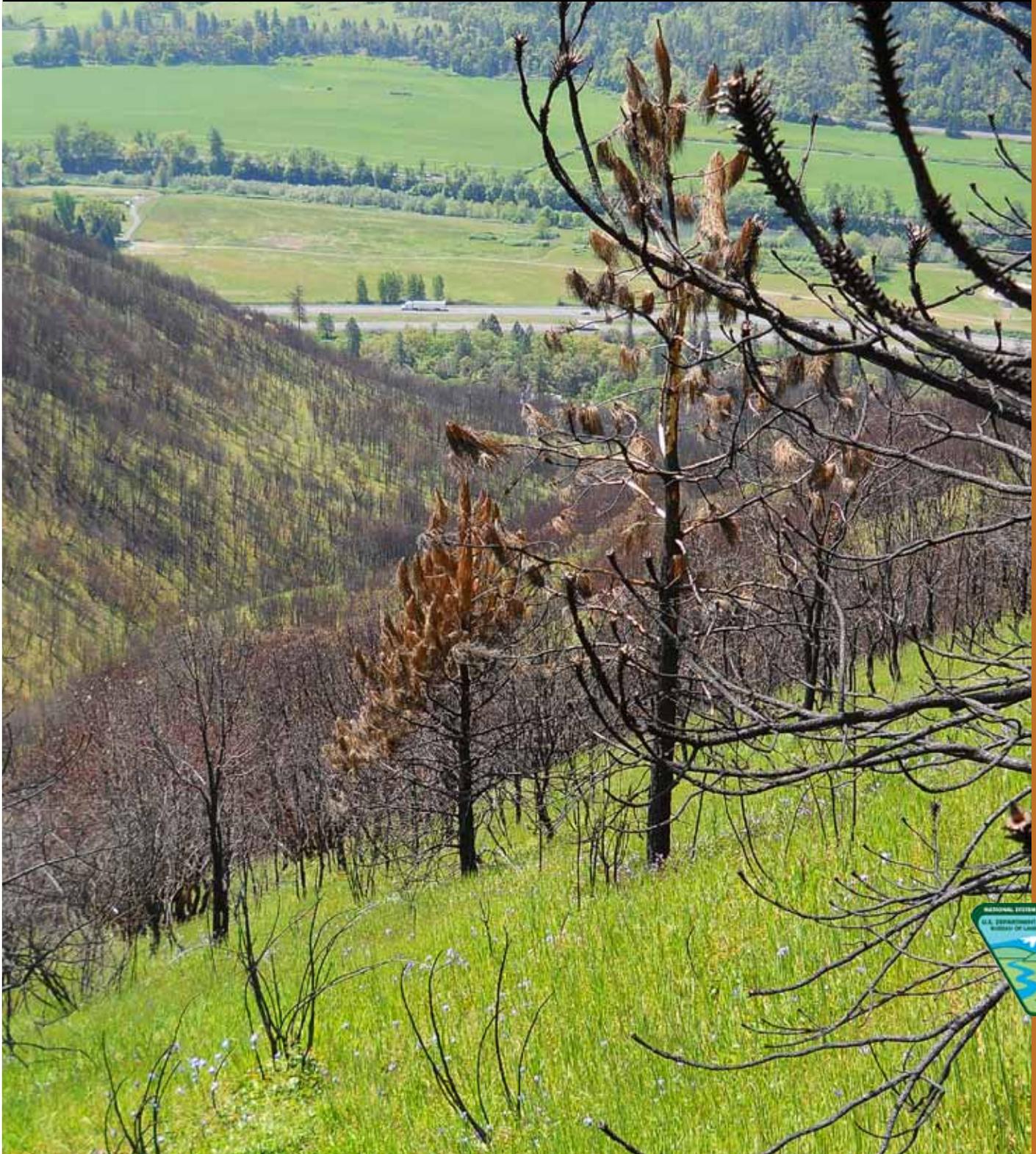


# Mountain of the Rogue Trail System Environmental Assessment

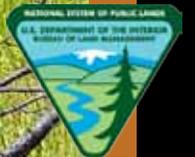
DOI-BLM-OR-M050-2013-0009-EA

**BLM**

Butte Falls Resource Area



March 2014







Dear Reader:

The Bureau of Land Management has completed the environmental analysis for the proposed Mountain of the Rogue trail system. This environmental assessment (EA) documents that analysis.

The proposed mountain bike trail system near the city of Rogue River, Oregon would provide recreation opportunities for mountain biking and hiking; however, the trail would be specifically designed for mountain bikes. Construction would be completed in phases as funding becomes available. Initially, up to 10 miles of trail would be constructed, with the possibility of expansion in the future.

If you would like to provide us with written comments regarding the Mountain of the Rogue Trail project and EA, please send them to Bureau of Land Management (Attention: Trish Lindaman), 3040 Biddle Road, Medford, OR 97504. Email comments may be sent to [BLM\\_OR\\_MD\\_Mail@blm.gov](mailto:BLM_OR_MD_Mail@blm.gov) (be sure to include "Attention: Trish Lindaman" in the subject).

The 30-day comment period for this EA begins when the legal notice of the EA's availability is published in the Medford Mail Tribune newspaper. Any comments you may have regarding Mountain of the Rogue Trail project must be received by **April 9** in order to be considered in the final decision for this project.

If confidentiality is of concern to you, please be aware that comments, including names and addresses of respondents, will be available for public review or may be held in a file available for public inspection and review. Individual respondents may request confidentiality. If you wish to withhold your name and address from public review or from disclosure under the Freedom of Information Act, you must state this clearly at the beginning of your written comment. Such requests would be honored to the extent allowed by law. All submissions from organizations or officials of organizations or businesses will be made available for public inspection in their entirety.

Thank you for your continued interest in the management of your public lands. Your input plays an important part in our land management decisions.

Karla Norris  
Acting Field Manager  
Butte Falls Resource Area



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# 1.0 Purpose and Need

This section describes the action proposed by the BLM (Bureau of Land Management), why the BLM is proposing this action, and the location of the proposed action. It also identifies the factors the decision maker will use for choosing the alternative that will best meet the purpose of and need for this project.

## 1.1 Introduction

The BLM's Butte Falls Resource Area is proposing a sustainable trail system that would provide recreational opportunities for mountain bikers and hikers. This proposal is in response to a formal proposal from the Rogue RATS (Rogue River Area Trail Stewards) to build a mountain bike trail system near the city of Rogue River. This EA (environmental assessment) documents the environmental analysis the BLM conducted to estimate the potential site-specific effects on the human environment that may result from implementation of this project. The EA will provide the BLM's authorized officer (Butte Falls Resource Area Field Manager) with current information to aid in the decision-making process. It will also determine if there are significant impacts not already analyzed in the EIS (environmental impact statement) for the Medford District's ROD/RMP (Record of Decision and Resource Management Plan) and whether a supplement to that EIS is needed or if a Finding of No Significant Impact is appropriate.

### 1.1.1 Proposed Action

The BLM's Butte Falls Resource Area proposes to authorize construction of a mountain bike trail system that would also be open to hikers. The trail system would not be designed for motorized use. Construction would be completed in phases as funding becomes available. The initial phase (Phase 1) of this project would include construction of a trailhead, parking area, and approximately 10 miles of trails and installation of fencing. Equestrian use would not be included in Phase 1 but could be considered in future phases of development in the project area.

Because of the amount of public land and the existing road system, the project area has potential for additional nonmotorized trail development. Depending on the success and popularity of the Phase 1 development, future trail opportunities could be developed to the north in the larger project area. Any future trail development would be dependent on partner commitment, funding, and additional environmental analysis.

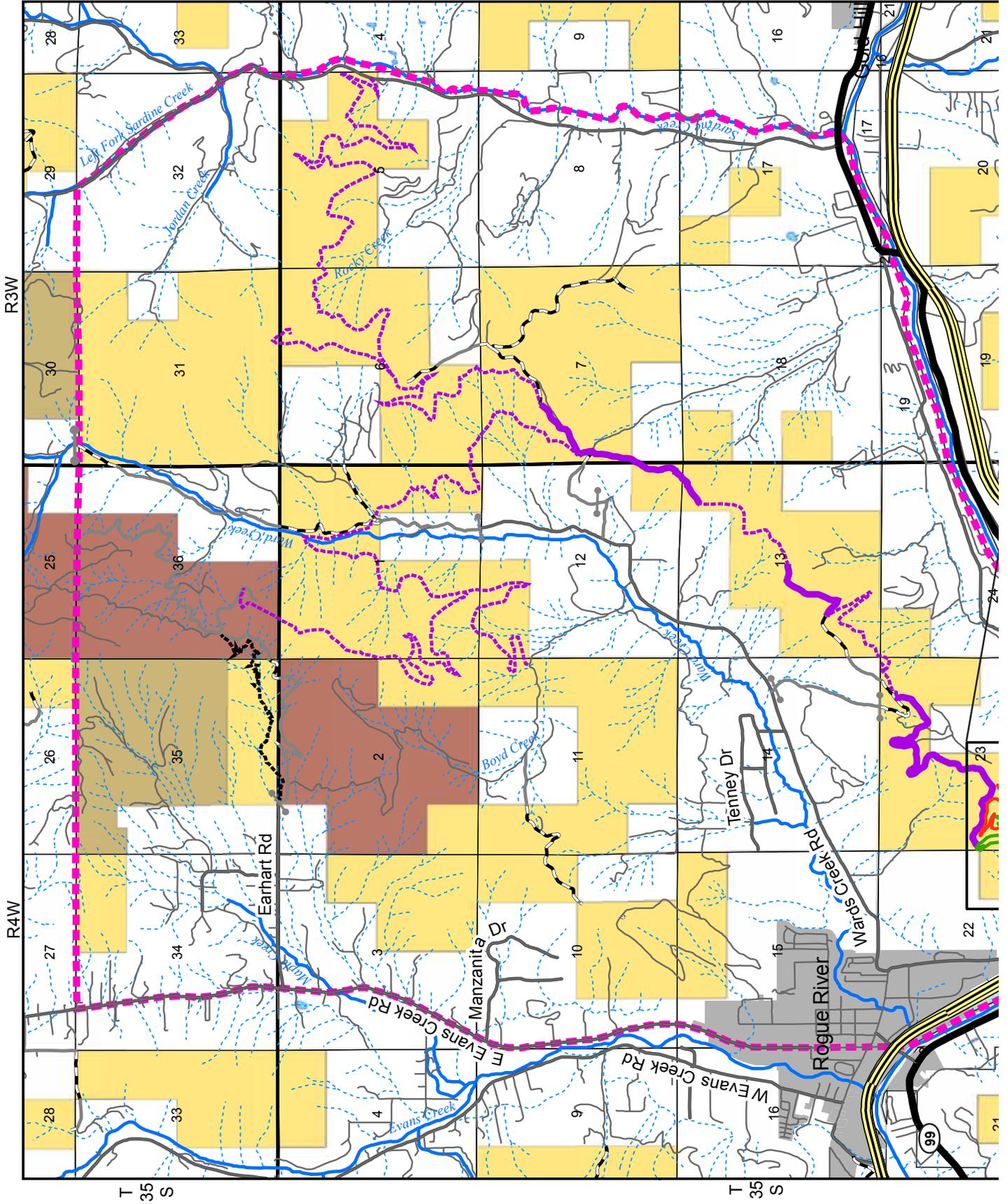
### 1.1.2 Project Area

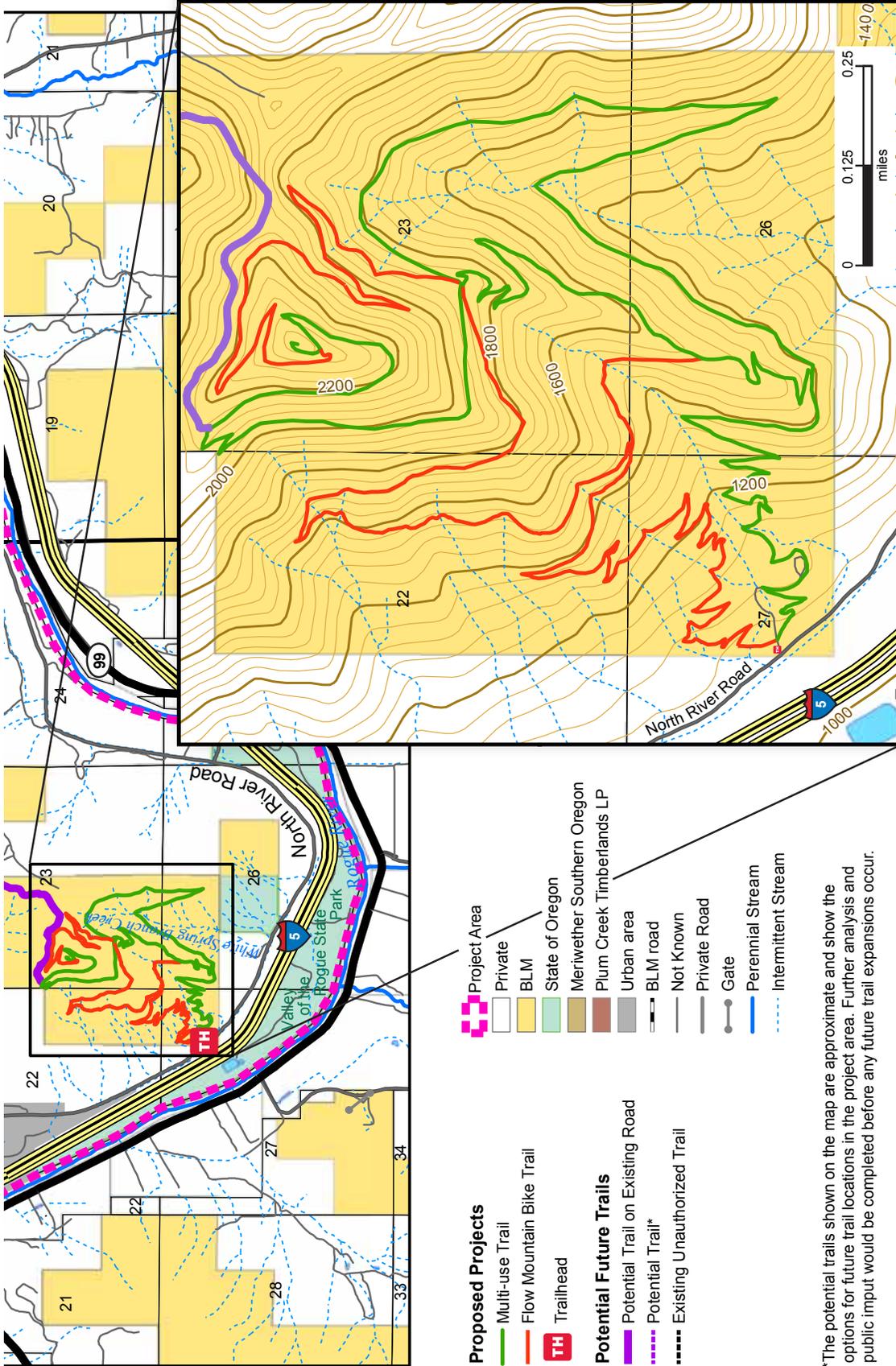
The project area for Mountain of the Rogue Trail System is located to the northeast, east, and southeast of the city of Rogue River, generally between the Rogue River, Sardine Creek, Earhart Road, and East Evans Creek Road (Map 1). The project area is located in T35S, R4W, sections 34, 35, and 36; T36S, R4W, sections 1, 2, 3, 10, 11, 12, 13, 15, 22, 23, 24, 26, and 27; T35S, R3W, section 31; and T36S, R3W, sections 5, 6, 7, 17, and 18.

The project area contains a total of 14,359 acres: 5,150 acres BLM and 9,209 acres private, timber companies, state of Oregon, or city of Rogue River.

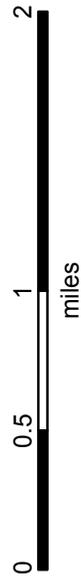
The city of Rogue River (population 2,148) sits near the Rogue River at approximately 1,000 feet elevation. One of the prominent peaks in the area is Tin Pan Peak, at about 2,300 feet. The highest point in the project area is over 3,000 feet elevation.

**MOUNTAIN OF THE ROGUE TRAIL**





\*The potential trails shown on the map are approximate and show the options for future trail locations in the project area. Further analysis and public input would be completed before any future trail expansions occur.



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# Mountain of the Rogue Trail System Environmental Assessment Butte Falls Resource Area



February 2014

Map 1. Mountain of the Rogue Trail System Project Area

Proposed trail construction would occur within the Gold Hill-Rogue River and Evans Creek fifth field watersheds. The lands in the entire project area contain approximately 22 square miles within 3, sixth field subwatersheds. Sardine Creek and Ward Creek subwatersheds are within the larger Gold Hill-Rogue River fifth field watershed; Lower Evans Creek subwatershed is within the Evans Creek fifth field watershed.

Phase 1 of the Mountain of the Rogue Trail System project would be located southeast of the city of Rogue River on BLM lands in T36S, R4W, sections 22, 23, 26, and 27. Access to the project and the location of the trailhead would be in section 27 on North River Road, 1.25 miles from the city of Rogue River (Map 2). Proposed trail construction in Phase 1 would occur within the Gold Hill-Rogue River fifth field watershed. The land in the project area drains into White Springs Branch Creek to the south (which empties into the Rogue River) and Ward Creek to the north.

## 1.2 Purpose

To be given serious consideration as a reasonable alternative, any action alternative must meet the objectives provided in the Medford District ROD/RMP (Record of Decision and Resource Management Plan) for projects to be implemented in the project area.

*Provide a wide range of developed and dispersed recreation opportunities that contribute to meeting projected recreation demand within the planning area (Medford District ROD/RMP, p. 63).*

The trails proposed in this project would provide a properly designed and sustainable single-track trail opportunity for mountain bikers and hikers.

*Pursue recreation opportunities that will benefit local community economic strategies consistent with BLM land use objectives (Medford District ROD/RMP, p. 63).*

A well-designed trail system would draw mountain bikers, trail runners, and hikers from around the Rogue Valley and the Pacific Northwest, which would benefit local businesses. A number of local businesses have expressed support for this project and see it as a draw that could promote retail and service-related businesses in the greater Rogue River area including bike shops, restaurants, grocery stores, general and hardware stores, and gift shops.

*Consider the interests of adjacent and nearby rural residential land owners during analysis, planning, and monitoring activities occurring within managed rural interface areas (Medford District ROD/RMP, p. 88).*

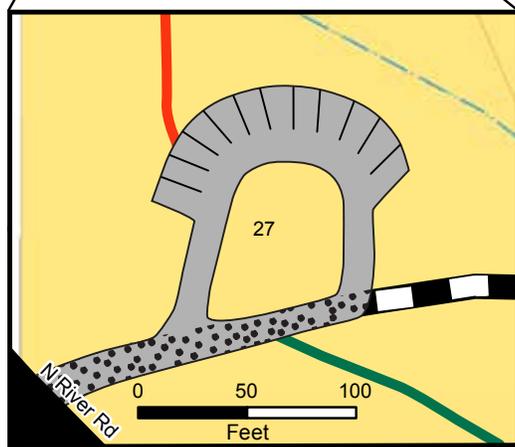
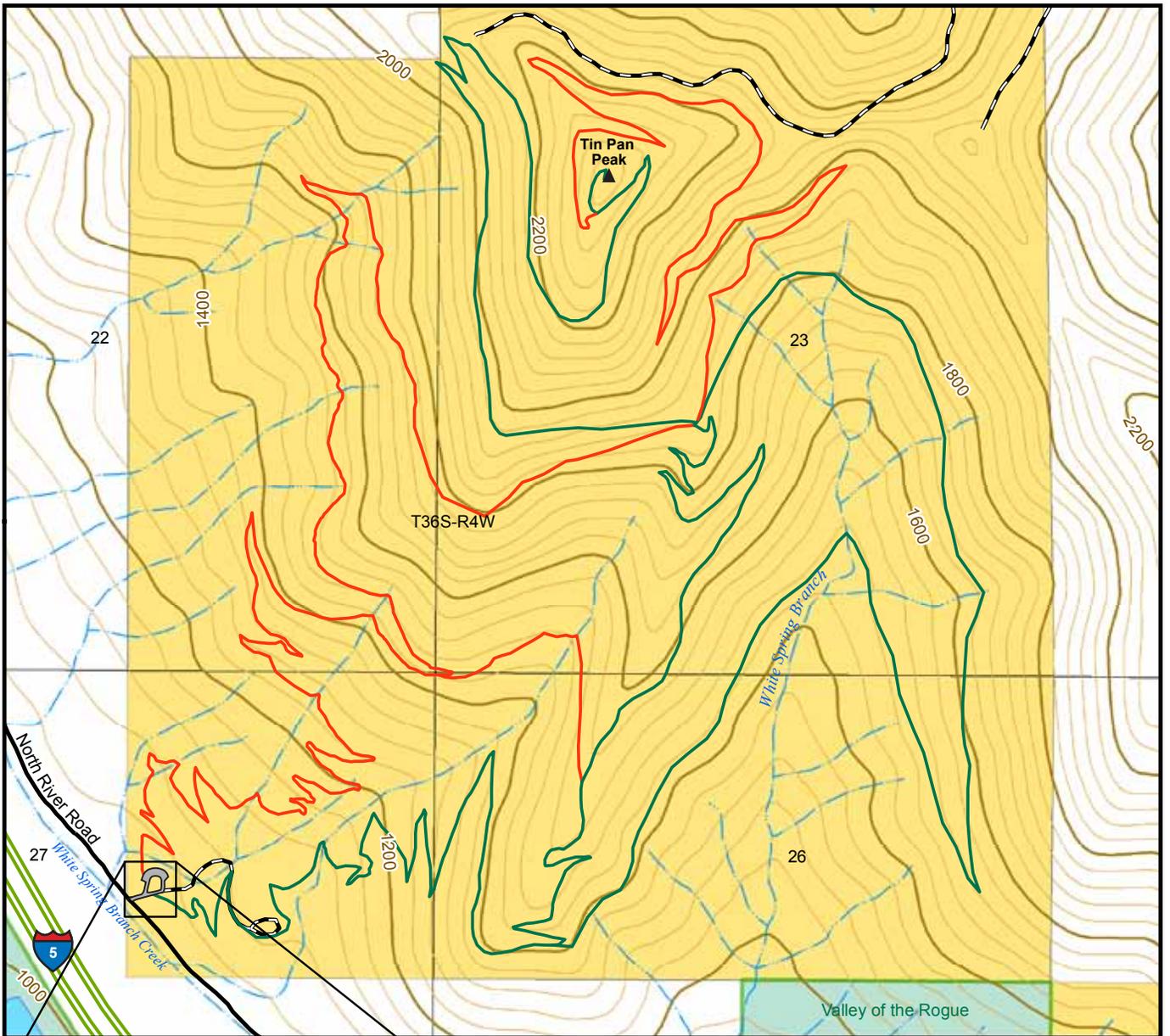
The BLM would take into account possible impacts to private properties located near or adjacent to the proposed trail system and parking area. Adjacent land owners have expressed concerns about increased noise, litter, and trespass from trail users.

*Protect and conserve Federal listed and proposed species, and manage their habitats to achieve their recovery (Medford District ROD/RMP, p. 50).*

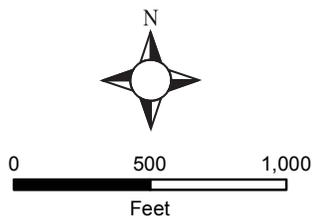
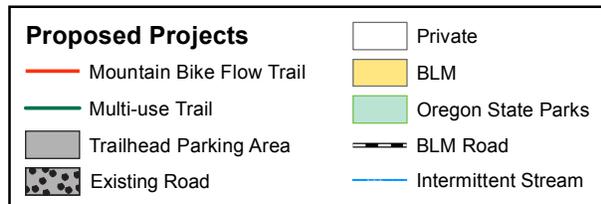
The BLM would consider possible impacts to the federally listed Gentner's fritillary through trail design and location. Impacts from trail users would be monitored and addressed if they occur.

## 1.3 Need

In 2010, the Rogue RATS (Rogue River Area Trail Stewards), a mountain bike group from the city of Rogue River, approached the BLM with an interest in developing trails on BLM lands for mountain biking. This group had hoped to legitimize and expand an existing 1.25-mile-long trail with jump structures near the



Trailhead Parking Area



**Mountain of the Rogue Trail System  
Environmental Assessment  
Butte Falls Resource Area**



February 2014

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Map 2. Phase 1 Projects

city of Rogue River. This trail was a user-created, unauthorized trail located on BLM and private property (volunteers from the Rogue RATS later removed the jump structures from the trail). Subsequent meetings and field trips between the Rogue RATS and the BLM revealed another area (the project area) that would be more conducive to trail building due to better block BLM ownership for potential trail and trailhead locations. The Rogue RATS submitted a formal project proposal to the BLM with suggested trail locations for a trail system that would be constructed in phases as funding becomes available. The Rogue RATS applied for 2012 Title II funding and received partial funding to initiate the trail project.

As part of the process for revising the RMPs for BLM lands in western Oregon, the BLM held a series of public recreation outreach meetings in 2013 in Medford, Roseburg, Eugene, and Salem that focused on recreation management issues. Findings from all of these workshops identified the need to improve recreational access, develop trail systems, and work with community partners. At the Medford meeting, participants specifically identified the need for nonmotorized trail development in the region, particularly for mountain biking.

Construction of this trail system would provide the Rogue Valley with more nonmotorized trails and help meet the demand for mountain biking opportunities near population centers. Currently, the only developed trails located in the urban interface areas of Medford and Grants Pass are Jacksonville Woodlands, Prescott Park, Bear Creek Greenway, Denman Wildlife Area, Table Rocks, and Cathedral Hills. None of these trail systems were designed for mountain bikes, although some allow mountain bike use. The proposed Mountain of the Rogue trail system would be located and constructed to create sustainable trails for mountain biking that are low maintenance and fun to use and that help manage risk, environmental impact, and user conflict.

## **1.4 Issues**

### **1.4.1 Scoping**

Scoping is used to promote public involvement in BLM projects. The public includes individuals, agencies, and organizations that might be interested in or affected by the proposed actions. The BLM conducted scoping to identify the desires, expectations, and concerns of interested and affected publics regarding the proposed use of available resources in the Mountain of the Rogue Trail project area.

The BLM began outreach for this project on May 24, 2013 by mailing a scoping flyer to 210 individuals, adjacent landowners, businesses, organizations, other government agencies, and tribes. The purpose of the flyer was to solicit public participation in the development of the project. The letter requested comments, issues, or concerns regarding this project that might help in its development. The letter was also posted on the Medford District Web site and legal notices were published in the Medford Mail Tribune, Grants Pass Daily Courier, and Rogue River Press newspapers. The BLM received a total of 113 comment letters, emails, and phone calls during the 30-day scoping period. Comments were from the Applegate Trails Association, Oregon Department of Fish and Wildlife, Oregon Wild, Rogue Valley Mountain Bike Association, and 109 individuals.

### **1.4.2 Issues Identified for Analysis**

Based on input from the public and the project interdisciplinary team of resource specialists, the BLM identified the following issues for analysis.

### **Recreation Development**

Issue: *How can the BLM develop and maintain a safe, sustainable mountain bike trail system that meets the needs of the mountain biking community?*

### **Socioeconomics and Rural Interface**

Issue: *How can BLM provide a sustainable trail system that addresses the needs of visitors and local residents while contributing to the local economy?*

### **Gentner's Fritillary**

Issue: *How can the BLM construct a trail system while minimizing impacts to a population of Gentner's fritillary?*

## **1.4.3 Issues Considered but Not Analyzed in Detail**

Several issues were raised during scoping that will not be analyzed in detail. These issues may be outside the scope of the project, project design features or best management practices may eliminate the possibility of significant effects, or no species habitat is present in the Project Area. Appendix A provides a list of these issues raised during scoping that are not analyzed or considered further in this EA. We also include our rationale for not analyzing them.

## **1.5 Decision Factors**

In choosing the alternative that best meets the purpose of and need for this project, the BLM will consider the extent to which each alternative would

- provide recreation opportunities that contribute to meeting projected recreation demand within the project area,
- provide recreation opportunities that would benefit local community economic strategies consistent with BLM land use objectives
- consider adjacent landowners, and
- minimize impacts to Gentner's fritillary populations.

## **1.6 Legal Requirements**

This proposed recreation project is in conformance with the objectives, land use allocations, and management direction in the 1995 ROD/RMP and any plan amendments in effect at the time this document is published.

The project also conforms to the following:

- Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (Northwest Forest Plan)
- Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection, Buffer, and other Mitigation Measures Standards and Guidelines (2001 Survey and Manage).

The BLM developed this project to be consistent with laws, regulations, and policies, including the following: Oregon and California Railroad and Coos Bay Wagon Road Grant Land Act (O&C Act), Federal Land Policy and Management Act (FLPMA), Endangered Species Act (ESA), National

Environmental Policy Act (NEPA), Archaeological Resources Protection Act (ARPA), Clean Air Act (CAA), and Clean Water Act (CWA).

## 1.7 Decisions to be Made

The following decisions will be made through this analysis:

- To determine if an SEIS (Supplemental Environmental Impact Statement) should be prepared based on whether the proposed action would result in significant impacts to the human environment not already analyzed in the EIS prepared for the Medford District ROD/RMP and its amendments. If there are any such additional impacts that are significant, we will determine whether the project proposal could be modified to mitigate the impacts so an SEIS would not be necessary. If we determine there is no need to prepare a SEIS, we will document this determination in a Finding of No Significant Impacts.
- To implement or not implement the proposed trail and trailhead project on BLM-administered lands within the Phase 1 Project Area.

## 2.0 Alternatives

Chapter 2 provides a description of the proposed project and the alternative ways for meeting the purpose and need for this project. Project design features that serve as the basis for resource protection during project implementation are included.

### 2.1 Introduction

The ID (Interdisciplinary) Team for the Mountain of the Rogue Trail System project developed one action alternative for meeting the purpose of the project. This alternative responds to the issues identified in Chapter 1. In addition, we have included a No Action Alternative (Alternative 1) to provide a baseline for comparison.

### 2.2 Alternative 1 (No Action)

In the No Action Alternative, the BLM would not construct new trails or trailheads at this time in the project area.

### 2.3 Alternative 2 (Proposed Action)

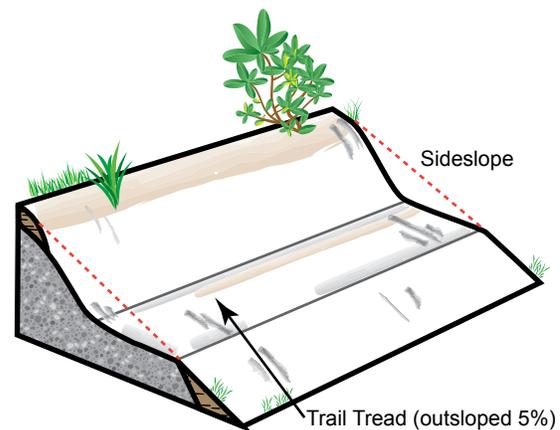
A mountain bike trail system that would also be open to hikers would be constructed near the city of Rogue River. The trail system would not be designed for or open to motorized use. Construction would be completed in phases as funding becomes available. The initial phase (Phase 1) of this project would include construction of one trailhead with a parking area and approximately 10 miles of trails for mountain biking and hiking.

Additional trailheads and trails for mountain biking, hiking, or equestrian use could be constructed in future phases pending further interest from user groups, environmental analysis, and funding. Future trail expansion would require the BLM to partner with user groups, volunteers, and other interested public to ensure assistance with trail design, construction, and maintenance.

**Trailhead Parking Area**—Phase 1 would include construction of a trailhead parking area at the base of the trail system (Map 1). The parking area would use a portion of a decommissioned road that accesses the project area from North River Road 1.25 miles southeast of the city of Rogue River. A ditch crossing would be constructed off North River Road to access the parking area, which would provide parking for approximately 10-15 passenger vehicles. Construction of the parking area would affect approximately 0.25 acre of vegetation and would be designed and located to avoid removing large trees. Gravel would be used to minimize sedimentation. Bulletin boards or kiosks would be installed at the trailhead with trail maps and trail information. Boulders or fencing would be placed to define the parking area, prevent motorized vehicles from accessing the trail, and channel users to the trail. Map 2 shows a potential design for the trailhead parking area at this site. With increased use, future improvements could include expanding and paving the parking area and installing a vault toilet.

**Trail Design and Construction**—Phase 1 would include construction of about 10 miles of sustainable trail using hand crews and mechanized trail-building equipment such as a mini-excavator, Sweco trail dozer, mini skid steer, or motorized tracked hauler specifically designed for constructing trails. Trail construction would be completed by BLM staff, contractors, and volunteers. The trail design would be guided by IMBA (International Mountain Biking Association) trail design standards, as described in *Trail Solutions—IMBA's Guide to Building Sweet Singletrack*.

The trail bed would be a single-track, full-bench trail (Figure 1). The desired average tread width would be 3 feet, with additional vegetation trimming and thinning occurring on either side of the trail. The trails would be laid out at an average grade between 5-10%, depending on the trail type. The initial construction would remove approximately 5 acres of vegetation, or about 0.03 percent of the project area. Trail design would minimize vegetation removal through route location. Most of the vegetation removed and trimmed would be sprouting and dead Pacific madrone, Oregon white oak, and poison oak.



**Figure 1. Full Bench trail with 5% outslope.**

The trail system would be designed as a one-way loop system that would maximize mountain biking flow. The green routes shown on the map would be designed for multiple uses and would be considered climbing routes for mountain bikers; they would also be used as out-and-back trails for hikers and beginner bikers. The red routes shown on the map would be designed as 'flow' trails for downhill bike use with terrain features such as insloped banked turns, jumps, technical rock features, and frequent grade reversals to create a roller coaster-type riding experience for mountain bikers (Figure 2). See Appendix J for descriptions and diagrams of these features, and the five essential elements of sustainable trails.

The trail would be generally outsloped approximately 3-5% to allow water to shed off the trail. The insloped banked turns would be constructed with a grade reversal or rolling dip installed both immediately above and below the turns to prevent water from eroding the trail. The trail would be designed to maintain a consistent speed by providing frequent grade reversals, rolling dips, and winding turns, which also serve to shed water off the trail. The trail would be corralled with rocks, logs, or constructed materials to prevent users from cutting corners where the trail changes directions on steep slopes. Retaining walls and crib walls would



**Figure 2. Corviglia Flow Trail in Switzerland—flow trail features on similar terrain.**

be constructed where necessary to stabilize the trail, particularly on turns and on approaches to drainage crossings. Drainage crossings would be armored with large rocks.

Stumps would be removed from the trail bed and immediately adjacent to the trail bed. Brush and tree branches would be thinned and trimmed back about 3 feet from each side of the trail edge. Trail routing would avoid the removal of trees over 12 inches in diameter. Branches extending over the trail corridor would be cut no higher than 10 feet above the trail surface.

Trail signs would be installed at trail intersections to communicate trail difficulty, recommended user types, and suggested riding direction for each trail segment. Difficulty rating symbols would conform to standard ratings as defined by the International Mountain Biking Association and determined by experienced mountain bike enthusiasts. Benches may be installed in areas with good viewpoints such as the top of Tin Pan Peak and on the ridgeline along the multiple-use trail (Figure 3).

**Trail Management, Maintenance, and Use**—Phase 1 of the trail system would be used predominantly by mountain bikers, with a secondary use by hikers and runners. Future phases may be designed to include equestrian use where terrain allows and adequate line of sight is present. The initial phase is designed to be a moderately difficult, though challenging, mountain biking route that combines quality scenery, a diversity of natural features, a fun trail experience, and the opportunity for physical exercise. All trail users would be urged to stay on the trails. Proper trail design along with the steep terrain and thick poison oak understory would discourage off-trail hiking or mountain biking. The trail would be open year-round for nonmotorized uses; although, trail use would be discouraged in abnormally wet conditions. It is expected the trail would be more heavily used during the spring and fall months when temperatures are more moderate, in early mornings and late evenings during the hot summer months, and in drier periods between storms during the winter.



**Figure 3. View of the Rogue Valley from the proposed trail.**

The BLM would seek partnerships with local mountain bike enthusiasts, clubs, volunteers, and user groups to help monitor and maintain the trail for proper drainage and unauthorized uses and to ensure trail users are staying on the trail and not creating shortcuts. Monitoring would include a combination of visual and photo reconnaissance at key points such as drainage crossings and switchback areas and near populations of Gentner's fritillary. If impacts begin to occur during the wet season, a seasonal closure would be considered to protect soil and vegetation. If monitoring detects user-created trails that could impact Gentner's fritillary plants, barriers would be placed along the trail to prevent further trail expansion and disturbed areas would be rehabilitated.

Monitoring would also help determine trail maintenance needs. Depending on funding, groups such as the Northwest Youth Corps or Job Council may also be used for trail maintenance that would include brushing, cutting and removing fallen trees, and tread repair. Some maintenance activities may occasionally require use of all-terrain vehicles for ease in hauling materials on the trail.

Frequent law enforcement presence by BLM Rangers and Jackson County Sheriff's Office Deputies would occur at the trailheads and along the trails in order to manage unauthorized activities such as motorized off-highway vehicle use and trash dumping. Off-highway vehicle restrictions and private land boundaries would be posted at appropriate locations, and fencing may be installed in areas to keep motorized vehicles off the trail and private lands.

In addition to the directional and difficulty rating signs, interpretive signs would be used to inform visitors of the Gentner's fritillary population located near the trail and the need to stay on the trail to avoid impacting the plants. Planned and future development would focus on minimizing private property trespass

issues. Private land adjacent to the trail would be signed as such. Expansion of the trail system beyond Phase 1, such as connecting with BLM road 36-4W-23.0 at the top of the ridge, would require additional signage identifying private land boundaries and “no trespassing” onto those lands. This and other BLM roads and lands may be used in future trail expansions pending further interest from user groups, environmental analysis, and funding.

**Future Trail Opportunities**—The Mountain of the Rogue trail system would initially contain approximately 10 miles of trail for mountain bikers and hikers. Other trail opportunities within the Phase 1 project area could include additional mountain bike flow trails and shorter beginner loops that would allow more family friendly opportunities to recreate. Another possibility would be a mountain bike skills area with jump lines, a pump track, and other technical features designed to progress a mountain biker’s skill level.

The Mountain of the Rogue trail system could be expanded to the north and east along the ridgeline between Ward Creek and Sardine Creek. Depending on the popularity of the initial Phase 1 trails, future trail opportunities could include a longer trail system that connects to Wards Creek Road, the city of Rogue River, or Sardine Creek Road. This trail system expansion could add from 20 to 30 miles of additional trails.

Additional trails, trailhead developments, and equestrian use would be considered and may occur in the future at other locations within the project area. Improvements at all trailheads would consist of leveling, grading, and defining parking spaces. Equestrian trailheads would need to be of sufficient size to accommodate horse trailers. Additional trails would provide more long distance routes for advanced fitness riders.

Any additional trail expansion would be dependent on interest from user groups, funding, and further public involvement. The BLM would identify partners and strive to involve user groups, volunteers, and other interested public in trail design, construction, maintenance, and monitoring. Existing roads may also be used to link future developments with Phase 1 actions.

## 2.4 Project Design Features

The following project design features are included in the design and construction of the project. These project design features are a compilation of resource protection measures identified by the Interdisciplinary Team and Best Management Practices identified in the 1995 Medford District ROD/RMP and the updated Best Management Practices that were incorporated into the Medford District RMP in 2011.

Project design features serve as a basis for resource protection in the implementation of the project. They will be considered in the analysis of the impacts of the project in Chapter 3.

### Trail Design and Construction

- Suspend trail construction when erosion and runoff would deliver sediment to water bodies.
- Do not exceed an average trail grade of 10 percent with a maximum grade of 15 percent.
- Do not exceed a trail grade or steepness that is half the grade or steepness of the hillside.
- Design and construct trail outslope and grade reversals to minimize trail tread erosion. A trail outslope with an average of 3 to 5 percent will be implemented to facilitate proper drainage.
- Design trails with minimal vegetation removal through route location. Cutting live trees over 12 inches in diameter will be avoided wherever possible, except where they present a safety hazard or constriction. Vegetation cut for trail construction or maintenance will be cut flush to the ground.

Vegetation growing over the trail will be trimmed up to 10 feet high, depending on sight distance and trail users.

- Minimize draw crossings, except where necessary to stabilize stream banks and minimize erosion.
- Design switchback placement to prevent erosion down and across trails.
- Locate trailheads, where possible, in previously disturbed areas. Avoid stream channels, floodplains and areas that require a high level of vegetation removal.
- Seed with site-appropriate native species and mulch disturbed areas where possible along trail and parking areas after construction.
- Sign or block public access along private property lines where needed
- Locate all trails and parking areas a minimum of 15 feet from known Gentner's fritillary plants.
- Ensure gravel used in the parking area and any other imported material used in the area is weed free.

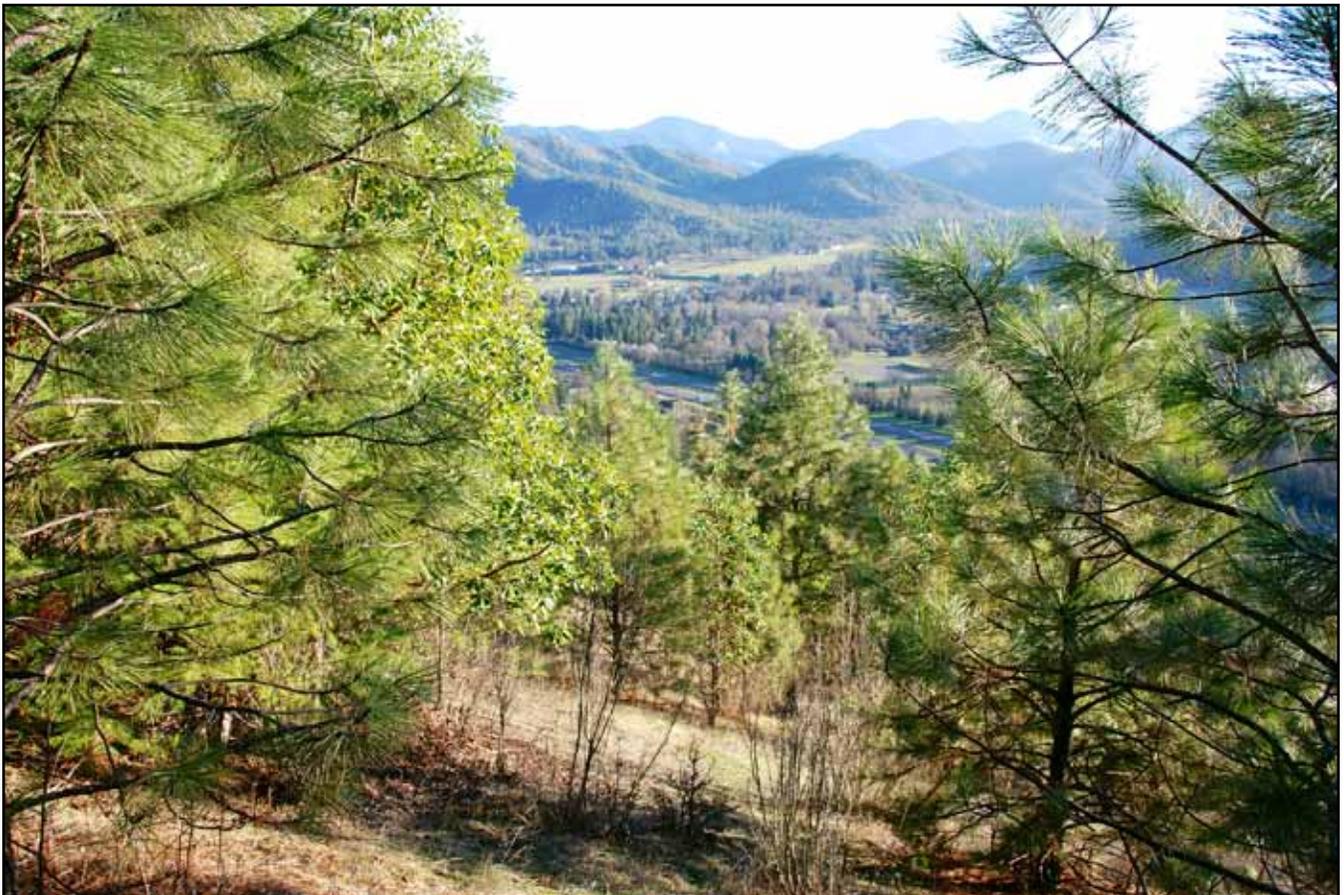
## **Other**

- Protect raptor species, if any are located. Apply the appropriate buffers and seasonal restrictions based on species, proposed treatment, site-specific environmental conditions, and protection recommendations.
- Store all hazardous materials and petroleum products in durable containers placed outside of riparian reserves. Locate so an accidental spill will be contained and will not drain into the stream system.
- Cultural sites located within the Area of Potential Effect will be buffered. Buffers will be established sufficient to protect the features of the site from adverse impacts of any proposed management activities. Buffers will be designed by archeologists or cultural resource specialists. No treatments will occur within this buffer.
- If, during project implementation, the contractor or volunteer group encounters or becomes aware of any objects or sites of cultural value on Federal lands, such as historical or pre-historical ruins, graves, grave markers, fossils, or artifacts, the contractor shall immediately suspend all operations in the vicinity of the cultural value and notify the Contracting Officer Representative or BLM representative so the site can be evaluated by a BLM archaeologist.
- Protect known Special Status and Survey and Manage wildlife, vascular plant, lichen, bryophyte, and fungi sites. No-treatment buffers will be determined based on species, proposed treatment, site-specific environmental conditions, and available management recommendations (Special Status Species Conservation Assessments and Survey and Manage Management Recommendations).
- Ensure straw and mulch are free of weed reproductive plant parts, per 63 FR 124:51102. Straw or hay must be obtained from the BLM or purchased from growers certified by Oregon Department of Agriculture's Weed Free Forage Program. If hay is used, it must be from native grasses only.
- Require that all equipment and hand tools used in the trail and parking area construction will be washed and free of plant parts prior to entry onto BLM-administered lands.
- Prepare a spill plan. If a spill does occur, waste diesel, oil, hydraulic fluid, and other hazardous materials will be removed from the site and disposed of at an approved location in accordance with Federal regulations.

## **MOUNTAIN OF THE ROGUE TRAIL**

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- Refuel equipment at least 175 feet from streams, ponds, or other wet areas. Equipment will not be stored in a stream channel overnight. Hydraulic fluid and fuel lines will be in proper working condition in order to minimize leakage into streams.
- Maintain all snags except those that need to be felled for safety reasons. Snags felled for safety reasons will be left on site unless identified by for use by the BLM's Special Forest Products administrator.



## 3.0 Affected Environment and Environmental Consequences

This section provides the environmental analyses of the biological, physical, and social and economic elements relative to the proposed project. For each resource topic, the setting (affected environment) is presented first, followed by the impact analysis (environmental consequences). The setting describes the existing environmental conditions that serve as the baseline for determining project impacts.

### 3.1 Introduction

Chapter 3 describes the current condition of the environment within the Project Area. Past activities have contributed to the conditions currently existing in the Project Area and are reflected in the current conditions.

#### 3.1.1 Physical Setting

The Mountain of the Rogue Trail project area includes the public lands and resources administered by the Butte Falls Resource Area of the Medford District BLM. It contains 14,359 acres with 5,150 acres administered by the BLM. The project area is located 8 miles east of Grants Pass (population 35,000) and 18 miles west of Medford (population 76,000). Elevations range from 1,000 feet to over 3,000 feet.

The vegetation within the project area has been highly impacted by fire over the past 50 years. Multiple large fires within the project area have burned about 66% of the total acres. The high fire frequency has left a majority of the project area in an early seral stage of development. The project area contains mostly young hardwoods (Oregon white oak) and brush with scattered areas of Douglas-fir on north slopes and in the higher elevations.

The most prominent plant association group (a stand or group of stands made up of plants characterized by a definite floristic composition consisting of uniformity in appearance and structure and uniform habitat conditions) is the Oregon white oak series that covers the lower and upper slopes on south and southwest aspects. Stands in this series consist of a mixture of Oregon white oak, Pacific madrone, and ponderosa



pine in the overstory. The shrub layer consists of poison oak and manzanita. There are also areas with very scattered tree cover with mostly grasses and poison oak in the understory.

At the higher elevations and on the more northerly slopes, forest stands transition into a dry Douglas-fir association with some scattered areas with ponderosa pine as the dominant overstory species. These areas are still quite dry and consist of a few scattered large Douglas-fir and ponderosa pine with Pacific madrone and California black oak dominating the understory. The shrub component is made up of poison oak and deerbrush.

On the true northerly aspects and into the drainages, the stands turn into a moist Douglas-fir series with Douglas-fir dominating the overstory. Pacific madrone is a large component of the understory with poison oak and other various dry shrubs making up the shrub layer.

There are also some nonforested areas within the project area. The most common are grassy meadows and rock outcroppings.

The trails proposed in Phase 1 of the project area are almost entirely within the Oregon white oak series. Approximately 90% of the Phase 1 area was burned in the 2011 North River Road Fire (Figure 4). The fire burned with a severe intensity leaving only a few larger trees in the overstory, and killing nearly all the smaller vegetation 12 inches in diameter and less. Since 2011, the burned hardwoods (Oregon white oak and Pacific madrone), as well as the poison oak and grasses, have resprouted vigorously. There are a few large diameter ponderosa pine and Oregon white oak (less than 5 per acre) within the Phase 1 area toward the lower third of the slope. The rest of the Phase 1 project area is in an early seral, post-fire recovery state with a large percentage of hardwoods and shrubs sprouting.



**Figure 4. North River Road Fire (2011).**

### **3.1.2 Land Use Allocations**

This project is designed to conform to the 1995 ROD/RMP and its management direction and objectives for land use allocations. The project area consists of 5,150 acres of BLM administered land.

The following land use allocations are found on BLM lands in the project area:

- Matrix . . . . . 4,000 acres
- Riparian Reserves . . . . . 938 acres
- 100-acre Known Northern Spotted Owl Activity Center . . . . . 212 acres

#### **Matrix**

The 1995 ROD/RMP objectives on matrix lands are to “produce a sustainable supply of timber and other forest commodities to provide jobs and contribute to community stability; provide connectivity (along with other allocations such as riparian reserves) between late-successional reserves; provide habitat for a variety of organisms associated with both late-successional and younger forests; provide for important ecological functions such as dispersal of organisms, carryover of some species from one stand to the next, and maintenance of ecologically valuable structural components such as down logs, snags, and large trees; and provide early-successional habitat” (Bureau of Land Management 1995, p. 39). The Northwest Forest Plan

described matrix lands as those areas where most scheduled timber harvest would occur. There is no specific management direction in the ROD/RMP for recreation development on matrix lands.

## Riparian Reserves

Riparian reserves are “areas along all streams, wetlands, ponds, lakes, and unstable or potentially unstable areas where the conservation of aquatic and riparian-dependent terrestrial resource receives primary emphasis” (Forest Service and Bureau of Land Management 1994, p. 7). Riparian reserves are managed to provide benefits to riparian-associated species, enhance habitat conservation for organisms dependent on the transition zone between upslope and riparian areas, improve travel and dispersal for many terrestrial animals and plants, and provide habitat connectivity within the watershed. Riparian reserve widths are set during watershed analysis and the boundaries may vary based on site-specific elements and characteristics including the size of a site-potential tree. The riparian reserve widths are 165 feet for the Gold Hill-Rogue River fifth field watershed and 175 feet for the Evans Creek fifth field watershed. The ROD/RMP (p. 68) directs that new recreation facilities within riparian reserves, including trails, should be designed so as not to prevent meeting the Aquatic Conservation Strategy.

## 100-Acre Northern Spotted Owl Activity Centers

Known northern spotted owl activity centers are one of the five components of the late-successional reserve system. Known spotted owl activity centers are defined as “one hundred acres of the best northern spotted owl habitat as close as possible to a nest site or owl activity center for all known (as of January 1, 1994) northern spotted owl activity centers” (Bureau of Land Management 1995, p. 32). The ROD/RMP (p. 34) direction is to “locate new developments to avoid degradation of habitat and adverse effects on identified late-successional species.”

## 3.2 Recreation

**Issue:** *How can the BLM develop and maintain a safe, sustainable mountain bike trail system that meets the needs of the mountain biking community?*

### 3.2.1 Methodology

The project’s Outdoor Recreation Planner completed a review of planning documents to determine current recreational use and trends. Documents included the Lower Evans Creek Watershed Analysis (1995), Medford District RMP (1995), 2008-2012 Oregon SCORP (Statewide Comprehensive Outdoor Recreation Plan), and survey results for the 2013-2017 SCORP. Trail layout and design was prepared using guidance developed by the IMBA (International Mountain Biking Association); by reviewing ownership maps, aerial photography, and LiDAR imagery of the project area; and field reconnaissance by BLM specialists, members of Rogue RATS, and IMBA personnel.

### 3.2.2 Assumptions

- The BLM-administered lands in the project area will continue to be managed as part of the Butte Falls Extensive Recreation Management Area, until analyzed under revised guidance in the upcoming RMP for Western Oregon.
- Current recreational activities such as hiking, hunting, mushroom gathering, and off-highway vehicle use will continue to occur throughout the project area.
- Additional trail opportunities may be undertaken in the future by other agencies in the Rogue Valley.

### **3.2.3 Affected Environment**

At the time of the 1995 Medford District RMP, recreation planning guidance was based on a two-tiered system that classified all BLM lands as either Special Recreation Management Areas (SRMAs) or Extensive Recreation Management Areas (ERMAs). Under this guidance, SRMAs are areas that provide specific recreation activity and experience opportunities, and usually require a high level of recreation investment or management. ERMAs are all other lands and may include developed and primitive recreation sites with minimal facilities. The 1995 RMP did not designate any SRMAs in the Butte Falls Resource Area, so the project area is located within the Butte Falls ERMA, which encompasses the entire Resource Area.

#### **Dispersed Recreation**

Recreational use levels on BLM lands in the project area are low and use is dispersed due to the checkerboard land ownership and lack of public access to the area. Because of this, the primary users of public lands within the project area are the adjacent private landowners and local residents who are knowledgeable of the existing roads and access points. The main public roads providing access into or around the area are North River Road, Sardine Creek Road, Left Fork Sardine Creek Road, Wards Creek Road, Boyd Road, East Evans Creek Road, and Earhart Road. Because of the interspersed private lands and locked gates, there is little legal access to the BLM land. Private land owners and timber companies have installed gates at several places to discourage motorized use on their lands. User-created off-highway vehicle trails go around several of these gates as well as under two power lines that run generally east-west through the project area. An unauthorized, user-created foot/bike trail runs parallel to and just north of Earhart Road on BLM and Plum Creek Timber Company lands. Other user-created off-highway vehicle trails and foot trails leave from the ends of several Rogue River city streets, cross private property, and lead up to the 'RR' on the west-facing slope overlooking the city of Rogue River. Mushroom gathering, both casual use and commercial, becomes common after areas are burned by wildfire. Because of the lack of property line signing, trespassing may occur on private lands.

#### **Developed Recreation**

There are no developed recreational facilities on BLM land within the project area. A full-service campground, an Oregon Department of Transportation rest area, and interpretive information are available at Valley of the Rogue State Park along the south side of the project area. A portion of the Rogue River Greenway, a paved bike and pedestrian trail, runs between the city of Rogue River and through the State Park; the long-term vision for the Greenway is to connect Grants Pass to the end of the 21-mile Bear Creek Greenway in Central Point. Del Rio Vineyards and The Oregon Vortex are private businesses adjacent to the east side of the project area that attract tourists to the region. The city of Rogue River manages two day-use city parks with a variety of developed facilities. A privately run equestrian center is located just outside the project area to the west on East Evans Creek Road.

### **3.2.4 Environmental Consequences**

#### **Effects of Alternative 1 (No Action) on Recreation**

Under Alternative 1, the trails and trailheads would not be constructed. The project area would continue to receive low amounts of dispersed recreational use by hikers and equestrians, mushroom gatherers, off-highway vehicle riders, and hunters, both on existing routes and cross-country. There would continue to be a lack of mountain bike-specific opportunities in the Rogue Valley. Because there are no developed BLM recreation facilities, the area would continue to receive infrequent law enforcement patrols. Additionally, the top two statewide nonmotorized trail concerns identified in the 2005-2014 Oregon Statewide Nonmotorized Trail Plan would not be met: the need for more trails in close proximity to where people live,

and the need for additional nonmotorized trails. The region's top trail priority of trail connectivity to urban areas, adjacent public lands, and water trails would also not be met.

## **Effects of Alternative 2 (Proposed Action) on Recreation**

### ***Direct and Indirect Effects***

The Southwest Trails Planning Region (Coos, Curry, Douglas, Jackson and Josephine counties) in the 2008-2012 Oregon SCORP identified a prioritized list of trail issues. Development of the trail system would contribute toward meeting this region's top trail priority—the need for trail connectivity including making trail connections within urban areas and to trails in adjacent public lands, to connect communities with nearby parks and open spaces, and connect land-based trails with water trails. Development of the trails would also address the top two statewide trail concerns: the need for more trails in close proximity to where people live and the need for additional nonmotorized trails.

Developing the trails would result in increased recreational use of the area by bikers, hikers, and runners. The trail system would create fun trails designed for intermediate mountain biking enthusiasts in an area that currently does not have any trails constructed specifically for mountain biking. Although this trail system would be designed and promoted for mountain biking, hikers and runners would also enjoy the trail. Future expansion of the trail system beyond Phase 1 could offer opportunities for equestrians as well.

The trails and trailheads would receive regular law enforcement and maintenance patrols in an area that currently does not receive much attention. Year-round patrols, especially during anticipated high use seasons of spring and fall, would be initiated by both volunteers and BLM staff. The cooperative law enforcement effort between the BLM and the Jackson County Sheriff's Office would also be used to monitor use and address problems.

The mix of recreational users on the trails may result in potential trail conflicts. These conflicts would be minimized by designing the trail system with loops to accommodate the different uses, strategically locating natural and constructed obstacles (logs, roots, and rocks) to reduce downhill and cornering speed, installing signs that explain suggested use and direction of travel, and providing good lines of sight so users can see each other before meeting. The degree of perceived conflict with mountain bike encounters may diminish over time as other users become more familiar with bike encounters and the riders themselves.

The popularity of the Phase 1 trail system may lead to improvements and expansion of the trail system into additional phases. The North River Road trailhead may be enlarged and improved with paving and a vault toilet. Additional trails, trailhead developments, and equestrian trail use would be considered and may occur in the future at other locations within the project area. Improvements at all trailheads would consist of leveling, grading, and defining the parking spaces. Equestrian trailheads would need to be of sufficient size to accommodate horse trailers.

Existing roads may also be used to link future developments with Phase I actions. The construction measures and project design features described under the proposed action would reduce impacts to acceptable minimal levels.

Special Recreation Permits (SRPs) would continue to be required for all commercial, competitive, vending operations, or group events and activities within the project area. It is unlikely that the implementation of this plan would appreciably affect the volume of SRP requests. Depending on workload and staffing capacity at the time of the request, applications for SRPs would be assessed on a case-by-case basis. All SRPs must conform to current BLM Manual 2930 Recreation Permits and Fees and BLM Handbook H-2930-1

Recreation Permit Administration Handbook. Vending operations would be permitted only in association with a one-time special event within the project area.

## 3.3 Socioeconomics and Rural Interface

*Issue: How can the BLM provide a sustainable trail system that addresses the needs of visitors and local residents while contributing to the local economy?*

### 3.3.1 Methodology

Local, regional and national studies were reviewed to determine the effect of trail development on local economies and residents of the area. These sources included the Web sites of various user groups and researchers such as American Trails, IMBA, Oregon Parks and Recreation Department, and National Park Service. Local and regional planning documents were also reviewed to determine the possible effects of the trail system.

### 3.3.2 Assumptions

- Local recreation activities that currently occur in the area, such as camping at Valley of the Rogue State Park, fishing and boating on the Rogue River, and wine tasting at local wineries, will continue to attract tourists to the area. Events such as Ride the Rogue, Rogue River Duathlon, Rooster Crow Weekend, and Rogue River Run will also continue.
- Interstate 5 will continue to be the main thoroughfare through the Rogue Valley, providing easy access to a variety of recreational opportunities.
- Other agencies and landowners in the Rogue Valley may develop additional trail opportunities in the future.

### 3.3.3 Affected Environment

#### Socioeconomics

The Mountain of the Rogue trail system is located approximately 1 mile from the rural community of Rogue River, Oregon. Currently, Rogue River has one multiple use trail along the Rogue River between the town of Rogue River and Valley of the Rogue State Park. This paved path, the Rogue River Greenway, is approximately 3.5 miles long and provides an out-and-back opportunity for bicyclists, walkers, and runners. The nearest multiple use trail system for hikers, horses, and mountain bikers is Cathedral Hills Park in Grants Pass. There are also multiple use trails in Prescott Park in Medford, Forest Park and Jacksonville Woodlands in Jacksonville, and the Ashland watershed trails in Ashland. All of these trail systems were originally built for hiking use, or were user-created through repeated use. There are currently no mountain bike specific trails within the Rogue Valley. The Forest Service and city of Medford are in the planning stages for adding or designating trails in the Ashland watershed and Prescott Park, respectively.

#### Rural Interface

Rural interface areas are BLM-administered lands adjacent to or intermingled with privately owned lands zoned for 1- to 20-acre lots or that already have residential development (ROD/RMP, p. 112). The BLM must take into account homes located near proposed projects. Within the larger project area, BLM-administered lands within 0.25 mile of private lands in the Ward, Sardine, and Evans Creek drainages are considered rural interface areas. In Phase 1, the trailhead and west property line of section 27 of T36S, R4W is located within a rural interface area.

### 3.3.4 Environmental Consequences

#### Effects of Alternative 1 (No Action) on Socioeconomics and Rural Interface

Under Alternative 1, the trails and trailheads would not be constructed. By not building the proposed trail system, tourism would continue to rely on the existing recreational infrastructure. The potential for increased economic benefits for local residents and businesses would be lost without the trail system. Local residents and visitors looking for quality mountain bike opportunities would bypass the Rogue River area in favor of other areas that offer mountain biking-specific trails. Developed hiking and biking opportunities for local residents and visitors would be limited to the paved Rogue River Greenway on the opposite side of the Interstate. Landowners living adjacent to the trails and trailhead would have their concerns about possible trespassing, noise, increased traffic, and threat of fire from trail use alleviated.

#### Effects of Alternative 2 (Proposed Action) on Socioeconomics and Rural Interface

##### *Socioeconomics*

The close proximity of the Phase 1 trailhead to Rogue River and the surrounding cities would provide local residents a high quality outdoor recreation experience close to home. The close proximity to Interstate 5 would also attract visitors from out of the area. Mountain bike specific trail systems become a destination for mountain bike enthusiasts as seen in the Sandy Ridge trail system outside of Sandy, OR. The Sandy Ridge trail area now receives 40 to 50 thousand annual visits per year. The BLM does not believe the Mountain of the Rogue trail system would attract these numbers, but it demonstrates how popular a similar trail system can be.

The presence of a successful trail system may result in increased economic benefits to the residents and businesses of Rogue River. Additional visitors would spend money at local businesses in Rogue River including grocery stores, hotels, and restaurants. In 2012, bicycle-related travel in Southern Oregon resulted in \$39 million in expenditures on accommodations and food service, fuel, bicycle-related repairs/clothing/gear, and other purchases (Travel Oregon, 2013, p. 17).

Homeowners nationwide express concerns and fears about proposed trails in their neighborhoods. But studies in various parts of the United States seem to show that concerns about trails lowering property values and increasing crime are unfounded. In fact, trails have consistently been shown to increase (or have no effect on) property values, to have no measurable effect on public safety, and to have an overwhelming positive influence on the quality of life for trail neighbors as well as on the larger community (Webel, 2007).

Communities adjacent to public lands, in this case the cities of Rogue River and Gold Hill, benefit from trails on those lands. Much of the investment in maintaining and creating trail systems comes from volunteers and donations from businesses. Many towns have been successful at identifying the recreation resources; creating systems of trails; and making them more available through maps, signs, marketing, events, and tours. The community also benefits from businesses desiring to locate in the same kind of communities that attract homeowners: places perceived as safe and attractive, with opportunities for walking and trail activities. Although trails are small income generators compared to manufacturing, health services, and other large sectors of the local economy, their impacts are concentrated in communities dependent on trail activity, and spread to other business in population centers and commercial hubs of the region (Macdonald, 2011).

A trail project can help build partnerships among private companies, landowners, local government, and advocacy groups. In addition, when residents are encouraged to become involved in a trail project, they feel more connected to the community. A popular and well-managed trail system can serve as a focal point for a community, leading to greater interactions between residents and improve cohesion of a community.

## ***Rural Interface***

During the scoping process, the Rogue RATS and BLM hosted a public meeting to present the proposal and to hear from the local community, potential trail users, and neighbors. In general, property owners near BLM-administered lands were concerned with noise, traffic, potential trespassing, water quality, wildlife values, and increased public access leading to increased problems such as garbage, dumping, vandalism, and threat of fire start. Some neighbors expressed support for developing the trail system, while others thought it was not needed or did not want it “in their backyard.” There was overwhelming support from local trail users and the local community.

The BLM would install signs to address potential trespassing issues on adjacent landowners property. If signing is not adequate, fencing or other natural barriers would be installed to delineate property lines and deter trespassing.

Developing the trail system would cause an increase in the use of public lands within the project area. County roads that access the trailheads would also see additional vehicle and bicycle traffic by those travelling to the trailheads. Residents living near the trailheads and trails may perceive a loss in privacy due to the increased vehicle, bike, horse, and hiking traffic and possible noise from recreators at the trailheads. However, a potential increase in noise associated with the trail system in Phase 1 is anticipated to be negligible due to existing traffic noise from North River Road, Interstate 5, and the railroad.

The close proximity of the Phase I trailhead to Rogue River would encourage local residents and some visitors to ride to the trailhead from town. Increased bike traffic on county roads to the trailheads may result in the need for wider road shoulders to accommodate the bike traffic. The Jackson County Transportation System Plan (2005) lists the North River Road and Highway 99 as routes on the “unfunded project list” where shoulder widening may be needed in the future to accommodate bicycles. Vehicle traffic volumes are currently less than the 3,000 average daily traffic threshold where a lack of shoulders would be considered a deficiency, but that threshold will be approached toward the end of the planning horizon (2025) (Jackson County, 2005).

## **3.4 Gentner’s Fritillary**

### **3.4.1 Introduction**

Special Status plants include federal Threatened and Endangered, Bureau Sensitive, and Survey and Manage (S&M) plants and fungi. Different policies apply to the different categories, but the main objectives for managing these species are:

- protect and conserve Federal listed species and manage their habitats to achieve their recovery in compliance with the Endangered Species Act
- manage for the conservation of Bureau Sensitive species and their habitats so as not to contribute to the need to list and to contribute to the recovery of the species (Bureau of Land Management, 1995, p. 50-51)
- manage S&M species to maintain their persistence across the Northwest Forest Plan area (Forest Service and Bureau of Land Management, 2001, p. S&G 3-4)

The routes originally proposed for mountain bike trails were surveyed in 2011 for Special Status vascular and nonvascular plants prior to the North River Road Fire. In 2012, the fire area was surveyed for Special Status plants and noxious weeds. When the bike trail routes were revised in 2013, the BLM surveyed the

new trail locations for vascular plants in spring 2013. Surveys were not conducted for Special Status or S&M nonvascular plants or fungi because no habitat existed after the fire. Gentner's fritillary (*Fritillaria gentneri*) is the only Special Status plant discovered along the proposed Phase 1 trails.

### 3.4.2 Affected Environment

The proposed Mountain of the Rogue mountain bike trail project is located in the Klamath Mountains Physiographic region in the foothills east of the town of Rogue River. Phase 1 of the proposed trail lies on mostly west- to southwest-facing steep slopes below Tin Pan Peak. The plant communities on the slopes are a mosaic of hardwood woodland, open oak woodland, and grasslands, with a small amount of mixed hardwood-conifer woodland.

Fires have burned repeatedly through the area, with the most recent being the North River Road Fire in 2011, which burned 334 acres of BLM lands. As a result of a frequent fire regime, plant community composition is dominated by fire-tolerant species that have thick, protective bark, readily resprout, or germinate quickly from a persistent seedbank. The main tree species include madrone, Oregon white oak, California black oak, Ponderosa pine, and Douglas-fir. The shrub layers are dominated by poison oak and wedgeleaf ceanothus, with lesser amounts of whiteleaf manzanita. Openings in the woodlands and the grasslands contain mostly nonnative grasses, with a lesser proportion of native species. The BLM seeded native grasses into open areas after the fire in 2011 in an attempt to increase the percentage of native versus nonnative grasses. Along with the grasses, native and nonnative herbaceous plants form a ground cover where there are openings in the tree canopy cover. Wildflowers bloomed abundantly in 2012 and 2013 after the North River Road Fire, due to the removal of competing nonnative grasses and a flush of nitrogen in the soil from the burned vegetation.

Other features of the landscape in the Phase 1 area include scattered rock outcrops, talus piles, and shallow to steep draws with seasonal flows. Vegetation along the stream channels is similar to the upland species because the riparian zone is very narrow.

The federal Endangered vascular plant, Gentner's fritillary, was listed as Endangered by the U.S. Fish and Wildlife Service in 1999. It was listed due to impacts and threats from loss and degradation of habitat, lack of protection on private lands, overcollection of plants and bulbs, predation, competition from invasive nonnative plants, small population size and scattered distributions, fire suppression followed by ecological succession that shaded out plants, and the use of nonselective herbicides during plant growth (U.S. Fish and Wildlife Service, 2003, pp. 22-28). Additional ongoing disturbances and threats have been identified during monitoring (Siskiyou BioSurvey, 2013, pp. 5-8), including trail and road maintenance; OHV vehicles traveling off roads and trails; conifer encroachment; dense litter build-up; noxious weeds and nonnative plants; human impacts; herbivory by deer, small mammals, and insects; and ground disturbance from gophers. The extent of impacts from some ground-disturbing activities, such as gopher activity and trail or road maintenance, depends on the intensity of the activity and the number of fritillary plants affected. Slight soil disturbances may benefit plants by moving bulbets and loosening soil to facilitate the growth of vegetative leaves.



Gentner's fritillary.

Gentner's fritillary occurs in Jackson and Josephine Counties with one population just south of the Cascade-Siskiyou National Monument in California. The BLM has documented 192 populations on BLM lands. The main congregation of populations is around the city of Jacksonville, but scattered populations occur within the two counties on state, county, city, and private lands. T&E plants receive no protection on private lands. Gentner's fritillary populations are generally small. The BLM has monitored 57 populations on BLM lands since 2002. Although the range of flowering plants was 0 to 600 plants per site, the median number per site is 1 (Bureau of Land Management, 2008, p. 39). In 2013, only 4 of the 57 monitored populations had more than 100 flowering plants (Siskiyou BioSurvey, 2013, pp. 66-68, Table 8).

Gentner's fritillary grows in a variety of plant communities, although a constant environmental element is open to semi-open tree canopy cover. It is often found in grassland and chaparral habitats within, or on the edge of dry, open woodlands, including Oregon oak and mixed hardwood-conifer woodlands. The flowering plants at the North River Road site are found in grassy open areas among scattered Oregon white oak and, to a lesser degree, California black oak, wedgeleaf ceanothus, manzanita, madrone, and poison oak. Grass and forb cover at each site is high.

Gentner's fritillary is a perennial that grows from a fleshy bulb. Bulbs vary in their location in the soil horizon, but can be as shallow as 1 to 2 inches and as deep as 6 to 8 inches (Oregon Department of Agriculture, 2002, pp. Fig. 11, 12). The main method of reproduction is asexual through the creation of new bulblets from a mother bulb. These bulblets resemble grains of rice. Over time they grow in size and eventually move away from the mother bulb through natural soil movement or small animal activity. The plant has two types of leaves, both arising from the bulb. Strictly vegetative leaves grow from even, small bulblets and vary in width from 0.08 inch to 2.8 inches or more. Flowering plants grow from larger bulbs and have an upright stem with whorled leaves. They often also have a basal leaf next to the upright stem. Flowers bloom in April or May. Reproduction from seed is a rare event and seed viability is low (U.S. Fish and Wildlife Service, 2003, p. 8). It is theorized this is because Gentner's fritillary is a near sterile hybrid of the more common red bells (*Fritillaria recurva*) and mission bells (*Fritillaria affinis*) (U.S. Fish and Wildlife Service, 2003, p. 8).

The existence of the Gentner's fritillary population in the project area was unknown before 2011. Surveys and visits to the area between 2011 and 2013 discovered more blooming plants each year, beginning with 3 flowering plants in 2011 and culminating in 120 flowering plants in 2013. The discovery of more plants in 2012 and 2013 can be attributed partially to searching more of the area, but also to this species' positive response to fire (U.S. Fish and Wildlife Service, 2003, p. 13). In 2013, five groupings of a total of 120 flowering plants were observed. These groupings are probably one large population, but since they are divided by ridges and drainages, they are described as separate sites. This population is the largest Gentner's fritillary population in the BLM's Butte Falls Resource Area. The plants are arranged along the contours of the lower slopes of the mountain at 1,040 to 1,240 feet elevation. Drawing a circle around the locations of the plants documented through 2013 creates a long, narrow polygon that encompasses approximately 7.4 acres over 1 mile. Although the population currently encompasses this area, there is suitable habitat throughout the project area and additional sites outside this polygon are likely present.

This species has characteristics that make it difficult to estimate actual total population size and area. Nonflowering bulbs with vegetative leaves only vastly outnumber flowering plants. Their vegetative leaves are identical to the leaves of other fritillary species that occur with them. Mature bulbs have a high level of dormancy and can remain dormant for many years before flowering. It is unknown if this dormancy is caused by the plant's need to store up enough energy to produce a flowering stem, influences from fluctuations in environmental conditions (rainfall, temperature, etc.), or other factors. The dormancy is

reflected in fluctuation in the number of flowering plants at the 57 sites the BLM has monitored between 1998 and 2012. The range of flowering plants at five of those sites is 0-126, 67-109, 39-564, 68-424, and 130-600 (Siskiyou BioSurvey LLC, 2012, pp. 71-72, Table 8). Monitoring at other sites confirm this variability. All Gentner's fritillary populations display irregularity in flowering. No population had all bulbs bloom in any given year. If only flowering plants are tracked, it appears that the boundaries of populations expand and contract greatly over time. To increase the likelihood of finding small populations that may not have had flowering plants in the first year surveyed or to determine the extent of population boundaries, surveying two years for this species doubles the chances of detecting flowering plants (Bureau of Land Management, 2008, p. 39).

While 120 flowering plants were documented in the proposed bike trail project area in 2013, it is assumed there are additional plants at the site that did not bloom and the actual population boundaries are greater than currently documented. The most recent method for estimating population size (Giles-Johnson, Gray, & Kaye, 2012, p. 11) estimates approximately 67 plants present for every flowering plant. Based on this formula, the North River Road population contains an estimated 8,040 plants. However, the actual population size and location of all Gentner's fritillary plants within the proposed trail construction area are not known.

### **3.4.3 Environmental Consequences**

#### **Effects of Alternative 1 (No Action Alternative) on Gentner's Fritillary**

##### ***Direct and Indirect Effects***

Under the no action alternative, there would be no effects to Gentner's fritillary because no disturbance would occur.

##### ***Cumulative Effects***

Past actions in the vicinity of the project area that may have negatively affected Gentner's fritillary are activities that directly impacted them or resulted in a loss of habitat or establishment of noxious weeds, which compete with them for resources. Some of those activities include road, railroad, trail, and utility line construction; quarry development; urban and rural development; off-highway vehicle use; recreation; wildfire; wildfire suppression activities; logging; mining; and agriculture. Present and future actions on private lands would be similar to past activities and could impact Gentner's fritillary plants because there are no legal protections for them on private lands. No BLM actions are currently planned for the project under the no action alternative, except silviculture treatments. Those areas are surveyed for Special Status plants and sites are protected from impacts. The BLM plans to treat noxious weeds within the North River Road Fire area, subject to funding availability. These treatments would benefit Special Status plants by reducing competition from noxious weeds.

The BLM and USFWS would establish a management area for the North River Road Gentner's fritillary population. Creation of management areas is a strategy outlined in the Recovery Plan to accomplish conservation and recovery of the species by formally protecting populations. The end goal of recovery is to downlist the species to Threatened and eventually to delist it (U.S. Fish and Wildlife Service, 2003).

Management areas should be (1) secure from all threats to the species that caused it to be listed, (2) contain ample habitat to provide a spatial buffer around each population to diminish impacts from surrounding land uses and edge effects, and (3) provide enough room to allow population shifts and expansions over time (U.S. Fish and Wildlife Service, 2003, p. iv).

A site-specific management and monitoring plan would be developed for the North River Road population with the primary objectives of ensuring survival of the species and removing threats. Management actions would aim to maintain favorable habitat conditions, prevent degradation of the site, assess the effects of management actions, and allow for adaptive management to assure the recovery of the species. The management plan would delineate the management area boundary to include a minimum of 538.2 square feet per flowering plant (U.S. Fish and Wildlife Service, 2003, p. 36, 42). Based on the 2013 count of 120 flowering plants, this would encompass a minimum of 1.5 acres. However, the management area at this site would be defined to include at least the entire extent of the known flowering plants, which encompasses 7 acres.

Management actions at the North River Road site would include:

- Conducting baseline monitoring and annual monitoring of Gentner's fritillary to track the location and number of flowering plants and to detect potential threats. Developing protection measures to counter threats to plants as needed.
- Conducting annual monitoring of the trail system to detect shortcuts or other threats to Gentner's fritillary plants. Installing fencing or other barriers along trails as needed to deter shortcutting and to protect plants.
- Installing an interpretive panel at the trailhead to educate the public about the status of Gentner's fritillary and what actions they can take to protect plants at the site.
- Conducting habitat assessments to determine what treatments are needed to maintain or improve habitat.
- Developing habitat treatments to enhance habitat as needed, including experimental management actions. Monitoring population responses to the treatments and adjusting approaches as needed to ensure treatments provide beneficial effects. Implementing management actions on a small scale if the outcome is uncertain. Possible habitat treatments could include releasing plants from shading using manual removal of trees and shrubs, prescribed burning, or both.
- Monitoring and treating noxious weeds around known plants, along the trail system, and around the parking lot.
- Developing a plant population augmentation plan using genetically appropriate material.
- Coordinating with fire personnel to protect plants from fire suppression activities.

The no action alternative would not add cumulative effects to Gentner's fritillary when added to past, present, and reasonably foreseeable future actions in the project area because it would create no risks to those species. This alternative would be a No Affect ESA determination to T&E plants.

## **Effects of Alternative 2 (Proposed Action) on Gentner's Fritillary**

### ***Direct and Indirect Effects***

The proposed trails would be surveyed and flowering plants avoided. However, this species has a high rate of dormancy and its vegetative leaves cannot be distinguished from two common fritillary species. Vegetative plants outnumber flowering plants by 67 to 1. Although flowering plants can be detected, it is impossible to identify all plants or the extent of the population. The project would construct approximately 2 miles of trail and 0.25 acre parking lot within the known boundaries of the population. The trail would contain switchbacks that create multiple points of potential contact with nonflowering bulbs. Because of the risk of impacting nonflowering Gentner's fritillary plants during trail construction or as a result of indirect effects

after construction, this project is Likely to Adversely Affect (LAA) Gentner's fritillary under ESA. The BLM and US Fish and Wildlife Service are consulting on this project and developing mitigation measures that would be implemented to reduce impacts to the population in the project area. Potential effects and the corresponding project design features and other mitigation measures are described below.

Equipment, including motorized vehicles or hand tools, could damage, destroy, or displace bulbs during creation of the trail bed or when soil is removed to create cut banks and piled on the fill slopes. It is possible bulbs above the trail could survive the disturbance caused during creation of the cut bank if they remained buried. Likewise bulbs below the trail could survive if they were not covered too deeply by the fill soil or if they were re-covered with soil after being moved and if conditions were favorable for their survival. But if the bulbs were left exposed on the top of the soil, they would become desiccated and nonviable. If they are buried under the fill slope soil, they also may not survive. Bulbs within the trail bed would be destroyed, either during construction or from soil compaction during subsequent use by bikers and hikers.

Phase 1 would construct approximately 8.5 miles of biking and hiking trails. An additional 1.5 miles of trail is proposed in the same area for the future but is not currently identified on the ground. In 2013, the BLM surveyed approximately 5.5 miles of trail routes that had been flagged. When Gentner's fritillary plants were discovered, the trails were rerouted to locate them 15 to 100 feet or more from the flowering plants. It was not possible to route the trails more than 15 feet away from plants at some locations due to topography requirements in the flow design of the trail. Approximately 3 miles of new trails or trail reroutes would be flagged and surveyed in 2014. To increase the likelihood of detecting as many Gentner's fritillary plants as possible, the BLM would also conduct a second year of surveys on the routes surveyed in 2013. If flowering plants are discovered in 2014 at any location along the proposed trails, they would be rerouted away from the plants, with a minimum distance of 15 feet from the edge of the trail. Because Gentner's fritillary plants often occur in clusters within a population, the nearer they are to the trail, the greater the likelihood that vegetative bulbs would be located within the trail prism and would be impacted during construction and subsequent use of the trails.

There is a risk that plants could be impacted if bicyclists or hikers create shortcuts between switchbacks or create new routes through areas containing plants. To reduce this risk, the BLM would monitor the trails to detect problem areas. Barriers would be established along the trail in those areas to prevent impacts to Gentner's fritillary plants.

Where plants are located below the trail, they could be affected by changes in hydrological flow as a result of the trail design. Decreasing or increasing the amount of overland flow of rainwater could negatively or positively impact *Fritillaria gentneri* plants. Cutting off a water source or inundating plants could negatively affect them. An increase in water flow could benefit bulbs that are stressed due to droughty conditions. The risk of these potential impacts would be low because the variable topography and vegetation cover would moderate changes to the overland flow of water and because most plants would be located too far from the trail to be affected.

There is also a small risk of impacts to plants if visitors pick flowers or collect bulbs. Since this species reproduces mainly through asexual propagation, removing flowers does not generally cause a reduction in flowering or affect population viability. In nature, flowers are often browsed by deer, elk, smaller mammals, and insects. However, some pollination and seed production does occur. If flowers are removed before seed production, it would prevent the rare event of plants germinating from seed. Removing whole plants with their leaves would also have a negative impact to their long-term viability because it would preclude photosynthesis and the storage of carbohydrates in the bulb. To reduce the risk that plants were

unintentionally impacted by visitors to the site, the BLM would post interpretive panels at the trail head to educate the public about the species, its presence in the area, and the impacts of picking flowers or biking or walking off trails. If it is detected during monitoring that plants have been picked or bulbs dug, fences would be placed around the plants to protect them.

Competition from noxious weeds and other nonnative invasive plants is one of the threats identified for Gentner's fritillary in the Recovery Plan for *Fritillaria gentneri* (Gentner's fritillary) (U.S. Fish and Wildlife Service, 2003, p. 27). Noxious weeds compete with rare plants for space and resources and can cause long-term impacts to population viability. There are existing noxious weed populations, including yellow star-thistle, diffuse knapweed, and medusahead, in the path of the proposed trails. Trail construction would cause ground disturbance and create favorable conditions for establishment or spread of noxious weed seeds. To reduce the risk of bringing new weed seed or parts into the project area, a project design feature would be implemented to require all equipment, including hand tools, be free of plant parts before entering the project area. However, it would not be possible to prevent weed seed spread during construction because trail building equipment would move from infested to noninfested areas. This risk would be greatest when soils are wet because mud containing seeds attaches more readily to equipment tires, undercarriages, excavation arms, and tools. Unfortunately, slightly wet soils create the most favorable conditions for trail construction. The risk of weed spread would be greatest along the trails and around the parking area where ground would be disturbed, but weeds spread quickly beyond their sites of origin and could move into plant sites.

Weeds could be brought into the project area in gravel used in the parking area and expand from there to *Fritillaria gentneri* sites. To reduce this risk, the BLM would implement a project design feature requiring all gravel or other imported material used in the project development to be weed free.

Weeds could also be brought in and spread by bicycles and hikers during trail system use. Gentner's fritillary populations located closest to the trails would be the most vulnerable to impacts from weed spread from the trails. To mitigate threats to the Gentner's fritillary populations in the project area, noxious weed populations would be treated prior to trail construction. Since weed seeds remain viable in the soil for 10 years or longer, the trail would be monitored for noxious weeds annually and populations treated as needed. The effectiveness of these mitigation measures would depend on consistent funding and available personnel.

Seeding disturbed areas with native species is another noxious weed treatment strategy because the native species compete with nonnatives for space. However, in past seeding projects in the Butte Falls Resource Area, native bunch grasses have produced vegetative leaves the first year, but did not produce flowering stems or seeds for two or more years after seeding, while nonnative grasses and noxious weeds established in the first year because of their advantageous growth and reproductive strategies. The annual cool season grasses that are problematic in the Mountain of the Rogue project area—medusahead rye, hedgehog dogtail, and several brome species—germinate in the fall and produce seed heads the first summer. When these annual grasses die at the end of the summer, they create a thatch that suppresses germination and growth of other vegetation.

Yellow star-thistle and Malta thistle are also annuals that germinate in the fall and establish extensive root systems that result in excessive water consumption compared to natives. Plants produce flowers and seeds the first year, creating a seed source for the following year. These species also produce abundant seed that increases their presence at the site in subsequent years. Treating noxious weeds in conjunction with seeding natives in post-construction disturbed sites where feasible would be the most effective approach to reducing the risk that the trail project would cause noxious weeds to increase and impact Gentner's fritillary plants. It would not be feasible to seed steep cut banks because seeds would roll into the trail. Those banks would remain bare and would eventually be occupied by species located above the bank.

Another indirect effect of the project to Gentner's fritillary is loss of suitable habitat. The recovery plan lists loss of habitat as the core threat to this species (U.S. Fish and Wildlife Service, 2003, p. 22). The proposed 10 miles of trails and 0.25 acre of parking area would occupy a total of approximately 4 acres. Not all that area would be suitable habitat for Gentner's fritillary, but 65 to 85% (2.6 to 3.4 acres) are suitable. Constructing the trails would initially remove this habitat from possible occupation by the expansion of existing populations. Over time, as the cut bank and fill slope are revegetated, they could be occupied by bulbs, although the proximity to the trail would leave plants vulnerable to potential impacts from recreationists or trail maintenance activities.

### ***Cumulative Effects***

Past activities that have likely affected Special Status plants in the vicinity of the project area are the same in the action alternative as described in the no action alternative. The proposed trail project would add cumulative effects to the population of the Federal Endangered plant, Gentner's fritillary, because of the risk of impacts to nonflowering bulbs during construction, the loss of habitat for expansion of existing plants, and the risk from noxious weeds increasing and competing with plants. However, mitigation measures, including monitoring plants and trails to detect threats and implementing protection measures, reducing noxious weeds, improving habitat, and using public outreach and education about the species, would reduce risks to the Gentner's fritillary population at the North River Road site. Although some plants may be inadvertently impacted, the chances of persistence of this population would be high because many plants are spread across a large area in the project area. The project would not impact the other populations in the species' range.

## **3.5 Summary of Effects on Other Resources**

The following resources did not pertain to the issues identified and analyzed in the EA. Possible effects to several resources from the actions proposed in each alternative were included in the appendices for this document. A summary of those effects is included below. See the appendices for a complete discussion.

### **3.5.1 Soils**

The potential adverse impacts to soils from trail construction and use would include compaction, erosion, and displacement; approximately 5 acres of soil would be affected in Phase 1 trail construction. Once the trail is constructed and bicycle and hiking traffic occurs, compacted soils would resist erosion and soil displacement and provide durable treads that support traffic. From this perspective, soil compaction is considered beneficial.

Soil particles displaced from the trail prism would be intercepted by vegetation, organic material on the soil surface, or other surface roughness. The outsloped trail and rolling dips would force eroded soil particles off the trail instead of concentrating flow down the trail surface. Vegetation and soil impacts would occur predominantly during the first year of use, with minor changes thereafter.

A well-designed trail should result in little to no cumulative soil loss (Marion & Wimpey, 2007, p. 6). The direct and indirect loss of soil is expected to be so minimal that the cumulative soil loss would be negligible.

See Appendix B for more information.

### **3.5.2 Water Resources**

The proposed 10 miles of trails created during Phase I of the project would be located on a low elevation, south-facing slope. This area receives relatively low amounts of rainfall during the winter months and is hot and dry during the summer months. The slope is drained by several intermittent stream channels that converge and flow into an irrigation ditch before entering the Rogue River.

A total of 7 trail stream crossings are proposed in Phase 1. All of the proposed crossings are located in the Ward Creek-Rogue River subwatershed and would cross short-duration, intermittent (ephemeral) streams that only flow during winter storm events. The potential for sediment delivery to stream channels exists at trail stream crossings during trail construction and use. The trail's design and implementation of project design features would minimize potential sediment delivery by armoring crossings, using elevated crossings, and choosing stable locations for crossings. Trail-use monitoring would identify erosion and minimize sedimentation downstream caused by wet weather use or other problems.

The compacted trail surfaces are expected to be stable (see Appendix B, Soils) with respect to surface erosion and, therefore, would not contribute to chronic sedimentation. The low number of stream crossing along with the dry nature of the site would also minimize the potential for sediment being transported downstream.

See Appendix C for more information.

### **3.5.3 Fire and Fuels**

Proposed project elements do not include activities that would significantly increase fire hazard or risk. Because the proposed trail project would not change or remove significant amounts of vegetation in the area, there would be no impact on existing fire hazard. Equally, increased public use is not expected to significantly increase fire risk. Project features do not include camping, cooking, or picnic areas that are associated with recreation-caused fires. Fire risk in the project area would continue to be dominated by natural and human-caused fire sources (e.g., North River Road, I-5, neighbors, and railroad) unrelated to this project. It is foreseeable that large fires in the project area would continue on the current 15-year return intervals.

See Appendix D for more information.

### **3.5.4 Wildlife**

Terrestrial wildlife would be potentially impacted only during the trail's construction. The use of the trail by hikers and bicycles would have a negligible impact on wildlife.

The addition of hiking and biking trails in the Project Area is not anticipated to lead to the need to list sensitive wildlife species as threatened or endangered. The proposed project would be designed in an area that does not provide critical habitat for any of the listed species.

See Appendix E for more information.

### **3.5.5 Botanical Resources**

#### **Special Status Species**

The routes originally proposed for mountain bike trails were surveyed in 2011 for Special Status vascular and nonvascular plants prior to the North River Road Fire. In 2012, the North River Road Fire area, containing the proposed bike trails, was surveyed for Special Status plants and noxious weeds. When the bike trail routes

were revised in 2013, the BLM surveyed the new trails for vascular plants in spring 2013. Surveys were not conducted for Special Status or S&M nonvascular plants or fungi because no habitat existed after the fire. No Bureau Sensitive or Survey and Manage plants were documented in the Phase 1 area of the proposed trail. Therefore, implementing the proposed action would not trend Sensitive plants toward listing or affect the persistence of Survey and Manage plants.

### **Noxious Weeds**

The BLM initiated noxious weed treatments in 2013 and more treatments are planned for 2014 and beyond, although treatments and monitoring depend on the availability of funding. Added to past, present, and reasonably foreseeable future actions in the project area, the proposed trail development project would not add cumulative effects to noxious weeds in the area if treatments and monitoring are funded.

See Appendix F for more information.

### **3.5.6 Visual Resources**

The lands in the Mountain of the Rogue Trail project area were identified in the 1995 BLM RMP as VRM (visual resource management) Classes II, III, and IV (Bureau of Land Management, 1995, p. 70 and Map 10). Of the 5,147 acres of BLM land in the project area, 690 acres are managed as VRM Class II, 4,358 acres are managed as VRM Class III, and 99 acres are managed as Class IV.

Phase 1 of the trail project is entirely located within VRM Class II, within the foreground/midground of Interstate 5. A visual contrast rating done from the I-5 corridor near the Rogue River Visitor Center found that the trail would be most visible in the first 2 years after construction, but would become less visible as vegetation from the burned area continues to fill in and the trail edges soften with time. Although segments of the trail would be visible, the size of the trail's footprint is small compared to the scale of the surrounding landscape, and is similar to lines from existing roads, power lines, and other man-made features. The remainder of the project area is located on lands managed as Class III and IV, located further away or out of the Interstate 5 viewshed. Trail and trailhead construction is anticipated to meet the visual resource management objectives for all classes.

See Appendix G for more information.

### **3.5.7 Cultural Resources**

A cultural resource survey was completed for Phase 1 of the Mountain of the Rogue Trail. No new cultural sites were located during this survey, and there are no recorded sites within 1 mile of the Phase 1 project area on the north side of the river. The BLM would conduct cultural surveys for future phases in accordance with the protocol for managing cultural resources on lands administered by the BLM in Oregon and the National Historic Preservation Act of 1966 (specifically section 106), as amended.

If sites are located, the BLM would implement site-specific protection measures (e.g., buffers, modified treatment methods) in consultation with State of Oregon Historic Preservation Officer and BLM cultural specialists to preserve the integrity of all cultural and National Historic sites.

See Appendix H for more information.

### 3.5.8 Fish and Aquatic Resources

Phase 1 trail construction would have no effect to Southern Oregon coho critical habitat or essential fish habitat, or other fish habitat. The Phase 1 area does not include any fish-bearing streams, all project elements would drain to a ditch, and any displaced sediment resulting from trail construction, use, or maintenance would either settle out in natural depositional areas in the small intermittent channels or the road side ditch, or would be conveyed as a brief pulse of turbidity to downstream habitats. This conveyance would only occur during a precipitation event of significant magnitude to encourage surface flow in the intermittent streams. During such circumstance, turbidity increases resulting from this project would be undetectable beyond background levels, and would impart no meaningful impact to fish and aquatic habitat.

Future phases of trail construction could include new trails located within riparian reserves and crossing streams in the Ward Creek-Rogue River and Sardine Creek-Rogue River subwatersheds; however, these elements are not fully developed, precluding meaningful analysis of them at this time. Beyond Phase I, 30 intermittent crossings and one perennial crossing (main stem Ward Creek) are tentatively proposed in the future. These crossings would need to be designed so as not to prevent meeting Aquatic Conservation Strategy objectives as described in the ROD/RMP (p. 26). This could include a bridge or hardened crossing over Ward Creek to ensure that ACS objectives 3, 4, and 5 are maintained (Bureau of Land Management, 1995, p. 22). Other design features could include rolling dips or grade reversals closely spaced to the crossing locations to shorten the portions of the trails with hydrological connectivity. Temporary closures during extreme precipitation events, and periodic trail inspection and maintenance would ensure ruts do not develop that input eroded sediments into the small channels.

See Appendix I for more information.

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## 4.0 Public Involvement

This section describes any public participation and consultation or coordination with agencies and organizations that occurred during the preparation of this project.

### 4.1 Scoping

The BLM began public involvement in this project on May 24, 2013 by mailing a scoping flyer to 210 individuals, businesses, organizations, other government agencies, and tribes. The flyer requested comments, issues, or concerns regarding this project that might help in its development. The flyer was also posted on the Medford District Web site, and legal notices were published in the Medford Mail Tribune, Grants Pass Daily Courier, and Rogue River Press newspapers. The BLM received a total of 113 comment letters, emails, and phone calls during the 30-day scoping period. Comments were received from the Applegate Trails Association, Oregon Department of Fish and Wildlife, Oregon Wild, Rogue Valley Mountain Bike Association, and 109 individuals.

### 4.2 Public Outreach

#### 4.2.1 Open House/Field Tour

Because of the high level of interest, the BLM mailed postcards to commenters inviting them to an open house/field trip on July 24 at the Seventh Day Adventist Church in Rogue River, which is adjacent to the proposed Phase 1 trailhead. Approximately 50 people attended the evening meeting and field trip. No written comments were received at the meeting; additional comments and requests for information were received in the month following the meeting.

#### 4.2.2 Project Web Site

The BLM also solicited public involvement through a Web site for the project. The Web site provides the public with access to current and background information, timelines, photographs, and project-related documents. The Web site allows the public to submit comments or questions to the BLM at any time during the life of the project. The Web site is located at <http://www.blm.gov/or/districts/medford/plans/mount/index.php>.

#### 4.2.3 Other Outreach

Interest in the project generated newspaper articles in the Grants Pass Daily Courier and Rogue River Press. At the request of local equestrians, the BLM met with representatives from several equestrian groups at an evening meeting to discuss the project.

### 4.3 ESA Consultation

Section 7 of the ESA requires the BLM to work with the US Fish and Wildlife Service (threatened and endangered plants and wildlife) or NOAA Fisheries (threatened and endangered fish) for actions the BLM funds, authorizes, or proposes to ensure the project is not likely to jeopardize the continued existence of listed plant, wildlife, or fish species or destroy or adversely modify their designated critical habitat.

Before requesting consultation, the BLM determines whether or not the project may affect the listed species or critical habitat. If the project would have no effect, no consultation is required. If the project would affect the species but the effects would be relatively minor, consultation is informal and the Federal agency submits

a written request for informal consultation. If the US Fish and Wildlife Service/NOAA Fisheries agree with the BLM's determination, then informal consultation concludes with the US Fish and Wildlife Service/NOAA Fisheries issuing a letter of concurrence.

If the BLM determines a project would be likely to adversely affect a listed species or critical habitat, then formal consultation is required and the BLM submits a written request, or biological assessment, for formal consultation. During formal consultation, the US Fish and Wildlife Service/NOAA Fisheries analyze the project to determine if the project is likely to jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat. The results of the analysis are explained in a biological opinion.

### **4.3.1 T&E Plants**

The federally Endangered Gentner's fritillary (*Fritillaria gentneri*) is the only T&E plant in the Phase 1 project area. The proposed trails would be surveyed and flowering plants avoided. However, this species has a high rate of dormancy and its vegetative leaves cannot be distinguished from two common fritillary species. Because of the risk of impacting nonflowering Gentner's fritillary plants during trail construction or as a result of indirect effects after construction, this project is Likely to Adversely Affect (LAA) Gentner's fritillary under ESA. The BLM and US Fish and Wildlife Service are consulting on this project and developing mitigation measures that would be implemented to reduce impacts to the population in the project area. Potential effects and the corresponding project design features and other mitigation measures are described in Appendix F.

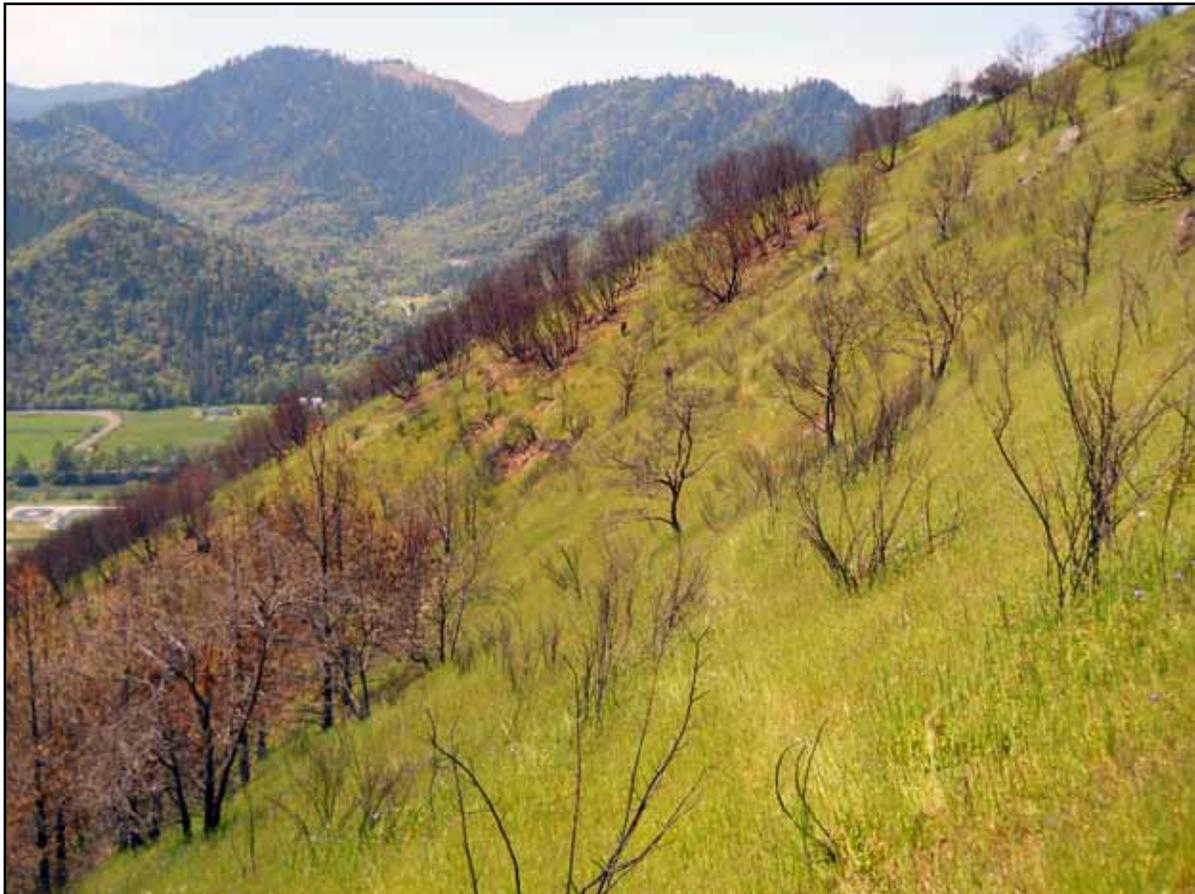
## **4.4 Tribal Coordination**

The BLM mailed scoping flyers to tribes with a connection to lands in southern Oregon. Flyers were mailed to the Cow Creek Band of Umpqua Tribe of Indians, Confederated Tribes of the Grand Ronde Community of Oregon, and Confederated Tribes of the Siletz Indians of Oregon. These tribes will also receive a notice of this EA's availability.

# 5.0 List of Preparers

This section lists the BLM staff involved in the preparation of this document.

Karla Norris	Butte Falls Resource Area Acting Field Manager	Authorized Officer/Management Direction
Nick McDaniel	Forester	Project Co-lead/Trail Design/Vegetation
Trish Lindaman	Outdoor Recreation Planner	Project Co-Lead/Recreation/Visual Resources/ Socioeconomics/Rural Interface
Jean Williams	Environmental Coordinator	NEPA Compliance
Marcia Wineteer	Botanist	Botany/Noxious Weeds
Jessica Gallimore	Fuels Management Specialist	Fuels
Dave Roelofs	Wildlife Biologist	Wildlife
Shawn Simpson	Hydrologist	Water Resources
Amy Meredith	Soil Scientist	Soil
Chris Volpe	Fish Biologist	Fisheries
Lisa Rice	Archaeologist	Cultural Resources
Brandon Sikes	Engineer	Transportation
Robyn Wicks	Natural Resource Specialist	Document Layout and Editing



Proposed trail route.

# Appendices

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## Appendix A: Issues Considered but Eliminated from Detailed Analysis

The following issues were raised by the public or BLM during early scoping for this project. They have been considered but eliminated from detailed analysis, often because project design features would eliminate or reduce effects on the resource. The project design features, briefly mentioned below, are listed in Section 2.4, Project Design Features.

### **How can equestrian use be included in the trail system?**

Equestrian users were not included within the Phase 1 trail system due to the steep terrain, potential user conflicts, and parking area size requirements. The steep terrain with narrow trail widths and limited line of sight within the Phase 1 trail area would not allow enough room for bikers, hikers, and equestrians to safely share the trails. The Phase 1 trailhead would not provide enough room to accommodate vehicles towing horse trailers. However, because of the interest that equestrians showed in this project, later phases of the trail project will consider equestrian use where the terrain is more conducive to accommodating multiple uses. Future trail expansion would require a partnership between the BLM and equestrian groups to ensure assistance with trail design, construction, and maintenance.

### **How would the BLM address potential trespassing on adjacent landowners' property?**

The BLM would respond to trespassing concerns through signage at the trailhead and along property boundaries, as well as fencing at areas around the trailhead and along the trails where needed. Trespassing is illegal and can be punishable by law, which would be communicated at the trailhead. The BLM would post "No Trespassing" signs at private property boundaries near the trails and work with landowners to address site-specific concerns as they arise. The BLM plans to construct fencing where appropriate near the trailhead and where there are legitimate trespass concerns.

### **Will the trail system affect deer, elk and other wildlife populations within the project area?**

The construction of the proposed trail would be the only potential impact on terrestrial wildlife. The use of the trail by hikers and bicycles would have a negligible impact on wildlife.

### **How would the trail system affect streams within the project area?**

The trail's design and implementation of project design features during construction would minimize potential sediment delivery by armoring crossings, using elevated crossings, and choosing stable locations for crossings. The compacted trails are expected to be stable (see Appendix B) with respect to surface erosion and, therefore, would not contribute to chronic sedimentation. The relatively few stream crossing along with the dry nature of the site would also minimize the potential for sediment being transported to streams.

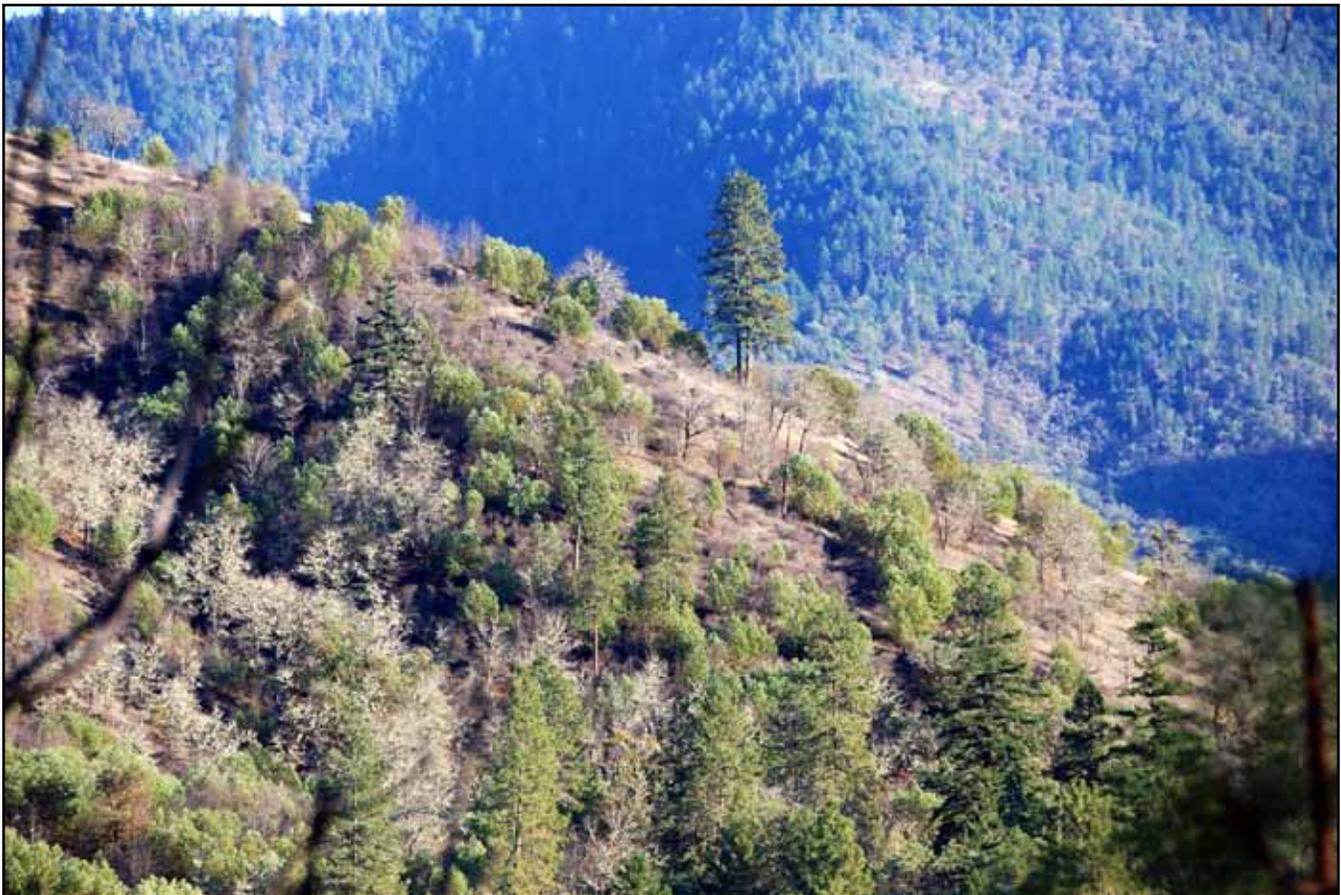
### **How would the trail system affect the risk of human-caused fires?**

A review of fire history from similar trail systems does not show an increase in fire occurrences. For example, Cathedral Hills Park is a multiple use trail system near Grants Pass. In recent years, the trail has undergone renovations that have dramatically increased visitor use; recent surveys show that a few hundred people visit the trail system each week. Despite this large increase in users, there has been no significant increase in fires.

Since 2000, the Cathedral Hills Trail System has experienced 3 small, human-caused fires; all three were detected and controlled at less than 0.1 acre. Evidence suggests that increased public use leads to increased awareness, prevention, and detection. The presence of trail systems can actually assist in suppression efforts by increasing access/egress and containment opportunities for firefighters. Project features do not include camping, cooking, or picnic areas that are associated with recreation-caused fires; therefore, the project is not expected to increase recreation-caused fires.

**How would user conflicts be minimized between bicyclists and hikers?**

Phase 1 trails would be designated as either multiple use or mountain bike flow trail to minimize user conflicts between hikers and mountain bikers. The mountain bike flow trail would only allow downhill bike traffic and hiking would be strongly discouraged. The multiple use trails would allow multi-directional biker and hiker traffic. The multiple use trails would be designed with good sight lines so that users will be able to see each other well before meeting on the trail.



# Appendix B: Soil

## Methodology

- Soil series were determined from the Jackson County Soil Survey.
- Fragile soils were determined from using the Timber Production Capability Classification inventory.
- Field reconnaissance of the proposed trail system (initial phase) to “ground-truth” soil conditions and characteristics.
- The Lower Evans Creek Watershed Analysis was also used for soil information.

## Assumptions

- Short-term effects are 5 or less years from the action and long-term effects are greater than 5 years.

## Affected Environment

The project area is within the Klamath Mountain Province. The soil types within the project area tend to be divided by two distinct geologic parent materials: (1) those weathered from decomposed granitoid rocks generally on the side slopes of the eastern ridges and associated bottomlands, and (2) those weathered from metamorphosed sedimentary and volcanic rocks on the side slopes of the western ridges.

The most extensive of the decomposed granitoid-derived soils on side slopes in the project area is the Tallowbox (35-70% slopes). These soils are highly erodible and are very sensitive to disturbances such as road construction, tractor yarding, and wildfire. The footslopes, alluvial fans, and bottomlands below the eastern ridges are derived from the granitoid rocks from the uplands; the most extensive is the Shefflein soil series. These soils have the same surface erosion potential as the Tallowbox. The Timber Production Capability Classification inventoried the soils in the Medford District and fragile soils were identified in the project area. Soils classified as fragile for surface erosion (FM) are soils derived from decomposed granitic parent material. The Tallowbox and the Shefflein soils are generally mapped as FM.

The most extensive of the metamorphosed sedimentary and volcanic rocks are the Caris-Offenbacher on the steep side slopes (50-80%) and Vannoy-Voorhies on side slopes ranging from 35-60%. Typically these soils are relatively stable in terms of landslide potential and have a moderate erosion potential. There are, however, areas where gravel or lag deposits tend to accumulate in swales and draws. The footslopes, alluvial fans, and bottomlands below these upland soils tend to be Ruch or Central Point soil series.

## Soil Types in the Location of the Proposed Trail (Figure B-1)

### *Decomposed Granitics*

Shefflein loam, map units range based on slope and aspect (166E, 165E, 164B, 164D).

Tallowbox gravelly sandy loam (188G, 189G), Central Point sandy loam (31A) and the Clawson sandy loam (32B).

- Deep (depth to bedrock ranges from 40–60 inches) and well-drained. Runoff is slow and the hazard of water erosion is moderate.
- The proposed trail is not located on the majority of the decomposed granitics such as Tallowbox gravelly sandy loam, Central Point sandy loam, and Clawson sandy loam.

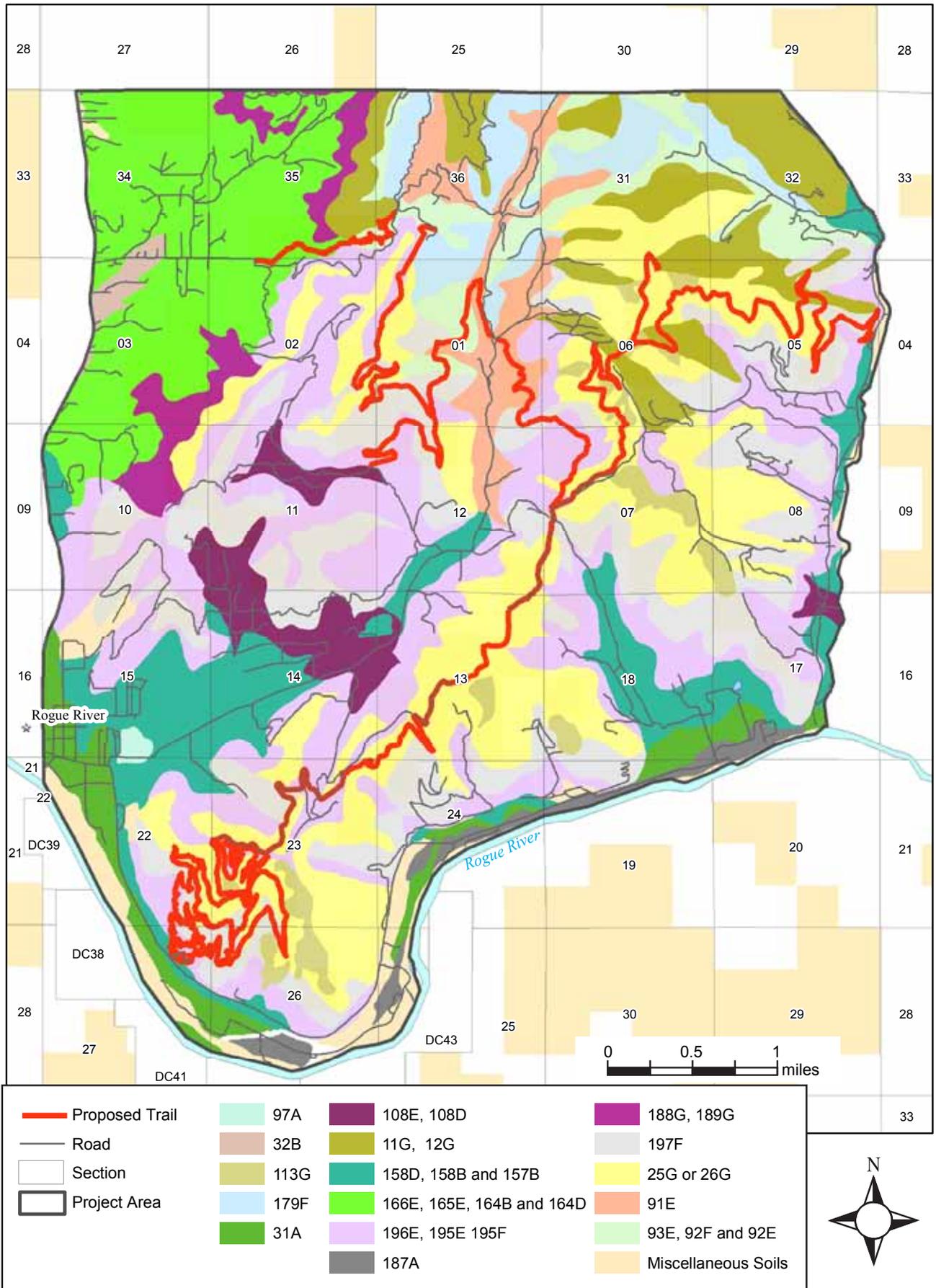


Figure B-1. Soils in Project Area

***Metamorphosed Sedimentary and Igneous Rock***

Beekman-Colestine gravelly loam, 50–80% north slopes (11G) and 50–75% south slopes (12G)

- Moderately deep (20–40 inches) and well-drained. Runoff is rapid and the hazard of water erosion is high, due mainly to the slope associated with these soils.

Caris-Offenbacher gravelly loam, 50-80% north slopes (25G) and 50-75% south slopes (26G).

- Moderately deep (20–40 inches) and well-drained. Runoff is rapid and the hazard of water erosion is high, due mainly to the slope associated with these soils.

Josephine-Speaker complex, 12–35% north slopes (92E), 35–55% north slopes (92F), 12–35% south slopes (93E) and Speaker-Josephine complex, 35–55% south slopes (179F).

- The Josephine soil is deep (40–60 inches) and the Speaker soil is moderately deep (20-40 inches); both are well-drained. Runoff is rapid and the hazard for water erosion is high for both soils, due mainly to the slope associated with these soils.

McMullin- Rock outcrop complex, 35–60% slopes (113G)

- The McMullin soil is shallow and well-drained. Runoff is rapid and the hazard for water erosion is high, due mainly to the slope associated with these soils. The Rock outcrop is exposed bedrock.

Ruch gravelly silt loam, 2–7% slopes, and Ruch silt loam (157B, 158B, and 158D).

- Very deep (60+ inches) and well-drained. Runoff is slow and the hazard for water erosion is high.

Vannoy silt loam, 12–35% south slopes (196E), 12–35% north slopes (195E), 35–55% north slopes (195F) and Vannoy-Voorhies, 35–55% south slopes (197F).

Both soils are moderately deep (20–40 inches) and well-drained. Runoff is rapid and the hazard for water erosion is high, due mainly to the slope associated with these soils.

Other soils in this group in the project area that are located outside the proposed trail are the Manita loam (108D, 108E), Kerby loam (97A), and Takilma cobbly loam (187A).

**Fragile Soils (Figure B-2)**

There are 1,872 acres of soils that are Fragile for Surface Erosion (FM) (decomposed granitics) in the project area; 392 acres are on BLM land in the northwest portion of the project area. FM sites have surface horizons that are highly erodible and susceptible to dry ravel. These soils are generally weathered from decomposed granitics or schistic parent materials. These soils are fragile but if applicable project design features are used, surface erosion would be similar to a typical soil.

There are 467 acres of soils that are Fragile for Slope Gradient (FG) (generally greater than 60%) on BLM land in the project area. Some of these locations where the trail is proposed on FG soils are where the trail would use an existing road. FG sites consist of steep to extremely steep slopes that have a high potential for surface ravel. Gradients commonly range from 60 to 100% plus. Sites that are fragile but suitable for forest management activities would not result in unacceptable soil and organic matter loss if the applicable project design features are used.

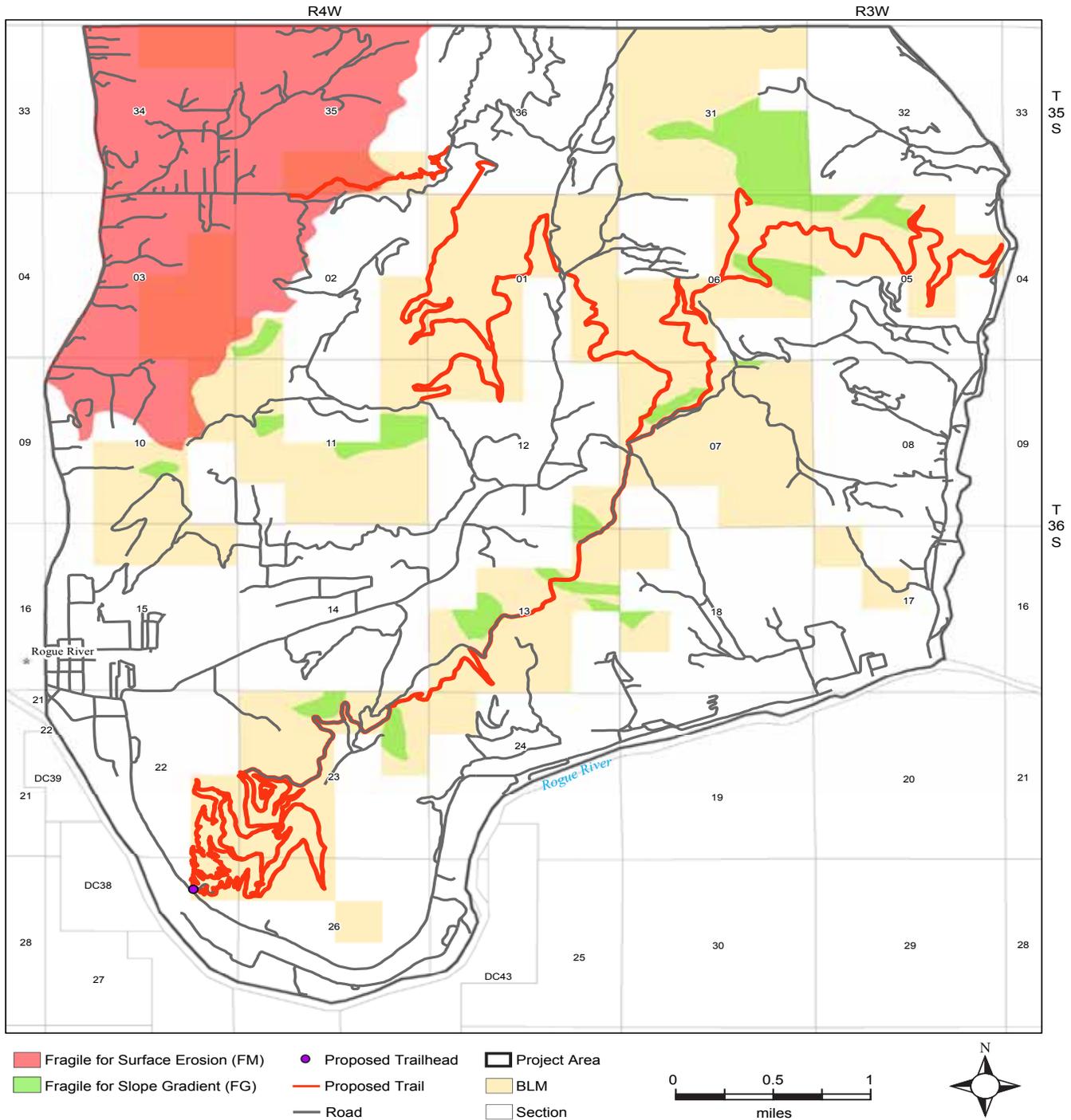


Figure B-2. Fragile Soils in Project Area

## Environmental Consequences

### Effects of Alternative 1 (No Action) Soil

#### *Direct, Indirect, and Cumulative Effects*

The condition of the soils in the project area would remain the same if the proposed action did not occur. There would be no compaction and soil displacement from trail construction and use in the proposed trail area.

The cumulative effects would remain the same. There are no known trails currently in the project area so cumulatively this number would not increase.

## **Effects of Alternative 2 on Soil**

### ***Direct and Indirect Effects***

Approximately 10 miles of trail would be constructed in Phase 1. The average trail tread would be approximately 3 feet wide with about 3 feet on either side of the edge of the trail cleared of vegetation. The trail tread would compact about 3.7 acres of soil and remove it from vegetative productivity.

The total potential for soil disturbance would be about 9 feet wide due to vegetation thinning and trimming. This additional area (approximately 7.2 acres) is the maximum amount of potential disturbance. The likelihood of this area having soil disturbance from the vegetation removal would be minimal because only vegetation imposing on the trail would be cleared. Vegetation at soil surface would not be cleared (grasses and other low lying vegetation would not be removed. Approximately 0.25 acre would be cleared and compacted for use as a trailhead parking lot. This area would be graveled.

In areas where full bench construction would occur, soils beyond the tread would be disturbed from the cut slope. The amount of area would vary.

The Phase 1 project area does not contain any fragile soils.

In the project area, the following are the potential forms of soil degradation on trails:

- Compaction
- Erosion and Displacement

Once the trail is constructed and used, compacted soils would resist erosion and soil displacement and provide durable tread that support traffic. From this perspective, soil compaction is considered beneficial.

All the soil series within the Phase 1 trail area are rated by the National Resources Conservation Service as having a low potential for resistance to compaction. This is due to the soil structure, low amount of organic matter, and rock fragment content.

The potential for user-created trails may increase the area of compacted soil. However, trail users would be urged to stay on the trails. Due to proper trail design, steep terrain, and thick vegetation, off-trail hiking or mountain biking is not anticipated to be a concern.

Soil erosion is an indirect and largely avoidable impact of trails and trail use. Soil can be eroded by wind, but generally, erosion is caused by flowing water. To avoid erosion, sustainable trails are constructed with a slightly crowned (flat terrain) or outsloped (sloping terrain) tread. However, subsequent use compacts or displaces soils over time to create a cupped or insloped tread surface that intercepts and carries water. The concentrated run-off picks up and carries soil particles downhill, eroding the tread surface. The most effective and sustainable method for removing water from trails is the Coweeta or grade dip, also known as terrain dips or rolling grade dips (Birchard & Proudman, 2000) (Hesselbarth & Vachowski, 2000). These are constructed by reversing the trail's grade periodically to force all water off the tread. The proposed trail would be designed with an outsloped tread and rolling dips that would force eroded soil particles off the trail so flow would not be concentrated down the trail surface. Soil particles displaced from the trail prism would be intercepted by vegetation, organic material on the soil surface, or other surface roughness. Additionally,

a project design feature requires an average trail grade of 10% with a maximum grade of 15%. Trail slopes greater than 12% are typically associated with higher potential for degradation (White, Waskey, Brodehl, & Foti, 2006). Since the majority of the trail grade would be 10%, it is expected that the potential for degradation is minimal.

The Phase 1 project area does not contain fragile soils. However, the larger project area where future trail opportunities may occur contains fragile soils. The following operational guides would be used for trail construction on the types of fragile soils in the project area:

**Fragile Gradient Restricted (FGR):** Road locations should seek areas of high stability. Avoid side casting material in headwall and slide prone areas or on very steep side slopes (>80%).

**Fragile Minerology Restricted (FMR):** Road locations should seek areas of high stability. Avoid side-casting material in headwalls and slide prone areas.

### ***Cumulative Effects***

The Phase 1 trail construction would occur over 809 acres located on the hillside north side of the Rogue River. Trail construction would compact 4.8 acres (0.6%) within this area. Soil disturbance would occur on 3.7 acres (0.9%) in the area. The maximum amount of soil disturbance would occur in 1.5% of the Phase 1 project area.

Vegetation and soil impacts would occur predominantly during the first year of use with minor changes thereafter (Marion & Wimpey, 2007).

A well-designed trail should have little to no cumulative soil loss (Marion & Wimpey, 2007, p. 6). The soil loss resulting from this project is expected to be so minimal that cumulative soil loss is also expected to be minimal.

# Appendix C: Water Resources

The entire project area contains approximately 22 square miles within 3, sixth field watersheds: Sardine Creek and Ward Creek within the larger Gold Hill-Rogue River fifth field watershed and Lower Evans Creek within Evans Creek fifth field watershed (Table C-1). The Phase 1 mountain bike trail is located within the Ward Creek-Rogue River sixth field subwatershed. Intermittent stream channels drain this into White Springs Branch Creek before entering the Rogue River.

**Table C-1. Subwatersheds containing the Project Area**

Subwatershed	Project Area		Subwatershed		Percent of Subwatershed
	Acres	Square Miles	Acres	Square Miles	
Lower Evans Creek	2,772	4.3	21,746	34	13
Sardine Creek-Rogue River	5,172	8.1	19,177	30	15
Ward Creek-Rogue River	6,415	10.0	14,570	23	19
Totals	14,359	22.4	55,493	87	

Mild, wet winters and hot, dry summers characterize the Gold Hill-Rogue River Watershed. During the winter months, the moist, westerly flow of air from the Pacific Ocean results in frequent storms of varied intensities. Average annual precipitation in the analysis area ranges from approximately 24 inches at the lower elevations to 36 inches at the higher elevations in the western portion of the project area. Winter precipitation is predominately in the form of rain, with the majority occurring in the late fall, winter, and early spring. The subwatersheds in the project area are low elevation and located completely in the rain zone.

During the summer months, the area is dominated by the Pacific high pressure system, which results in hot, dry summers. Summer rainstorms occur occasionally and are usually of short duration and limited area coverage. Air temperatures can display wide variations daily and seasonally, and by elevation. The nearest NOAA (National Oceanic and Atmospheric Administration) weather stations with air temperature data are located at the Medford Experiment Station and in Grants Pass. The highest average maximum monthly temperatures occur in July and August, where they reach 88.8°F and 88.3°F at the Medford Experiment Station and 90.1°F and 89.8°F at the Grants Pass NOAA weather station.

Surface water in the Mountain of the Rogue Trail System Project Area includes streams, irrigation ditches, springs, wetlands, and reservoirs. Streams in the Project Area are classified as perennial, intermittent with seasonal flow (long-duration intermittent), intermittent with ephemeral flow (short-duration intermittent), and dry draws with ephemeral flow. The Mountain of the Rogue Trail System Project Area contains 164 miles of stream: 10 miles of perennial, 31 miles of long-duration intermittent, and 123 miles of short-duration intermittent.

Streams categorized as perennial or intermittent on Federal lands are required to have riparian reserves as defined in the Northwest Forest Plan (Forest Service and Bureau of Land Management 1994). About 29% of the stream miles flow through Federal ownership and have riparian reserve buffers of 165 feet in the Gold Hill fifth field watershed and 175 feet in the Evans Creek fifth field watershed. Unstable areas found in the watershed would be identified as riparian reserves. Dry draws do not meet requirements for streams needing riparian reserves because they lack the combination of a defined channel and annual scour and deposition (Bureau of Land Management 1995).

Streams on private forest lands are managed according to the Oregon Forest Practices Act, which classifies and protects streams based on three beneficial use categories—fish use, domestic water use without fish use, and all other streams.

Stream drainage density is a measure of how many miles of stream are in a square mile of land. Areas with higher drainage densities would have a greater potential for proposed trails to cross streams. The lands in project area have a relatively high drainage density (Table C-2), but the majority of streams are short-duration intermittent that only flow for short periods during winter storms.

**Table C-2. Stream Drainage Density in the Project Area by Subwatershed**

Subwatershed	Stream Miles	Square Miles	Drainage Density (miles/square Mile)
Lower Evans Creek	38.1	4.3	8.8
Sardine Creek-Rogue River	49.4	8.1	6.1
Ward Creek-Rogue River	76.4	10.0	7.6
<b>Total</b>	<b>163.9</b>	<b>22.4</b>	<b>7.3</b>

## Environmental Consequences

### Effects of Alternative 1 (No Action)

Under the No Action Alternative, the Mountain of the Rogue trail system would not be constructed. There would be no potential for additional stream sedimentation under Alternative 1. Water resources would remain unchanged under this alternative.

### Effects of Alternative 2 (Proposed Action)

The proposed 10 miles of mountain bike trail created during Phase 1 of the project would be located on a low elevation, south-facing slope. This area receives relatively low amounts of rainfall during the winter months and is hot and dry during the summer months. The slope is drained by several intermittent stream channels that converge and flow into an irrigation ditch before entering the Rogue River.

There are a total of 7 proposed mountain bike trail stream crossings in Phase 1. All proposed crossings are located in the Ward Creek-Rogue River subwatershed and would cross short-duration intermittent (ephemeral) streams that only flow during winter storm events.

The potential for sediment delivery to stream channels exists at trail stream crossings during trail construction and use. The sustainable trail design features would minimize potential sediment delivery by armoring crossings, using elevated crossings, and choosing stable locations for crossings. Monitoring trail use would address erosion caused by wet weather use or other problems identified from the construction to minimize sedimentation downstream. The compacted trail tread is expected to be stable (see Soils) with respect to surface erosion and, therefore, would not contribute to chronic sedimentation. The relatively low number of stream crossing along with the dry nature of the site would also minimize the potential for sediment being transported downstream.

# Appendix D: Fuels

## Fire History, Hazard, and Risk

Historically, fire was a normal occurrence and has played a key role as a natural disturbance process throughout southwestern Oregon. Fire suppression and forest management activities have altered the historic vegetative patterns within the project area on both public and private lands. In general, this project area has had a high frequency of recorded fires and area burned. Fire history analysis shows a total of 196 wildland fires occurred throughout the project area from 1960 to 2011. The total acreage burned over this time period was 12,866 acres. Approximately 93% burned less than 10 acres; the largest fire was over 5,000 acres. Historically, large fires have occurred on a 15-year return interval in the project area. Many of these fires have burned over the same area multiple times. After accounting for the overlapping acreage, 66% of the project area acres have experienced a fire in the last 50 years. Considering the historic fire data, it is reasonable to presume that another large fire will occur in the area within the next 15 years.

The proposed trails near section 23 are in an area that experienced large fires in 1930, 1970, 1980, 1990, and 2010. The remainder of the trail is an area that burned in 1930 and 1990. The most recent large fire in the project area was the North River Road fire in 2011. This fire burned more than 500 acres and encompassed most of the Phase 1 trail area. Because this area burns so frequently, the fuels are mostly a combination of grass and shrubs. Timber exists in scattered pockets and on cooler northern/western slopes.

Fire hazard assesses vegetation by type, arrangement, volume, condition, and location. Hazard ratings were assigned by combining the predicted attributes of flame length, rate of spread, and crown fire activity. The Jackson County hazard assessment shows that 86% of the existing fuels within the project area represent a moderate to high fire hazard under average climatic conditions (Table D-1). The proposed trail project would not change the fuels in the area; therefore, the trail would have a minimal impact on fire hazard.

Hazard Rating	Acres	% of Project Area
Low	1,929	13%
Moderate	6,651	46%
High	5,779	40%
Total	14,359	100%

Fire risk is the chance of a fire starting as determined by the presence and activity of causative agents. Causative agents are the things that start fires, and are generally broken into two categories: natural (i.e., lightning) and human-caused (everything else) (Figure D-1). Historically, 17% of fires in the project area were caused by lightning, while the remaining 83% of fires were human caused. Less than 2% of these fires were attributed to recreation activities (e.g., campfires and cooking fires). The proposed project does not include camping opportunities and, therefore, is not expected to increase recreation-related fires. Over half the human-caused fires are from equipment use, the railroad, debris burning, and other miscellaneous activities not related to trail use. The remaining 20% of human-caused fires were from arson, smoking, and juveniles.

There is a concern that increased public use may increase the risk of human-caused fires. Interestingly, a review of fire histories from similar trail systems does not show an increase in fire occurrences. For example, Cathedral Hills Park is a multiple use trail system near Grants Pass. In recent years, the trail has undergone renovations that have dramatically increased visitor use. Recent surveys show that a few hundred people

visit the trail system each week. Despite the large increase of users, there has been no significant increase in fires. Since 2000 (13 years), the Cathedral Hills Trail System has experienced 3 small human-caused fires. All three were detected and controlled at less than 0.1 acre. Evidence suggests that increased public use leads to increased awareness, prevention, and detection. The presence of trail systems can also assist in fire suppression efforts by increasing access/egress and containment opportunities for firefighters.

**Past and Future Treatments**

The entire project area has been identified as Wildland Urban Interface. In 2005, hazardous fuels reduction treatments occurred on 181 acres within the project area. Future fuels reduction treatments are planned for an additional 215 acres within the project area. However, there are no fuel reduction treatments currently planned along the proposed trail routes.

**Potential Impacts**

One potential impact to fuels from the implementation of the bike trail project could be increased fuel loading from vegetation cut during trail construction. However, the current fuel loads in the proposed area are exceptionally light due to the past fire activity. Vegetation to be removed would mostly be sprouting and dead Pacific madrone, Oregon white oak, and poison oak.

Another potential impact from the implementation of the bike trail project could be increased fire risk from increased public use. However, historical fire data in similarly used areas (biking/hiking trails) does not show a measurable increase in fire occurrence.

Proposed project elements do not include activities that would significantly increase fire hazard or risk. The proposed trail project would not change or remove significant amounts of vegetation in the area and, therefore, would have no impact on existing fire hazard. Equally, increase public use is not expected to significantly increase fire risk. Project features do not include camping, cooking, or picnic areas that are associated with recreation-related fires. Fire risk in the project area will continue to be dominated by natural and human-caused fires (e.g., I-5, neighbors, railroad, etc.) that are unrelated to this project. It is foreseeable that large fires in the project area will continue on 15-year return intervals. For these reasons, this project can be excluded from further fuels analysis and discussion.

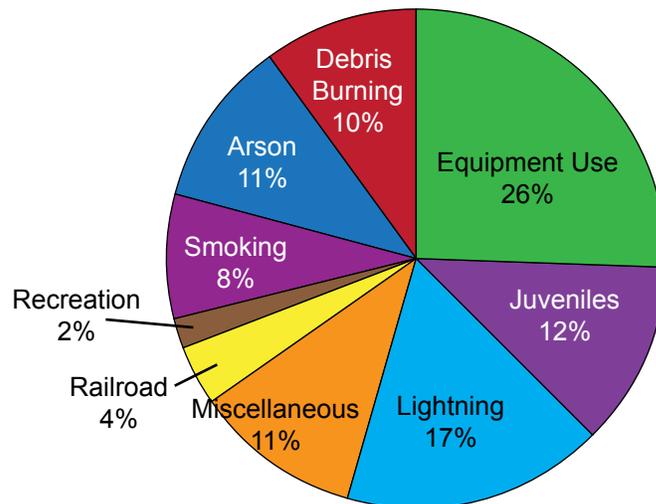


Figure D-1. Fire starts in the project area.

# Appendix E: Wildlife

The BLM project wildlife biologist has completed a review of special status wildlife species for this project. Only the species that could be impacted by the proposed trail will be discussed. If a species is not discussed, it should be assumed that the wildlife biologist has considered effects and found the proposed action would have no effect.

## Definitions

**Bureau Special Status Wildlife (BLM):** Species that have appeared in the *Federal Register* as proposed for sensitive classification or are under consideration for official listing as endangered or threatened species, are on the official state list, or are recognized by the implementing agencies as needing special management to prevent being placed on Federal or state lists. Generally, these species are restricted in range and have natural or human-caused threats to their survival.

**Northern Spotted Owl Dispersal Habitat:** This habitat provides requirements believed important for spotted owl dispersal. Habitat consists of canopy cover between 40 and 60%, or overstory tree diameters generally less than 16". Deformed trees, snags, and down wood are absent or less prevalent than in nesting habitat.

## Methodology

The wildlife analysis area encompasses the route of the proposed Phase 1 trail system along with the potential future expansion trails. The project wildlife biologist specifically considers the effects of the proposed actions on the terrestrial wildlife occurring on BLM land where the trails would occur.

## Assumptions

- The construction of the proposed trail would be the only potential impact on terrestrial wildlife. The use of the trail by hikers and bicycles would have a negligible impact on wildlife.
- If no threatened and endangered (T&E) or special status species, or their habitat, will be impacted by the proposed trail, or the area is outside the range for the species, then no further analysis is needed. If a T&E or special status species is known or suspected to be present and habitat is proposed to be disturbed, then the species will be analyzed.

## Affected Environment

The project wildlife biologist conducted a review of the different habitat types that would contain trails in both Phase 1 and in the potential expansion areas.

Approximate miles of trails by habitat type

1. Tall grasses and shrubs with patches of woody plants and bare ground
  - a. Phase 1: 10 miles
  - b. Expansion Areas: 13.5 miles
2. Existing roads, that currently are not wildlife habitat
  - a. Phase 1: 0 miles
  - b. Expansion Areas: 3.5 miles

3. Hardwoods with young, mixed conifers in expansion areas (spotted owl dispersal habitat)
  - a. Phase 1: 0 miles
  - b. Expansion Areas: 4 miles

## Environmental Consequences

### Effects of Alternative 1 (No Action)

Under Alternative 1, the plant succession within the footprint of the proposed trail would continue to develop from grass, brush, and young forest, to a more mature dry forest of mixed conifers and hardwoods.

### Effects of Alternative 2 (Proposed Action)

The proposed action under Alternative 2 could affect individual ground- and shrub-nesting birds and mollusks; however, the addition of hiking and biking trails in the project area is not anticipated to lead to the need to list sensitive wildlife species as threatened or endangered. The proposed project would be designed in an area that does not provide critical habitat for any of the listed species.

#### *Deer and Elk*

The 1995 ROD/RMP designated certain areas on the Medford District BLM as Big Game Winter Range and Elk Management Areas. The proposed project area is outside of designated Big Game Winter Range and Elk Management Areas.

Vegetation loss would occur on approximately 1 acre per linear mile of constructed trail under the proposed action. Phase 1 would remove up to 6 acres of grasses and shrubs and future phases could remove up to 4 acres of shrubs or small woody plants. Trail construction would reduce available forage but the amount of thermal (canopy) cover available for deer and elk would remain the same. Out of the total BLM acres in the project area, approximately 0.2 percent of the vegetated ground would be disturbed under during all trail construction.

During periods of trail use by recreationists, deer and elk would likely move away from the trail to locations where they could not be seen by humans. However, deer and elk would continue to use the surrounding areas for foraging and resting.

Because of the low amount of ground disturbance that would occur and because the proposed project is outside of designated winter range and elk management areas, the project wildlife biologist has determined that the action would have an insignificant effect on deer and elk in the area.

#### *Special Status Wildlife*

Bureau Special Status wildlife species within the project area that may be affected are listed below as “present” or “suspected.”

#### *Threatened and Endangered Species*

##### **Northern spotted owl**—Federal Threatened

Butte Falls Resource Area - Present

Project Area - Vagrant

Habitat - Use high canopy cover, late-successional, old-growth forests for nesting.

Effects of Alternative 2 - No Effect. Spotted owls may use the area for dispersal, but suitable nesting habitat is lacking along the entire route. Area will continue to function as dispersal habitat.

*Bureau Sensitive, Birds of Conservation Concern, and Game Birds Below Desired Condition*

**Bald eagle**—Bureau Sensitive

Butte Falls Resource Area - Present

Project Area - Present

Habitat - Nest in dominant and codominant trees at forest edges and ridges near rivers and lakes.

Effects of Alternative 2 - No Effect. Area closest to the Rogue River lacks potential nest trees. No potential nest trees would be removed in the proposed expansion areas.

**Foothill yellow-legged frog**—Bureau Sensitive

Butte Falls Resource Area - Present

Project Area - Unknown

Habitat - Live in and near low-gradient streams with rocky, gravelly, or sandy substrate.

Effects of Alternative 2 - No Effect. Narrow bridges would be installed over stream crossings.

**Lewis' woodpecker**—Bureau Sensitive

Butte Falls Resource Area - Present

Project Area - Migrant

Habitat - Associated with open woodlands near streams and rivers. Habitat preference includes hardwood oak stands with scattered ponderosa pine near grassland shrub communities.

Effects of Alternative 2 - Species may overwinter in the Project Area, but migrate elsewhere for nesting. Presence of hikers and bikers would not affect their ability to forage.

**Mourning dove**—Game Birds Below Desired Condition

Butte Falls Resource Area - Present

Project Area - Present

Habitat - Abundant in grasslands and agricultural habitats throughout Oregon. Nests are constructed in either trees or on the ground under shrubs.

Effects of Alternative 2 - Individual nests may be disturbed if trail construction occurred during the nesting season. Would not negatively affect the ability for the species to persist in the area.

**Oregon shoulderband (mollusk)**—Bureau Sensitive

Butte Falls Resource Area - Present

Project Area - Unknown

Habitat - Found in basalt rockslides (talus), under rocks and woody debris in moist conifer forests, and in shrubby areas in riparian corridors. No strong riparian association has been identified (Burke, et al. 1999). They have been found in oak woodlands and dry conifer forests west of Lost Creek Lake.

Effects of Alternative 2 - Individual animals may be disturbed during trail construction, but the ability for the species to persist in the project area would not be affected.

**Oregon vesper sparrow**—Bureau Sensitive; Birds of Conservation Concern

Butte Falls Resource Area - Present

Project Area - Suspected

Habitat - Favor dry, grassy foothills around the Rogue Valley for nesting. Habitat requirements include elevated perches for singing and an understory dominated by grasses for foraging and nesting, with small patches of woody plants and bare ground.

Effects of Alternative 2 - Individual nests may be disturbed if trail construction occurred during the nesting season. The project would not negatively affect the ability for the species to persist in the area.

**Purple finch**—Birds of Conservation Concern

Butte Falls Resource Area - Present

Project Area - Present

Habitat - Breed in a variety of habitats, including mixed conifer-hardwood forests, deciduous woodlands, edge habitat, riparian corridors, and vigorously regenerating clearcuts.

Effects of Alternative 2 - Individual nests may be disturbed if trail construction occurred during the nesting season. Would not negatively affect the ability for the species to persist in the area.

**Rufous hummingbird**—Birds of Conservation Concern

Butte Falls Resource Area - Present

Project Area - Present

Habitat - Positively associated with nectar produced by flowering plants, deciduous shrubs, and trees in early successional habitats.

Effects of Alternative 2 - Individual nests may be disturbed if trail construction occurred during the nesting season. Would not negatively affect the ability for the species to persist in the area.

**Streaked horned lark**—Bureau Sensitive; Birds of Conservation Concern

Butte Falls Resource Area - Migrant

Project Area - Migrant

Habitat - Commonly found in open fields with short (less than 1 foot), herb-dominated ground cover, and areas of significant sparse vegetation and patches of bare ground (Marshall, Hunter, & Contreras, 2003). Streaked horned larks (*strigata* subspecies) have not been found nesting in southwest Oregon since 1976.

Effects of Alternative 2 - Species may overwinter in the project area, but migrates elsewhere for nesting. Presence of hikers and bikers would not affect their ability to forage.

**Travelling sideband** (mollusk)—Bureau Sensitive

Butte Falls Resource Area - Migrant

Project Area - Unknown

Habitat - May be found seeking refuge and hibernating under mosses in notches of trees and under leaf litter at the bases of bigleaf maples. They are active during the spring when temperatures are warm and soils are moist.

Effects of Alternative 2 - Individual animals may be disturbed during trail construction, but the ability for the species to persist in the project area would not be affected.

**Willow flycatcher**—Birds of Conservation Concern

Butte Falls Resource Area - Present

Project Area - Present

Habitat - Closely associated with shrub-dominated habitats that contain dense shrubs or tall herbaceous

## **MOUNTAIN OF THE ROGUE TRAIL**

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plants with patches of shorter vegetation. They prefer riparian areas and willow thickets in southwest Oregon. They nest in shrub-level vegetation, within a few feet of the ground.

Effects of Alternative 2 - Individual nests may be disturbed if trail construction occurred during the nesting season. Would not negatively affect the ability for the species to persist in the area.



Possible Phase 1 trail route

# Appendix F: Noxious Weeds

## Introduction

Noxious weeds are plants growing outside their native lands or habitats that are injurious to public health, agriculture, recreation, wildlife, or public or private property (Oregon Department of Agriculture 2013, 4). Oregon Department of Agriculture (ODA) classifies noxious weeds based on their economic threat and the ability to control them. 'A' listed weeds have small enough infestations to make eradication or containment possible. 'B' listed weeds are regionally abundant and control is limited to site specific efforts. 'T' listed species include weeds from the A and B list that are identified as priorities for treatment. The BLM's objectives for noxious weeds are to continue to survey for, avoid introducing or spreading, and contain or reduce infestations on BLM-administered land (Bureau of Land Management 1995, 92-93). The BLM treats noxious weeds on their lands by manual, mechanical, chemical, or biological means under the *Medford District Integrated Weed Management Plan and Environmental Assessment* (EA #OR-110-98-14) (Bureau of Land Management 1998).

Weeds spread into new locations when there is a seed source, a transportation mechanism, and when conditions at the new site are favorable for germination and growth. Newly disturbed areas are the most vulnerable to noxious weed establishment. Weeds are spread through a variety of activities, including road or trail construction, timber harvest, mining, farming, overgrazing, vehicular traffic, recreation, and residential development. Natural processes, such as wind, seasonal flooding, fire, and migration patterns of birds or animals, also contribute to the spread of noxious weeds.

## Affected Environment

The BLM had not conducted weed inventories or treatments in the proposed trail area before 2011 because no projects had been proposed there. After the North River Road Fire in 2011, the BLM received Emergency Stabilization and Rehabilitation funds to survey for and treat noxious weeds. The area was surveyed in 2012, but due to budget cuts in 2013, the funding for noxious weed treatments was withdrawn. Based on past surveys and visits to the area, a number of noxious weeds have been documented in the Phase 1 area of the project area (Table F-1). Yellow star-thistle and Malta thistle along the proposed trail routes were manually pulled in 2013.

## Environmental Consequences

### Effects of Alternative 1 (No Action Alternative) on Noxious Weeds

#### *Direct and Indirect Effects*

Under the no action alternative, the BLM would not implement any actions that would contribute to an increase in noxious weeds in the project area. The BLM would continue to treat existing noxious weed populations under the *Medford District Integrated Weed Management Plan and Environmental Assessment* (EA #OR-110-98-14) as funding and personnel are available. Noxious weeds would continue to increase unless treated and the risk of new weeds invading the area from ongoing natural processes and from surrounding lands would continue.

#### *Cumulative Effects*

Past activities in the project area that likely contributed to the establishment of noxious weed populations include road, railroad, trail, and utility line construction; quarry development and use; timber harvest; farming; overgrazing; recreation; and urban and residential development. Natural processes such as wind,

<b>Table F-1. Noxious Weeds Documented in Phase 1 Area of Mountain of the Rogue Proposed Trails</b>				
<b>Noxious Weed</b>	<b>ODA Status</b>	<b>Habitat In Project Area</b>	<b>Estimated Number of Sites</b>	<b>Control Strategy</b>
Armenian (Himalayan) blackberry	B	Draws	6	Treat plants in area of proposed parking lot.
Bull thistle	B	Disturbed sites	1	No treatment, not along trail.
Canada thistle	B	Disturbed sites, draws	1	No treatment, not along trail.
Diffuse knapweed	B	Disturbed sites, roadside	2	Treat population along trail and proposed parking lot, monitor, and re-treat.
Medusahead	B	Open grassy areas, often with shallow soils	many, not documented	No effective treatment methods currently available except seeding disturbed areas with native grass species.
Perennial peavine	B	Disturbed sites, roadside	1	Treat population along trail, monitor, and re-treat.
Yellow star-thistle and Malta thistle	B	Open grassy areas	31+	Treat populations along trail, monitor, and re-treat. Investigate releasing a biocontrol agent into areas away from the trail.

seasonal flooding, and migration patterns of birds or animals also contribute to the spread of noxious weeds. Fires have burned periodically through the area, including the 2011 North River Road Fire that burned 535 acres. Fire removes existing vegetation and leaves areas open to establishment by noxious weeds. Noxious weeds have reproductive and life cycle characteristics that allow them to quickly establish after disturbance before native species.

The project area currently contains a number of noxious weed species and populations (Table F-1). Without treatment, they will continue to expand due to ongoing natural processes, including high rates of seed production and establishment and seed spread by animals and wind. Activities on the surrounding private lands create risks of introducing new noxious weed populations. Existing weed populations may also spread onto BLM lands. Weed treatments are planned within the North River Road Fire area, subject to funding availability.

The no action alternative would not add cumulative effects to noxious weeds within the project area because no actions are proposed that would result in ground disturbance or would be a vector for weed seed or weed parts.

## **Effects of Alternative 2 (Proposed Action) on Noxious Weeds**

### ***Direct and Indirect Effects***

The proposed trail and parking lot construction poses a risk of spreading noxious weeds because there are numerous existing populations and no method of avoiding seed spread when equipment moves from infested to noninfested areas. A project design feature to require equipment to be weed free before entering the project area would reduce the risk of introducing weed seed or plant parts from other locations. But noxious weed sites are widespread in the area and there would be no way to clean equipment between infested and noninfested areas. Since trail construction would occur when soils are wet, mud containing weed seeds would readily adhere to equipment and workers shoes and clothing and be moved along the trails. Noxious weed seeds can remain viable in the soil for 10 or more years. To mitigate the risk that implementing this project would increase the amount of noxious weeds in the project area, known sites would be treated prior to trail construction and the trail and parking lot would be monitored and treated in the future. Disturbed sites beside the trail or parking area would also be seeded after construction to provide competition for nonnatives.

Trail use after construction by bicyclists, hikers, and dogs also poses a risk of introducing new noxious weeds and spreading existing populations. Weed seeds or plant parts often have special adaptations for attaching themselves to passersby and being transported to new areas. To compensate for this risk, the BLM would monitor the trail and parking area and treat noxious weeds as detected. The success of weed treatments and monitoring would be subject to available funding.

### ***Cumulative Effects***

Past activities in the project area that resulted in the establishment of noxious weeds are similar under the action alternative to those described in the no action alternative. Noxious weed treatments were initiated in 2013 and are planned for 2014 and beyond. Added to past, present, and reasonably foreseeable future actions in the project area, the proposed trail development project would not add cumulative effects to noxious weeds in the area if treatments and monitoring are funded.

# Appendix G: Visual Resources

## Methodology

To perform the visual analysis, the locations of the proposed and potential future trails in the initial phase were imported into Google Earth, a 3-D modeling program using satellite imagery. By following the I-5 corridor and tilting the landscape to show panoramic views from the Interstate, the project's visual resource specialist determined where the trail system had the potential to be the most noticeable to residents and travelers. This was field checked by driving I-5 and Highway 99 in both directions, and verifying which parts of the trail system could be seen and which parts were screened from view or were in the background. A Visual Contrast Rating was conducted from where the trail would be most visible. Guidance from several BLM manuals was used in conducting the analysis, primarily the handbooks for Visual Resource Management, Visual Resource Inventory, Visual Resource Contrast Rating, and Land Use Planning.

Visual contrast ratings are required for projects on lands managed as VRM Class I, II, and III, which have high sensitivity levels (BLM Land Use Planning Handbook 1601-1, Appendix C, p. 11).

The project file contains the Visual Contrast Rating, photos, and visual simulations from the key observation points.

## Assumptions

- BLM lands in the project area will continue to be managed as VRM Class II and III. Timber management activities will continue on private forest lands. New houses and other structures may be built on private lands, and new roads may be built to access them.
- Short-term effects are those which are readily evident for up to five years. Long-term effects are those which are readily evident five or more years after treatment.

## Affected Environment

The BLM's visual resource management (VRM) system provides a way to identify and evaluate scenic values to determine the appropriate levels of management. It also provides a way to analyze potential visual impacts and apply visual design techniques to ensure surface-disturbing activities are in harmony with their surroundings.

The inventory process provides BLM managers with a means for determining the visual appeal or value of a tract of land. The inventory consists of a scenic quality evaluation (A, B, or C), sensitivity level analysis (High, Medium, or Low), and a delineation of distance zones (Foreground/Middleground, Background, or Seldom Seen). Based on these three factors, BLM lands are placed into one of four visual resource inventory classes. These inventory classes represent the relative value of the visual resources, Classes I and II being the most valued, Class III representing a moderate value, and Class IV being of least value. The inventory classes provide the basis for considering visual values in the RMP planning process. Visual resource management classes are established during the RMP process, where class boundaries are adjusted as necessary to reflect the resource allocation decisions made in the RMP.

In order to analyze the potential visual impact of proposed projects and activities, the BLM uses a visual resource contrast rating system. The basic philosophy underlying the system is the following: the degree to which a management activity affects the visual quality of a landscape depends on the visual contrast created between a project and the existing landscape. The contrast can be measured by comparing the project

features with the major features in the existing landscape. The basic design elements of form, line, color, and texture are used to make this comparison and to describe the visual contrast created by the project. This assessment process provides a means for determining visual impacts and for identifying measures to mitigate these impacts.

The lands in the Mountain of the Rogue project area were identified in the 1995 BLM Resource Management Plan (RMP) as VRM Classes II and III (Bureau of Land Management 1995, p. 70 and Map 10). Of the 5,147 BLM-administered acres in the project area, 690 acres are managed as VRM Class II, 4,358 acres are managed as VRM Class III, and 99 acres are managed as Class IV.

As explained in BLM Handbook H-8410-1, Visual Resource Inventory (1986, p.7), the objective of VRM Class II is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant features of the characteristic landscape.

The objective of VRM Class III is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. The RMP allocated lands that meet rural interface area objectives to VRM Class III (Bureau of Land Management 1995, 70).

The objective of VRM Class IV is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention; however, the BLM should make every attempt to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements. VRM Class IV was allocated in the RMP to lands in the project area managed as northern general forest management area (Bureau of Land Management 1995, 70).

The characteristic landscape in the project area can be described as variable. On the valley floors and lower slopes of the Rogue River, Evans Creek, Ward Creek, and Sardine Creek, the area is modified by human alterations including roads, clearings, agricultural fields, homes and outbuildings, fences, and power and phone lines. The intermingled private lands with their associated developments provide a variety of visual contrast. The city of Rogue River is located in the southwest corner of the project area. The main paved roads that provide access to the project area are East Evans Creek Road, North River Road, Sardine Creek Road, Left Fork Sardine Creek Road, Wards Creek Road, Boyd Road, and Earhart Road. Individual residences are scattered along these and other additional minor roads. Evidence of past wildfires along the interstate and on the higher slopes also adds variety to the landscape by providing openings and changes in the vegetation. The higher slopes are generally more densely timbered, and interspersed with linear openings associated with power lines, roads, and off-highway vehicle trails.

The proposed trail system located on lands managed as Class II is within the foreground/middleground of Interstate 5. The foreground/middleground is defined as land within one mile of the Interstate, or to the first ridge, whichever is closer. The initial phase of the trail project is entirely located within this management class. Because of the location within the I-5 viewshed, the BLM completed a visual contrast rating I-5 from a key observation point near the Rogue River Visitor Center.

The majority of the proposed trail system is located on lands managed as Class III and IV. These lands are located further away or are out of the viewshed of I-5. Potential future trail development in this area would

be a combination of existing roads and new construction, all generally located higher up on slopes and along ridgelines, away from major travel corridors.

## **Environmental Consequences**

Trail and trailhead construction is anticipated to meet the visual resource management objectives for all classes. Because much of the project area was burned over by wildfire in 2011, vegetation on the slope is currently low and sparse, but is rapidly filling in. The trail would be the most visible in the first two years after construction, particularly during the winter months when the vegetation is dormant, but is expected to become less visible as the vegetation continues to fill in and the cut trail edges soften with time. The trail is not expected to be as visible where it leaves the burned area and enters the thicker vegetation. Given time, the vegetation in the remainder of the project area would fill in and obscure the trail even more.

Until then, the part of the trail system located midway up the slope and higher would be visible to southbound travelers for approximately 5 minutes at highway speeds, and from residences located directly across the river from the project area; it would generally not be visible to westbound travelers. The lower part of the trail system would also not be visible to travelers or from residences due to the relatively tall and dense foreground vegetation screening the area. Depending on the angle of the viewer, the switchbacks would be the most visible part of the trail system. However, the undulating nature of the trail and fitting the switchbacks to the terrain would repeat the basic lines found in the project area. Although segments of the trail would be visible, the size of the trail's footprint would be small compared to the scale of the surrounding landscape. In addition, the surrounding hillsides along the river and the I-5 and Highway 99 corridors contain similar lines from existing roads, power lines, and other similar man-made facilities.

# Appendix H: Cultural Resources

A BLM Archaeologist completed a cultural resource survey for Phase 1 of the Mountain of the Rogue Trail project that encompassed 5.6 miles of trail located in T36S, R4W, sections 22, 23, 26, and 27. Cultural surveys will be conducted for additional phases, as described in the Mountain of the Rogue Trail EA, and in accordance with the protocol for managing cultural resources on lands administered by the BLM in Oregon and the National Historic Preservation Act of 1966 (specifically section 106), as amended.

If sites are located, site-specific protection measures (e.g., buffering, modified treatment methods) would be implemented to preserve the integrity of cultural sites and National Historic sites and would be completed in consultation with State of Oregon Historic Preservation Officer and BLM cultural specialists.

# Appendix I: Fish and Aquatic Resources

## Affected Environment

The large scale project area includes portions of three fish-bearing channels: Sardine Creek, at the extreme eastern border, Maple Creek, a tributary to Evans Creek at the extreme western border, and Ward Creek, which bisects the designated project area in its center roughly from north to south. The Rogue River defines the southern edge of the project area, but is not included within the boundary. The Rogue River and Sardine Creek are designated by the ODFW (Oregon Department of Fish and Wildlife) spawning and rearing habitat for threatened SONCC (Southern Oregon/Northern California Coasts) coho salmon (*Onchorynchus kisutch*). These streams are considered occupied CCH (Coho Critical Habitat) and EFH (Essential Fish Habitat) for coho. ODFW records also indicate Maple and Ward creeks support spawning and rearing by summer steelhead (*O. mykiss*), a surrogate species commonly used to determine unoccupied CCH. The broad project area includes 8.7 miles of designated CCH: the entire fish-bearing portion of Ward Creek (4.5 miles) and Sardine Creek (4 miles), and less than 0.2 mile of the fish-bearing portions of Maple Creek.

Phase 1 of the proposed Mountain of the Rogue Trail project would occur in the Gold Hill-Rogue River fifth field watershed on the north side of the Rogue River, within one distinct seventh field (HUC 7 or drainage) that includes several small, intermittent Rogue River frontal tributaries. The seventh field spans the Rogue River; activities proposed in Phase 1 of the Mountain of the Rogue Trail project would only occur north of the main stem Rogue and would have no causal mechanism to impart effects to fish or aquatic habitat to areas draining lands south of the river. This area encompasses roughly 470 acres and includes 7 distinct intermittent catchments, the largest being White Spring Branch Creek. All of the small intermittent streams are captured by a ditch and are ultimately conveyed into the Rogue River, after passing below railroad tracks and Interstate 5 and through a small perched outlet channel located in Valley of the Rogue State Park.

None of the streams located within the Phase 1 aquatic habitat analysis area are fish bearing. Their small and seasonal nature and the fact that they no longer have direct surface connectivity with the main stem Rogue River through their historic channels precludes use of them by native fish. The Rogue River is located about 1 mile downstream from proposed project elements.

The area can be characterized by low elevation but steep hills that are dominated by shrublands interspersed with small, isolated pockets of mixed confer/hardwood forest. The area is very arid in the summer months. The small streams bisecting the hills all have south to southwest aspects and dry exposures. Riparian corridors are very narrow and bear little vegetative differences from surrounding uplands. Most of the analysis area suffered a stand-replacement fire in 2011, which resulted in the consumption or mortality of almost all vegetation within the burned area. The fire also burned hot in the riparian corridors of three of the intermittent catchments, including White Spring Branch Creek.

The extreme south edge of the fish and aquatic analysis area includes the valley bottom. This area, which is almost entirely in private ownership, includes several residences, the aforementioned ditch, a large mill, and a major thoroughfare (North River Road). Interstate 5 and an active rail line are located adjacent (to the south) of the analysis area. Aside from these features, the majority of the analysis area remains undeveloped, and road densities calculated from GIS are relatively low at 1.9 miles of road per square mile.

Aquatic habitat is very limited in the analysis area, consisting only of seasonal streams that flow for short periods during the winter months. Streams have not been surveyed and quantitative information for them is not available.

Potential impacts to aquatic habitat from implementation of the Mountain of the Rogue trail project are increased sediment delivery routed into water courses from trails that have hydrological connectivity (trail/stream crossings). The potential would be reduced to the extent possible by implementing project design features that would strive to disconnect as much trail length as possible from aquatic features (e.g., outsloping, rolling of the grade, water bars, etc.).

## **Environmental Consequences**

Proposed project elements do not include any ground-disturbing activities in the lands draining into Maple Creek. For this reason, this area can be excluded from further aquatic analysis and discussion. Project elements do include new trails located within riparian reserves and crossing streams in the Ward Creek and Sardine Creek catchments; however, these elements are not proposed to occur under Phase 1 and are not fully developed, precluding meaningful analysis of them at this time. Beyond Phase 1, 30 intermittent and one perennial (main stem Ward Creek) crossings are tentatively proposed in the future. These would need to be designed so as not to prevent meeting Aquatic Conservation Strategy objectives as described in the ROD/RMP (p. 26). This could include a bridge or hardened crossing over Ward Creek to ensure Aquatic Conservation Strategy objectives 3, 4, and 5 are maintained. Other design features could include rolling dips or grade reversals closely spaced to the crossing locations themselves to shorten the portions of the trails with hydrologic connectivity, temporary closures during extreme precipitation events, and periodic inspection and trail maintenance to ensure ruts do not develop that input eroded sediments into the small channels.

The Phase 1 trail would have no effect to CCH, EFH, or other fish habitat. The area does not include any fish-bearing streams, all project elements would drain to a ditch, and any displaced sediment resulting from trail construction, use, or maintenance would either settle out in natural depositional areas in the small intermittent channels, the road side ditch, or be conveyed as a brief pulse of turbidity to downstream habitats. This conveyance would only occur during a precipitation event of significant magnitude to encourage surface flow in the intermittent streams. During such circumstance, turbidity increases resulting from this project would be undetectable beyond background levels, and would impart no meaningful impact to fish and aquatic habitat.

# Appendix J: Sustainable Trail Guidelines

## The Five Essential Elements of Sustainable Trails

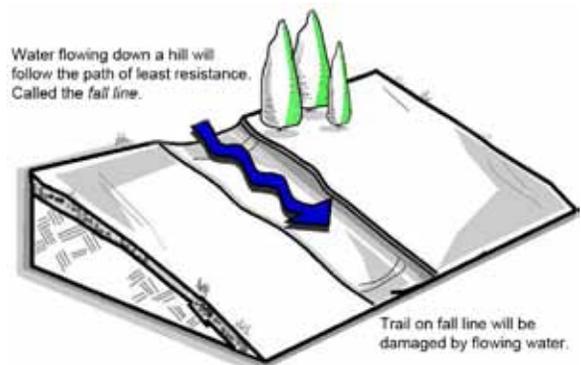
1. The Half Rule
2. The 10% Average Grade
3. Maximum Sustainable Grade
4. Grade Reversals
5. Outslope

### 1. The Half Rule

A trail's grade should not exceed half the grade of the sideslope the trail is traversing. If the trail's grade exceeds half the slope's grade, it is considered a fall-line trail. Water will be focused to travel the fall line, the path of least resistance, rather than flowing across it.

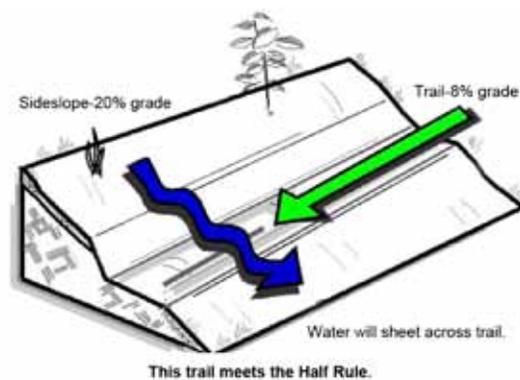
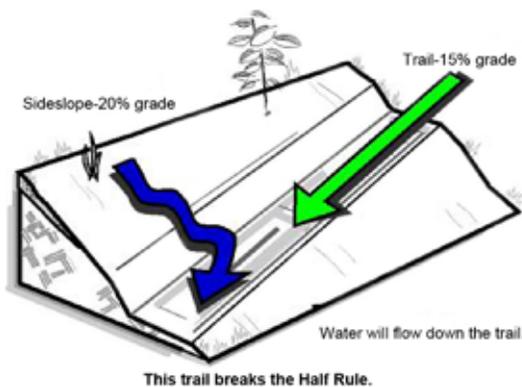
Using a clinometer to measure the sideslope percent of grade, keeping the trail's tread grade below half of what was measured will ensure proper drainage. For example, with a sideslope of 20%, the trail's tread should not exceed 10% grade.

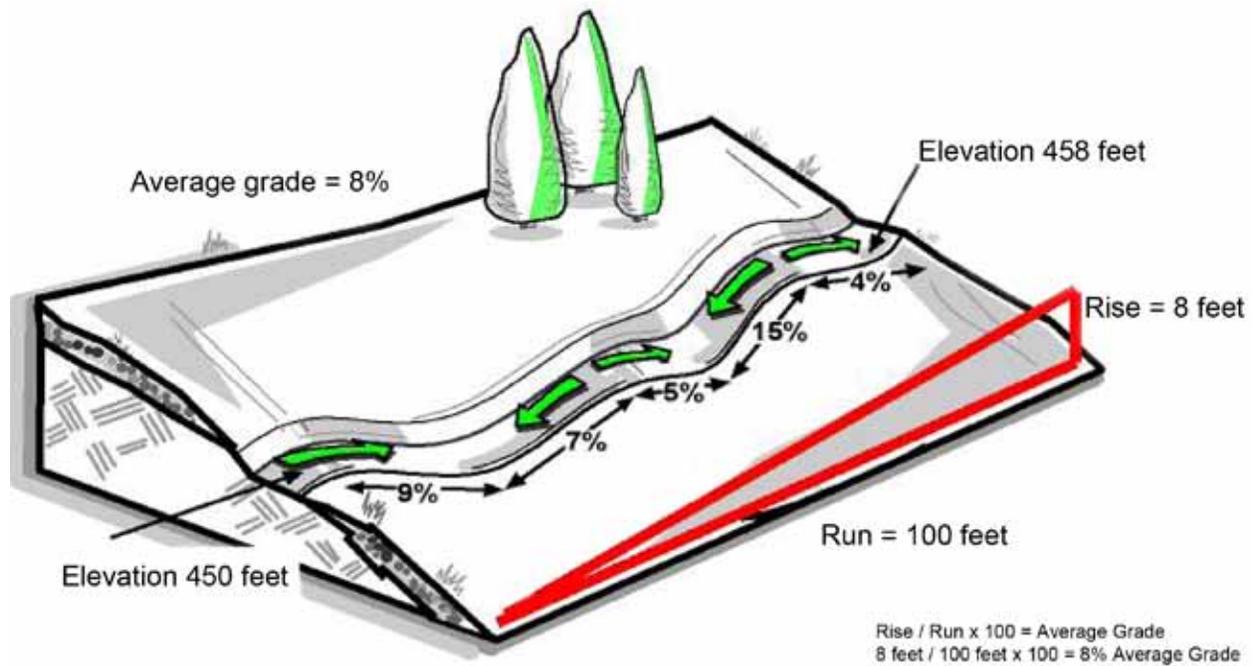
The half rule is especially important in areas of gentle slopes; erosion can still occur and the half rule still applies. For example, a trail traveling through an area with sideslopes of 6% should have a trail grade less than 3% to avoid the fall line. Flat areas should be avoided, as trails built in these areas are more likely to collect and hold water.



### 2. The 10% Average Grade

Generally, a 10% average grade is the most sustainable. This does not mean that all trail grades should be kept under 10%. In many situations, the trail may undulate, creating areas that have short sections steeper than 10%. But overall, the trail's average grade should be maintained at a sustainable grade of 10% or less. Short sections can exceed 10% as long as the half rule is still used (15% trail grades can be used for short sections as long as the sideslope is greater than 10%).



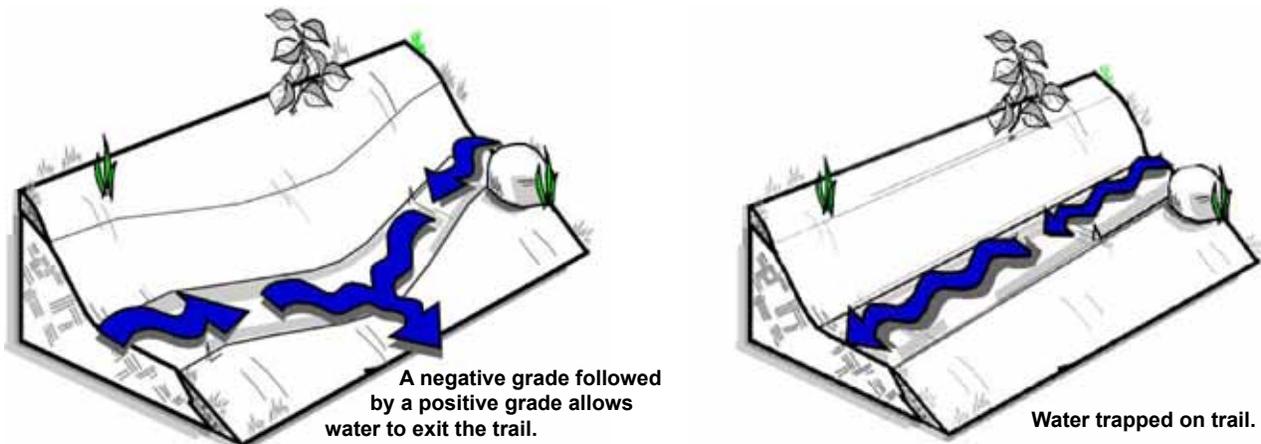


### 3. Maximum Sustainable Grade

Maximum grade, usually around 15 to 20%, is the steepest allowable grade based on several site-specific factors including **Half Rule** (the trail grade is less than half the sideslope grade); **Soil Types** (some soils support steeper grades than others), **Rock** (solid rock or rock embedded slopes can be steeper), **Annual Rainfall** (heavy rainfall leads to water-caused erosion; low rainfall leads to dry, loose soils), **Grade Reversals** (a short dip followed by a rise forces the water to drain off the trail), **Types of Users** (low impact users, hiking and biking, can sustain a steep grade, while higher impact users, horses and motorized, should have lower maximum grades), **Number of Users** (higher anticipated use leads to lower grades), and **Difficulty Level** (trails with a higher degree of technical challenge tend to have steeper grades; grade reversals and armoring are necessary to ensure sustainability).

### 4. Grade Reversals

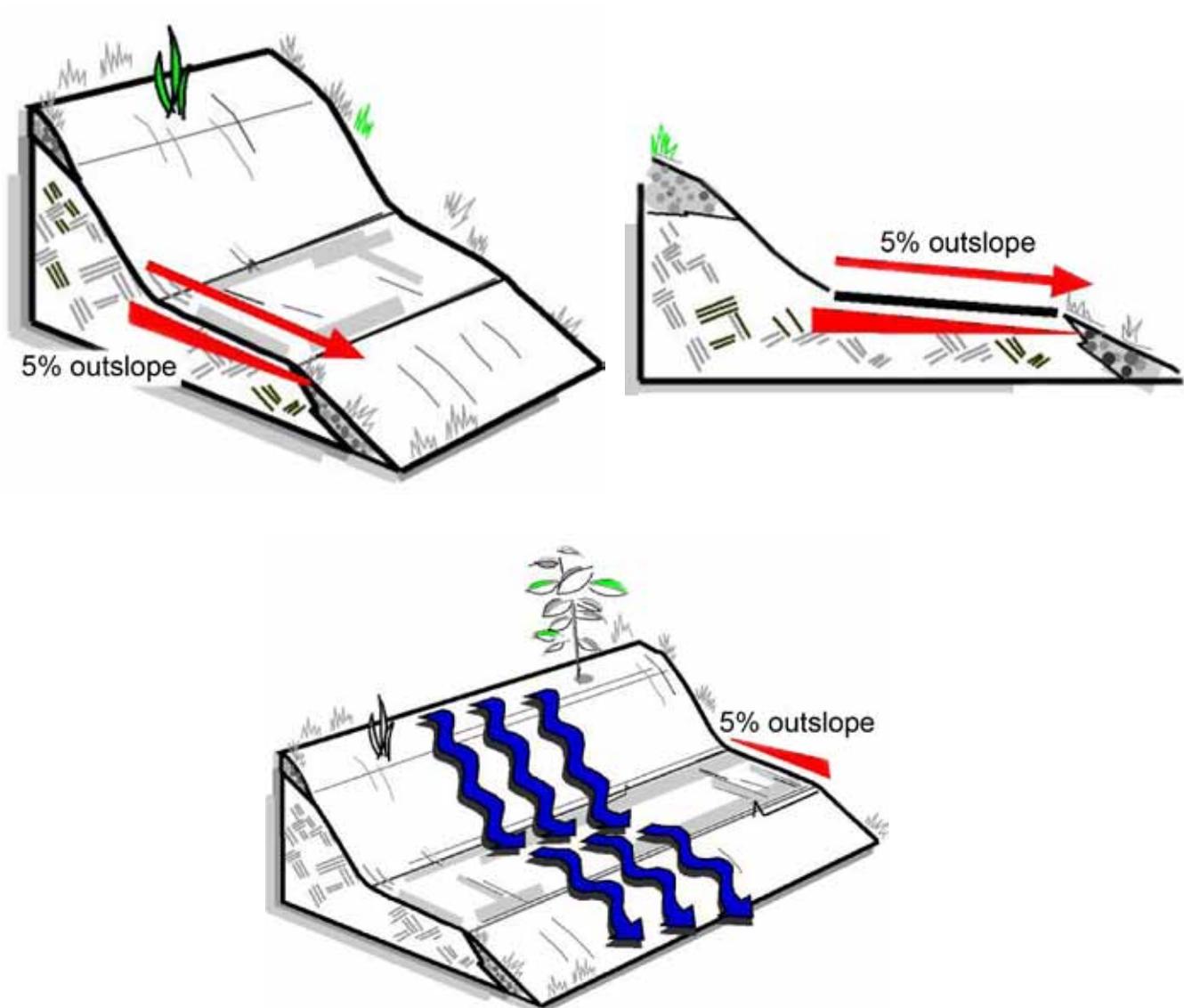
A grade reversal is a spot at which a climbing trail levels out for about 10 to 50 feet before rising again. This change in grade allows water to exit the trail tread at the low point of the grade reversal. Grade reversals are recommended every 20 to 50 feet. Grade reversals are also known as grade dips, grade brakes, drainage dips, and rolling dips.



Grade reversals also make a trail more enjoyable. On long downhill sections, grade reversals slow bicycle speeds and add variety and challenge. On uphill, brief descents help users regain their momentum and catch their breath.

### 5. Outslope

As the trail contours across a hillside, the downhill, or outer edge, of the trail's tread should be slightly lower than the hillside, or inside edge, by 5%. Outslopes encourage water to sheet across the trail rather than traveling down the trail's center. Outslopes can be difficult to maintain in loose soils. Constant impact from users tends to compact the center of the trail and push soils to the side. Frequent grade reversals are essential in order to drain water from the trail in this situation.



Water sheets across the trail.

Principles of Sustainable Trails from

*Sustainable Trail Development: A Guide to Designing and Constructing Native-surface Trails* 2009.

International Mountain Bicycling Association and Town of Castle Rock, Colorado

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