, approximately 9.9 acres of soils would be committed to the trail system under Alternative 3, and 59% of this trail system would be on soils with severe or very severe erosion potential. Although this acreage and percentage would be higher than those associated with Alternative 1 (3.83 acre and 56%, respectively), excessive soil erosion associated with continued use and maintenance of these trails is not anticipated. This is largely due to improvements that would be made to existing historic and unapproved trails within the analysis area; sustainable construction techniques; and the ongoing commitment by the Forest Service to maintain the trails. As described for Alternative 2, the impacts of trail tread on soil structure, organic matter, or exposed soils would not be spatially large enough, or deep enough into the soil profile, to impact development of tree roots under trail tread, or to reduce the productivity of vegetation adjacent to the trails.

Table 3-42. Alternative 3 – Authorized Trail System Effects on Soils and Slope Stability Characteristics[1]

Trail Name	*Soil Map Units*[2]	*Trail Length (mi.) / Total Area (ac.)*	*Trail Length (ft.) in LHZ 1 or 2 / % of Trail Length*	*Trail Length (ft.) in Severe or Very Severe Soil Erosion Potential / % of Trail Length*
System Trails (Existing)				
Bull Gap	80, 82, 83, 93, 95	5.1 mi. / 1.24 ac.	1,950 ft. / 7%	7,700 ft. / 29%
Caterpillar	80, 81, 82, 83, 89	1.3 mi. / 0.27 ac.	1,673 ft. / 29%	1,865 ft. / 32%
Catwalk	82, 83, 898	1.7 mi. / 0.41 ac.	3,285 ft. / 37%	7,009 ft. / 78%
Corp Camp	82, 83, 89	3.0 mi. / 0.24 ac.	1,045 ft. / 20%	2,560 ft. / 48%
Eastview	80, 82, 83, 84	2.5 mi. / 0.61 ac.	4,310 ft. / 33%	6,945 ft. / 53%
Horn Gap Connector	82, 83, 808, 888	1.2 mi. / 0.29 ac.	0 ft. / 0%	5,470 ft. / 86%
Lamb Mine	828, 898	0.7 mi. / 0.17 ac.	420 ft. / 11%	3,696 ft. / 100%
Marty's	83, 898	0.8 mi. / 0.19 ac.	70 ft. / 2%	4,224 ft. / 100%
Toothpick	81, 82	1.0 mi. / 0.24 ac.	2,445 ft. / 46%	4,405 ft. / 83%
Upper Horn Gap	82, 800	0.5 mi. / 0.12 ac.	0 ft. / 0%	2,640 ft. / 100%
White Rabbit	83	0.2 mi. / 0.05 ac.	0 ft. / 0%	0 ft. / 0%
TOTAL (Existing System Trails)		**15.8 mi. / 3.83 ac.**	**15,198 ft. / 18%**	**46,514 ft. / 56%**
Trails Added to Forest Service System				
Upper Time Warp	82, 83, 95, 543, 802, 822	3.4 mi. / 0.82 ac.	0 ft. / 0%	11,883 ft. / 66%
Wagner Glade	82, 95, 800	2.2 mi. / 0.53 ac.	1,717 ft. / 15%	11,616 ft. / 100%
Split Rock	93, 95, 800	3.2 mi. / 0.77 ac.	0 ft. / 0%	9,475 ft. / 51%
Lower Marty's	82, 83, 828, 898	0.5 mi. / 0.12 ac.	1,365 ft. / 52%	2,640 ft. / 100%
Jabberwocky	80, 89, 898	1.7 mi. / 0.41 ac.	3,000 ft. / 33%	8,976 ft. / 100%
Fell on Knee	80, 83	1.0 mi. / 0.24 ac.	925 ft. / 18%	2,560 ft. / 48%
Missing Link (Upper & Lower)	82, 83, 95	2.2 mi. / 0.53 ac.	660 ft. / 6%	2,385 ft. / 21%
No Candies	83	2.5 mi. / 0.61 ac.	0 ft. / 0%	0 ft./ 0%
Upper Eastview	80, 82, 83, 84	1.3 mi. / 0.31 ac.	1,410 ft. / 21%	4,010 ft. / 58%
Ric's	82, 83	1.3 mi. / 0.31 ac.	3,035 ft. / 44%	6,864 ft. / 100%
Wonder	80, 81, 89	1.3 mi. / 0.31 ac.	1,305 ft. / 19%	6,364 ft. / 93%
Red Queen	83, 89, 898	1.2 mi. / 0.29 ac.	1,305 ft. / 21%	5,915 ft. / 93%

Trail Name	*Soil Map Units*[2]	*Trail Length (mi.) / Total Area (ac.)*	*Trail Length (ft.) in LHZ 1 or 2 / % of Trail Length*	*Trail Length (ft.) in Severe or Very Severe Soil Erosion Potential / % of Trail Length*
Lewis Loop	80, 82, 83, 898	1.1 mi. / 0.27 ac.	2,853 ft. / 49%	4,315 ft. / 74%
Shaken	83, 829	0.7 mi. / 0.17 ac.	340 ft. / 9%	2,030 ft. / 55%
Not Stirred	80, 89, 829	0.3 mi. / 0.07 ac.	317 ft. / 20%	1,584 ft. / 100%
Lizard	83	0.4 mi. / 0.10 ac.	0 ft. / 0%	0 ft. / 0%
Alice in Wonderland	80	0.2 mi. / 0.05 ac.	0 ft. / 0%	0 ft. / 0%
Bandersnatch	83, 89	0.4 mi / 0.10 ac.	410 ft. / 19%	355 ft. / 17%
TOTAL (New System Trails)		**24.9 mi. / 6.04 ac.**	**18,642 ft. / 14%**	**80,972 ft. / 62%**
TOTAL		**40.7 mi. / 9.87 ac.**	**33,840 ft. / 16%**	**127,486 ft. / 59%**

[1] Shaded areas highlight differences between Alternatives 2 and 3.
[2] Refer to Figure 3-5 for the location of soil map units within the analysis area.

Comparison of Alternatives

Overall, Alternative 3 would result in the greatest beneficial impacts on soil erosion and site productivity through committing the least acres of soil to trail tread, including trail tread in very severe/severe soil erosion potential soils, and rehabilitating the greatest amount of trail miles (Table 3-43). Proposed trail decommissioning under Alternative 3 would also remove the most mileage of trail length in severe and very severe erosion potential soils when compared to Alternatives 1 and 2 (Table 3-44).

Table 3-43. Soils and Slope Stability Characteristics – Summary Comparison of Alternatives

	Total Acres[1]	*Trail Length (ft.) in LHZ 1 or 2 / % of Trail Length*	*Trail Length (ft.) in Severe or Very Severe Soil Erosion Potential / % of Trail Length*	*Miles of Trail Rehabilitated*
Alternative 1	10.04[2]	34,415 ft. / 16%	131,177 ft. / 60%	0.0
Alternative 2	11.32	42,745 ft. / 17%	156,313 ft. / 63%	5.2
Alternative 3	9.87	33,840 ft. / 16%	127,486 ft. / 59%	9.9

[1] Represents total acreage committed to trail tread.
[2] Includes 3.83 acres of System Trails, plus current level of existing historic and unapproved trails in the analysis area.

Table 3-44. Trail Decommissioning Soils and Slope Stability Characteristics – Summary Comparison of Alternatives

	Miles of Trail Decommissioned	*Total Decommissioned Trail Length (ft) in LHZ 1 or 2 / % of Decommissioned Trail Length*	*Total Decommissioned Trail Length (ft) in Very Severe/Severe Erosion Potential Soils / % of Decommissioned Trail Length*
Alternative 1	0.0	N/A	N/A
Alternative 2	5.2	1.9 mi. / 36%	4.5 mi. / 86%
Alternative 3	9.9	2.8 mi / 28%	8.8 mi. / 89%

The differences between alternatives are most importantly recognized at a site-scale, as summarized below, where different trail alignments may have varying effects on erosion potential.

- The proposed route for the Winburn Trap Trail under Alternative 2 would increase the length of trail in severe and very severe erosion potential soils from 95% to 99% of its total length compared to Alternative 1. Conversely, the Winburn Trap Trail would be decommissioned under Alternative 3, which would decrease the amount of severe and very severe erosion potential areas crossed by approximately 19,346 feet, a reduction of 12% compared to Alternative 2.
- The re-route of the Upper Time Warp Trail under Alternative 3 would potentially increase the amount of severe and very severe soils it traverses from 61% to 66% of the trail's total length when compared to Alternative 2.
- The estimated length of the Not Stirred Trail under Alternative 3 would be 0.9 miles shorter than the route proposed under Alternative 2. The Alternative 3 route would reduce the length of trail in severe and very severe erosion potential areas by 25% compared to Alternative 2.
- The proposed re-route of the Jabberwocky Trail under the action alternatives would result in an increase in the amount of severe and very severe erosion potential soils it would traverse from 95% to 100% of its total length when compared to Alternative 1. However, proper trail design along the re-routed alignment would be expected to reduce erosion over the current condition.
- The proposed re-route of the Lewis Loop Trail under Alternative 3 would reduce the length of trail traversing through severe and very severe erosion potential areas by 4% compared to Alternative 2.
- Construction of the Freak Went Flyer and RIP 1 Trails under Alternative 2 (i.e., approximately 1.5 miles of new trail) would include 6,777 feet of new trail in severe and very severe erosion potential areas. These trails would not be constructed under Alternative 3.

Cumulative Effects

As described above, the potential direct and indirect effects of Alternative 1 on soil erosion and site productivity would primarily be associated with the continued use of existing historic and

unapproved trails in the analysis area, particularly trail segments that are on steep slopes where erosion and displacement are exacerbated. Ashland Forest Resiliency Project treatment units that overlap these areas include pre-commercial hand thinning and/or helicopter commercial thinning. These treatments methods result in minimal soil disturbance, and design criteria for the Ashland Forest Resiliency project require the maintenance of effective groundcover to prevent erosion. Similarly, ground disturbance associated with the Mt. Ashland ski area and potential reroutes of trails within the City of Ashland's jurisdiction could result in erosion, which would be reduced through standard best management practices (BMP) and mitigation measures. Therefore, it is expected that cumulative effects on soil erosion and site productivity under Alternative 1 would be indiscernible.

The cumulative effects of the action alternatives would be similar to Alternative 1. Trail segments experiencing direct and indirect detrimental effects on soils are on steep slopes, and associated with the existing historic and unapproved trails identified for closure and rehabilitation under the action alternatives. Decommissioning these trail segments under the action alternatives would result in a beneficial impact to site productivity over time. All new trails proposed under the action alternatives, including those that overlap with Ashland Forest Resiliency Project treatment units, would be designed and constructed using sustainable trail standards that would not result in detrimental effects to site productivity. Similarly, pre-commercial hand thinning and/or helicopter commercial thinning methods would continue to be used in Ashland Forest Resiliency Project treatment units, including areas that overlap with existing and proposed trail alignments within the analysis area. These treatment methods result in minimal soil disturbance and require maintenance of effective ground cover to prevent erosion. Finally, any erosion associated with ground disturbance from the Mt. Ashland ski area or potential reroutes of trails within the City of Ashland's jurisdiction would be reduced through standard BMPs and mitigation measures. Therefore, it is anticipated that cumulative effects on soil erosion and site productivity under the action alternatives would be indiscernible and comparable to Alternative 1.

3.4.3 Issue - Potential Effects on Geologic Slope Stability

Background

As described in Section 3.4.2, the LRMP includes Standards and Guidelines for detrimental soil displacement, compaction, puddling, severe burning, mass wasting and surface soil erosion, landslide hazard evaluation, and retention of effective ground cover (USDA Forest Service 1990), and the NWFP requires that all unstable areas and potentially unstable areas be managed as Riparian Reserves (USDA Forest Service and USDI Bureau of Land Management 1994). Additional authorities governing Forest Service soil management are outlined in FSM 2550 – Soil Management and FSM 2520 – Watershed Protection and Management.

The analysis area considered for assessing effects on geologic slope stability in this section is concurrent with the action area.

Geologic Conditions and Slope Stability

A detailed discussion of the geologic history of the Klamath Mountains within and surrounding the analysis area is provided in the *Bear Watershed Analysis* (USDA Forest Service 1995). In summary, the analysis area is located on the eastern edge of the Klamath Mountains Physiographic Province. It is situated in the highly dissected granitic terrain of the Ashland Pluton, which is part of the Wooley Creek pluton belt of late middle Jurassic age from 155 million years ago, the beginning of an interval of intensive folding and faulting in the Klamath Mountains that was accompanied by the intrusion of a series of plutons (Orr et al. 1992). Subsequent uplift, faulting, and erosion of overlying layers over millions of years have exposed the pluton at the earth's surface.

The analysis area contains slopes that range in elevation from approximately 2,300 feet above Ashland to 7,530 feet at Mt. Ashland. The Bear Watershed Analysis discusses the geomorphic terrains within this analysis area, which includes the Lower Elevation Granitics, Mid/High Elevation Granitics, and the Glacial Granitics (USDA Forest Service 1995). All of these granitic landforms are characterized by naturally high rates of erosion and often contain unstable to potentially unstable slopes, with mass wasting processes including debris slides, debris flows/torrents, slumps, and earthflows/slump earthflows occurring naturally in the watershed (USDA Forest Service 1995). Slopes are highly dissected and are gentle to steep, ranging from 20% to 70%, for the majority of the analysis area. Fieldwork conducted for the Ashland Forest Resiliency Project revealed that there are also very steep slopes (greater than 70% to 110%) in some portions of the canyons of Tolman, Reeder Gulch, and Hamilton Creeks (USDA Forest Service 2008, page III-64).

The weathering of granitic rocks commonly produces gradations of three distinct zones: soil, decomposed granitics, and disintegrated granitics (Wilson 1975). In a study of landslides in the watershed, Wilson (1975) noted evidence that the type of failures common to the watershed typically originate in the decomposed granitics zone, with indications that these failures are a result of liquefaction of the granitic non-cohesive weathered material. Conversely, the disintegrated zone is very strong and often stable in vertical exposures, with failures most commonly associated with erosion along small gullies or channels or slab failures along weak joints or shears (Wilson 1975). Wilson (1975) also noted that many landslides occurred at the slopebreak where slopes steepen. The steeper slope is inherently less stable and the change in slope affects the movement of groundwater, increasing seepage forces and pore pressures which tend to destabilize the slope during saturated conditions (Wilson 1975).

Landslide Hazard Zones

The Upper Bear Assessment provides a detailed description of the Landslide Zonation and Risk Evaluation technique used to map LHZs, landslide conditions, and flood events in the analysis area (USDA Forest Service 2003). Landslide Hazard Zone 1 areas designate the highest risk terrain, which includes steep slopes (70% and higher), active landslides, and over-steepened creek banks. Landslide Hazard Zone 2 areas designate the second highest risk terrain, are characterized by slopes from approximately 50% to 69%, and are typically found upslope from LHZ 1 areas. Both LHZ 1 and LHZ 2 areas are designated as Riparian Reserves under the NWFP. The other two LHZ areas (LHZ 3 and 4) are classified as relatively stable.

Figure 3-7 shows the LHZ mapping within the analysis area. This figure reflects recent adjustments made to the LHZs within the analysis area based on site-specific field reconnaissance associated with implementation of the Ashland Forest Resiliency Project. Figure 3-2 shows the location of Riparian Reserves in the analysis area.

In discussions of landslide conditions and monitoring of flood events in the Upper Bear Assessment, trails were not identified as a trigger of any mass wasting events (USDA Forest Service 2003). However, where trails traverse LHZ 1 and/or 2 areas, particularly where they traverse inner gorges and cross drainages within LHZ 1 or 2 areas, trail tread has the potential to become impacted by landslide and slumping events, potentially being completely obliterated. Trails that have been constructed with cutbanks that traverse LHZ 1 & 2 areas also have the potential to undermine the slope stability of areas along the trail and trigger local soil slumping during saturated soil conditions. An example of all of these levels of instability can be seen along the Toothpick Trail from impacts that occurred to the trail during 1997 flooding (Akerman 1997).

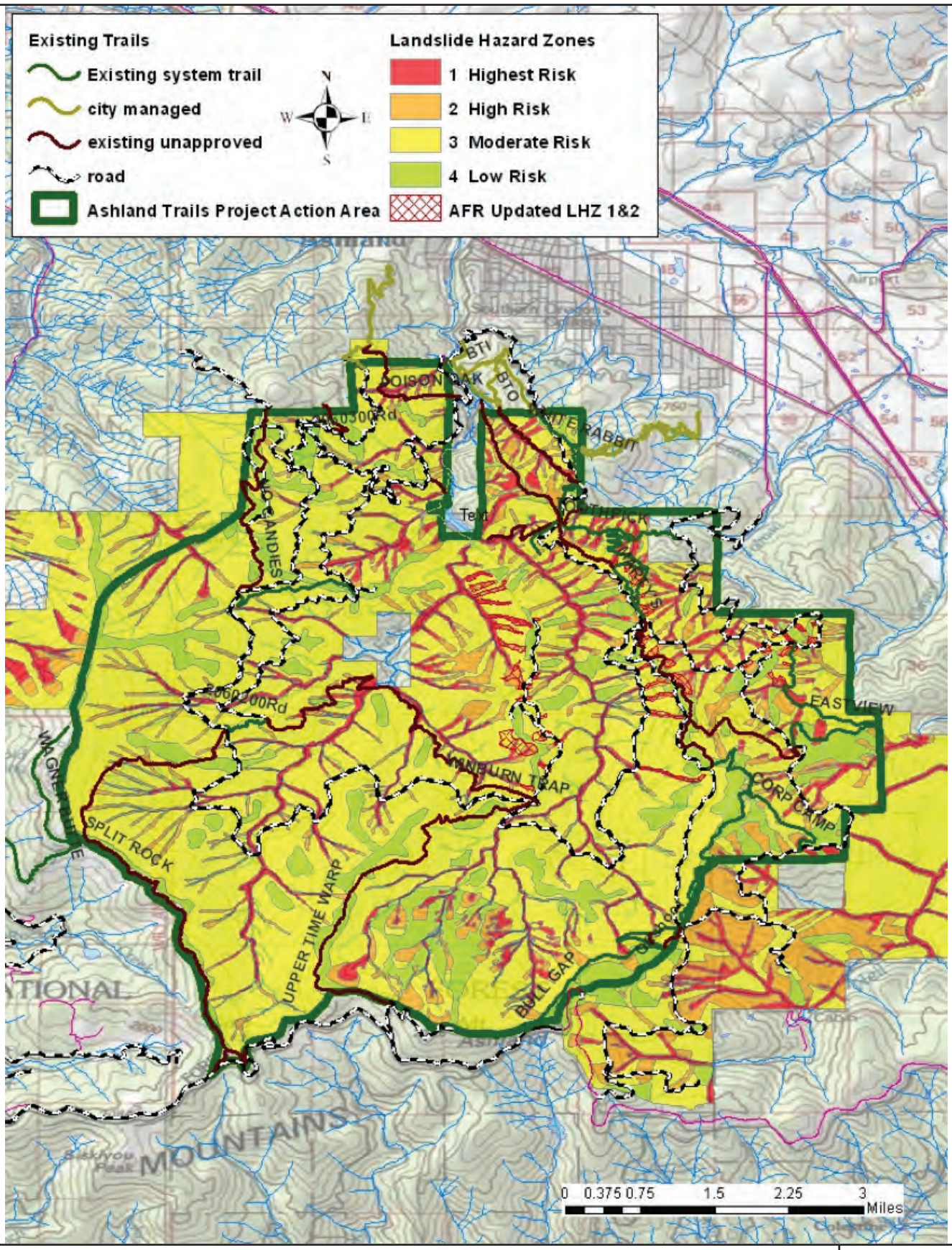
Table 3-40 in the preceding section summarizes the total length and acreage of soils in the analysis area that are directly committed as trail tread, as well as the length of each trail that is located in LHZ 1 or 2 areas. The percentage of total trail length in LHZ 1 & 2 areas (as well as the percentage of trail length in severe and very severe erosion potential soils) indicate the level of risk individual trails have of becoming unsustainable over time as a result of potential future mass wasting events or from surface soil erosion, if not designed and maintained properly, and/or laid out to avoid LHZ 1 and 2 areas to the maximum extent possible.

Effects Mechanisms and Analytic Framework

Slope stability can be impacted by management actions that alter soil holding strength of root systems through vegetation changes, changes in surface or subsurface water drainage patterns through soil displacement or compaction, or undermining of slopes through soil displacement. Specific activities associated with the proposed action that have the potential to impact slope stability include new trail construction and trail decommissioning, particularly in LHZ 1 and LHZ 2 areas.

For the purposes of this section, potential effects on geologic slope stability would occur if trails cross through LHZ 1 or 2 areas. The analytic framework (indicator) for assessing this effect mechanism considers the length of trails crossing through LHZ 1 and 2 areas.

The direct, indirect, and cumulative effects of the alternatives were analyzed using GIS analysis informed by field reconnaissance of existing conditions. Field review focused on representative locations where existing trails cross LHZ 1 and 2 areas and traverse or descend steeper slopes. Field review also focused on proposed locations of new trails routes associated with the action alternatives, where their proposed locations would potentially be within LHZ 1 and 2 areas. All trail length and area calculations are based on GIS analysis and are approximate.



Title/Notes:

Landslide Hazard Zones within the Analysis Area

Figure:

3-7

Alternative 1

Direct and Indirect Effects

The potential effects of Alternative 1 on slope stability would be comparable to existing conditions. As summarized in Table 3-40, the existing authorized trail system includes approximately 15,200 feet of trail tread that cross through LHZ 1 or 2 areas, or 18% of the length of System Trails in the analysis area. Existing historic and unapproved trails in the analysis area would continue to cross about 19,200 feet in LHZ 1 or 2 areas (or 14% of the total trail length associated with existing historic and unapproved trails).

As described above, trails in the analysis area are not generally known to trigger mass wasting events but are susceptible to tread loss through natural slope failures where they cross potentially unstable slopes, particularly in the vicinity of drainages susceptible to debris slides. Unapproved, user-created routes may be at higher risk for exacerbating future mass wasting events due to lack of design or consideration of location on the slope in relation to high risk areas, such as slope breaks or steep concave slopes.

Alternative 2

Direct and Indirect Effects

Alternative 2 would close and rehabilitate 5.2 miles of trails in the analysis area, including approximately 10,000 feet (1.9 miles) of trail tread that crosses through LHZ 1 and 2 areas. Closure and rehabilitation of these trails would reduce the risk of exacerbating future mass wasting events in these areas, many of which are located in high risk areas associated with slope breaks or concave slopes.

Table 3-41 summarizes the distribution of the trail system under Alternative 2 relative to soil and slope stability characteristics, including trail segment proximity to LHZ 1 and 2 areas. In total, an additional 7.5 acres of System Trails would occur in the analysis area after implementation of Alternative 2, and about 27,500 feet of tread associated with these trails would be located in LHZ 1 and 2 areas. As described previously, all new trails in the analysis area would be constructed and maintained in accordance with FSH 2309.18 and the project-specific design parameters described in Chapter 2.2.3, *Design Parameters*, which would minimize the potential for trail segments to be located on unstable or potentially unstable slopes. In addition, PDC GEO-1 would require consultation by a geologist or soil scientist during trail design and layout where specific landscape characteristics (e.g., northerly and easterly slope aspects, concave slopes, steep gradients) are present (Table 2-9). Implementation of this PDC is anticipated to reduce the number of trail segments that would be located in LHZ 1 and 2 areas and would reduce potential effects on slope stability under Alternative 2.

Alternative 3

Direct and Indirect Effects

Alternative 3 would close and rehabilitate 9.9 miles of trails in the analysis area, including approximately 14,900 feet (2.8 miles) of trail tread that cross through LHZ 1 and 2 areas. Similar to Alternative 2, closure and rehabilitation of these trails would reduce the risk of exacerbating future mass wasting events in these areas which are commonly located in high risk / potentially unstable areas.

Table 3-42 summarizes the distribution of the trail system under Alternative 3 relative to soil and slope stability characteristics, including trail segment proximity to LHZ 1 and 2 areas. In total, an additional 6.0 acres of System Trails would occur in the analysis area after implementation of Alternative 3, and about 18,600 feet of tread associated with these trails would be located in LHZ 1 and 2 areas. As described previously, all new trails in the analysis area would be constructed and maintained in accordance with FSH 2309.18 and the project-specific design parameters described in Chapter 2.2.3, *Design Parameters*. In addition, PDC GEO-1, which would require consultation by a geologist or soil scientist during trail design and layout where specific landscape characteristics are present, would be implemented under this alternative (Table 2-9). Implementation of this PDC is anticipated to reduce the number of trail segments that would be located in LHZ 1 and 2 areas under Alternative 3, and would reduce potential effects on slope stability.

Comparison of Alternatives

Alternative 3 would result in the least total trail length in LHZ 1 and 2 areas of the alternatives, and trail decommissioning would remove the greatest mileage of trail length from landslide prone areas (Tables 3-43 and 3-44). Additional differences would be recognized at a site-scale, as summarized below, where different trail alignments may have varying effects on slope stability.

- The proposed route for the Winburn Trap Trail under Alternative 2 would increase the length of trail in LHZ 1 and 2 areas from 23% under Alternative 1 to 25%. Conversely, the decommissioning of the Winburn Trap Trail under the Alternative 3 would decrease the length of trail that would cross LHZ 1 and 2 areas by approximately 4,860 feet (a reduction of 11% compared to Alternative 2).
- The estimated length of the Not Stirred Trail under Alternative 3 would be 0.9 miles shorter than the route proposed under Alternative 2. Alternative 3 would reduce the length of trail in LHZ 1 and 2 areas by 26% compared to the Alternative 2.
- The proposed re-route of the Jabberwocky Trail under Alternative 3 would avoid the most LHZ 1 and 2 slopes, reducing the percent of trail length in these areas to 33% (compared to 47% for Alternative 2 and 56% for Alternative 1).
- Construction of the Freak Went Flyer and RIP 1 Trails under Alternative 2 (i.e., approximately 1.5 miles of new trail) would include 3,245 feet of new trail in LHZ 1 and 2 areas. These trails would not be constructed under Alternative 3.

Cumulative Effects

The Ashland Forest Resiliency Project is currently being implemented in the analysis area and has treatment units that overlap System Trails, existing historic and unapproved trails, and proposed trails under both action alternatives. Ashland Forest Resiliency Project treatments buffer out LHZ 1 and 2 areas as Riparian Reserves under the NWFP, and vegetation treatments are avoided or minimized in these areas to maintain slope stabilities. Canopy cover, effective ground cover, and soil root strength are currently being maintained at a level that is expected to prevent measurable negative changes to the natural inherent risk of slope failure these areas possess. Therefore, where trails associated with the proposed action alternative overlap Ashland Forest Resiliency Project treatment areas in LHZ 1 and 2 areas, there is not expected to be a measureable cumulative effect.

No cumulative effects to LHZ 1 and 2 areas are anticipated from either the Mt. Ashland ski area or potential reroutes of the City's of Ashland's trail system.

3.4.4 Issue - Potential Effects on Streams or Wetlands

Background

Section 3.3.1 summarizes existing conditions specific to streams in the analysis area, where the analysis area considered is generally concurrent with the action area (although the larger Upper Bear Creek 5th-field watershed is considered in the cumulative effects analysis). In summary, existing historic and unapproved trails account for approximately 63% of the total area of trails located within Riparian Reserves, where most wetlands and all streams within the action area occur. Table 3-6 summarizes existing trail-related vegetation and soil disturbances in Riparian Reserves in the action area by subwatershed. Table 3-7 summarizes stream crossings in the action area by stream type and subwatershed.

An extensive site-specific survey for wetlands in the action area has not been completed. Based on steep grades and porous soils, it is assumed there are very few wetlands within the action area. In general, wetlands are anticipated to be most typical of Riparian Reserve areas, where they would be located in close proximity to perennial streams.

Effects Mechanisms and Analytic Framework

For the purposes of this section, potential effects on streams or wetlands would occur if an existing or proposed trail would require fill where it crosses a stream or wetland, or if the trail would otherwise affect the hydrologic function of the resource (e.g., substantially alter flow, increase sedimentation). The indicators used to assess these potential impacts include estimates of the area of vegetation and riparian disturbance in Riparian Reserves, as well as the number of new or reconstructed stream crossings and associated fill volumes.

Alternative 1

Direct and Indirect Effects

Under Alternative 1, existing historic and unapproved trail use would continue to impact hydrologic function where ad hoc stream crossing structures have been installed. Stream crossings on existing legacy roadbeds utilized as unapproved trails would continue to slowly erode or catastrophically fail during flood events when unmaintained culverts plug, further impacting hydrologic function. Although site-specific impacts to wetlands are not known, for the purposes of this analysis, it is assumed that wetland resources would continue to be adversely affected where trails have been routed through, or in close proximity, to their boundaries or water source.

Alternative 2

Direct and Indirect Effects

New trail construction under Alternative 2 would require 13 new stream crossings, including two on perennial streams (Table 3-11), and may occur in proximity to wetland areas along trail alignments. Construction activities in these areas may result in direct fill (e.g., culverts, trail bed) or indirect sedimentation, which could affect hydrologic function.

All intermittent and ephemeral streams (11 of 13) would be crossed by hard fords, where necessary (see PDC GEN-8; Table 2-9), which would minimize the need for fill. The two proposed perennial water crossings associated with Alternative 2 would be developed to be consistent with the prescriptions provided in the *Forest Service Trail Construction and Maintenance Notebook* (Hesslebarth et al. 2007), as well as PDC GEN-7 (which requires perennial waters be avoided or spanned by bridge if the width of the crossing, level of use, type of use or stream flow warrants it). Depending on the design chosen, fill may be required to create approaches for bridges and/or to place culverts. The amount of fill needed would depend on the size of the stream channel and the design chosen.

Five crossings are also proposed for decommissioning under Alternative 2, including two crossings of perennial streams. The removal of these crossings would likely reduce impacts to associated streams, and could reduce impacts to wetlands should they occur at these locations.

Impacts to wetlands in the vicinity of new crossings, or in other locations within the action area, would be minimized through implementation of PDC GEN-1 and GEN-2, which provide that trail alignments be refined to avoid sensitive areas, such as seeps and springs, and that all trails be constructed to minimize erosion and to avoid natural water courses / sensitive riparian vegetation, where possible (Table 2-9). Adverse impacts to wetlands during decommissioning would be limited to short-term sedimentation as the crossings are removed.

Impacts to hydrologic function resulting from Alternative 2 would mostly occur at the site scale, but would be long-term since the trails would be built for use into the foreseeable future. Culverts, if required, would have the greatest effect on hydrologic function. As a result, Forest Service fisheries

and hydrologist staff would be consulted prior to culvert design selection to minimize adverse effects on hydrologic function and aquatic resources.

Compared to Alternative 1, treatments and maintenance of trails located on existing legacy roadbeds would result in beneficial effects on hydrologic function under Alternative 2. Although more stream crossings would occur in the action area under this alternative, depending on designs chosen for new and previously unapproved stream crossings, there may be a net beneficial effect on hydrologic function at the watershed scale due to improvements on legacy roadbeds.

Alternative 3

Direct and Indirect Effects

New trail construction under Alternative 3 would require eight new stream crossings (Table 3-16). Although all new crossing would be associated with intermittent or ephemeral streams, these areas represent locations within the proposed disturbance footprint that could be associated with wetlands. If wetlands occur adjacent to proposed stream crossings, construction activities may result in direct fill (e.g., trail bed) or indirect sedimentation, which could affect hydrologic function.

All stream crossings under Alternative 3 would be by hard fords (where necessary), which would minimize the need for fill. Impacts to wetlands in the vicinity of these crossings, or in other locations within the action area, would be minimized through implementation of PDC GEN-1 and GEN-2, which provide that trail alignments be refined to avoid sensitive areas, such as seeps and springs, and that all trails be constructed to minimize erosion and to avoid natural water courses / sensitive riparian vegetation, where possible (Table 2-9).

Twelve crossings are also proposed for decommissioning under Alternative 3, including four crossings of perennial streams. The removal of these crossings would likely reduce impacts to associated streams, and could reduce impacts to wetlands should they occur at these locations. Adverse impacts would be limited to short-term sedimentation as the crossings are removed.

Similar to Alternative 2, treatments and maintenance of trails located on existing legacy roadbeds under Alternative 3 would result in beneficial effects to hydrologic function when compared to Alternative 1.

Cumulative Effects

As described in Section 3.3.1, a CWE analysis was completed to assess the potential effects of the trail system in the action area on hydrologic function, as expressed through an increase in erosion and sediment delivery to streams. As summarized in Table 3-8, trails in the analysis area contribute very little to baseline risk ratios on the landscape, when considered in the context of other past, present, and reasonably foreseeable future actions. Cumulative effects on wetlands within the analysis area could be greatest under Alternative 1 due to the location and design of some stream crossings associated with existing historic and unapproved trails. However, because wetland areas are generally limited within the analysis area, cumulative impacts are anticipated to be minimal. Additional proliferation of unapproved trails under Alternative 1 may result in increased erosion and

sediment delivery to streams, or fill of wetlands, which could increase the cumulative effects of Alternative 1.

Tables 3-13 and 3-18 summarize the CWE analysis for Alternatives 2 and 3, respectively. Model results indicate both alternatives would increase watersheds risk ratios by less than 0.0003, which represents neutral cumulative watershed effects on hydrologic function. Despite the additional stream crossing proposed under Alternative 2, cumulative effects on wetlands under both action alternatives would likely be minimal, given there are few wetland areas located in the action area, and that PDC's would avoid inadvertent fill or indirect sedimentation during new trail construction, reestablishment, maintenance, or decommissioning. Finally, although similar to Alternative 1, the cumulative effects of Alternatives 2 and 3 on hydrologic function may be somewhat less than Alternative 1 because some previously unapproved trails would be incorporated as System Trails, subject to both routine maintenance and management and systematic design considerations.

3.4.5 Issue - Attainment of Aquatic Conservation Strategy Objectives

Background

This section considers the potential effects of trail management activities on the attainment of NWFP Standards and Guidelines for Riparian Reserves and attainment of Aquatic Conservation Strategy (ACS) objectives. The analysis area considered in this section is concurrent with the Upper Bear Creek 5th-field watershed of the Rogue River Basin.

A description of the existing watershed conditions, including important physical and biological components of watersheds in the analysis area, are provided in the sections of this EA specific to hydrology and water quality (Section 3.3.1); LSRs and terrestrial wildlife species (Sections 3.3.2 through 3.3.4, and Section 3.4.1); soils and slope stability (Sections 3.4.2 and 3.4.3); fisheries (Section 3.4.6); and botany (Section 3.4.9 through 3.4.11).

Components of the Aquatic Conservation Strategy

The ACS of the NWFP was "developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. The strategy…protect[s] salmon and steelhead habitat on Federal lands managed by the Forest Service and Bureau of Land Management within the range of Pacific Ocean anadromy" (USDA Forest Service and USDI Bureau of Land Management 1994, page B-9). The four primary components of the ACS - Riparian Reserves, Key Watersheds, Watershed Analysis and Watershed Restoration - are designed to operate together to maintain and restore the productivity and resiliency of riparian and aquatic ecosystems.

Riparian Reserves

Riparian Reserves are designed primarily to restore and maintain the health of aquatic systems and their dependent species. Riparian Reserves also help to maintain riparian structures and functions and conserve habitat for organisms dependent on the transition zone between riparian and upland areas. Riparian Reserves include lands along all streams, lakes, ponds, wetlands, unstable areas, and potentially unstable areas that are subject to special Standards and Guidelines designed to conserve

aquatic and riparian-dependent species. Standards and Guidelines apply to activities in Riparian Reserves that may otherwise retard or prevent attainment of ACS objectives, as defined in the NWFP.

Widths for Riparian Reserves necessary to help ensure ACS objectives for different waterbodies are established based on ecological and geomorphic factors. Widths are typically one site potential tree height (assumed to be 150 feet for this analysis) along each side of stream channels. Widths are twice this distance along fish-bearing streams. These widths are designed to provide a high level of protection to fish and riparian habitats.

Both LHZ 1 and 2 (highest risk and high risk of failure) were selected for the unstable area component of Riparian Reserve for the proposed action. The LHZ mapping GIS layer, including recent updates from the Ashland Forest Resiliency Project, was the source for delineating unstable areas in the analysis area. As described in Section 3.4.3, LHZs are numerically classified from 1 through 4, or greater to lesser risk of management activities increasing the probability of slope failure.

Key Watersheds

Key Watershed designation is an additional component of the ACS that is applied to watersheds that contain at-risk fish species or anadromous stocks and that provide high quality water and fish habitat. None of the analysis area is within Key Watersheds.

Watershed Analysis

Watershed Analysis is required in Key Watersheds prior to determining how proposed land management activities meet ACS objectives. Although not in Key Watersheds, watersheds in the analysis area where most of the activities are proposed were addressed by the *Bear Creek Watershed Analysis* (USDA Forest Service 1995) and *Upper Bear Assessment* (USDA Forest Service 2003). Both analyses recommended sediment reduction projects within the analysis area.

Watershed Restoration

Watershed Restoration opportunities were identified in the Bear Creek Watershed Analysis and Upper Bear Assessment. The *Bear Creek Water Quality Management Plan* (ODEQ 2007) plan also outlines watershed restoration opportunities as a requirement of the Bear Creek TMDLs. Reducing sediment delivery through road sediment discharge control treatments and site potential stream shade attainment through vegetation management where identified as watershed restoration actions needed on Forest Service lands to help attain TMDL goals.

Aquatic Conservation Strategy Objectives

The following nine ACS objectives are provided in the NWFP.

- ACS Objective 1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.

- ACS Objective 2. Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.
- ACS Objective 3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.
- ACS Objective 4. Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.
- ACS Objective 5. Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.
- ACS Objective 6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.
- ACS Objective 7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.
- ACS Objective 8. Maintain and restore the species composition and structural diversity of plant communities in Riparian Reserves and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.
- ACS Objective 9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

Aquatic Conservation Strategy Analysis

The following analysis considers if the action alternatives would meet the nine ACS objectives identified in the NWFP, both at a site-scale and with respect to cumulative watershed effects.

- ACS Objective 1. Both action alternatives would maintain and restore this ACS objective in regard to Riparian Reserves since newly constructed trails would occupy less than 0.05% (Alternative 2) and 0.04% (Alternative 3) of the total Riparian Reserve area of a given subwatershed in the analysis area (see Tables 3-9 and Table 3-14). Under Alternative 2, decommissioned trails would result in a net increase of less than 0.1% of the total Riparian Reserve area (Table 3-9). Decommissioning of existing historic and unapproved trails under Alternative 3 would result in a net increase of less than 0.005% of the total Riparian Reserve

area of the Neil Creek subwatershed; a net decrease of 0.001% of the total Riparian Reserve area in the Hamilton Creek-Bear Creek subwatershed; and a net decrease of 0.01% of the total Riparian Reserve area in the Ashland Creek subwatershed (Table 3-14).

Both alternatives would also maintain and restore this ACS objective in regard to cumulative watershed effects since the net change to the trail system (newly constructed less decommissioned trails) would add less than 0.7 ERAs (Alternative 2) and 0.2 ERAs (Alternative 3) compared to Alternative 1(see Tables 3-13 and 3-18). This would equate to a risk ratio increase of less than 0.0005 for a given subwatershed under Alternative 2 (Table 3-13), and an increase of less than 0.0003 for the Neil or Hamilton Creek subwatersheds, and decrease up to 0.0001 for the other watersheds in the analysis area, under Alternative 3 (Table 3-18).

- ACS Objective 2. Both action alternatives would maintain and restore this ACS objective at the watershed and site scale in regards to stream crossings since newly constructed and re-constructed trails, particularly those utilizing existing roadbeds, would be designed and maintained to allow for chemical and physical connectivity of higher and lower order streams critical for fulfilling the life history requirements of aquatic and riparian-dependent species (see Section 3.4.6). Five stream crossings would be decommissioned under Alternative 2, resulting in a net increase of eight new stream crossings in the analysis area (see Table 3-11). Twelve stream crossings would be decommissioned under Alternative 3, resulting in a net decrease of four stream crossings in the analysis area (see Table 3-11). As noted above, all new stream crossings would be located, designed and maintained to not obstruct connectivity.
- ACS Objective 3. Both action alternatives would maintain and restore this ACS objective at the watershed and site-scale due to the improvement and maintenance of existing historic and unapproved trail stream crossings, particularly those using existing roadbeds, and the commitment that new stream crossings would be located, designed and maintained to result in no to very little impact to stream channels.
- ACS Objective 4. The action alternatives would maintain and restore this ACS objective at both the site and watershed scales in regards to sedimentation since existing historic and unapproved trails would be improved and maintained or decommissioned, resulting in a reduction in sediment delivery to streams. New trails would result in additional sediment as predicted by the WEPP model at the site scale but would not exceed the Reeder Reservoir Sedimentation TMDL loading capacity. In fact, the net decrease in stream crossings under Alternative 3 would likely result in a net reduction in sediment loads at the watershed scale. The treatment of trail stream crossings using existing roadbeds would result in net sediment savings orders of magnitude greater than newly constructed crossings (see Section 3.3.1).

  With respect to stream temperature, the action alternatives would maintain and restore this ACS objective at both the site and watershed scales since new trails would be located and designed to allow attainment of site potential stream shade.

- ACS Objective 5. As described for ACS Objective 4, both action alternatives would maintain and restore sediment regimes within the range of natural variability as set by the Reeder Reservoir Sedimentation TMDL and would meet this ACS objective.
- ACS Objective 6. As described for ACS Objective 1, both action alternatives would maintain and restore in-stream flows (and meet this ACS objective) since the relative area of disturbance would not be large enough to cause a measurable effect on evapo-transpirational processes that could diminish in-stream flows.
- ACS Objective 7. As described for ACS Objective 6, both action alternatives would maintain and restore this ACS objective since no measurable effects on groundwater or stream flows are anticipated.
- ACS Objective 8. Given the relatively minute amount of watershed-scale disturbances associated with the existing and proposed trail system, both action alternatives would maintain and restore this ACS objective at the watershed scale. Both alternatives would also maintain and restore this ACS objective at the site scale since all trails would maintain species composition and structural diversity by minimizing disturbance in Riparian Reserves and disruption of course woody debris. All trail management activities in Riparian Reserves would follow NWFP and Riparian Reserve Standards and Guidelines and PDC specific to riparian-dependent resources (see Table 2-9). The proposed decommissioning of existing historic and unapproved trails would also restore species composition and structural diversity in Riparian Reserves over the long term.
- ACS Objective 9. As described for ACS Objective 8, both action alternatives would maintain and restore this ACS objective at the watershed and site scale since newly constructed trails and existing historic and unapproved trails added to the system would maintain habitat by minimizing disturbance of Riparian Reserves through application of the NWFP and Riparian Reserve Standards and Guidelines, as well as PDC specific to riparian-dependent resources (see Table 2-9). The proposed decommissioning of existing historic and unapproved trails would also restore habitat within Riparian Reserves over the long term.

3.4.6 Issue – Potential Effects on Aquatic Species and Habitats

Background

The analysis area considered for assessing potential impacts to fisheries in this section is concurrent with the Upper Bear Creek 5th-field watershed of the Rogue River Basin. Figure 3-2 illustrates the location of the System Trails and other existing trails in reference to subwatershed boundary within this analysis area.

Fish Habitat

Fish habitat in the analysis area is found in the East and West forks of Ashland Creek upstream of Reeder Reservoir, and Ashland Creek between Reeder and Granite Street reservoirs. Over 60% of the trail mileage associated with proposed action would occur in the Ashland Creek subwatershed above Reeder or Granite Street reservoirs (Table 3-4).

The East and West forks of Ashland Creek above Reeder Reservoir provide near optimal habitat for fish given the geology, vegetation, and geomorphology of the Ashland Creek subwatershed (Abbas 1997, Siskiyou Research Group 2002). However, fish habitat quality in Ashland Creek downstream of the action area is poor because of channelization; lack of side channels, large wood, and suitable spawning substrate; and warm summer water temperatures (Siskiyou Research Group 2001). Fish also occupy Reeder Reservoir proper. The construction of Hosler Dam and associated Reeder Reservoir in 1928 converted several miles of stream habitat to lake habitat, which largely eliminated spawning habitat for trout and other fishes that historically might have accessed this area.

A more comprehensive description of fish habitat in the analysis area is provided in the *Ashland Forest Resiliency Project Environmental Impact Statement* (USDA Forest Service 2008) and the Level II Stream Survey Reports for the East and West Forks of Ashland Creek and Ashland Creek (Abbas 1997, Siskiyou Research Group 2001, 2002).

Fish Populations

The action area and analysis area contain resident fish populations of rainbow and cutthroat trout. All existing populations of fish are considered viable based on their abundance, distribution, and age structure (Abbas 1997, Siskiyou Research Group 2001, 2002).

There are no Region 6 special-status fish species present in the analysis area (Reid 2008). Historically, before the construction of Granite Street (1887) and Hosler (1928) dams on Ashland Creek, adult coho salmon and steelhead may have migrated upstream from Bear and Lower Ashland Creeks into the action area to spawn. However, anadromous fishes have not been able to access the action area for over 130 years (APRD 2009).

A more comprehensive description of fish populations in the action area and analysis area are provided in the *Ashland Forest Resiliency Project Environmental Impact Statement* (USDA Forest Service 2008) and the *Fisheries Biological Evaluation for the Ashland Forest Resiliency Project* (Reid 2008).

Other Aquatic Species

No other special-status aquatic species, including mollusks, are known to occur in the action or analysis areas. A more comprehensive description of special-status aquatic species potentially found in the analysis area is provided in the *Fisheries Biological Evaluation for the Ashland Forest Resiliency Project* (Reid 2008).

Effects Mechanisms and Analytic Framework

The direct, indirect and cumulative effects of the proposed action were informed by previous field reconnaissance of the action area and hydrology and water quality analysis completed for the proposed action, including the quantitative CWE analysis (see Section 3.3.1). Generally, potential impacts that could affect fish habitat or fish physiology include intrusion of coarse and fine sediments; changes in water temperature (shade); changes to roughness elements or cover, such as boulders, large wood, or undercut banks; changes in peak or base flows; and/or changes to movement patterns by barrier creation.

Alternative 1

Direct and Indirect Effects

Coarse and Fine Sediment

As described in Section 3.3.1, under Alternative 1, erosion and sediment delivery to streams and riparian areas from trail management and use would be comparable to what is currently occurring in the analysis area. Use of existing historic and unapproved trails would continue to impact Riparian Reserves where sedimentation has been observed. Stream crossings on existing roadbeds utilized as trails would continue to slowly erode or catastrophically fail during flood events when unmaintained culverts plug. This could be particularly apparent in the Upper West Fork of Ashland Creek, where the Winburn Trap Trail occurs on a legacy roadbed with degraded culverts.

A “natural” annual sediment regime for sediment in Ashland Creek above Reeder Reservoir is 1,320 CY (ODEQ 2007). However, total annual sediment delivery in the action area from existing trail stream crossings, as estimated using the WEPP forest road erosion predictor model (Appendix B), ranges from 0.023 to 0.41 CY, split across the Hamilton-Bear, Ashland Creek, Neil Creek and Wagner Creek subwatersheds. This small contribution of sediment would reflect a miniscule fraction of the natural sediment budget in these watersheds. As such, the continued contribution of small amounts of course or fine sediment to streams in the analysis area under Alternative 1 would have no measurable effect on fish habitat or fish populations, and would be the same as existing conditions.

As noted above, the one exception may be in the Upper West Fork of Ashland Creek, where the Winburn Trap Trail occurs on a legacy roadbed with degraded culverts. If these culverts were to plug and fail, the contribution of course or fine sediments to downstream waterbodies could be more substantial. It is important to note, however, that the continued use of this historic roadbed as a trail does not contribute to the likelihood that the culvert may or may not fail in the future. Moreover, if these culverts do fail, eroded sediment transported downstream would be stored in reservoirs upstream of where special-status fish species and their habitat occur.

Shade and Large Wood Recruitment

As described in Section 3.3.1, effects on stream shade under Alternative 1 are unlikely since trail use and management typically only result in the removal of limited vegetation, which provides little to no shade for streams.

Roughness Elements and Cover

Alternative 1 would have no effect on roughness elements or cover because it would not influence the amount of undercut banks, boulders, or large wood present in fish-bearing reaches of Ashland Creek.

Peak or Base Flows

Alternative 1 would have no effect on peak or base flows because it does not propose vegetation manipulation that would influence infiltration or evapotranspiration on a measureable scale.

Fish Passage Barriers

Alternative 1 would have no effect on fish passage because none of the existing trails in the analysis area create barriers (e.g., culverts, dams) to fish-bearing streams.

Alternative 2

Direct and Indirect Effects

Coarse and Fine Sediment

As described in Section 3.3.1, there would likely be a slight increase in the area of disturbed soil under Alternative 2 as a result of new trail construction, despite the fact that many existing trails in Riparian Reserves and LHZ areas would be rerouted or decommissioned. However, the changes in sediment delivered would not likely be measureable, particularly in perennial streams that provide fish habitat. This is because many of the current or proposed stream crossings are, or would be, in ephemeral or intermittent streams that rarely flow (Table 3-11), and where only a small amount of fill would be required to construct each stream crossing (i.e., less than 1 CY). In addition, any potential sedimentation issues associated with degraded culverts along the Winburn Trap Trail may be somewhat less because it would be incorporated as a System Trail, subject to both routine maintenance and management.

The general PDCs summarized in Table 2-9 would reduce potential water quality impacts associated with Alternative 2, which would reduce any potential effects on fish and fish habitat. These include allowances that all trails be constructed to minimize erosion and to avoid natural water courses / sensitive riparian vegetation, where possible (PDC GEN-2 and GEN-3), and that any wood used to facilitate stream crossings (if necessary), meet BMPs for the use of treated wood in aquatic and wetland environmental (WWPI 2011) (PDC GEN-7). In addition, PDC AQ-1 would require that a fisheries specialist be consulted prior to constructing any stream crossing on fish-bearing streams (if required).

Shade and Large Wood Recruitment

Similar to Alternative 1, effects on stream shade under Alternative 2 are unlikely since trail use and management typically only result in the removal of limited vegetation, which provides little to no shade for streams. In addition, the PDCs provided in Table 2-9 require that new trails be laid out to avoid removal of trees greater than 6-inches dbh (PDC GEN-5), which would further ameliorate potential effects on shade and large wood recruitment under this alternative.

Roughness Elements and Cover

Similar to Alternative 1, Alternative 2 would have no effect on roughness elements or cover because it would not influence the amount of undercut banks, boulders, or large wood present in fish-bearing reaches of Ashland Creek.

Peak or Base Flows

Similar to Alternative 1, Alternative 2 would have no effect on peak or base flows because it does not propose vegetation manipulation that would influence infiltration or evapotranspiration on a measureable scale.

Fish Passage Barriers

Similar to Alternative 1, Alternative 2 would have no effect on fish passage because none of the existing trails in the analysis area, or those proposed under this alternative, would create barriers (e.g., culverts, dams) to passage over fish-bearing streams.

Alternative 3

Direct and Indirect Effects

Coarse and Fine Sediment

As described in Section 3.1.1, there would be a slight increase in the area of disturbed soil under Alternative 3 as a result of new trail construction, although changes in sediment delivered would not likely be measureable, particularly in perennial streams that provide fish habitat. In addition, Alternative 3 would result in a net decrease is soil disturbance, after consideration of the miles of trails proposed for decommissioning. The general PDCs summarized in Table 2-9 would reduce potential water quality impacts associated with Alternative 3, which would reduce any potential (although limited) effects on fish and fish habitat. Similarly, PDC AQ-1, which requires that a fisheries specialist be consulted prior to constructing any stream crossing on a fish-bearing stream, would reduce potential effects on fish and stream habitat.

Potential sedimentation issues associated with degraded culverts along the Winburn Trap Trail would be ameliorated under Alternative 3 as this trail would be decommissioned, which could reduce coarse and fine sediment contributions compared to both Alternatives 1 and 2.

Shade and Large Wood Recruitment

Similar to Alternatives 1 and 2, effects on stream shade under Alternative 3 are unlikely since trail use and management typically only result in the removal of limited vegetation, and given that new trails would be designed to avoid removal of trees greater than 6-inches dbh.

Roughness Elements and Cover

Similar to Alternatives 1 and 2, Alternative 3 would have no effect on roughness elements or cover because it would not influence the amount of undercut banks, boulders, or large wood present in fish-bearing reaches of Ashland Creek.

Peak or Base Flows

Similar to Alternatives 1 and 2, Alternative 3 would have no effect on peak or base flows because it does not propose vegetation manipulation that would influence infiltration or evapotranspiration on a measureable scale.

Fish Passage Barriers

Similar to Alternatives 1 and 2, Alternative 3 would have no effect on fish passage because none of the existing trails in the analysis area, or those proposed under this alternative, would create barriers (e.g., culverts, dams) to passage over fish-bearing streams.

Cumulative Effects

As described in Section 3.3.1, a CWE analysis was completed to assess the potential effects of the trail system in the action area on hydrologic function, as expressed through an increase in erosion and sediment delivery to streams. As summarized in Table 3-8, trails in the action area contribute very little to baseline risk ratios on the landscape, when considered in the context of other past, present, and reasonably foreseeable future actions. However, any additional proliferation of unapproved trails under Alternative 1 may result in increased erosion and sediment delivery to streams, which could increase the cumulative effects of Alternative 1.

Tables 3-13 and 3-18 summarize the CWE analysis for Alternatives 2 and 3, respectively. Model results indicate Alternatives 2 and 3 would increase watershed risk ratios by less than 0.0005 and 0.0003, respectively, which indicate neutral cumulative watershed effects on hydrologic function. Although similar to Alternative 1, the cumulative effects of Alternatives 2 and 3 on hydrologic function, and the delivery of sediment to fish-bearing streams, may be somewhat less because some existing historic and unapproved trails would be incorporated as System Trails, subject to both routine maintenance and management and systematic design considerations. In addition, under Alternative 3, the Winburn Trap Trail, a potential source of legacy sediment, would be decommissioned.

None of the alternatives would contribute to cumulative effects on stream shade and large wood recruitment, roughness elements or cover, peak or base flows, or barriers to fish passage.

3.4.7 Issue - Potential Effects on Public Recreational Fishery Access

Background

Similar to other aquatic resource issues, the analysis area considered for assessing potential impacts to public recreational fishery access is concurrent with the Upper Bear Creek 5th-field watershed of the Rogue River Basin.

Currently, a limited consumptive recreational fishery exists in the analysis area for cutthroat and rainbow trout. The fishery was opened to public utilization in 2004, and encompasses the East and West Forks of Ashland Creek upstream of Reeder Reservoir. Daily harvest limits are two trout per angler per day, with an 8-inch minimum length (ODFW 2013).

Consumptive fisheries for wild (naturally-produced) trout in streams in southwestern Oregon are rare, especially close to major population centers (ODFW 2013). Total angler use of this fishery is unknown, including use within the analysis area; however, based on interviews with Forest Service employees and the public, hikers are known to use the Reservoir Trail for accessing the trout fishery

in the forks of Ashland Creek. Although not an approved System Trail, the Reservoir Trail is generally considered 'sustainable' (USDA Forest Service 2010a) and is not exhibiting excessive erosion, ruts or notable deterioration of the tread and clearing widths. In fact, the trail assessment completed for the Ashland Watershed recommended authorizing this trail for hiking use only, which would allow for continued walk-in fishery access (USDA Forest Service 2010a). Recent fish sampling reports (Abbas 1997, Siskiyou Research Group 2002) show no impacts of this fishery on trout population structure (e.g. reduced abundance or lack of recruitment).

Effects Mechanisms and Analytic Framework

An assessment of the direct, indirect, and cumulative effects of the alternatives on the public recreational fishery were based on changes in use or access to the Reservoir Trail, the only trail in the analysis area known to provide some access to fishing opportunities in Ashland Creek. For the purposes of this EA, it is assumed that changes to angler access through trail construction or decommissioning could affect angler use patterns and participation in the fishery in the analysis area. In turn, changes in public recreational fishery use or access might influence fish populations if harvest was a major factor in population dynamics.

Alternative 1

Direct and Indirect Effects

Under Alternative 1, the Reservoir Trail would continue to provide walk-in fishery access to the East and West Forks of Ashland Creek. As a result, this alternative would have no effect on public recreational fishery access in the analysis area. However, because this trail is not a System Trail and would not be subject to regular maintenance, it is possible that trail conditions could degrade over time.

As noted above, recent fish sampling reports show no effect of this fishery on trout populations, so continued fishing from this trail under Alternative 1 would likely have little, if any, effect on fish populations in Ashland Creek.

Alternative 2

Direct and Indirect Effects

Under Alternative 2, the Reservoir Trail would be decommissioned and access to the Ashland Creek fishery from this trail would be lost. As a result, decreased participation in the fishery by the public would be likely. Serious anglers could still reach this fishery through cross-country hiking travel, following the numerous existing game trails in the area. However, use of these trails, or creation of other short trails from Lamb Saddle down to the East and West Forks of Ashland Creek, could contribute to unapproved trail proliferation and erosion and would need to continue to be monitored.

Given the limited use of this fishery in the analysis area, it is not anticipated that a substantial number of anglers would be affected, or that substantial unapproved trail proliferation would result from

decommissioning the Reservoir Trail. However, these impacts would be greater than that associated with Alternative 1.

From a fish population perspective, any decrease in use of the public fishery in the analysis area under Alternative 2 would have either no effect, or a beneficial effect, on trout populations in Ashland Creek.

Alternative 3

Direct and Indirect Effects

Similar to Alternative 2, the Reservoir Trail would be decommissioned under Alternative 3. Impacts to the public recreational fishery in the analysis area under this alternative would be the same as those described for Alternative 2.

Cumulative Effects

As described above, consumptive fisheries for wild (naturally-produced) trout in streams in southwestern Oregon are rare, and access to and use of a public recreational fishery in the analysis area is limited. Although one access point to the fishery on the East and West Forks of Ashland Creek would be removed under the action alternatives, it is not anticipated that this loss would affect a substantial number of anglers, particularly in consideration that the access point is not currently a System Trail.

Cumulative effects on the public access fishery in the analysis area under the action alternatives would be minimal. No cumulative effects are anticipated under Alternative 1.

3.4.8 Issue -Potential Effects on the McDonald Peak Botanical Area

Background

The analysis area considered for assessing impacts to the McDonald Peak Botanical Area in this section is concurrent with the boundary of the botanical area, with particular emphasis on areas where existing historic, unapproved, or proposed trails associated with the alternatives would occur.

Management Direction

The McDonald Peak Botanical Area was identified, selected, and established in the LRMP. As described in Chapter 1, *Introduction*, the LRMP guides all natural resource management activities and establishes management Standards and Guidelines for the Rogue River-Siskiyou National Forest. Management Strategy 12 in the LRMP provides the following goal and description specific to Botanical Areas in the forest (USDA Forest Service 1990, p 4-149).

- Goal – “Protect and enhancement exceptional botanical values. Encourage compatible scientific, educational and recreational use.”
- Description – “On the Rogue River National Forest, botanical area candidates were identified as those areas containing concentrations of rare species, exceptionally rich and diverse floras,

> or plant communities rarely found in an undisturbed condition. Botanical areas are an important component of the Forest's sensitive species management program. They can also provide a cornerstone for maintaining biological diversity on the Forest."

The Standards and Guidelines provided in LRMP Management Strategy 12 place botanical areas in the "semi-primitive, non-motorized/roaded natural" use category. Pertinent recreation-related Standards and Guidelines for botanical areas include:

- Allowance for dispersed recreation activities, such as hunting, fishing and hiking.
- Direction to manage trails and dispersed occupancy sites in a manner not in conflict with special interest area resource values.
- Direction to identify the potential effect of any proposed activity on recreation opportunity spectrum classes in project environmental analysis.

The description of botanical areas in the LRMP also provides that "when conflicts exist between area management and other resources, the conflict will be resolved in favor of the botanical resource, subject to rights under law and regulation" (USDA Forest Service 1990, page 149).

Existing Roads & Trails within the McDonald Peak Botanical Area

About 0.6 miles of Forest Road 20 is inside and alongside the southern edge of the botanical area. Two small sections (about 0.4 miles total) of a closed (decommissioned) and abandoned road known colloquially as the "Z Road" are inside the botanical area on the southwestern edge.

There are currently no System Trails in the McDonald Peak Botanical Area. A historic trail is shown on a 1925 Crater National Forest Map and a 1932 Metzger's map, running south-southeast along the ridge and upper slope from Wagner Glade Gap to an intersection with another tail on the main Siskiyou crest south of McDonald Peak. Some Forest Service personnel report traces of this historic trail at some locations; in fact, in the last several decades, a vague path has appeared between Road 20 and McDonald Peak, although it is barely perceptible as it approaches McDonald Peak.

Under the Alternatives 2 and 3, the Split Rock Trail would be reestablished along the same ridgeline as the vague path and historic trail. It would run most of the length of the botanical area and would become the most dominant human feature in the northern ¾ of the botanical area.

Botanical Resources

Four specific botanical resources are identified in the LRMP, each of which occur along the Split Rock Trail.

- Howell's tauschia (*Tauschia howellii*) and Henderson's horkelia (*Horkelia hendersonii*) – Forest Service sensitive.
- Jaynes Canyon buckwheat (*Eriogonum diclinum*) and Whitney's hazardia (*Haplopappus whitneyi* ssp. *discoideus*) - locally rare and/or endemic.

Since the LRMP was written, other sensitive species and plant communities have been identified in the botanical area, including:

- *Meesia uliginosa* and *Schistidium cinclidodonteum* - Forest Service Sensitive mosses (no common names) found in the upper reaches of McDonald Basin.
- Monument plant (*Swertia radiata*) – this species is not normally found west of the Cascades in Oregon but are present in a number of locations along the Split Rock Trail route.
- The bigleaf sagebrush-dominated plant community present on the large open hillslopes.

Effects Mechanisms and Analytic Framework

The analysis of effects on the McDonald Peak Botanical Area focused on potential direct and indirect effects to botanical resources within the botanical area, as well as any potential effects on how the botanical area may be used or enjoyed by potential trail users.

Alternative 1

Direct and Indirect Effects

A detailed discussion of the potential impacts on specific rare plant species in the McDonald Peak Botanical Area under Alternative 1 is provided in the subsequent issue statement (see Section 3.4.9).

Currently, a few adventurous day-hikers and botanical area visitors know and use, or stumble onto, the vague path that extends between Road 20 towards McDonald Peak. Other than potential minor impacts to one specific path of rare plants (see Section 3.4.9), this current level of use is not impacting the botanical area or the experience of botanical area users. Only occasional cross-country hikers use the ridge along the route of the historic trail north of McDonald Peak. Although these dispersed pedestrian uses may increase over time, potential effects on the values associated with the botanical area and the recreation experience of its users are expected to remain minimal under Alternative 1.

Alternative 2

Direct and Indirect Effects

As noted above, a detailed discussion of potential impacts to specific rare plant species in the McDonald Peak Botanical Area under Alternative 2 is provided in the subsequent issue statement (see Section 3.4.9). In summary, adherence to the PDCs specific to the Split Rock Trail (i.e., PDC BOT-1 through BOT-4 in Table 2-9) would reduce negative direct and indirect impacts to rare plants located along that trail alignment.

It is anticipated that reestablishment, use and maintenance of the Split Rock Trail under Alternative 2 would bring new visitors and trail user-related concerns to the McDonald Peak Botanical Area. As an authorized System Trail under Alternative 2, the Split Rock Trail would be open to all non-motorized uses, including bicyclists and equestrians, and may result in some degree of conflict between botanical area visitors using the trail as an access route to enjoy the flora, and bicyclists using the trail for recreational riding into the valley. Pedestrians and hikers are likely to be slow and focused on plants and scenery, while bicyclists may be fast, particularly in the five downhill sections that

traverse the botanical area. Were user conflicts to occur, it could detract from the recreation experience of the botanical area.

Trail building activities and trails users would also bring increased potential for off-trail disturbance on a few areas of decomposed granite soils that are currently not well vegetated. Although expressly not allowed, there may be temptation for some trail users to leave the trail. Of particular concern would be if recreational users, including bicyclists, were to leave the trail heading downhill through natural openings in the McDonald or Split Rock Creek drainages to Forest Road 22. In decomposed granite soil, off-trail use would have the potential to erode and eventually cause gullies. Also, there may be increased potential for unapproved building of side trails or braided routes off the Split Rock Trail, as has occurred in the past in the Ashland Watershed and Greeley Creek drainage.

Maintenance and management of this trail as a System Trail would reduce potential adverse effects on the botanical area from unapproved use. In addition, adherence to the PDC's specific to the Split Rock Trail (i.e., PDC BOT-1 through BOT-4 in Table 2-9) would reduce direct and indirect impacts to rare plants along the trail alignment, which would be consistent with the LRMP objectives for protecting resource values. Impacts under Alternative 2 would, however, be more substantial compared to Alternative 1, where the Split Rock Trail would not be reestablished and use of the historic alignment would likely remain low.

Alternative 3

Direct and Indirect Effects

The direct and indirect effects on botanical resources and trail use within the McDonald Peak Botanical Area under Alternative 3 would be the same as those described for Alternative 2.

Cumulative Effects

The Forest Service is currently completing several targeted restoration efforts in the McDonald Peak Botanical Area, including revegetation and plant re-introduction efforts. Of those actions, only one whitebark pine re-introduction effort would occur in the vicinity of the Split Rock Trail. Given that both the proposed action and the whitebark pine re-introduction effort would be overseen by the Forest Botanist, with PDCs administered as appropriate, adverse cumulative effects on botanical resources in the McDonald Peak Botanical Area are not anticipated.

3.4.9 Issue - Potential Effects on Federally-Listed, Forest Service Sensitive, NWFP Survey and Manage Species, or Locally Rare Species of Vascular Plants, Bryophytes, Lichens, or Fungi

Background

In March 2014, the Forest Botanist finalized a Biological Evaluation of the effects of the Ashland Trails Project on the viability of federally-listed and Forest Service Sensitive vascular plants, bryophytes, lichens, and fungi (Rolle 2014). A report on the effects of the proposed action on NWFP Survey and Management Species was also prepared (Rolle 2013). Findings from the Biological

Evaluation and Survey and Manage Report specific to the species known to occur in the immediate vicinity of the trails are included in this EA. These findings assume adherence to the PDC described in Chapter 2, *Alternatives*, during implementation of the proposed action. Refer to the supporting reports for additional detail on species considered in developing this analysis.

The analysis area considered for assessing impacts to special-status plants species in this EA is concurrent with the action area. In general, the effects analysis is focused on the trail footprint and immediately adjacent areas that may be impacted if users stray from the trail bed.

Federally-Listed Species

There are no known federally-listed plant species in the analysis area. There are areas of potentially suitable habitat that could support Gentner's fritillaria (*Fritillaria gentneri*); however, botanical field reconnaissance indicates it is not present in the analysis area.

Forest Service Sensitive Species

There are five Forest Service Sensitive Species known to occur in the immediate vicinity of existing or proposed trails in the analysis area.

Howell's Tauschia

Howell's tauschia is a little-known perennial forb that occurs near the south end of the Split Rock Trail, as well as the east side of the summit of McDonald Peak. A few other small occurrences exist along the Siskiyou Crest and in California. The plant's habitat (unconsolidated decomposed granite gravel and soil) is specialized and easily disturbed. Howell's tauschia is an extremely rare species quite vulnerable to global extinction. Worldwide, there is probably less than 50 acres of occupied habitat (Rolle pers. comm.).

Henderson's Horkelia

Henderson's horkelia is a mat-forming perennial forb in the rose family, endemic to upper elevations in the eastern Siskiyou Mountains. Two populations are currently located along the ridge between McDonald Peak and Wagner Glade Gap in the vicinity of the Split Rock Trail. An additional large population extends westward from Mt. Ashland. The Upper Time Warp Trail runs along on the edge of this population, just west of the trail's beginning at Rabbit Ears. The Upper Time Warp Trail also bisects a horkelia population at another location further along the trail alignment.

Mt. Ashland Lupine

Mt. Ashland lupine (*Lupinus aridus* ssp. *ashlandensis*) is a perennial herbaceous lupine endemic to Mt. Ashland. The population covers roughly 43 acres with an estimated 36,000 individuals (or more). The Mt. Ashland lupine grows in natural openings on southern, western, or flat aspects. It is not found in any of the north-facing openings. There is one location of Mt. Ashland lupine along the Upper Time Warp Trail, where the trail currently skirts the edge of the population.

Clustered Ladyslipper Orchid

The clustered ladyslipper orchid (*Cypripedium fasciculatum*) is a terrestrial orchid that occurs in a number of western states, though it is common nowhere. In Oregon and California, it occurs mainly in late successional coniferous forest. Populations typically consist of only a few individuals. In addition to being a Forest Service Sensitive Species, it is also a NWFP Survey and Manage Species.

This species is quite rare in the analysis area, where populations are very small and hard to find. All occurrences, even single individuals, make a meaningful contribution to the viability of the species within the analysis area. The clustered ladyslipper orchid and the related mountain ladyslipper orchid (*Cypripedium montanum*) are found in the vicinity of the proposed Freak Went Flyer Trail. This orchid is also present immediately adjacent to the Reservoir Trail.

Three-Toothed Horkelia

Three-toothed horkelia (*Horkelia tridentata*) is a low-growing perennial forb in the rose family. This species is present in the lower half of the analysis area, in dry openings, often associated with pines, at numerous locations in the Ashland Creek watershed, and to a lesser extent in immediately adjacent watersheds. This is the extent of its known range in Oregon. It is more common, widespread, and secure in California.

Three-toothed horkelia is known to occur in the trailbed or on the trail edge of Lower Marty's, Missing Link, and Winburn Trap Trails, as well as along many System Trails in the analysis area. A large number of plants have colonized the unused roadbed that connects Forest Road 20 with Lower Marty's Trails. It is also found on or immediately adjacent to the Winburn Trap Trail, Wonder, Lewis Loop, Ric's, Poison Oak, Winburn Trap, and Pete's Punisher Trails.

NWFP Survey and Manage Species

There are three NWFP Survey and Manage Species known to occur in the immediate vicinity of existing or proposed trails in the analysis area. Descriptions of *gastroboletus turbinatus* and mountain ladyslipper orchid are provided below. A description of clustered ladyslipper orchid is provided above.

Gastroboletus Turbinatus

Known from about 50 sites in the NWFP area, the sequestrate fungus, *Gastroboletus turbinatus*, occurs in a number of forested habitats at various elevations. This species was collected on one of the "slopes" of McDonald Peak by mycologist Jim Trappe in 1971 (Rolle pers. comm.), which reflect the only occurrences known to Jackson County. The 1971 location information, however, is not precise enough to allow it to be relocated, or to understand its proximity to the Split Rock Trail. This species typically grows below ground or under the duff, and is only occasionally emergent above ground. As a result, no effort was made to relocate the known occurrence.

Mountain Ladyslipper Orchid

Similar to clustered ladyslipper orchid, mountain ladyslipper orchid occurs in a number of western states. However, unlike the related species, mountain lady slipper is relatively common (or at least

apparently secure) in some parts of its range. There is one known occurrence of mountain ladyslipper orchid in the vicinity of the Freak Went Flyer Trail. In general, it is quite rare within the analysis area and closely associated with late-successional forest, although it occurs in other habitats in other areas. Populations typically consist of only a few individuals.

Locally Rare Plant Species

The following two locally rare plant species are known to occur in the immediate vicinity of existing or proposed trails in the analysis area.

Monument Plant

Monument plant is a long-lived perennial forb in the gentian family whose normal Oregon range is in open mountain meadows and higher elevation great basin habitat east of the Cascades. The monument plant spends many years as a large-leaved rosette before bolting up to a meter in height and flowering.

Monument plant is regularly encountered in the Siskiyou Mountains along the ridge from the McDonald Peak vicinity to about 1 mile north of Wagner Butte. Smaller populations, patches, or individual monument plants are known from a few locations in the Ashland Creek watershed, including near the Wagner Glade Trail. In general, this species is not doing as well at lower elevations because there are no longer openings or open high elevation forest to support it.

Englemann Spruce

Englemann spruce (*Picea engelmannii*) occurs in a number of western states. It is common in the Cascades to the north, becoming less so in southern Oregon, and is considered rare in California. It is shade-tolerant and vulnerable to fire and in the more southerly parts of its range, is generally associated with riparian areas or wetlands (which don’t burn as often).

Engelmann spruce are present in the Siskiyou Mountains only along 6 to 7 miles of stream reach in the East Fork Ashland Creek Watershed. Within the analysis area, the species is located in close proximity to the Upper Time Warp Trail and Winburn Trap Trail.

Effects Mechanisms and Analytic Framework

As described in detail in Biological Evaluation (Rolle 2014) and Survey and Manage Report (Rolle 2013) completed in support of the proposed action, the effects analysis in this EA is informed by field reconnaissance of the analysis area by the Forest Service botanist in the summers of 2011, 2012, and 2013. During those surveys, all the existing unapproved and historic trail alignments (excluding Lower Marty’s and No Candies Trails) were assessed for the presence of special-status species, as were portions of some trails proposed for decommissioning. The proposed, new trail alignments were not visited during the field survey, primarily because they were not marked in the field and minor adjustments to accommodate terrain or sensitive resources may change the analysis provided in this EA. Instead (as described below), PDCs have been incorporated into the proposed action to ensure that a botanist reviews all new trail alignments before they are constructed to avoid rare plant

occurrences. A complete summary of the trails surveyed in support of the proposed action, and the methods employed, are provided in the Biological Evaluation for the proposed action.

Alternative 1

Direct and Indirect Effects

Howell's Tauschia

The vague path that begins at Road 20 and goes north toward McDonald Peak (generally associated with the Split Rock Trail alignment considered in this EA) bisects a patch of Howell's tauschia. A few individual plants have been lost here as the path became established and used over time. Without intervention, this path would likely become better defined and used more frequently in the future. Although the loss of at least a few more individuals at this microsite is likely over time, the majority of the occupied habitat would likely remain unaffected under Alternative 1. The tauschia population on the east side of McDonald Peak is not currently affected by any trail management or recreation activities.

Recreation and other impacts to tauschia are expected to remain minor and localized to one microsite under Alternative 1. Therefore, Alternative 1 is not likely to adversely affect the viability of the local or regional population of Howell's tauschia or the species as a whole.

Henderson's Horkelia

The occurrences of Henderson's horkelia along the ridge between McDonald Peak and Wagner Glade Gap (along the historic trail route generally associated with the Split Rock Trail considered in this EA) are not currently affected by any management or recreational activities. This would not be expected to change over time under Alternative 1.

Use of the Upper Time Warp Trail would likely continue under Alternative 1 and individual horkelia could continue to be lost if recreational users go off trail to avoid lingering snowfields. However, because the Mt. Ashland population is large, the loss of individual plants under Alternative 1 would have no effect on the viability of this Henderson's horkelia population.

Mt. Ashland Lupine

As described above, one population of Mt. Ashland lupine is located along the edge of the Upper Time Warp Trail. Although unapproved, there is potential for recreational users who go off trail to impact lupine plants. However, because the Mt. Ashland population is large with many individuals, and because the Upper Time Warp Trail is on a more-or-less northerly aspect where it passes the lupine population (where the plant typically is not found), the loss of a few individuals under Alternative 1 would have no effect on the viability of this population.

Clustered Ladyslipper Orchid

Clustered ladyslipper orchid are found immediately adjacent to the Reservoir Trail. These populations could be impacted by continued use of this trail alignment. Given that all occurrences, even single individuals, make a meaningful contribution to the viability of the species within the

analysis area, impacts realized from continued use of the Reservoir Trail under Alternative 1 could be significant.

Three-Toothed Horkelia

As described above, three-toothed horkelia is located along a variety of System Trails and existing unapproved and historic trails in the analysis area, and may be impacted by ongoing trail use and maintenance. However, there are enough locations and individuals in the analysis area that the loss of individuals or individual patches under Alternative 1 would have no effect on the viability of the species in the analysis area.

Gastroboletus Turbinatus

As described above, *Gastroboletus turbinatus* was once collected in the vicinity of the Split Rock Trail, near or on McDonald Peak. Although the exact location of the population is unknown, current use of the vicinity by recreational users is minimal, and the likelihood of impacts to this population, should it occur, are considered low. Therefore, it is unlikely Alternative 1 would affect the viability of this occurrence.

Mountain Ladyslipper Orchid

One occurrence of mountain ladyslipper orchid is known to the analysis area (in the vicinity of the proposed Freak Went Flyer Trail). However, under Alternative 1, the Freak Went Flyer Trail would not be constructed, and no trail-related impacts to mountain ladyslipper orchid populations would occur.

Monument Plant

The existing historic Wagner Glade Trail bisects an occurrence of monument plant in the analysis area, which likely had a negative effect on the viability of this patch of plants when it was constructed. However, continued use of the Wagner Glade Trail under Alternative 1 would have no additional impact on the species. Monument plants also occur in the vicinity of the historic trail along the ridge and upper slopes from Wagner Glade Gap to south of McDonald Peak (generally associated with the Split Rock Trail alignment). Under the Alternative 1, impacts to these plants would be minimal or non-existent due to the minimal recreational use that the area receives.

Englemann Spruce

As described above, Englemann spruce is located in close proximity to the Upper Time Warp and Winburn Trap Trails within the analysis area. Neither of these trail systems are close enough to affect the root systems or otherwise disturb individual Engelmann spruce trees. As a result, there would be no effect on this species under Alternative 1.

Alternative 2

Direct and Indirect Effects

The following describes the direct and indirect effects on known populations of special-status plant species, and the PDCs that would be implemented to minimize those impacts. Alternative 2 would

also require implementation of PDC BOT-10, which would require that all new, proposed trail routes be surveyed by a botanist prior to construction to determine if the trail needs to be re-routed to avoid special-status plants. This PDC would minimize potential impacts to specials-status plant species or individuals not currently known to analysis area.

Howell's Tauschia

The alignment of the Split Rock Trail under Alternative 2 would go through known populations of Howell's tauschia located near the south end of that trail alignment. Unless carefully routed, the reestablished trail could inadvertently be placed on tauschia on the east side of McDonald Peak. Use of this trail has the potential to impact these populations, particularly if recreational users stray from the established trail alignment.

Under Alternative 2, two PDC (PDC BOT-1 and BOT-2; see Table 2-9) would be implemented to minimize impacts to this species. Specifically, PDC BOT-1 and BOT-2 would require that the route of the reestablished trail be chosen to minimize impacts to Howell's tauschia at the south end and to avoid impacts at McDonald Peak. PDC BOT-1 would also require that ancillary measures, such as rock-lined trail borders or signs, be considered to discourage trail users from leaving the trail and potentially disturbing the tauschia populations at this location.

With implementation of these PDCs, reestablishment, use, and maintenance of the Split Rock Trail under Alternative 2 would be expected to result in the loss of only a few tauschia individuals and only a small amount of habitat degradation. This level of impact is not likely to adversely affect the viability of the local or regional population of Howell's tauschia or the species as a whole. These impacts could be greater, however, than those associated with Alternative 1 where the Split Rock Trail would not be reestablished, and recreational use would likely remain low.

Henderson's Horkelia

Populations of Henderson's horkelia may be affected by reestablishment, use, and maintenance of the Split Rock and the Upper Time Warp Trails as System Trails under Alternative 2. Similar to Howell's tauschia, several PDCs have been incorporated into the proposed action to reduce impacts to known populations of Henderson's horkelia (Table 2-9). PDC BOT-3 would require the routing of the Split Rock Trail in the vicinity of horkelia to be done with the aid of a Forest Service botanist to minimize the number of individuals lost during construction. PDC BOT-5 would require monitoring and possible preventative measures along the Upper Time Warp Trail where recreational users may be tempted to go off-trail to avoid lingering snowfields during early summer. These PDCs would reduce impacts compared to Alternative 1, where no measures are currently implemented to avoid impacts to rare plants.

The Mt. Ashland and the McDonald Ridge populations of horkelia are large enough to be currently stable and self-perpetuating. The loss of individual horkelia plants that would occur under the Alternative 2, with adherence to the PDCs described above, would have no effect on the long-term viability of any of the local populations or the broader regional meta-population.

Mt. Ashland Lupine

As described above, one population of Mt. Ashland lupine is located along the edge of the Upper Time Warp Trail. PDC BOT-5 would require monitoring and possible preventative measures along the Upper Time Warp Trail where recreational users may go off-trail to avoid lingering snowfields during early summer, which would reduce impacts to this population relative to Alternative 1. In consideration of this PDC, the size of the population (generally large), and the aspect of the trail where it passes the lupine population (northerly), it is anticipated there would be no effect on the viability of the Mt. Ashland lupine population under Alternative 2.

Clustered Ladyslipper Orchid

As described above, clustered ladyslipper orchid are found in the vicinity of the Freak Went Flyer Trail alignment, and immediately adjacent to the Reservoir Trail, which is proposed for decommissioning. PDC BOT-6 would require that a Forest Service botanist complete a search of the proposed Freak Went Flyer Trail route for both clustered ladyslipper orchid and mountain ladyslipper orchid before construction begins to allow the trail to be re-routed if populations are discovered. In addition, PDC BOT-7 would require that the two known occurrences of ladyslipper orchid along the Reservoir Trail be flagged for avoidance prior to decommissioning activities to ensure they are not trampled or otherwise damaged by construction activities.

With implementation of these PDCs, trail-related impacts to the local viability of ladyslipper orchids would not be anticipated, and may be less than those anticipated under Alternative 1, where populations along the Reservoir Trail could continue to be impacted under existing conditions.

Three-Toothed Horkelia

As described above, three-toothed horkelia is located along a variety of System Trails and proposed trails in the analysis area, as well as several trails proposed for decommissioning. PDCs BOT-8 and BOT-9 would require that known populations of three-toothed horkelia along the Winburn Trap Trail and Lower Marty's Trails be marked by the Forest Service botanist and avoided if trail management activities have the potential to result in trampling or other damage. In addition, PDC BOT-10 would require a Forest Service botanist to conduct a field reconnaissance of new trails once they are flagged but before they are constructed, which would allow detection of patches that warrant avoidance. Implementation of these PDCs would reduce potential impacts to this species compared to Alternative 1.

In consideration of their geographic extent and distribution of this species within the analysis area, it is anticipated that the loss of individuals or individual patches of horkelia as a result of trail building, use or maintenance under Alternative 2 would have no effect on the viability of the species.

Gastroboletus Turbinatus

As described above, *Gastroboletus turbinatus* was once collected in the vicinity of the historic Split Rock Trail, near or on McDonald peak. The exact location of the population is unknown. Given the imprecise location information for this previously known occurrence, and the fact that disturbance needed to reestablish and maintain the Split Rock Trail would only involve disturbance of a narrow

ribbon of earth, it is unlikely Alternative 2 would affect the viability of this occurrence. This impact is considered similar to Alternative 1.

Mountain Ladyslipper Orchid

As described above, mountain ladyslipper orchid are found in the vicinity of the Freak Went Flyer Trail alignment. PDC BOT-6 would require that a Forest Service botanist complete a search of the proposed Freak Went Flyer Trail route for both clustered ladyslipper orchid and mountain ladyslipper orchid before construction begins to allow the trail to be re-routed if populations are discovered. With implementation of this PDC, trail-related impacts to the local viability of ladyslipper orchids would not be anticipated.

Monument Plant

Use of the Wagner Glade Trail as a System Trail under Alternative 2 would have no impact on monument plants because they were removed from the trail vicinity when the trail was reestablished approximately 15 years ago. Potential impacts to monument plant in the vicinity of the Split Rock Trail would be minimized through PDC BOT-4, which would require the Forest Service botanist assist in reestablishing the trail route where it may pass through or near patches of monument plant. With implementation of this PDC, impacts would be limited to loss of a few individuals along the Split Rock Trail. Monument plant populations in the Split Rock Trail vicinity are robust enough that loss of a few individuals would have no effect on the local viability of the species. This impact would be similar to Alternative 1.

Englemann Spruce

Use and maintenance of the Upper Time Warp and Winburn Trap Trails as System Trails under Alternative 2 would have no effect on Englemann Spruce in the analysis area. This impact would be similar to Alternative 1.

Alternative 3

Direct and Indirect Effects

Howell's Tauschia

The potential direct and indirect effects on Howell's tauschia under Alternative 3 would be the same as those described for Alternative 2. Impacts associated with the reestablishment, use, and maintenance of the Split Rock Trail would be minimized through implementation of PDC BOT-1 and BOT-2 (see Table 2-9), and would not be likely to adversely affect the viability of the local or regional populations or the species as a whole.

Henderson's Horkelia

The potential direct and indirect effects on Henderson's horkelia under Alternative 3 would be the same as those described for Alternative 2. Impacts associated with the reestablishment, use, and maintenance of the Split Rock and Upper Time Warp Trails would be minimized through implementation of PDC BOT-3 and BOT-5 (see Table 2-9), respectively. Because the Mt. Ashland

population and McDonald Ridge populations of Henderson's horkelia are large, the loss of individual horkelia plants under Alternative 3 would have no effect on the viability of any of the local populations or the broader regional meta-population.

Mt. Ashland Lupine

The potential direct and indirect effects on Mt. Ashland lupine under Alternative 3 would be the same as those described for Alternative 2. Impacts associated with the winter use of the Upper Time Warp Trail would be minimized through implementation of PDC BOT-5. In consideration of this PDC, the size of the population (generally large), and the aspect of the trail where it passes the lupine population (northerly), it is anticipated there would be no effect on the viability of the Mt. Ashland lupine population under Alternative 3.

Clustered Ladyslipper Orchid

The potential direct and indirect effects on clustered ladyslipper under Alternative 3 would be the less than those described for Alternative 2 because the Freak Went Flyer Trail would not be constructed. Impacts associated with decommissioning the Reservoir Trail would be minimized through implementation of PDC BOT-6 to ensure that trail-related impacts to the local viability of ladyslipper orchids would not occur. These effects would also be less than those anticipated under Alternative 1, where populations along the Reservoir Trail could continue to be impacted in the future.

Three-Toothed Horkelia

The potential direct and indirect effects on three-toothed horkelia under Alternative 3 would be the same as those described for Alternative 2. PDC BOT-8 and BOT-9 would require that known populations of three-toothed horkelia along the Winburn Trap and Lower Marty's Trails be marked by a Forest Service botanist and avoided if trail management activities have the potential to result in trampling or other damage. In addition, PDC BOT-10, which would require a Forest Service botanist to conduct a field reconnaissance of new trails once they are flagged but before they are constructed, should allow detection of patches that warrant avoidance. Implementation of these PDCs would reduce potential impacts to this species when compared to Alternative 1, and would ensure that trail-related activities under Alternative 3 would have no effect on the viability of the species.

Gastroboletus Turbinatus

The potential direct and indirect effects on *Gastroboletus turbinatus* under Alternative 3 would be the same as those described for Alternative 2. Given the imprecise location information for the previously known occurrence, and the fact that disturbance needed to reestablish and maintain the Split Rock Trail would only involve a narrow ribbon of earth, it is unlikely Alternative 3 would affect the viability of this occurrence. This impact is comparable to Alternatives 1.

Mountain Ladyslipper Orchid

Alternative 3 would have no effect on mountain ladyslipper orchid populations because the Freak Went Flyer Trail would not be constructed.

Monument Plant

The potential direct and indirect effects on monument plan under Alternative 3 would be the same as those described for Alternative 2. Use of the Wagner Glade Trail as a System Trail under Alternative 3 would have no impact on monument plants because they were removed from the vicinity when the trail was reestablished approximately 15 years ago. In addition, implementation of PDC BOT-4 would reduce impacts to monument plant in the vicinity of the Split Rock Trail when the trail alignment is reestablished. With implementation of this PDC, trail-related impacts to the local viability of monument plant would not be anticipated and would be similar to those associated with Alternative 1.

Englemann Spruce

Continued use and maintenance of the Upper Time Warp Trail under Alternative 3 would have no effect on Englemann Spruce in the analysis area. The decommissioning of the Winburn Trap Trail under this alternative is also not expected to impact this species. This impact would be similar to those associated with Alternatives 1 and 2.

Cumulative Effects

Land treatments associated with the Ashland Forest Resiliency Project would maintain and/or improve habitat for three-toothed horkelia, which also occur in the analysis area and may be impacted by the proposed action. Implementation of PDCs BOT-8 and BOT-9 would reduce potential impacts to this species during construction and would minimize the potential for any adverse cumulative effects.

3.4.10 Issue – Introduction of Non-Native Invasive Plant Species

Background

The analysis area considered for assessing the potential for the spread of non-native invasive plant species in this section is the concurrent with the action area.

Non-native plant species are common in the analysis area at lower elevations in open or disturbed habitats. A few were purposely introduced in the past for erosion control along roads. Non-native plants become less common at higher elevations and in intact forested habitats. Some non-native plants species are invasive – i.e., able to move into previously unoccupied areas and expand their populations when opportunities arise. A subset of invasive plants have been designated by the Oregon Department of Agriculture as noxious weeds. The following state-listed noxious weeds are known to occur in the analysis area.

- Scotch broom
- Dalmatian toadflax
- Star thistle
- Himalayan blackberry

- Cut-leaved blackberry
- English ivy
- Bull thistle
- Klamath weed (St. John's wort)

Two other state-listed weeds, tansy ragwort and spotted knapweed, have been reported in the analysis area in the past but are not currently known to occur there.

The Forest Service actively tracks occurrences of noxious weeds and tries to control most, but not all, of them. Of the above documented noxious weed species, the Forest Service does not actively attempt to control bull thistle (which is present almost everywhere in the soil seed bank) and Klamath weed (which occupies all roadsides and is often found trailside as well). Control activities for Himalayan blackberries and English ivy are conducted in some places and not others. The dalmatian toadflax is greatly suppressed by a biological control agent (a stem weevil called *Methinus janthinus*) introduced at the end of the Lamb Mine Trail in 2002. The Forest Service does not use herbicides in the Ashland Municipal Watershed.

Effects Mechanisms and Analytic Framework

The majority of invasive plants occur along roads. To a much lesser extent, invasive plants have been inadvertently introduced along System Trails and existing unapproved / historic trails. People, vehicles, machinery, tools, pets, clothing, and rubbish are the main vectors by which the seeds of invasive plants are introduced into the analysis area. Disturbance events (e.g., construction, logging, fire, etc.) provide the best opportunity for these seeds to successfully establish, grow, reproduce, and spread.

For the purposes of this EA, the potential for invasive plants to colonize and/or spread along trails is positively correlated with the amount of new trail miles constructed and the number of trail users using all trails under each alternative.

Alternative 1

Direct and Indirect Effects

Under Alternative 1, the spread of non-native and/or invasive plant species on trails in the analysis area would be similar to existing conditions, and would be expected to increase over time as additional users take advantage of the trail system.

Alternative 2

Direct and Indirect Effects

New trail construction under Alternative 2, and presumably an associated increase in the number of trail users, may result in an increased potential for non-native or invasive plant species to colonize or spread along trails in the analysis area compared to Alternative 1. Three PDCs have been

incorporated into the proposed action to reduce the potential spread of these species (Table 2-9). PDC BOT-11 would require that new trails be rerouted, where practical, if invasive plants are found in the proposed trail path and there is concern that trail construction or use would lead to a spread or expansion of the population. PDC BOT-12 would require construction workers clean their tools, clothing, and equipment before moving beyond an area infested with invasive plants, and PDC BOT-13 would require that construction works clean their tools, clothing or equipment off-Forest before beginning construction on any new trails. It is anticipated that these measures would reduce the potential for invasive plants species to spread through the analysis area, although the potential impact would still be greater than that associated with Alternative 1.

Alternative 3

Direct and Indirect Effects

Similar to Alternative 2, new trail construction and increased trail use under Alternative 3 may result in an increased potential for non-native or invasive plant species to colonize or spread along trails in the analysis area. This impact may be somewhat less that that associated with Alternative 2 because fewer trail miles would occur in the analysis area (See Table 2-7). Implementation of PDC BOT-11 through BOT-13 would reduce the potential spread of these species in the analysis area, although the potential impact would still be greater than that associated with Alternative 1.

Cumulative Effects

Disturbance activities from all projects in and adjacent to the analysis area, including the Ashland Trails Project, the Ashland Forest Resiliency Project, the Mt. Ashland Ski Area Expansion Project, and any potential reroutes of trails by the City of Ashland increase the potential for non-native invasive plant species to successfully colonize new sites and/or increase in abundance at existing sites, which is considered a potential cumulatively negative effect. Conversely, the Ashland Forest Resiliency Project and similar fuels-reduction projects reduce the risk of high severity stand-replacing fires occurring over large areas, thereby reducing the potential for large-scale newly disturbed areas to be available for colonization by undesirable species. When considered in combination with other ground disturbing projects, however, the proposed action has the potential to contribute to a cumulative increase in the number and distribution of native or invasive plant species in the analysis area.

3.4.11 Issue - Potential Effects on McDonald Peak Inventoried Roadless Area or Potential Wilderness Areas

Background

McDonald Peak Inventoried Roadless Area

Inventoried Roadless Areas are inventoried tracts of National Forest System land generally having an undeveloped character. The McDonald Peak IRA, which is located on the divide between Ashland Creek, Little Applegate River, and Wagner Creek, was identified during the 1984 Roadless Area

Review and Evaluation Process and comprises a portion of the action area (Figure 1-1). The analysis area considered for assessing impacts to the McDonald Peak IRA encompasses the 9,425 acres associated with it, including portions both within and outside the action area. The McDonald Peak IRA is assigned six uses or allocations under the LRMP[13]: Restricted Watershed (to address the municipal water needs of the City of Ashland); Developed Recreation (Mt. Ashland Ski Area); Special Interest Area (resources special to the Siskiyou Crest area); Restricted Riparian (for the protection of unique riparian habitats); Botanical Area; and Timber Harvest (under a Managed Watershed Strategy associated with the Talent Watershed). These allocation decisions were made during development of the LRMP (USDA Forest Service 1990), and are documented in the Record of Decision for that plan (USDA Forest Service and USDI Bureau of Land Management 1994).

Roadless areas often provide outstanding dispersed recreation opportunities, such as hiking, camping, picnicking, wildlife viewing, hunting, fishing, botanizing, cross-country and back country skiing, and canoeing. While they may have many wilderness-like attributes, unlike Wilderness Areas, the use of mechanized and motorized means of travel is often allowed. These areas can also take pressure off heavily used Wilderness Areas by providing additional solitude, quiet, and dispersed recreation opportunities.

There are four existing trails within the McDonald Peak IRA, including one System Trail (Wagner Butte[14]) and three existing historic trails (Upper Time Warp, Wagner Glade, and Split Rock). The 5-mile Wagner Butte Trail is located in the Little Applegate watershed and offers outstanding views of Ashland, the Rogue Valley, and other distant locations, such as Mt. Shasta, Mt. McLoughlin, and the Siskiyou Crest. The trail also passes through wildflower meadows, sagebrush and quaking aspen groves. Both the Upper Time Warp and Wagner Glade Trails served as access to historic lookouts on Mt. Ashland and Wagner Butte, respectively. The Upper Time Warp Trail is primarily used by downhill mountain bikers and hikers while Wagner Glade is used by hikers, runners, and the occasional equestrian. Both trails have been in existence for close to 100 years. The Split Rock Trail is generally distinct between Forest Road 20 and McDonald Peak. The remainder of the trail north to Wagner Butte junction is intermittent and requires some cross country travel. Most visitors hike the first section of this trail out to McDonald Peak and back, which is popular for botanizing; mountain bike and equestrian use is almost non-existent.

The remainder of the IRA receives very light use, except for the headwaters area of the West Fork of Ashland Creek, which receives light to moderate use during the winter months by backcountry skiers and snowboarders.

The precise number of users for each trail is unknown. Based on observation by the Forest Service and AWTA, the highest use appears to occur on the Upper Time Warp Trail, followed by the Wagner Butte, Wagner Glade, and Split Rock Trails. The primary use period is June through October as these

[13] Refer to Section 1.5, *Management Direction*, for a more detailed description of LRMP allocations in general, including those within the action area.

[14] The Wagner Butte Trail is located entirely in the portion of the McDonald Peak IRA outside of the action area and, therefore, is not reflected as a System Trail in Chapter 2, *Alternatives*.

high elevation trails are usually snow-covered from November through May. Estimated yearly visits for trails in the IRA are summarized in the Table 3-45 below.

Potential Wilderness Areas and Other Undeveloped Lands

Areas of potential wilderness identified using inventory procedures found in FSH 1909.12, Chapter 71, are called *Potential Wilderness Areas* (PWA). Potential wilderness areas do not reflect a land designation decision, do not imply or impart any particular level of management direction or protection, are not an evaluation of potential wilderness (FSH 1909.12, Chapter 72), and are not preliminary administrative recommendations for wilderness designation (FSH 1909.12, Chapter 73). The inventory of PWAs does not change the administrative boundary of any IRA or any congressionally designated wilderness.

An inventory of PWAs has not been completed on the Rogue River-Siskiyou National Forest and no PWAs have been identified.

Other Undeveloped Lands are areas that have no history of harvest activity, do not contain forest roads, and are not designated as a wilderness area or inventoried as a potential wilderness area. Within the action area, other undeveloped lands are associated with the West Fork of Ashland Creek (1,740 acres) and the East Fork of Asland Creek (1,350 acres; concurrent with the Research Natural Area described in Chapter 1, *Purpose and Need*). The only trails within these areas include the Winburn Trap Trail (West Fork) and Lamb Mine Trail (Research Natural Area).

None of the alternatives would include actions that would preclude consideration of either a PWA or Other Undeveloped Lands for wilderness designation in the future (e.g., construction of roads, permanent structures). Because the alternatives would not directly or indirectly affect PWAs or Other Undeveloped Lands, they are not discussed further in this section.

Table 3-45. Estimated Yearly Visits to Trails in the McDonald Peak IRA

Trail Name	*Yearly Visits (No. Persons)*
Upper Time Warp	1,500
Wagner Butte	700
Wagner Glade	300
Split Rock	150

Effects Mechanisms and Analytic Framework

The proposed action has been designed in accordance with the Roadless Area Conservation Rule (FR 66:9, 12 January 2001, p. 3244-3273)[15] and direction provided by the Chief of the Forest Service on the review process for roadless activities (Tidwell pers. comm.). The proposed action does not

[15] The 2001 Roadless Area Conservation Final Rule was litigated in different courts and with different opinion until March 2012, when a final injunction was lifted.

propose to cut, sell, or remove timber or to construct roads within the McDonald Peak IRA. In addition, none of the alternatives propose any type of motorized use. “Mechanical” uses (i.e., bicycles) would continue in the McDonald Peak IRA.

It is recognized that the effects on human values associated with wildland features occurs in ways that exceed the amount of miles included in authorizing trails. These effects are difficult to measure and are highly speculative. For some, no trails on the landscape are most valued. For others, trails enhance the experience of an IRA. The analysis in the EA considers proposed modifications under each of the alternatives and how they may be perceived by different user groups.

Alternative 1

Direct and Indirect Effects

Under Alternative 1, there would be no change to the existing opportunities for solitude, quiet, and dispersed recreation within the McDonald Peak IRA. Most use would continue to occur on the System and existing historic trails as described above. “Wildland” features would be maintained in their current condition for all who value them, either practically or intrinsically. Overall use may increase over time due to population growth, although it is not possible to predict exactly where or to what extent increased use may occur. Under Alternative 1, System Trails would remain limited to the Wagner Butte Trail, which is 5.0 miles long and covers 3.03 acres. However, dispersed recreation use would likely continue on existing historic trails in the IRA, including Upper Time Warp, Split Rock, and Wagner Glade.

Alternative 2

Direct and Indirect Effects

The effects Alternative 2 on the McDonald Peak IRA would be similar to those described for Alternative 1, with the exception of the area along the Split Rock Trail. Formal designation and reestablishment of this primitive trail would likely increase use along the ridge between Forest Road 20 and Wagner Butte Trail, including pedestrian, equestrian and mechanical uses (bicycles) in the IRA.

The addition of the Upper Time Warp, Split Rock, and Wagner Glade Trails to the authorized trail system under Alternative 2 would increase the trail area within the IRA by approximately 9.2 miles or 5.57 acres. This is in addition to the existing area associated with the Wagner Butte Trail (5.0 miles / 3.03 acres).

Alternative 3

Direct and Indirect Effects

The effects of Alternative 3 on the McDonald Peak IRA would be somewhat reduced compared to those described for Alternatives 1 and 2 because the lower mile of the Upper Time Warp Trail would be decommissioned and rerouted under this alternative to avoid northern spotted owl habitat. The

rerouted section of the Upper Time Warp Trail would result in approximately 0.4 mile or 0.24 acre less trail area in the IRA compared to Alternatives 1 and 2. In total, the addition of the Upper Time Warp, Split Rock and Wagner Glade Trails to the authorized trail system would increase the trail area within the IRA by approximately 8.8 miles or 5.33 acres. This is in addition to the existing area associated with the Wagner Butte Trail (5.0 miles / 3.03 acres).

Cumulative Effects

There have been no management actions in the McDonald Peak IRA since the 1984 Forest Service inventory, with the exception of annual maintenance of the Wagner Butte Trail and limited fire suppression activities (e.g., Horn Gap Fire, 2003, 15 acres). Two projects are currently authorized with the IRA, but have not yet been implemented within that area. The Ashland Forest Resiliency Project will treat approximately 1,045 acres within the IRA. This project may affect the existing character of the IRA for those who feel it should remain undeveloped and show no evidence of disturbance. The Mt. Ashland Ski Area Expansion Project will involve ski run construction and tree removal on 37 acres within the IRA, and will result in fragmentation of approximately 231 acres, of which less than 1 acre (0.39%) is within the IRA. These two projects have the potential to contribute to a cumulative effect within the McDonald Peak IRA when considered in combination with the action alternatives.

None-the-less, cumulative impacts would be minor. As described above, the addition of three trails to the authorized trail system under Alternatives 2 and 3 would result in approximately 5.33 acres (Alternative 3) to 5.57 acres (Alternative 2) of additional, approved area available for recreational use, respectively. However, these modifications would have only a minor effect on the character of the 9,425 acre IRA and are unlikely to contribute to a substantial cumulative effect.

3.4.12 Issue –Potential Effects on Cultural Resources and/or American Indian Access and Use

Background

Cultural resources represent the tangible and intangible evidence of human behavior and past human occupation. Cultural resources may consist of the archaeological sites, historic-age buildings and structures, and traditional use areas and cultural places that are important to a group's traditional beliefs, religion or cultural practices.

The National Historic Preservation Act (NHPA), as amended, and its implementing regulations require that Federal agencies consider the effects of their undertakings on "historic properties." The term *historic properties* refer to cultural resources, both prehistoric and historic, that are listed or eligible for listing in the National Register of Historic Places (National Register). 36 CFR 800 stipulates the procedures for implementing Section 106 of the NHPA.

The Pacific Northwest Region of the Forest Service has a Programmatic Agreement (USDA Forest Service 2004) with the Advisory Council on Historic Preservation (ACHP) and the Oregon State Historic Preservation Officer (SHPO) that stipulates the Forest Service's responsibilities for

complying with the NHPA. By following the procedures of the Programmatic Agreement, the ACHP and SHPO have agreed that the Forest Service will satisfy the legal requirements for the identification, evaluation, and treatment of historic properties in lieu of the standard consultation procedures provided in the ACHP regulations (36 CFR 800).

Additional standards and guidance specific to Forest Service cultural resource management practices are provided in FSM 2360, as well as Chapter 4 of the LRMP, which provides Forest-wide management goals for the protection of cultural resources:

> "Provide for the identification, preservation, management, maintenance, and restoration of prehistoric and historic sites, buildings, objects, and antiquities of local, regional or national significance so as to preserve their historical, cultural and scientific values for the benefit of the public" (USDA Forest Service 1990, p. 4-3).

The Forest Service also has certain legal responsibilities to American Indian Tribes. American Indian Tribes are sovereign nations, and government entities with which the Forest Service establishes and maintains government to government relationships. Through statute, the Federal Government has a trust responsibility to each tribal government. These legal responsibilities are clarified in Executive Orders and case law enacted and interpreted for the protection and benefit of federally recognized American Indian Tribes. Some of the laws applicable to consultation with tribal governments include the NHPA and subsequent amendments; the Archaeological Resources Protection Act; American Indian Religious Freedom Act of 1978; NEPA; and the National Forest Management Act. Other direction is provided by Executive Order and Presidential Memorandum, including the 1994 Memorandum *Government-to-Government Relations with Native American Tribal Governments*; Executive Order 13007, *Accommodation of Sacred Sites*; Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*; and Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*. Forest Service Manual 1563 also provides direction for establishing government relations with American Indian and Alaska Natives, as well as procedural requirements and general guidelines. In meeting these responsibilities, forest managers are required to consult with Tribes when proposed policies or management actions may affect their interests. Consultations with each tribe can identify the tribe's historic and present day traditional use areas and sacred places.

Three tribal governments known to be associated with lands within the analysis area were consulted in support of the proposed action: the Confederated Tribes of Siletz Indians of Oregon; the Confederated Tribes of the Grand Ronde Community of Oregon; and the Quartz Valley Indian Reservation.

Past Uses of the Analysis Area -Native Uses

The following description of past uses of the analysis area is derived from the *Ashland Forest Resiliency Project Environmental Impact Statement* (USDA Forest Service 2008). The analysis area considered for assessing past and potential effects on cultural resources and America Indian access and use in this section is concurrent with the footprint associated with the proposed changes to the National Forest Service trail system within the action area.

Based on archaeological evidence from the wider region, native (or American Indian) groups almost certainly inhabited southwestern Oregon for much of the past 10,000 years. Some of them would have occupied the upper Bear Creek valley area (including the lowest reaches of Ashland Creek), and these people would have ascended into the hills and higher mountains of the Ashland vicinity on seasonal hunting and gathering expeditions.

By the time that Euroamerican explorers passed through the valley during the 1820s-1840s, the native peoples that lived in the valley consisted of two groups: Upland Taklema (a.k.a. "Latgawa") and Shasta. These two ethnic groups spoke distinctively different languages but shared a very similar way of life as hunters/gatherers/fishers. During the 1840s-50s, a Shasta village was situated on lower Ashland Creek (within the present city limits of Ashland); however, it is likely that both Shasta and Upland Takelma bands seasonally passed through and regularly used the mid-elevation forests that are included within the analysis area.

Early-summer to early-fall hunting of large mammals (deer and elk, primarily) accounted for much of the seasonal use of the analysis area. Cooperative game drives that employed extensive ground-fires to herd animals upslope to a chosen killing ground may have occurred in the foothills of the analysis area (this activity is known to have occurred elsewhere locally, based on the direct testimony of Takelma and Shasta elders who were interviewed by anthropologists around 1900). Higher-elevation forests (such as upper Neil Creek and near Horn Gap) probably saw somewhat more limited amounts of hunting (and this by smaller groups or even solitary hunters), as well as late-summer harvesting of various edible berries and roots. Fires were also frequently set on the area's lower slopes to help maintain a more open oak/pine dominated woodland (and hence more productive in terms of its important edible plants) than might have otherwise been the case with only lightning-caused fires. Sugar-pine nuts, acorns from California black oak, serviceberries, and bulbs of various members of the Lily family would have been important food sources from the slopes of the analysis area prior to the recent era of fire suppression (and the resulting increase in forest-stand density and change in species composition).

The earliest Euroamericans to actually see the hills of the analysis area were fast-moving brigades of fur trappers who passed through the vicinity in the 1820s-40s. Beaver trapping within the steep-gradient streams of the analysis area would have been unproductive; however, these parties may have hunted the foothills for deer and elk as they traveled through the valley. The first permanent settlement by Euroamerican farmers in the Ashland area began in the early 1850s, in association with simultaneous gold discoveries nearby in the Rogue and Klamath basins. Hunting of large game definitely brought farmers, miners, and others into the higher hills, as did the very labor-intensive, horse-/oxen-powered logging of selected ponderosa and sugar pines on the lowest slopes for dimension lumber and mining flumes.

As the communities of Ashland and Wagner Creek (later Talent) began to thrive during the late 1850s through the 1870s, local residents diverted the waters of Ashland Creek, Tolman Creek, Wagner Creek, and other lower-reach streams into irrigation ditches and into flumes that powered sawmills, flouring mills, and a woolen mill. Within the analysis area itself, mining remained only a relatively small-scale activity. With the railroad's arrival in the Rogue River valley during the 1880s,

local products such as wheat, lumber, wool, and (after 1900) orchard fruit could now be shipped to far-distant markets. Woolgrowers grazed herds of sheep in upper Neil Creek and in the headwaters of Ashland Creek, leading to protests from water quality conscious townsfolk. This situation led, in 1893, to a presidential proclamation creating the Ashland Forest Reserve, from which sheep were to be excluded.

Starting in the 1890s and increasing through the 1920s, local lumbermen (now assisted by steam-powered skidders that accelerated production and enabled logging on much steeper slopes) ventured higher into the hills to log old-growth pine. Such operations included small capacity rough-cut sawmills, such as those that operated on the middle section of Neil Creek, near the present site of Ashland Creek's Hosler Dam and Wagner Gap. National Forest land in these and other completely reforested areas still are marked by rotted pine stumps and by the now barely visible log-skid trails gouged into the granitic soils by steam donkeys.

The Forest Service assumed responsibility for the Forest Reserve in 1905, soon expanded and renamed the Crater (now Rogue River-Siskiyou) National Forest. The early Forest Service built trails and fought fires (including a sizable Ashland Creek burn in 1910 that required emergency reinforcements of U.S. Army troops to suppress). In the 1920s, the agency built fire lookouts on the summits of Mt. Ashland and Wagner Butte, stringing miles of telephone line to connect these remote stations to the ranger's office below. The City of Ashland vastly improved its domestic water supply and storage capacity during the 1920s with construction of Hosler Dam, impounding a stretch of Ashland Creek into Reeder Reservoir.

During the Great Depression, the Civilian Conservation Corps, the most famous and effective employment/conservation program of the New Deal, brought hundreds of young men to work in the National Forest. The Forest Service employed Civilian Conservation Corps crews on a variety of projects in the analysis area, but the most important of them was construction of the "Ashland-to-Beaver Creek Loop Road" (portions of present Forest Service Roads 2060 and 20). This route linked the town of Ashland directly to the highest slopes of Mt. Ashland. Meant to provide for (among other purposes) faster fire suppression, the loop road increased public travel through the analysis area. It also provided access to a very small and primitive ski-area called "Trail Camp," which was developed by the Civilian Conservation Corps and used by local residents through the 1950s and early 1960s. The Mt. Ashland Ski Area was also developed in the early 1960s, as were the weather-radar and television transmitting facilities on the mountain's summit.

Over the past three decades, municipal water concerns have dominated the management and the kinds of activities occurring within most of the analysis area. Unapproved camping and campfires have proven to be a difficult activity to control. Recreational use on National Forest land has increased exponentially, with backcountry skiing, a proliferation of hiking/mountain biking trails, special long-distance-running events, home construction on nearby private land, and other factors contributing to this pattern.

Cultural Resource Inventory Surveys

Since the late 1970s, the Forest Service has conducted a number of cultural resource surveys within most portions of the analysis area. These past searches mostly covered areas that are classified as "high-probability ground" (i.e., land types considered to have a high probability for containing significant cultural resources). In compliance with the Programmatic Agreement (USDA Forest Service 2004), the Rogue River-Siskiyou National Forest conducted additional inventory surveys of System and non-system trail segments proposed for decommissioning, reroute, and/or addition as System Trails under the alternatives. The past and current surveys resulted in documentation of a number of cultural resources, ranging from isolated chipped stone artifacts (such as arrow-points) to historic-period sites and features associated with past mining, homesteading, logging, recreation, and early Forest Service management. Most of the cultural resources that were located within 100 meters of existing trail alignments in the analysis area were determined not eligible for listing in the National Register.

Several trails in the action area are historic linear properties as defined by eligibility criteria for the National Register. These include:

- Alice in Wonderland (segment associated with the historic Lamb Mine Wagon route)
- Lamb Mine (part of the Lamb Mine ditch)
- Toothpick (part of the Lamb Mine ditch)
- Upper Time Warp (previously known as the Mt. Ashland Trail)
- Wagner Glade
- Winburn Trap
- Split Rock

Several of these trails were previously evaluated and determined not eligible for listing in the National Register, with SHPO concurrence, including:

- Site RR 1291 – the Wagner Butte-Windburn Camp-FS Trail (a.k.a. the Wagner Glade and Winburn Trap Trails);
- Site RR 1295 – including the Lamb Mine ditch (aka, the Toothpick and Lamb Mine Trails);
- Site RR 1697 – the Lamb Mine Wagon Road

The Split Rock and Upper Time Warp Trails have not been formerly evaluated for listing in the National Register. Based on existing maps (ca. 1896 and 1925), the southern half of the Split Rock Trail appears to have been in existence in 1896 as a pack trail, and later as a firefighting trail. The route may also have been used by Native peoples prior to Euroamerican settlement. At present, the trail is ephemeral and no constructed features are part of or present along the proposed route.

Based on land status and U.S. Geological Survey (USGS) quadrangle maps (ca. 1910-1954), the Upper Time Warp Trail was in existence as the Mt. Ashland Trail and part of the Forest Service trail system until 1954. No constructed features have been located along or as part of the trail. In several

places, the existing and proposed location of the Upper Time Warp Trail does not follow the original alignment of the Mt. Ashland Trail.

Tribal Consultation

As noted above, as part of its government-to-government consultation with the appropriate Indian Tribes, the Rogue River-Siskiyou National Forest formally contacted and invited consultation on the proposed action with the three federally recognized tribes that include descendants of the original Upland Takelma and Shasta inhabitants of the upper Bear Creek valley: the Confederated Tribes of Siletz Indians of Oregon; the Confederated Tribes of the Grand Ronde Community of Oregon; and the Quartz Valley Indian Reservation. Letters were sent on June 28, 2013. These tribes did not identify any concerns about the proposed action or identify any traditional cultural properties or sacred sites that would be affected by the proposed action.

Effects Mechanisms and Analytic Framework

Under the regulations, an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a cultural resource that qualify the property for inclusion in the National Register. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for listing in the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative. Specific examples of adverse effects cited in statute (36 CFR 800.5) include:

- Physical destruction of or damage to all or part of the property.
- Removal of the property from its historic location.
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance.
- Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features.

Impacts to cultural resources, especially archeological sites, can be generally defined as anything that results in the removal of, displacement of, or damage to artifacts, features, and/or stratigraphic deposits of cultural material. In the case of traditional cultural properties and sacred places, additional considerations may include alterations that would affect the character and use of the location, and/or presence and availability of a specific traditionally used natural resource.

Cultural resources, depending on their nature and composition, are subject to different types of impacts from trail construction, decommissioning and recreational user impacts. Construction and decommissioning usually involve ground disturbance with hand or mechanized equipment. This type of ground disturbance can damage or destroy sites by direct adverse impacts that cause the removal, displacement, breakage, and/or destruction of cultural material, features, and structures. Other trail activities that have the potential to result in adverse impacts include but are not limited to displacement of artifacts and removal of soil and vegetation exposing cultural materials. Indirect

impacts from trail construction and/or establishing trails can lead to or increase erosion, displacing cultural materials, and/or an increased potential for illegal collection and removal of surface artifacts.

Potential effects on cultural resources from the proposed action are based on the known and likely locations of cultural resources relative to the location of existing and proposed trail alignments and proposed decommissioning and/or restoration activities. The effects of the alternatives were analyzed using the Rogue River-Siskiyou National Forest Heritage Site and Survey GIS layers, the Forest Service INFRA database, review of existing site records stored at the Forest Service supervisor's office, and results from past and current field inventory surveys. The most recent listings of the National Register were also consulted. Draft GIS maps were created to examine spatial information of trails in relation to cultural resources. Additional archival record searches of General Lands Office (GLO) maps and historic Forest maps were reviewed.

The criteria used for establishing the area of potential effect (APE) for cultural resources was based on the potential area for clearing the length and width of a proposed new or rerouted trail and the adjacent vegetation, as well as a "collection/disturbance area" within a 10 meter (approximately 32 foot) corridor adjacent to each trail alignment. For the purposes of this analysis, it was assumed that cultural resource materials within the collection/disturbance area could be collected or otherwise disturbed by recreationists using the trail system under the alternatives. Applicable maps were generated through GIS analysis to determine the areas surveyed and sites within the APE. Existing site records were reviewed to identify the current condition and any known previous impacts to significant sites.

Alternative 1

Direct and Indirect Effects

Known cultural resources (excluding existing historic trails) that are within the analysis area are generally outside of the footprint of existing System and non-System trails. The continued proliferation of non-System trails in the analysis area under Alternative 1 has the potential to result in inadvertent disturbance and damage of cultural materials and increased potential for looting. These impacts would be comparable to existing conditions.

As noted above, several of the existing historic trails (Split Rock and Upper Time Warp) have been identified as historic linear sites that have not been evaluated for listing in the National Register. Ongoing use of these trails under Alternative 1 would not affect their potential eligibility for listing in the National Register.

Alternative 2

Direct and Indirect Effects

Alternative 2 has the potential to result in direct and indirect beneficial effects on cultural resources by reducing the proliferation of unapproved trails in the analysis area which, in turn, would reduce the potential for looting, inadvertent disturbance of artifacts and features, and a reduced potential for impacts from erosion.

Similar to Alternative 1, incorporation of the Split Rock and Upper Time Warp Trails as System Trails under Alternative 2 would not affect the characteristics or use of these existing historic trails, or their potential eligibility for listing in the National Register. None of the other existing historic trails within the analysis area are eligible for listing in the National Register. As a result, proposed modifications under Alternative 2, including the addition of the Winburn Trap and Wagner Glade Trails as System Trails and the decommissioning and reroute of the Alice in Wonderland Trail, would not result in an effect on a significant cultural resource.

Incorporation of existing unauthorized trails or proposed new trails as System Trails under Alternative 2 would not directly affect significant cultural resources or the use and access of lands by American Indians.

All significant and unevaluated archaeological sites would be avoided under Alternative 2. PDC CUL-1 through CUL-3 would be implemented to reduce the potential for impacts to both known resources and any new resources that may be discovered during construction by: (1) requiring a qualified cultural resources specialist to review any changes in the design and location of trail reroutes that may become necessary during implementation due to unforeseen circumstances prior to construction; (3) requiring a qualified cultural resources specialist to monitor construction of all trail segments where significant cultural resources are known to be in the vicinity; and (3) requiring that, if cultural materials are discovered during ground-disturbing activities, all work in that area will stop and the Forest Archaeologist will be contacted to determine the appropriate course of action. The proposed work may not resume in that area until the Forest Archaeologist determines that the activity will not cause an adverse effect to significant cultural resources.

Alternative 2 would have no effect on *historic properties* under the terms of the Programmatic Agreement between the ACHP, SHPO, and Region 6 of the Forest Service.

Alternative 3

Direct and Indirect Effects

As described for Alternative 2, Alternative 3 has the potential to result in direct and indirect beneficial effects on cultural resources by reducing the proliferation of unapproved trails in the analysis area which, in turn, would reduce the potential for looting, inadvertent disturbance of artifacts and features, and a reduced potential for impacts from erosion.

Similar to Alternatives 1 and 2, Alternative 3 would not affect the characteristics or use of the Split Rock or Upper Time Warp Trails, the two existing historic trails within the analysis area potentially eligible for listing in the National Register. Approximately 1 mile of the Upper Time Warp Trail would be closed, rehabilitated, and rerouted under Alternative 3 (the remaining portion would be incorporated as a System Trail). A review of maps from 1910-1954 indicates the alignment of the Mt. Ashland Trail (a.k.a. the Upper Time Warp) has changed very little thru time. The only significant changes to the alignment appear to have occurred between 1908 and 1910 when the northern half was rerouted and moved to approximately its current location. The trail was abandoned

and has not been maintained, nor been part of the approved trail system, since the 1960's. Including the trail as a System Trail under Alternative 3 would officially restore its use.

Actions used to reroute the Upper Time Warp Trail alignment under Alternative 3 would not include the obliteration of the current alignment; instead, the segment to be abandoned and rerouted would be signed, blocked and/or masked with natural local materials at both ends to prevent users from using this route. As a result, the proposed modifications to this existing historic trail would have no effect on the trail's significance or characteristics that could make it eligible for listing in the National Register. Similarly, no substantial modifications to the alignment of the Split Rock Trail are proposed, and its incorporation as a System Trail under Alternative 3 would not otherwise affects its characteristics or use.

As described for Alternative 2, none of the other existing historic trails within the analysis area are eligible for listing in the National Register. As a result, proposed modifications under Alternative 3 would not result in an effect on a significant cultural resource.

Incorporation of existing unauthorized trails or proposed new trails as System Trails under Alternative 3 would not directly affect significant cultural resources or the use and access of lands by American Indians.

All significant and unevaluated archaeological sites would be avoided under Alternative 3. PDC CUL-1 through CUL-3 would be implemented to reduce the potential for impacts to both known resources and any new resources that may be discovered during construction. Alternative 3 would have no effect on *historic properties* under the terms of the Programmatic Agreement between the ACHP, SHPO, and Region 6 of the Forest Service.

Cumulative Effects

Cumulative effects on cultural resources under the action alternatives are not anticipated because known cultural resource sites would be avoided, and measures to avoid other resources discovered during construction would be implemented (see PDC-1 through PDC-3). There is a low potential for a cumulative effect under the Alternative 1 if cultural resources are disturbed during use of existing historic and unapproved trails. There is also potential for a cumulative effect caused by disturbance and damage to cultural resource sites if unapproved trail proliferation continues in the analysis area as a result of increased use demands on the exiting trail system.

3.4.13 Issue - Increased Risk of Fire

The use of trails in the action area has, and would continue to have, little effect on the risk of fire ignition. This is primarily due to trail use being transitory, and the fact that it does not involve the use of motorized vehicles except on established roads. Because camping and/or campfires are not allowed within the Ashland Watershed or portions of Tolman and Clayton Creek drainages by Forest Closure Order, the risk of a human-caused ignition within the action area is low.

Similarly, trail management activities are typically completed using hand or small power tools, neither of which pose a high risk of fire ignition. Standard practices require use of Industrial Fire Precautions when using power tools during the fire season within the action area.

Currently the primary access to the area for fire engines or vehicles carrying hand crews is provided by Forest Service Roads 2060 and 2080 and their associated spurs. The amount of road and road conditions influence the time it takes from ignition of a fire to the first response by hand crews or fire engines. Because there would be no change in roads or road conditions under any of the alternatives, access to suppress a fire would not be changed. Any alternative that increases trails would provide only a small benefit for initial attack response by providing access for hand crews if the ignition were near a trail.

As a result, this issue is not considered further in this EA.

3.5 Other Resource Areas, Regulations, Executive Orders, and Additional NEPA Topics Considered

This section summarizes other resource areas considered during development of this analysis and describes why they were not considered in detail in the EA. This section also considers additional Forest Service regulations, Executive Orders, and topics that must be considered in NEPA documents.

3.5.1 Other Resource Areas

Climate Change

In 2010, the Council on Environmental Quality (CEQ) issued its *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emission* (CEQ 2010). Under this guidance, CEQ suggests that federal agencies consider whether a quantitative and qualitative analysis of greenhouse gas (GHG) emissions would provide meaningful information to decision makers and the public. CEQ recommends that 25,000 tons of carbon dioxide equivalents (CO_2e) of direct emissions be used as an indicator to determine where to include a GHG analysis.

The Responsible Official for the proposed action has determined that a qualitative or quantitative analysis of GHG emissions resulting from implementation of the proposed action is not warranted. Only minor emissions may be generated as a result of trail construction and maintenance, and those would be limited to infrequent transportation to and from the action area and/or use of limited mechanized equipment, if such equipment is used at all. Further, once implemented, the proposed action would not generate any GHG emissions. Only non-mechanized uses would continue to be allowed on trails within the action area.

Moreover, the effects of climate change on the action area would not vary between alternatives. Although anticipated changes in the climate may reduce the resiliency of some wildlife or vegetative communities to withstand environmental stresses (e.g., as a result of increased summer drought, insect infestations, invasion by non-native species), those effects would not be more pronounced

under any particular alternative, and none of the alternatives would more substantively reduce or mitigate the vulnerability to climate change compared to another. As a result, a more detailed comparison of effects of climate change on the alternatives would not provide meaning information to decision makers or the public, and is not warranted.

Air Quality & Noise

As described in Chapter 1, *Introduction*, all of the proposed trail construction, maintenance, and decommissioning activities associated with the alternatives would be conducted by volunteers, primarily using hand tools. If funding allows, mechanical equipment, such as SWECO trail dozers, could be used in limited circumstance to construct some of the proposed trails. However, the use of mechanical equipment would be limited, of short-duration, and at a distance from any sensitive noise or air receptors. Given that the proposed action would generally not generate any noise or air emissions, these resource areas, and associated issues, were not considered in detail in this EA.

Visual Resources

All National Forest System lands are assigned a Visual Quality Objective ranging from Preservation to Maximum Modification. Forest lands within Wilderness, Wild Rivers, and Research Natural Areas are managed under Preservation. Lands within sensitive viewsheds are managed for Retention and Partial Retention. Lands within non-timber management strategies such as Botanical Areas, Special Interest Areas, and Backcountry Recreation Areas, are generally managed for Retention. All other lands are managed for either Modification or Maximum Modification.

The LRMP provides both Forest Management Goals and Standards and Guidelines specific to the protection of visual resources within the action area. Forest management goals specific to visual resources state:

> "Maintain a healthy, diverse, and visually pleasing forest setting that enhances local tourism and provides an attractive visual backdrop to surrounding communities" (USDA Forest Service 1990, page 4-2)

More specific Standards and Guidelines are provided for each Management Allocations, which are summarized for the action area in Section 1.5.1, *Management Allocations*, in Chapter 1.

The action alternatives considered in the EA would only have minor effects on the overall aesthetic of the action area, and would be in compliance with LRMP Forest Management Goals and Standards and Guidelines specific to the protection of visual resources. As described in Section 2.2.3, *Design Parameters*, in Chapter 2, *Alternatives*, vegetation would be removed from within a 6 foot wide area centered around each trail alignment, and to a height of 10 feet. Between 7.4 miles (Alternative 3) and 9.4 miles (Alternative 2) of new trails would be constructed. Although trail maintenance and construction would modify the foreground views for some users, the trails are specifically provided to afford recreational access to users looking for a wildland experience. No trees over 6 inches dbh would be removed and trails would be constructed and maintained to minimize erosion. Given that these effects would be minor and common to all alternatives (and generally consistent with the most

conservative Standards and Guidelines provided for visual resources in the LRMP), a detailed assessment of the effects of the proposed action on visual resources is not provided in this EA.

3.5.2 Regulations, Executive Orders, and Additional NEPA Topics

Civil Rights

Forest Service Manual 1730, *Civil Rights Impacts*, and FSH 1709.11, *Civil Rights Handbook*, provide direction on the Civil Rights Program administered by the Forest Service. An overarching objective of the program is to "preclude the issuance of policies, actions, or decisions that contain eligibility criteria, methods of administration, or other agency-imposed requirements that may adversely and disproportionately impact employees or program beneficiaries because of their race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, protected genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program" (FSM 1730.2).

The Responsible Official has determined that the proposed action would have no impact on civil rights. It would not affect Forest Service staffing at the Siskiyou Mountains or Ashland Ranger Districts because the majority of the proposed trail work would be completed by volunteers, youth organizations, and/or holders of special-use permits. In addition, the proposed action would not result in a different or disproportionate impact on any specific community, including any of the communities identified in FSM 1730.2. All of the adverse and beneficial impacts of the alternatives, as described in this chapter, would be realized to the same degree by all populations that utilize trails in the action area, or live and work in the City of Ashland or adjacent communities. As a result, the Responsible Official has determined there would be no potentially major civil rights or social impacts related to the proposed action and that a Civil Rights Impact Analysis is not required.

Prime Farmland, Rangeland, and Forest Land

U.S. Department of Agriculture (USDA) Secretary of Agriculture Memorandum 1827 (Prime Agricultural Lands) requires Federal agencies to consider the effects of a proposed action on prime farmland, rangeland, and forest land. There are no prime farmlands or rangelands located within the action area. In addition, prime forest land does not apply to lands within the National Forest System, for which the entire action area is comprised. All lands within the action area will be managed with coordination and sensitivity to any potential effects on adjacent lands.

Public and Worker Safety

All activities associated with the proposed action would be guided by FSH 6709.11, Health and Safety Code Handbook, and would comply with State and Federal Occupational Safety and Health Act codes. Public and worker safety concerns would primarily be associated with trail construction and maintenance activities, and continued use of trails in the action area by the public. In general, worker safety concerns would be typical of those associated with conducting manual labor (using hand tools) in a forested environment, and would be ameliorated by providing standard safety

equipment, such as gloves and safety glasses. The public would not be allowed access to trails during construction or maintenance activities that could be potentially dangerous. Trails would be maintained by the Forest Service to ensure they are safe for continued use. Further, the risk of accidentally injury to members of the public who recreate in the action area may decrease over time, as user conflicts are moderated by managing different trails for different uses.

Wetlands & Floodplains

Executive Order 11990, *Protection of Wetlands*, requires federal agencies to follow avoidance, mitigation, and preservation procedures, with public input, before proposing new construction in wetlands. As described in Section 3.4.4, none of the alternatives considered in this EA would require new construction in wetland areas. If wetlands are located during proposed construction activities, appropriate buffers would be provided in compliance with the ACS, as described in Section 3.4.5.

Executive Order 11988, *Floodplain Management*, requires that all federal agencies take action to reduce the risk of flood loss, to restore and preserve the natural and beneficial values served by floodplains, and to minimize the impacts of floods on human safety, health, and welfare. The proposed action would not occur in a floodplain, and would have no impact on flood flows or frequency.

Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, requires federal agencies to identify minority and low income populations in areas where the effects of a proposed federal action would be disproportionately high or adverse. It is unlikely that any of the alternatives would have a different or disproportionate effect on minority or low income populations. None of the potential effects identified in this EA (e.g., modifications to trail use or access to public recreational fisheries) would be realized exclusively by a minority or low income population, or in a way that would result in a disproportionate effect, either as a result of the nature or the location of a specific impact. In addition, no Environmental Justice concerns were raised during scoping. As a result, it is not anticipated that the proposed action would have a disproportionate effect on minority or low income populations that may use or live in the vicinity of the action area.

Adverse Environmental Effects Which Cannot Be Avoided

NEPA requires that all environmental documents disclose "…any adverse environmental effects which cannot be avoided should the proposal be implemented" (40 CFR 1502.16). The preceding sections of Chapter 3 describe the environmental effects of the alternatives in detail. This section provides a summary of those adverse effects that cannot be avoided.

The implementation of the action alternatives would result in some adverse impacts to physical, biological, and human environments. The effects of these impacts can generally be reduced using the PDC summarized in Table 2-9, which are both project- and site-specific. However, some unavoidable, adverse impacts would occur under both action alternatives, despite the application of mitigation measures, as summarized below.

- Recreation. As described in Chapter 1, *Introduction*, the need for the proposed action is to provide a sustainable non-motorized trail system in the vicinity of Ashland commensurate with current public demand, and consistent with natural resource management responsibilities and Forest Service capabilities, that reduces user conflict through trail design, use designation and management. Although some recreational use could be temporarily impacted or displaced during trail construction, decommissioning, and maintenance, the long-term effects on recreational access from implementation of the action alternatives would be beneficial. It is also anticipated that user conflicts would be reduced, although displacement of one use for another on certain trails may be perceived by some users as an unavoidable, adverse environmental effect.
- Late-Successional Reserves. Approximately 3,107 acres (29%) of the Rogue River-Siskiyou National Forest portion of the Mt. Ashland LSR is within 100 meters of all mapped roads, System Trails, and existing historic and unapproved trails. Disturbance from continued use of the System Trails, and in particular the 711 acres associated with existing unapproved and historic trails, would negatively affect LSR values over the long-term. Alternative 2 would result in a net increase of 73 acres of disturbance in LSRs, for a total acreage of disturbance of 784 acres. Alternative 3 would result in a net decrease of 219 acres of disturbance in LSRs, for a total acreage of disturbance of 552 acres, resulting in a reduced – and net neutral – effect on LSRs.
- Wildlife: Removal and modification of vegetation to accommodate new trails and maintain existing trails could adversely affect a variety of wildlife species if they are displaced from their current locations, directly injured or killed, or if their habitat is otherwise fragmented. Mitigation measures and design criteria would minimize these impacts but not alleviate them. Several adverse environmental effects would also continue to occur under Alternative 1, all of which would be associated with the presumed continued use of some of the existing unapproved and historic trails, and in particular those that would otherwise be decommissioned or rerouted under the action alternatives. These adverse impacts include erosion, loss of vegetation, and habitat disturbance (including trail use near known northern spotted owl nest site / core areas and Pacific fisher natal and maternal dens). In addition, the Winburn Trap and Upper Time Warp Trails would continue to encroach into northern spotted owl and Pacific fisher habitat, which would result in unavoidable, adverse impacts to these species and their associated habitats. Decommissioning the Winburn Trap Trail, and rerouting the Upper Time Warp Trail, under Alternative 3 would reduce these impacts and result in a net neutral effect on LSRs.
- Sediment delivery and water quality. Although PDCs are expected to reduce the potential for increasing erosion and sediment delivery to streams, there is a minimal risk for short-term indirect impacts to water quality as a result of implementing the action alternatives. The risk for short-term impacts is comparable, if not lower, than that associated with Alternative 1, where some of the existing unapproved and historic trails that would be decommissioned under the action alternatives (e.g., the Jabberwocky Trail) are located in areas that routinely cause erosion and potentially result in downstream sediment delivery.

- Soils/site productivity. Under the action alternatives, some detrimental soil impacts would occur in areas where newly proposed trails are constructed. These impacts would be minimized, however, through trail design consistent with Forest Service Standards and Guidelines for soil protection and through implementation of PDC.

Short-Term Uses of the Environment and Long-Term Productivity

NEPA requires that all environmental documents consider the "…relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity…" (40 CFR 1502.16). Under all alternatives, trail use and maintenance could result in soil erosion, downstream water quality impacts, disturbance of wildlife and plants, and degradation of wildlife habitat. As a result, the short-term uses of the existing and proposed trail system would result in some degradation of the long-term productivity of the action area. These effects would likely be more pronounced under Alternative 1 where continued use of some of the existing historic and unapproved trails would result in impacts that would otherwise be remedied under the action alternatives through decommissioning of problematic trail alignments; use of design criteria on new and modified trails to reduce effects; implementation of BMPs; and trail use management to avoid user conflicts.

Irreversible and Irretrievable Commitment of Resources

NEPA requires that all environmental documents consider any irreversible or irretrievable commitments of resources which would be involved in a proposed action should it be implemented (see 40 CFR 1502.16). An *irreversible* commitment of resources generally refers to the loss of a non-renewable resource, such as a heritage resource or fossil fuels, and to resources renewable only over a long period of time, such as soil productivity. An *irretrievable* commitment of resources represents opportunities foregone for the period of the proposed action, and relates to the use of renewable resources, such as vegetation or timber, and to other utilization opportunities foregone in favor of the proposed action.

There would be no irreversible commitments of resources under Alternative 1. Ongoing maintenance of System Trails under Alternative 1 would require removal of limited vegetation, which would be necessary to maintain the safety and usability of trails in the action area.

Under the action alternatives, new trail construction would result in long-term impacts to soil productivity along all new trail alignments, which is considered an irreversible commitment of resources. Similarly, construction activities facilitated by mechanical equipment, such as SWECO trail dozers, would consume fuel, which would be an irreversible use of nonrenewable fossil fuels. Irretrievable commitments of resources under the action alternatives would be associated with vegetation clearing during trail construction and maintenance, which, similar to Alternative 1, would be necessary for trail safety and usability.

Energy and Natural Resource Requirements and Conservation Potential

NEPA requires that all environmental documents discuss the energy and natural resource requirements and conservation potential of a proposed action (40 CFR 1502.16[e]-[f]). As described in Chapter 2, *Alternatives*, all trails in the action area would be constructed and maintained by the

Forest Service, in cooperation with volunteers and youth organizations, using hand and power tools. Depending on funding, small mechanized trail building machines, such as SWECO trail dozers, may also be used to construct some trails.

Similarly, all trails would be constructed of locally-sourced, native materials (e.g., soil, rock, other naturally occurring materials), and any material removed or relocated to construct, maintain, or decommission trails would generally be placed in the immediate vicinity. Any required planting and seeding would utilize native vegetation, as prescribed by the Forest Service botanist.

As a result, both the energy and natural resource requirements to implement the proposed action would be minimal, and the conservation potential of both resources considered high.

Urban Quality, Historic and Cultural Resources, and the Design of the Built Environment

NEPA requires that all environmental documents discuss the "urban quality, historic and cultural resources, and the design of the built environment, including the reuse and conservation potential of various alternatives and mitigation measures" (40 CFR 1502.16[g]). There are no urban areas in the action area, although improvements to the trail system under the action alternatives may improve the recreational experience of users from the adjacent City of Ashland.

As described in Section 3.4.12, no known cultural or historic resources would be impacted by the proposed action. Mitigation measures are provided in the event a previously unknown resources is discovered during trail construction, maintenance, or decommissioning.

CHAPTER 4 – CONSULTATION WITH OTHERS

As described in Section 1.7, *Public Involvement (Scoping)*, in Chapter 1, *Introduction*, in June 2012, the Forest Service published a legal notice notifying the public of the opportunity to comment on the Ashland Trails Project. Letters were sent out to agencies and interested groups and citizens explaining the background, purpose and need, and preliminary details and design features of the proposed action, and requesting comments, concerns or issues specific to the Ashland Trails Project be provided to the Forest Service. Thirty-two comment letters were received during the scoping period. A copy of the Scoping Report is provided in Appendix A.

The following organizations and agencies responded or participated in the planning and scoping efforts (listed alphabetically). A list of individuals that participated in the scoping process is provided in Appendix A. In addition, Robbin Thorp, Professor Emeritus, Department of Entomology and Nematology, University of California, Davis, was consulted during preparation of the biological resources analysis.

- Applegate Wilderness Council, Luke Ruediger (letter received July 15, 2012)
- Ashland Parks and Recreation Department, Susan Dyssegard (letter received July 27, 2012)
- Ashland Woodlands and Trails Association, Rob Cain
- Bureau of Land Management, Medford District, Tony Kerwin and Robin Snider, Wildlife Biologists
- Josephine County Equestrian Coalition, Cindy McLachlan (letter received July 26, 2012)
- Confederated Tribes of the Grande Ronde, Reyn Leno, Chair, Grand Ronde Tribal Council
- Klamath-Siskiyou Wildlands Center, Joseph Vaile (letters received July 20 and July 24, 2012)
- Native Plant Society, Siskiyou Chapter (letter received July 30, 2012)
- Oregon Wild, Doug Heiken (letter received July 26, 2012)
- Quartz Valley Indian Reservation, Aaron Peters, Chairman
- Confederated Tribes of the Siletz Indians of Oregon, Delores Pigsley, Chairman
- U.S. Fish and Wildlife Service, Roseburg Field Office, Cindy Donnegan, Wildlife Biologist

The following Forest Service specialists participated in the Interdisciplinary Team (IDT) or provided input for the analysis.

- Donna Mickley, Siskiyou Mountains District Ranger
- Brian Long, District Recreation Manager
- Bonnie Allison, Wildlife Biologist

- Don Boucher, NEPA Specialist
- Gregg Bousfield, Hydrologist
- Joni Brazier, Soil Scientist
- Dave Clayton, District Wildlife Biologist
- Kristen Hauge, Acting Forest Archaeologist
- Steve Johnson, Recreation Specialist
- David Knutson, Archaeological Technician
- Anthony Olegario, Acting District Fisheries Biologist
- Ian Reid, Fisheries Biologist
- Wayne Rolle, Forest Botanist
- Melissa Schroeder, Forest Archaeologist / Forest Tribal Relations Liaison
- Jeff VonKienast, Cascade Zone Wildlife Biologist

CHAPTER 5 – LIST OF PREPARERS

Contributor	*Education and Experience*	*Contribution*
U.S. Forest Service Staff		
Brian Long District Recreation Manager	B.S., Recreation Management University of Montana (2000); M.EnDev., Protected Areas Management, University of KwaZulu-Natal (2003) 13 years of technical and professional Forest Service and National Park Service recreation experience	Project Leader
Don Boucher NEPA Specialist	Undergraduate studies Forestry and Engineering, Oregon State University. 35 years of experience in Forest Service planning, NEPA documentation and implementation, and GIS.	NEPA Review
Bonnie Allison Wildlife Biologist	B.S., Environmental Biology from Eastern Illinois University (1990); M.S., Environmental Studies from Southern Illinois University at Edwardsville (1996) 20 years experience in Forest Service wildlife and habitat analysis.	Wildlife
Joni Brazier Soil Scientist	B.S. Natural Resources, emphasis in wildland hydrology, Oregon State University (1998) 9 years experience in wildland hydrology and soils; 5 years experience as a Forest Service soil scientist	Soils and Slope Stability

Contributor	*Education and Experience*	*Contribution*
Gregg Bousfield Hydrologist	B.S., Forestry (Forest Hydrology), Humbolt State University (2004); M.S., Natural Resources (Watershed Management), Humbolt State University (2008) 7 years of technical and professional Forest Service hydrology experience	Water Quality and Hydrology
Steve Johnson Recreation Specialist	B.A., English, Southern Oregon College (1974); Graduate work, American Literature, University of Nevada (1975) 33 years experience with the Forest Service, including 18 years experience in NEPA compliance	Inventoried Roadless Areas and Recreation
David Knutson Archaeological Technician	A.S. Forestry (Recreation), Umqua Community College (1980) 27 years experience in cultural resources management, archeology, NEPA, and NHPA Section 106 compliance.	Cultural Resources
Ian Reid Fisheries Biologist	BS Biology, Southern Oregon University (1997); MS Biology, Southern Oregon University (2002); BS Fisheries Science, Oregon State University (2003) 14 years experience in salmonid habitat evaluation and effects analysis, habitat and lifecycle monitoring, freshwater habitat restoration, and ESA consultation and compliance.	Fisheries Biology
Wayne Rolle Forest Botanist	B.S., General Studies-Science/Mathematics, Southern Oregon University (1985); Post-baccalaureate botany classwork at Oregon State University (1988) 25 years experience as Forest Botanist.	Botany

Contributor	*Education and Experience*	*Contribution*
Melissa Schroeder Forest Archaeologist & Forest Tribal Relations Liaison	B.A., Anthropology, emphasis in Archaeology, California State University, Fullerton; M.A., Anthropology, emphasis in Archaeology, California State University Fullerton (1993) 27 years of experience in Cultural Resource Management (Forest Service, National Park Service, and private sector)	Cultural Resources
Contractors		
April Zohn Environmental Regulatory Specialist	B.S, Marine Science, U.S. Coast Guard Academy (1994); M.S., Environmental Law, Vermont Law School (2014) 15 years experience in environmental consulting and NEPA compliance	NEPA Coordinator / Writer

CHAPTER 6 – REFERENCES

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6.2 Chapter 2 – Alternatives

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6.3.2 Personal Communications

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APPENDIX A- SUMMARY OF SCOPING COMMENTS

A total of 32 comments were received by the Siskiyou Mountains Ranger District by the close of the public comment period on July 27, 2012. Several comment letters were received after this date and were reviewed and considered as part of the public comment process.

Ref. #	Date Rec'd	Comments, Issues, Concerns, Questions
1-ATS	06/20/12	-Concern that only 3 trails prohibit bicycles -Many bikers are courteous, but many others "blast through" with no regard to hikers -Need more hiker or hiker/equestrian only trails
2-ATS	06/20/12	-Encouraged by efforts of all interested parties -Looks forward to growth of trail system
3- ATS	06/26/12	-Supports project -Safer and good for business and economy
4- ATS	07/10/12	-Supports project -Need more hiker trails -Trails need to be well marked
5- ATS	07/11/12	-Supports project -Comments "pertain **only** to historic Split Rock Trail" -Concern for rare plants: *Tauschia howelli, Horkelia hendersonii, and Erigonum incanum (*or *diclinum*) -Trail should avoid rare plant populations -Recommends "official botanical survey" along entire route -Trail should primarily be cited on west side of ridge at beginning -Alternative is no trail at all, but supports trail if carefully sited -Opportunity for interpretation
6- ATS	07/17/12	-Supports project -Should approve proposal as is -Concern for illegal camping and resultant fire -More people in Watershed would be source of law enforcement for reporting purposes -Especially supports more trails on west side to minimize hiker/biker conflict -Build trails for all user types so illegal construction can be stopped
7- ATS	07/20/12	-Supports project -Should segregate incompatible uses ("pedestrian/equestrian from high speed downhill mountain biking) -Ensure terrestrial and aquatic habitat taken into consideration in regards to downhill mtn bike trails -concerned about potential for erosion from mtn bike trails and potential for sediment entering Reeder Res listed as Water Quality Limited -Keep mtn bike trails away from known nest sites for the northern spotted owl "and other at-risk species (Pacific fisher)" -Ensure adequate law enforcement -concerned that mtn bikers will use "newly opened (thinned areas) from AFR"
8- ATS	07/24/12	-Additional comments all specific to Split Rock trail as mtn bike use -Mtn bikes could impact rare plants on McDonald Ridge -How will FS prevent bikers from using Wagner Butte & Wagner Glade trails from McDonald Ridge -Has FS considered potential for user created routes by mtn bikers off the ridge -Mtn bikers potential impacts to IRA

Ref. #	Date Rec'd	Comments, Issues, Concerns, Questions
		-Mtn bikers potential impact to *Tauschia howelli* -Mtn bikers potential impact to Whitebark pine -Proposed route not congruent with botanical area
9- ATS	07/24/12	-Equestrians have been pushed out of Watershed by downhill mtn bikers -Supports The Safe Trails Plan for the Ashland Watershed
10- ATS	07/24/12	*Submitted The Safe Trails Plan for the Ashland Watershed* -AWTA plan does not address the 100 + years of horse use -Need further separation of uses -Allow continued use of Upper Time Warp, Split Rock, Wagner Glade, Winburn Trap, Potlicker and the new trails No candies and Wonder -Have been driven out of east side unless ride early and fast -Further out you go (miles) the more respect there is between users -"Directional trails" concept—one way only, e.g., Wonder -Make Ric's for bikes and Lower Catwalk for hiker/horse -Alter convergence of Winburn Trap and Potlicker -Do not decommission upper mile of Pete's Punisher -Reference to horses introducing noxious weeds
11-ATS	07/24/12	-Support for The Safe Trails Plan for the Ashland Watershed
12-ATS	07/25/12	-Support The Safe Trails Plan for the Ashland Watershed
13-ATS	07/25/12	-Support for The Safe Trails Plan for the Ashland Watershed
14-ATS	07/25/12	-Support for The Safe Trails Plan for the Ashland Watershed -Conflicts with mountain bikers -Need increased signage
15-ATS	07/25/12	-Support for The Safe Trails Plan for the Ashland Watershed
16-ATS	07/25/12	-Support for The Safe Trails Plan for the Ashland Watershed
17-ATS	07/25/12	-Support for The Safe Trails Plan for the Ashland Watershed
18-ATS	07/25/12	-Keep trails open
19-ATS	07/26/12	-Support efforts to address user conflicts by segregating uses where possible -Address soil erosion problems -Caution in legitimizing user created trails as may serve as incentive for further illegal building -Manage Split Rock Trail in a way that protects botanical area. Do not allow mountain bikes
20-ATS	07/26/12	-Support for The Safe Trails Plan for the Ashland Watershed -Need further education for mtn bikers
21-ATS	07/26/12	Trails need to be available to horse riders
22-ATS	07/26/12	-Support for The Safe Trails Plan for the Ashland Watershed -Trails plan needs to address the needs of each user group (hikers, bikers, equestrians)
23-ATS	07/27/12	-Support for The Safe Trails Plan for the Ashland Watershed
24-ATS	07/27/12	-Support for The Safe Trails Plan for the Ashland Watershed
25-ATS	07/27/12	-More data on percentage of pedestrian/bike/horse users -Concern about higher percentage of trails dedicated to bikes and fewer for pedestrians only -Number of calls per year to Ashland Fire & Rescue; percentages of calls for each user group (hiker, equestrian, biker) -How are trails named -Request for matching tables and maps -Was master plan part of scoping or part of EA process -Question about process used for decommissioning -Concern about illegitimate maps showing some trails as bike only -Concern about law enforcement

Ref. #	Date Rec'd	Comments, Issues, Concerns, Questions
		-Concern about retroactively approving unauthorized trails -Request for consistent and correct language for signage and maps -Importance of educating trail users on trail etiquette
26-ATS	07/27/12	-Must provide for hikers and have restrictions on mtn bikers -Restrict biking because of DG soils
27-ATS	07/27/12	-Support for The Safe Trails Plan for the Ashland Watershed -Lack of visibility contributes to safety issue
28-ATS	07/27/12	-Supports proposed action
29-ATS	07/28/12	-Support for The Safe Trails Plan for the Ashland Watershed
30-ATS	07/15/12	-Supports non-motorized use in Watershed -"Very few" new trails should be created and emphasis should be on maintaining existing trails across the district -Concern about designating Wagner Glade, Upper Time Warp and Split Rock as open to bicycles due to wilderness characteristics in IRA -Address cumulative impact of ski expansion and trail designation on "wilderness/roadless character" -Rare plants along Split Rock trail *Tauschia howelli, Horkelia hendersonii, and Erigonum incanum (*or *diclinum*) *(Note: These 3 species mentioned in 5-ATS above.).* Also *Happlopapus whitneyi ssp. discoides.* -Address cumulative impacts to E. diclinum and H. hendersonii associated with ski expansion and bicycle use on Split Rock Trail -Concern about tread width greater than 24"-48" may violate roadless rule -Bicycles not appropriate at Time Warp and Wagner Glade due to steep terrain and impacts due to DG soils -Designating bike use on Wagner Glade would create user conflict on Wagner Butte Trail, which currently prohibits bike use -"Salmon bearing stream below" trail area -Concern about slope stability and erosion. Keep bike trails on ridgetops or on the contour -Bull Gap Trail should be only mechanized [bike] route to Crest -Concern about impact to district trail maintenance funds as a whole and that Ashland's system would be maintained to the detriment of the rest of the District. -Why is the agency expanding in the Ashland area while wilderness and national recreation trails in the Applegate need new bridges -Apathy in regards to maintaining trails
31-ATS	07/24/12	Easement and or relocation of Alice in Wonderland Trail
32-ATS	07/26/12	-Does not support Split Rock being open to bicycle use. -Concern for *Tauschia howellii* (Howell"s tauschia) in the Split Rock area.

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