Draft
Timber Mountain Recreation Management Plan Environmental Impact Statement

BLM
Medford District Office

February 2009

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

U.S. Bureau of Land Management
Timber Mountain Draft EIS
3040 Biddle Road
Medford, Oregon 97504
541-618-2400
Website: http://www.blm.gov/or/districts/medford

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Medford District Office
3040 Biddle Road
Medford, Oregon 97504
email address: Medford_Mail@blm.gov

IN REPLY REFER TO

1793(OR 116)

FEB 2009

Dear Reader:

We welcome your participation in evaluating the proposed alternatives, as described in this Draft Environmental Impact Statement (DEIS), for managing off-highway vehicle (OHV) use in the Timber Mountain Recreation Management Area.

The Timber Mountain Recreation Management Area is located on BLM administered lands intermingled with privately owned lands. Off-highway vehicle enthusiasts have used this area for about 40 years and use has increased in recent years. The network of trails in the area has developed as a result of many years of OHV use and passive management of the area. A recreation management plan is needed to provide for a quality OHV recreation experience in a manner which: 1) protects the natural resources; 2) promotes the safety of all users; and 3) minimizes conflicts among the various uses.

We are particularly interested in comments that address one or more of the following: (1) new information that would affect the analysis, (2) possible improvements in the analysis; and (3) suggestions for improving or clarifying the management actions proposed in this DEIS. Specific comments are the most useful. BLM will respond to the comments addressing the adequacy of this DEIS in the Final Environmental Impact Statement (FEIS). This DEIS will also be available on the Medford District BLM Website, < http://www.blm.gov/or/districts/medford >.

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

An open house will be scheduled to discuss the various management alternatives and to answer questions concerning this EIS process. The open house date, time, and location will be announced in news releases and on the Medford District BLM Website
< http://www.blm.gov/or/districts/medford >

Please keep this copy of the DEIS and enclosed maps, as this information may be referred to but not reprinted in the Final Environmental Impact Statement.

A 4S-day comment period begins the day following a publication of a Notice of Availability of this Draft EIS in the Federal Register. The comment period dosing date will be available on the Medford District BlM Website listed above.

All comments should be made in writing and mailed or delivered to:
Bureau of Land Management
Timber Mountain DEIS-Comments
3040 B;ddle Road
Medford, OR 97504.

We invite you to participate in this process and appreciate any comments you may have on this DEIS. All substantive comments received will be considered in the development of the Final Environmental Impact Statement.

Sincerely,

Timothy Reuwsaat
District Manager
Medford District BlM

Sincerely,

John Gerritsma
Ashland Field Manager
Medford District BlM

Draft Environmental Impact Statement

Timber Mountain
Recreation Management Plan

U.S. Department of the Interior
Bureau of Land Management

(X) Draft Environmental Impact Statement **( ) Final Environmental Impact Statement**

Responsible Agency: Department of the Interior, Bureau of Land Management

Type of Action: (X) Administrative **( ) Legislative**

Abstract: The Draft Environmental Impact Statement (DEIS) for the Timber Mountain Recreation Management Plan considers five alternatives to analyze for managing OHV use in the Timber Mountain Recreation Management Area. The Timber Mountain Recreation Management Area (RMA) is located on BLM administered lands intermingled with privately owned lands. Off-highway vehicle enthusiasts have used this area for about 40 years and use has increased in recent years. Opportunities exist to work with adjacent private landowners to manage OHV use across land ownership boundaries. Three of the four action alternatives propose OHV use on adjacent private land; implementation of Alternatives 2, 3, and 5 would be dependent upon the development of written agreements between the BLM and adjacent participating private land owners.

Alternative 1, the No-Action Alternative, represents the current management situation in the Timber Mountain Recreation Management Area and serves as a baseline with which to compare the action alternatives. Alternative 2 provides for well dispersed OHV use throughout the Timber Mountain planning area, while substantially reducing the trail density from the current situation. Alternative 3 is similar to Alternative 2 in the miles of OHV routes designated for use; however, Alternative 3 proposes to install gates on certain roads to limit standard passenger vehicle entry and improve the OHV experience. The miles of open shared use roads are reduced under Alternative 3. Alternative 4 would manage an OHV trail system on BLM-administered lands only or those lands already under existing legal agreements (e.g., BLM controlled roads with public access rights). Alternative 5 provides for OHV use at a substantially reduced level; reducing or eliminating OHV use in watersheds with Coho Critical Habitat and in some areas with granitic soils. Alternative 5 is also designed to maintain OHV use at further distances from rural residential areas in order to reduce the effects, primarily noise, from OHV use on adjacent rural residential areas.

Comments: Comments must be received 45 days following the publishing of a Notice of Availability for this Draft EIS in the Federal Register. The comment period closing date will be available on the Medford District BLM Website < http://www.blm.gov/or/districts/medford >.

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Acronyms

ACS Aquatic Conservation Strategy
AMA American Motorcycle Association
AQMA Air Quality Management Act
ARPA Archeological Resources protection Act
ATV All-Terrain Vehicle
BLM Bureau of Land Management
BMP Best Management Practice
CAA Clean Air Act
CEQ Council on Environmental Quality
CFR Code of Federal Regulations
CCH Coho Critical Habitat
CWA Clean Water Act
DEIS Draft Environmental Impact Statement
DEQ Department of Environmental Quality
DOI Department of Interior
EA Environmental Assessment
EFH Essential Fish Habitat
EIS Environmental Impact Statement
EO Executive Order
ESA Endangered Species Act
FAR Functional-At Risk
FLPMA Federal Land Policy and Management Act
FEIS Final Environmental Impact Statement
GeoBOB Geographic Biotic Observation
GIS Geographic Information System
I-5 Interstate 5
MOA Memorandum of Agreement
MTBE Methyl Tertiary Butyl Ether
NEPA National Environmental Policy Act
NF Nonfunctional
NFP Northwest Forest Plan
NOAAF National Oceanic and Atmospheric Association Fisheries
OARs Oregon Administrative Rules
O&C Oregon and California Railroad Company Revested Lands
O&C ACT Oregon and California Lands Act
ODEQ Oregon Department of Environmental Quality
ODF Oregon Department of Forestry
ODFW Oregon Department of Fish and Wildlife
OHV Off-Highway Vehicle
ORNHIC Oregon Natural Heritage Information Center
ORV Off-Road Vehicle
OWRD Oregon Water Resources Department
PDF Project Design Feature
PFC Proper Functioning Condition
PRMP Proposed Resource Management Plan
RMP Resource Management Plan
ROD Record of Decision
RRGH Rogue River/Gold Hill
SAE Society of Automotive Engineers
SDWA Safe Drinking Water Act

SONC	Southern Oregon/Northern California
SRP	Special Recreation Permit
SSP	Special Status Plants
SSS	Special Status Species
TMDL	Total Maximum Daily Load
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WQRP	Water Quality Restoration Plan

USER'S GUIDE

The Timber Mountain Recreation Management Plan and Draft Environmental Impact Statement (DEIS) for the management of off-highway vehicle (OHV) recreation is divided into four chapters, and includes maps, references, an index, and an appendix.

Chapter 1 (Purpose and Need)

Chapter 1 provides the introduction to this DEIS. It provides a description of the planning area and defines the purpose and need for the preparation of this document. This chapter also describes the planning and scoping process, outlines the issues that will be addressed in this EIS, and defines the relationship between the DEIS and existing laws, regulations, and policies.

Chapter 2 (Alternatives)

Chapter 2 contains a description of the five alternatives, including the No-Action Alternative (Alternative 1). Project Design Features, an essential part of the action alternatives, are also described in this chapter. Descriptions of the components of the alternatives including trail class descriptions, state regulations regarding OHV use, and law enforcement assumptions are included in this chapter. Table 2-9 provides a brief summary of the effects of the alternatives.

Chapter 3 (Affected Environment and Environmental Consequences)

Chapter 3 presents the existing conditions in the planning area, and associated analysis areas, along with the estimated environmental effects of implementing the alternatives. This chapter is organized by resource topics. Under each resource, the affected environment and the environmental consequences of each alternative are discussed.

Chapter 4 (Consultation and Coordination)

Chapter 4 includes a summary of public involvement, a list of elected officials, agencies, organizations, and tribes receiving the document. This chapter also includes a list of the specialists involved in preparing this DEIS.

The **References and the Index** provide an aid to the reader in finding and understanding the material contained in this document.

The **Appendix** contains additional information supporting the Water Resources Section of Chapter 3 document.

Summary

Summary

The Medford District Bureau of Land Management (BLM) proposes to implement a site specific Recreation Management Plan for the Timber Mountain Recreation Management Area. This Environmental Impact Statement (DEIS) documents the environmental analysis conducted to estimate the site-specific effects on the human environment that may result from the implementation of the alternatives designed to manage off-highway vehicle use in the Timber Mountain Recreation Management Area. It will provide the BLM Responsible Official, the Medford District Manager, with current information to aid in the decision-making process. This document complies with the Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (NEPA; 40 CFR Parts 1500-1508) and the Department of the Interior's regulations on Implementation of the National Environmental Policy Act of 1969 (43 CFR part 46).

Background

The Timber Mountain Recreation Management Area is located on BLM administered lands intermingled with privately owned lands. Off-highway vehicle enthusiasts have used this area for about 40 years and use has increased in recent years. The network of trails in the area has developed as a result of many years of OHV use and passive management of the area.

The increased popularity and widespread use of OHVs on public lands in the 1960's and early 1970's prompted the development of a unified federal policy for OHV use. Executive Order (EO) 11644 was issued in 1972, and EO 11989 was issued in 1977 providing direction for federal agencies to establish policies and provide for procedures to control and direct use of OHVs on public lands so as to:

- Protect the resources of those lands;
- Promote the safety of all users of those lands; and
- Minimize conflicts among the various uses on those lands.

The BLM developed regulations in response to these Executive Orders, 43 Code of Federal Regulations (CFR) 8340. Under the Code of Federal Regulations, an authorized BLM officer must designate all public lands as open, limited, or closed to OHVs. 43 C.F.R. § 8342.1. "The approval of a resource management plan . . . constitutes formal designation of off-road vehicle use areas." Id. § 8342.2(b). Such approval is made public according to 43 C.F.R. § 1610.5-1(b). Id. This first occurred for the Medford District BLM with the approval of the 1995 Record of Decision and Resource Management Plan (RMP), based on conditions at that time. BLM's 1995 Medford District RMP designated approximately 16,250 acres to be managed for OHV use, with use limited to designated trails and existing roads. The planning process for the development of the Timber Mountain Recreation Management Plan and Environmental Impact Statement began in 2003 under the direction of the 1995 Medford District Resource Management Plan.

In September 2005, the planning process for the Western Oregon Plan Revision was initiated with the printing of a Notice of Intent in the Federal Register. The Timber Mountain limited OHV use designation was revisited through the Western Oregon Plan Revision process. The Western Oregon Plan Revision concluded in December 2008 with the signing of the Record of Decision adopting the 2008 Resource Management Plan for the Medford District BLM. The 2008 Medford District Resource Management Plan designated about 15,114 acres in the Timber Mountain area, to be managed as a Special Recreation Management Area with an OHV focus; OHV use will be limited to designated trails and roads.

The Timber Mountain EIS planning area is situated generally to the west of the City of Jacksonville, and south of the Interstate-5 corridor in Jackson County, southwestern Oregon (Map 1-1). The legal description of the planning area is: T. 36 S., R. 2 W., in section 31; T. 36 S., R 3 W., in Sections 20-22, 26-36; T. 36 S., R. 4 W., in Section 36; T. 37 S., R. 2 W., in Sections 5-9, 16-20, 29-31; T. 37 S., R. 3 W. in Sections 1-36; T. 37 S., R. 4 W., in Sections 1-4, 9-17, 21-

28, 34-36; T. 38 S., R. 4 W., in Section 1; T. 38 S., R. 3 W., in Sections 1-12, 14-17, 19-23; T. 38 S., R 2 W. in Section 6; Willamette Meridian (W.M.); surveyed Jackson County, Oregon.

Why Is BLM Developing the Timber Mountain Recreation Management Plan?

The Timber Mountain Recreation Management Plan will provide detailed management direction for the Timber Mountain Recreation Management Area, designated to provide for OHV use by the 2008 Medford District BLM Record of Decision and Resource Management Plan. Management Objectives and Directions set forth in the RMP provide direction for resource management on BLM-administered lands. The primary objective for recreation management on BLM-administered lands is to "provide a diversity of developed and dispersed outdoor recreational opportunities that contribute to meeting the recreational demand and quality visitor experiences.

The Timber Mountain Recreation Management Area is designated by BLM's 2008 RMP (and previously by the 1995 RMP) to be managed to provide for OHV use. However, the RMP did not develop route designations for a managed trail system, including access points and staging facilities. The 2008 RMP directs that final route designations will be accomplished, using an interdisciplinary travel and transportation management planning process, within 5 years of the completed Resource Management Plan. Alternatives for designating OHV routes and managing OHV use were developed and analyzed under this DEIS using an interdisciplinary process and included extensive public outreach.

The Timber Mountain Recreation Management Plan is needed to provide for a quality OHV recreation experience in a manner consistent with the 2008 Medford District RMP. For any alternative to be given consideration as a reasonable alternative it must meet the following objectives: 1) protect the natural resources; 2) promote the safety of all users; and 3) minimize conflicts among the various uses.

Significant Issues Identified Through Scoping

The following issues were identified as major issues through public scoping and internal evaluation and are addressed in detail in this Draft EIS:

- How would the Alternatives Affect Soils?
- How would the Alternatives Affect Water Quality and Riparian Habitat?
- How Would the Alternatives Affect Threatened and Endangered Species?
- How would the Alternatives Affect Noise Levels for Adjacent Residents and the Community of Jacksonville?

Additional Issues

The interdisciplinary team of resource specialists identified additional issues (see Chapter 1, Scoping Process and Issue Identification) that while not determined to be significant, were included in the analysis because they disclosed consequences, affected design of component actions, required project design features, or whose disclosure of environmental effects are required by law or policy. In addition, the effects related to these issues often are minor and/or are consistent among the alternatives considered in detail.

Decision Framework

This Environmental Impact Statement will provide the information needed for the Responsible Official, BLM's Medford District Manager, to render a decision regarding the selection of a management plan to guide the management of OHV use in the Timber Mountain Recreation Management Area. The District Manager must decide whether to implement a recreation management plan with the selection of an action alternative, or whether to select the No-Action Alternative.

Before a decision is made regarding the selection of a management plan, the public is being provided a chance to review and comment on this Draft EIS. All substantive public comments will be considered by the responsible official and interdisciplinary team in the preparation of a Final EIS for the Timber Mountain Recreation Management Plan.

In choosing an alternative for guiding OHV use in the Timber Mountain Recreation Management Area, the responsible official will consider the extent to which each alternative responds to the project's needs and the significant issues identified through scoping. The decision factors identified below incorporate the needs and significant issues identified above. The forthcoming Record of Decision will document the Responsible Official's rationale for selecting a course of action based on the decision factors listed below; the responsible official will consider the extent to which each alternative:

1. Contributes to the providing for a quality OHV recreation experience;
2. Contributes to the improvement of water quality (reduced sedimentation) within streams located in the Forest Creek, Birdseye Creek, Foots Creek, Galls Creek, Kane Creek, China Creek, Jackson Creek, and Willow Creek drainages;
3. Contributes to the restoration of coho critical habitat within and down stream of the Timber Mountain planning area;
4. Reduces impacts to soils and site productivity;
5. Contributes to the restoration of aquatic habitat within and down stream of the Timber Mountain planning area;
6. Considers the interests of adjacent rural residential land owners; and
7. Responds to public safety and reduces conflicts among uses.

Alternatives

Five alternatives are included for detailed analysis in this Draft EIS, including the No-Action Alternative. When presented in a comparative format, the analysis of a range of alternatives provides the decision maker with a reasoned choice among alternatives for meeting the project objectives.

Identification of a Preferred Alternative - A preferred Alternative has not been identified at this time. Rather, the Responsible Official has chosen to defer the selection of a preferred alternative until after the public review period. A Preferred Alternative will be identified in the Final EIS.

No-Action Alternative – Alternative 1

Alternative 1 describes the current management situation regarding OHV use in the Timber Mountain planning area. The Medford District RMP requires OHV use to be limited to designated roads and trails. However, the RMP did not complete final route designations. Under Alternative 1, OHV use would continue on all existing roads and trails in the Timber Mountain planning area, and general vicinity, unless otherwise closed. Final route designations would not be completed and additional development or modification of staging area facilities would not be authorized at this time. Alternative 1 does not address the stated need for this project, which includes providing for a quality OHV recreation experience, protection of natural resources, providing for visitor safety, and minimizing conflicts among various uses.

Selection of the No Action Alternative would not constitute a decision to close these lands to OHV use. The selection of the No Action Alternative would not preclude future road or trail maintenance as program funds become available, nor would it preclude future site-specific proposals, and appropriate NEPA analysis, to develop or modify OHV facilities.

Action Alternatives

Opportunities exist to work with adjacent private landowners to manage OHV use across land ownership boundaries. Five neighboring landowners recognized that solutions for addressing issues associated with OHV use may result from working cooperatively with the BLM and other adjacent landowners to assess the current conditions and options. While these landowners have not committed to actively managing OHV trails on their lands, as part of the Timber Mountain OHV trail network, they have agreed to allow the BLM to analyze the use of OHV routes across their lands in the range of alternatives considered in this EIS. Alternatives 2, 3, and 5 analyze the potential management of OHV routes (trails and roads) across BLM-administered lands and adjacent private lands. The implementation of Alternatives 2, 3, and 5 would be dependent upon the development of written agreements between the BLM and adjacent participating private land owners to manage a connected system of trails across public and private lands.

The proposed management of OHV route opportunities on adjacent private lands is recognized by the BLM as a connected activity and will be analyzed in conjunction with BLM's range of alternatives. The action alternatives analyzed only include routes being proposed as part of a trail system. BLM is not proposing decommissioning on private land with this management plan proposal.

Alternative 2

Alternative 2 provides for well dispersed OHV use across the Timber Mountain planning area, while reducing the overall trail density and implementing project design features developed to provide protection to resources, improve visitor safety, and to reduce conflicts among uses. The OHV trail system proposed for management is dispersed across BLM-administered, private, and City of Jacksonville land.

Under Alternative 2, the BLM would designate and manage an estimated 111.2 miles of trails and roads on BLM-administered lands for OHV use. Under this alternative, an estimated 27.9 miles of roads and some trails have been proposed for use on adjacent private lands for the management of an OHV trail system across ownership boundaries (Table S-1). Nine staging areas would be managed on BLM-administered land to provide off-loading and loading areas for riders.

Existing trails not proposed for management on BLM-administered lands are proposed for trail decommissioning. The objectives of decommissioning are to prevent further OHV use on trails not identified for management, and to place the land currently occupied by the trail back in to forest production. Under Alternative 2, the BLM proposes to decommission 60.8 miles of trails (24.3 miles of class 1, 22 miles of class 2, and 14.5 miles of class 3 trails) on BLM-administered lands.

Alternative 3

Alternative 3 provides for well dispersed OHV use across the Timber Mountain planning area, while reducing the overall trail density and implementing project design features developed to provide protection to resources, improve visitor safety, and to reduce conflicts among uses. This alternative is designed to enhance the OHV recreation experience through the installation of additional gates to control passenger vehicle access on specific OHV routes. This alternative therefore has fewer miles of open shared use roads than Alternative 2. Under Alternative 3, the BLM would manage an estimated 110.4 miles of trails and roads on BLM-administered lands for OHV use. Under this alternative, an estimated 27.8 miles of roads and some trails have been proposed for use on adjacent private lands for the management of an OHV trail system across ownership boundaries (Table S-1).

Eight staging areas would be managed on BLM-administered lands to provide off-loading and loading areas for OHV users. The existing Bunny Meadows Staging area would be closed under this alternative to move staging activities away from residential areas.

The BLM also proposes to decommission 60.8 miles of trails (24.2 miles of class 1, 21.7 class 2 and 14.9 class 3 trails) on BLM-administered lands that would not be utilized for managed OHV use under this Alternative.

Alternative 4

Alternative 4 would manage an OHV trail system on BLM-administered lands only, or those lands already under existing legal agreements (e.g., BLM controlled roads with public access rights). Under Alternative 4, OHV use would be confined to the southern portion of the planning area primarily within the Forest Creek and China Gulch drainages. This alternative would rely on BLM-administered lands and existing BLM controlled roads; therefore, no additional written agreements between the BLM and adjacent private land owners would be needed for the management of an OHV trail system. Under Alternative 4, the BLM would manage a total of 71.2 miles of trails and roads on BLM-administered lands for OHV use (Table S-1).

Four staging areas would be managed on BLM-administered lands to provide off-loading and loading areas for OHV users. The existing Bunny Meadows Staging area would be closed under this alternative to move staging activities away from residential areas.

The BLM also proposes to decommission 66.7 miles of trails (27.2 miles of class 1, 21.9 miles of class 2 and 17.6 miles of class 3 trails) on BLM-administered lands.

Alternative 5

Alternative 5 provides for OHV use at a substantially reduced level. Alternative 5 is designed to reduce or eliminate OHV use in watersheds with Coho Critical Habitat and in some areas with granitic soils. Alternative 5 is also designed to maintain OHV use at further distances from rural residential areas in order to reduce the effects, primarily noise, from OHV use on adjacent rural residential areas. Under Alternative 5, the BLM would manage an estimated 15.7 miles of trails and roads on BLM-administered lands for OHV use, and 14.9 miles of roads and some trails have been proposed for use on adjacent private lands for the management of an OHV trail system across ownership boundaries.

One staging area, East Forest Creek, would be managed to provide an off-loading and loading area for OHV use. The existing Bunny Meadows staging area would be closed.

The BLM also proposes to decommission slightly over 82 miles of trails (30.4 miles of class 1, 23.3 miles class 2, and 28.4 miles of class 3 trails) on BLM-administered lands.

Summary of the Effects of the Alternatives

The summary of the effects from implementing any alternative is presented in Table S-1. This table is the same as Table 2-9.

Table S-1. Comparison of the Alternatives

Purpose & Need and Significant Issues	Alternative 1 (No-Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Quality OHV Experience					
Total miles of OHV routes (estimated)	375.9 miles	138.9	138.1	71.2	30.5
Miles of OHV routes by land status (estimated)	• 185.6 miles existing on BLM-administered lands, • 190.3 miles existing on private lands	• 111.2 miles on BLM-administered lands, • 27.9 miles proposed on private lands[1]	• 110.4 miles on BLM-administered lands, • 27.8 miles proposed on private lands[2]	• 71.2 miles on BLM-administered lands, • 0.4 miles shared use road with easement across private land	• 15.7 miles on BLM-administered lands, • 14.9 miles proposed on private lands[3]
Miles of OHV routes by trail class (all ownerships)	Class 1: 111.5 Class 2: 207.8[4] Class 3: 56.5	Class 1: 46.2 Class 2: 11.6 Class 3: 27.2 Open shared use roads: 53.9	Class 1: 54.3 Class 2: 10.6 Class 3: 33.3 Open shared use roads: 39.9	Class 1: 24.8 Class 2: 12.2 Class 3: 20.1 Open shared use roads: 14.1	Class 1: 12 Class 2: 0 Class 3: 4.4 Open shared use roads: 14.1
Development or improvement of staging areas	Dispersed unloading and loading of OHVs would continue; no staging area developments or improvements are planned	Manage 9 staging areas: • 8 existing areas to be improved and/or maintained • 1 staging area to be constructed	Manage 8 staging areas: • 7 existing areas to be improved and/or maintained • 1 staging area to be constructed	Manage 4 staging areas: • 3 existing areas to be improved and/or maintained • 1 staging area to be constructed	Manage 1 staging areas: • 1 existing area to be improved

[1] To be implemented only with agreements from landowners.
[2] To be implemented only with agreements from landowners.
[3] To be implemented only with agreements from landowners.
[4] Includes existing open system roads.

Purpose & Need and Significant Issues	Alternative 1 (No-Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Meets the minimum miles of OHV trails (60 miles) suggested to satisfy one day OHV user visits	Yes	Yes	Yes	Yes	No
Meets the miles of trails desirable to satisfy multi-day OHV user visits (200 miles)	Yes	No	No	No	No
Connectivity of the OHV trail system (Agreements)	Public and private lands—no agreements in place to ensure connectivity of OHV routes and loops.	Public and private lands—Cooperative agreements needed to ensure connectivity of OHV routes and loop trails. (Same as 3)	Public and private lands—Cooperative agreements needed to ensure connectivity of OHV routes and loop trails. (Same as 2)	Public lands—**no additional agreements needed** to ensure connectivity of OHV routes and loop trails.	Public and private lands—cooperative agreements needed to ensure connectivity of OHV routes and loop trails. (fewer private parcels involved than 2 & 3)
Soil Resources					
Acres out of production from roads & trails (BLM)	202	123	124	74	17
Miles of roads/trails on ravel prone soils	94	45	45	20	9

Purpose & Need and Significant Issues	Alternative 1 (No-Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Miles of roads/trails on granitic soils	87	17	17	< 1	7
Water Resources					
Number of Trail-stream crossings on BLM lands[5]	500	142	138	142	43
Miles of trails in Riparian Reserves	21.5	4.5	4.5	5	1.4
Miles of trails decommissioned (BLM)	0	61	61	67	82
Threat for petrochemical pollution to surface or ground water supply	LOW (But greater than the Action Alternatives due to unrestricted riparian access)	LOW	LOW	LOW	LOW

[5] Includes dry draws that may carry water seasonally but do not have a defined channel.

Purpose & Need and Significant Issues	Alternative 1 (No-Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Threatened & Endangered					
Miles of OHV use in spotted owl habitat	52	28	28	19	5
Number of spotted owl sites within 195 feet of OHV use[6]	7	3	3	3	0
Fritillaria gentneri sites potentially affected	15	8	8	8	0
Coho Salmon	*Indicators for water resources used as indicators for benefits/impacts to coho habitat*	*Indicators for water resources used as indicators for benefits/impacts to coho habitat*	*Indicators for water resources used as indicators for benefits/impacts to coho habitat*	*Indicators for water resources used as indicators for benefits/impacts to coho habitat*	*Indicators for water resources used as indicators for benefits/impacts to coho habitat*

[6] **Distance used to buffer noise disturbance for known spotted owl nest sites during nesting season.**

Purpose & Need and Significant Issues	Alternative 1 (No-Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Noise					
No. of residents exposed to sound levels greater than 50dBA (within 1,707 ft. or 0.3 mile of an OHV route)[7]	305	100	100	87	2
No. of residents exposed to sound levels greater than 60dBA (within 427 ft. or 0.08 mile of an OHV route)[8]	47	9	9	4	1

[7] 50 dBA is average ambient sound level for a quiet rural neighborhood.

[8] Sound levels of 60 dBA or greater (10 dBA increase over ambient sound level) could be perceived as noise or annoying sound level.

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Chapter 1
Purpose and Need

Chapter 1. Purpose And Need

The Medford District Bureau of Land Management (BLM) proposes to implement a site specific Recreation Management Plan for the Timber Mountain Recreation Management Area. This Environmental Impact Statement (EIS) documents the environmental analysis conducted to estimate the site-specific effects on the human environment that may result from the implementation of the alternatives designed to manage off-highway vehicle use in the Timber Mountain Recreation Management Area. It will provide the BLM Responsible Official, the Medford District Manager, with current information to aid in the decision-making process. This document complies with the Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (NEPA; 40 CFR Parts 1500-1508) and the Department of the Interior's regulations on Implementation of the National Environmental Policy Act of 1969 (43 CFR part 46).

Background

The Timber Mountain Recreation Management Area (RMA) is located on BLM administered lands, intermingled with privately owned lands. Off-highway vehicle enthusiasts have used this area for about 40 years and use has increased in recent years. The network of trails in the area has developed as a result of many years of OHV use and passive management of the area.

The increased popularity and widespread use of OHVs on public lands in the 1960's and early 1970's prompted the development of a unified federal policy for OHV use. Executive Order (EO) 11644 was issued in 1972, and EO 11989 was issued in 1977 providing direction for federal agencies to establish policies and provide for procedures to control and direct use of OHVs on public lands so as to:

- Protect the resources of those lands;
- Promote the safety of all users of those lands; and
- Minimize conflicts among the various uses on those lands.

The BLM developed regulations in response to these Executive Orders, 43 Code of Federal Regulations (CFR) 8340. Under the Code of Federal Regulations, an authorized BLM officer must designate all public lands as open, limited, or closed to OHVs. 43 C.F.R. § 8342.1. "The approval of a resource management plan . . . constitutes formal designation of off-road vehicle use areas." Id. § 8342.2(b). Such approval is made public according to 43 C.F.R. § 1610.5-1(b). Id. This first occurred for the Medford District BLM with the approval of the 1995 Record of Decision and Resource Management Plan (RMP), based on conditions at that time. BLM's 1995 Medford District RMP designated approximately 16,250 acres to be managed for OHV use, with use limited to designated trails and existing roads. The planning process for the development of the Timber Mountain Recreation Management Plan and Environmental Impact Statement began in 2003 under the direction of the 1995 Medford District Resource Management Plan.

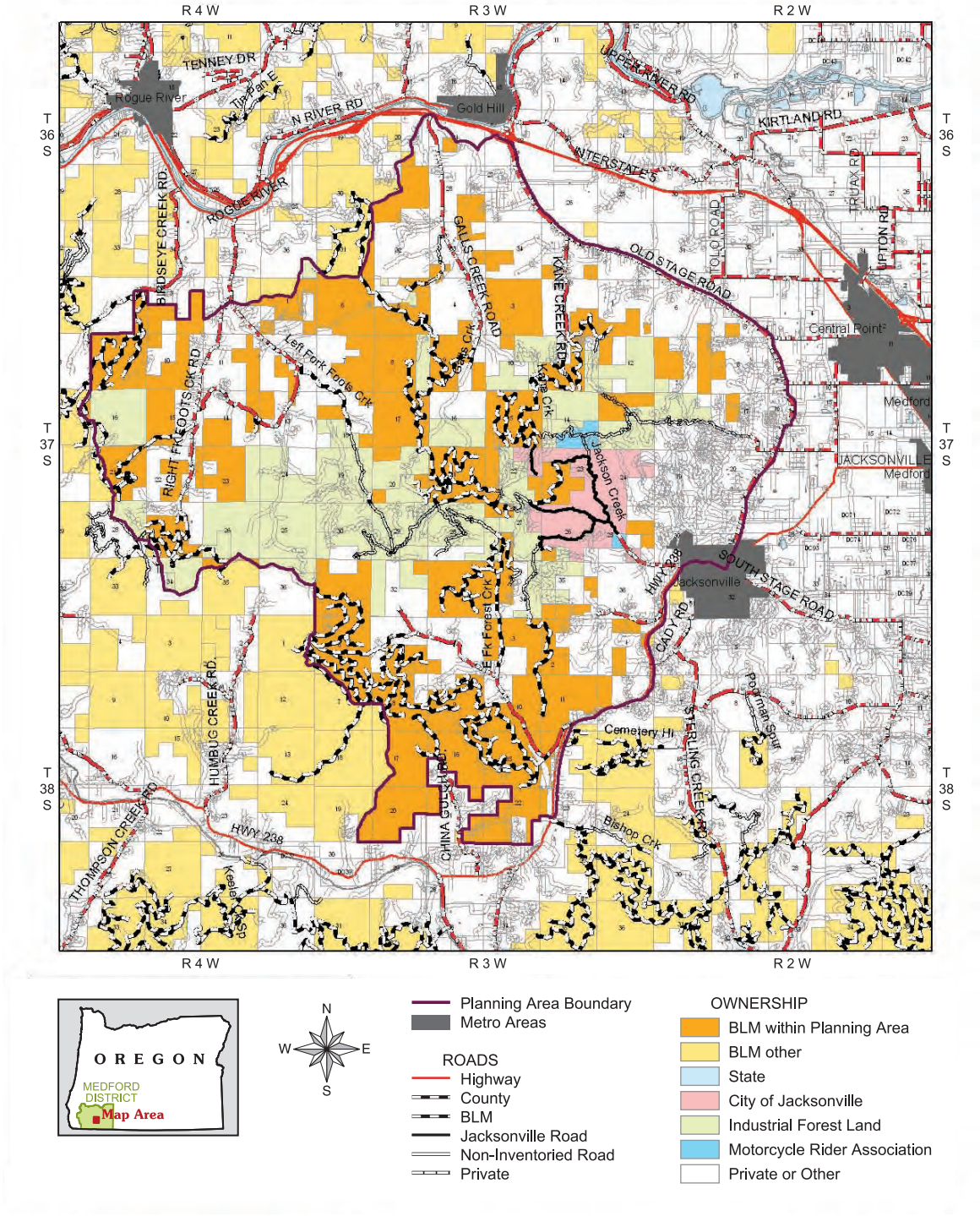
In September 2005, the planning process for the Western Oregon Plan Revision was initiated with the printing of a Notice of Intent in the Federal Register. The Timber Mountain limited OHV use designation was revisited through the Western Oregon Plan Revision process. The Western Oregon Plan Revision concluded in December 2008 with the signing of the Record of Decision adopting the 2008 Resource Management Plan for the Medford District BLM.

The 2008 Medford District Resource Management Plan designated about 15,114 acres in the Timber Mountain area to be managed as a Special Recreation Management Area with an OHV focus; OHV use will be limited to designated trails and roads. While the planning area used for the Timber Mountain EIS process covers a larger area than the Timber Mountain Special Recreation Management Area, the Timber Mountain Special Recreation Managment Area encompasses all action alternatives considered and analyzed in detail under this EIS. The planning area is used only for analysis purposes to describe certain resource conditions within a given geographic

area; the use of the planning area during this analysis will not result in managing OHV use inconsistent with current direction contained in the 2008 RMP for the Medford District BLM.

The Timber Mountain EIS planning area is situated generally to the west of the City of Jacksonville, and south of the Interstate-5 corridor in Jackson County, southwestern Oregon (Map 1-1). The legal description of the planning area is: T. 36 S., R. 2 W., in section 31; T. 36 S., R 3 W., in Sections 20-22, 26-36; T. 36 S., R. 4 W., in Section 36; T. 37 S., R. 2 W., in Sections 5-9, 16-20, 29-31; T. 37 S., R. 3 W. in Sections 1-36; T. 37 S., R. 4 W., in Sections 1-4, 9-17, 21-28, 34-36; T. 38 S., R. 4 W., in Section 1; T. 38 S., R. 3 W., in Sections 1-12, 14-17, 19-23; T. 38 S., R 2 W. in Section 6; Willamette Meridian (W.M.); surveyed Jackson County, Oregon.

Map 1-1. Vicinity Map for the Timber Mountain Planning Area



Why is the BLM Developing the Timber Mountain Recreation Management Plan?

The Timber Mountain Recreation Management Plan will provide detailed management direction for the Timber Mountain Recreation Management Area designated by the 2008 Record of Decision and Medford District Resource Management Plan. Management Objectives and Directions set forth in the RMP provide direction for resource management on BLM-administered lands. The primary objective for recreation management on BLM-administered lands is to "provide a diversity of developed and dispersed outdoor recreational opportunities that contribute to meeting the recreational demand and quality visitor experiences. This recreation management plan is designed to implement Management Objectives and Directions for recreation within the Timber Mountain Recreation Area.

The Timber Mountain Recreation Management Area is designated by BLM's 2008 RMP (and prviously by the 1995 RMP) to be managed for OHV use. However, the RMP did not develop route designations for a managed trail system, including access points and staging facilities. The 2008 RMP directs that final route designations will be accomplished, using an interdisciplinary travel and transportation management planning process, within 5 years of the completed Resource Management Plan. Alternatives for designating OHV routes and managing OHV use were developed and analyzed under this EIS using an interdisciplinary process and included extensive public outreach.

Off-highway vehicle use has increased tremendously in recent years, along with the proliferation of new unauthorized trails on both public lands in the Timber Mountain planning area, and surrounding private lands. Passive management of the OHV use has contributed to resource degradation, unauthorized access on private lands, and safety concerns. The quality of the OHV recreation experience is also being compromised due to lack of trail maintenance, inadequate signing and mapping, and lack of developed staging areas for parking, loading, and unloading OHVs.

The Timber Mountain Recreation Management Plan is needed to provide for a quality OHV recreation experience in a manner consistent with the 2008 Medford District RMP. For any alternative to be given consideration as a reasonable alternative it must meet the following objectives: 1) protect the natural resources; 2) promote the safety of all users; and 3) minimize conflicts among the various uses.

To accomplish the need described above, the Timber Mountain Recreation Management Plan will identify:

- A network of trails and roads to be designated and managed to provide for OHV use;
- Trail use specifications and design features to guide the management and maintenance of the trail system;
- Staging areas to be improved or developed to facilitate visitor parking, information, and OHV loading and unloading;
- Trail decommissioning needed to restore watershed conditions, prevent unintended trespass on adjacent private lands, and to protect resources including wildlife, water quality, aquatic habitat, fisheries, areas with sensitive soils, and botanical resources.

The EIS analyzes only those alternatives that address the needs identified for the Timber Mountain Recreation Management Plan. For a list of alternatives considered but not analyzed in detail, and an explanation of why they were not analyzed, please see Chapter 2, Alternatives Considered but not Analyzed in Detail.

Scoping Process and Issue Identification

Public Scoping

Public participation and comment was invited early in this planning process. An informational pamphlet describing BLM's proposal to develop a management plan was sent January 9, 2003 to adjacent neighbors and landowners, those people who previously showed interest in activities in the Timber Mountain planning area, and those requesting to be kept informed of all planning actions on Medford District BLM managed lands. A Notice of Intent to prepare an Environmental Impact Statement for the development of a recreation management plan for managing OHV use in the Timber Mountain Recreation Management Plan area was published in the Federal Register February 10, 2003, initiating the formal scoping process for this EIS. Two public meetings were held in March of 2003 to provide information to the public concerning the planning process, including BLM's need to develop a management plan, and to seek input from the public concerning the development of a management plan to guide OHV use in the Timber Mountain area. The status of this EIS process was also published quarterly since 2003, in the BLM's Medford Messenger, a quarterly newsletter.

In April, 2005 an open house was held to share draft alternative options developed by the BLM for managing OHV use in the Timber Mountain area, and to request input from the public concerning the draft alternatives. Additionally, the BLM met with individuals, neighborhood groups, adjacent land owners, user groups, and local government to discuss ideas and concerns related to the management of OHVs in the Timber Mountain planning area.

Significant Issues Identified Through Scoping

NEPA requires Federal agencies to focus analysis and documentation on the significant issues related to a proposed action (1501.7 (a) (2)). An interdisciplinary (ID) team of resource specialists reviewed the proposal and all pertinent information, including public input received, and identified relevant issues to be addressed during environmental analysis. The ID team and Responsible Official then identified which issues were significant as related to the Timber Mountain Recreation Management Plan. In accordance with NEPA Regulation's definition of "significance," (43 CFR 1508.27), the team identified issues as significant because of the extent of their geographic distribution, the duration of the effects, or the intensity of interest or resource conflict. These significant issues served as a basis for the development and comparison of alternatives and informed the decision factors identified in the section titled "Decision Framework" below.

While the Draft EIS focuses on the Significant Issues, all relevant issues identified through scoping are considered and documented in the various resource analyses. A list of additional issues addressed in this EIS follows the discussion of significant issues.

The following significant issues are organized by broad categories, followed by subsequent issue statements and discussion.

How would the Alternatives Affect Soils?

Off-highway vehicles can increase sediment transport by causing surface changes, such as wheel rutting, that alter water runoff patterns. Water in vehicle tracks contributes to the creation of channels and gullies. When trails become rutted, they often become wider, as riders attempt to avoid ruts and potholes; this is referred to as trail braiding.

The force of rolling wheels on soil displaces the protective elements (vegetation and organic material) and causes compaction. Soil compaction can decrease water infiltration, increase runoff, and contribute to erosion problems.

Soil compaction, displacement, and erosion from off-highway vehicle use could reduce site productivity and forest sustainability on areas heavily impacted by OHV use.

How would the Alternatives Affect Water Quality and Riparian Habitat?

The combination of high road densities, past harvest activities, and un-maintained OHV trails and with OHV use continue to contribute high sediment inputs to some streams within and downstream of the planning area. BLM stream survey data shows high sediment levels in Kane Creek, Birdseye Creek, and Right Fork of Forest Creek. Jackson Creek is also known to be heavily impacted by sediments. Proposed new trail and staging area construction could contribute to increased sedimentation, while the proposed decommissioning of trails would reduce sources of sedimentation to streams. Within the planning area, portions of Galls and Jackson Creeks are listed as water quality limited water bodies, on Oregon Department of Environmental Quality's 303(d) list, for high summer water temperature; a portion of Forest Creek is listed for dissolved oxygen levels. Downstream of the planning area, Birdseye and Humbug Creeks are also listed for high summer water temperatures.

Some commenters expressed a general concern for the pollution of streams and ground water from oil and gas spills associated with refueling off-highway vehicles, and from unburned fuel emitted through exhaust systems (especially two-stroke engines). Some people expressed their concern for the potential for adverse effects to well water, if ground water becomes contaminated from petroleum products.

There is concern that off-highway vehicle use across or along streams will impact riparian areas in the Timber Mountain planning area. Impacts are associated with damage to riparian vegetation and degradation of stream bank stability, leading to increased sediment delivery to the stream channel and reduced quality of riparian and stream habitat important to fish and other aquatic organisms.

How Would the Alternatives Affect Threatened and Endangered Species?

There is a concern for impacts to northern spotted owls, listed as Threatened under the Endangered Species Act (ESA), from OHV sound levels during the nesting season.

Populations of *Fritillaria gentneri,* (a member of the lily family) listed as Endangered under ESA, occur within the OHV area. There is concern for impacts to this species from off-highway vehicle use.

Forest Creek, Foots Creek, Kane Creek, Galls Creek, and Birdseye Creek all have sections within the planning area that are identified as Critical Habitat for Southern Oregon/Northern California coho salmon, listed as Threatened under ESA. Sedimentation continues to impact coho Critical Habitat. BLM scientists and biologists have determined that OHV use on unmaintained trails and roads is contributing substantially to the sediment concerns for some of these streams.

How would the Alternatives Affect Noise Levels for Adjacent Residents and the Community of Jacksonville?

Residents living in adjacent wildland rural interface areas are concerned that active management of the Timber Mountain Recreation Area will lead to increased OHV use and associated noise and trespass. They expressed their frustration with the noise, especially in the evenings and on weekends, generated from off-highway vehicle use near their homes.

- Some people feel this noise is infringing on their right to the peaceful enjoyment of their property and home.
- Some residents feel that noise disturbance is ruining the quality of their lives as well as their property values.

- Some residents of Jacksonville have expressed their concerns that noise from OHV use will affect their community.

Adjacent private property owners and the City of Jacksonville are experiencing unauthorized OHV use on their privately owned or City-administered forest lands, which can contribute to increased OHV sound levels in some areas.

Additional Issues

The interdisciplinary team of resource specialists identified additional issues, that while not determined to be significant, were included in the analysis because they disclosed consequences, affected design of component actions, required project design features, or whose disclosure of environmental effects are required by law or policy. In addition, the effects related to these issues often are minor and/or are consistent among the alternatives considered in detail.

How would the alternatives affect wildlife?

Various species of wildlife can be impacted by high road densities, associated noise disturbance, and habitat fragmentation. Noise disturbance can impact some wildlife species, including neotropical migratory birds and game birds below desired condition, by disrupting breeding, foraging, hibernation, and travel. Proposed new OHV routes could increase disturbance and habitat fragmentation in some areas while the decommissioning of some trails could decrease disturbance and habitat fragmentation in other areas.

Off road or trail OHV use can adversely impact ground vegetation that serves as habitat for some wildlife species by crushing and trampling vegetation. Proposed new trail routes would increase the area exposed to off trail OHV use (unintentional trail braiding and intentional cross country riding). Proposed new trail routes would also remove vegetation that serves as habitat for some ground dwelling and nesting species.

How would the alternatives affect botanical resources?

There is a concern that active management of the OHV area, including proposed new OHV trail and trailhead construction, could impact botanical resources.

- Direct impacts can result from crushing or trampling ground vegetation or the removal of vegetation for new trail or trailhead construction.
- Indirect impacts can result from the unintentional introduction and spread of noxious weeds. Soil disturbance, from OHV use, creates opportunities for the colonization and spread of noxious plants. There is a greater concern for the spread of noxious weeds during wet weather when muddy soil more readily attaches to vehicles, spreading soil and noxious weed seeds from one area to another.
- OHV exhaust could impact lichen species that are sensitive to air pollution.

How would the alternatives affect fire risk?

There is a concern that proposed new OHV trails, and active management of the OHV area, could lead to increased OHV use and an increased potential for fire starts. Residents living adjacent to the Timber Mountain planning area, in the urban wildland interface area, are concerned for the potential for fire starts from existing and increased off-highway vehicle use.

How would the alternatives affect other motorized and non-motorized recreation?

People who enjoy using public lands for a variety of other outdoor experiences including hunting, target shooting, fishing, dispersed camping, mountain biking, hiking, and horseback riding have commented

that OHV use does not mix well with these other types of recreation activities, thus, preventing their use of public lands in the Timber Mountain planning area. The proposed new trail and staging area construction could increase OHV use and its effects in some areas while the decommissioning of trail could decrease OHV use and associated effects in other areas. Specific comments received, include:

- Those who enjoy the use of the forest for non-motorized recreation are disturbed by the noise associated with OHV use.
- Proposed gated closures, limiting public land access to off-highway vehicles only, will close areas previously accessed by vehicles for other recreational activities such as hunting.
- People who live near the area that enjoy hiking or riding horses near their homes are concerned about the safety of mixing OHVs with hiking or horseback riding in the same areas. Their concerns for safety prevent them from using public lands near their homes for other recreation activities (also see public safety).
- One person expressed a concern that mountain bikes were not a compatible use with OHVs.

How would the alternatives affect the character of Jacksonville?

Many Jacksonville residents expressed a concern that improvements to the Timber Mountain Recreation Management Area would increase the numbers of people using the area. This could lead to increased numbers of OHV users and associated traffic passing through the City of Jacksonville, which they feel could ruin the quaint small town atmosphere. Some Jacksonville residents expressed their concern that a change in the town's character could result in loss of National Historic Landmark status, and could potentially impact the current tourist trade.

How would the alternatives affect OHV use patterns (increased or decreased use)?

Reducing the overall miles of trails by decommissioning would lead to increased OHV user densities and pressure on those trails to be maintained. Increased user densities would reduce the quality of the OHV experience and could increase the risk for OHV/vehicle collisions.

How would the alternatives affect traffic?

Some residents of Jacksonville and surrounding areas are concerned that the management of OHVs and associated improvements (trail maintenance, staging area construction/improvement, and new trail construction) will lead to substantial increase in the numbers of OHV users in the Timber Mountain Recreation Management Area. Any increase in OHV use could increase traffic through Jacksonville. Because there is not a highway bypass diverting through traffic around the town center, there is an existing problem of traffic congestion in Jacksonville. Other activities that contribute cumulatively to the traffic in Jacksonville are the Britt Festival in Jacksonville and visitation to the Applegate Christian Fellowship church located in Ruch.

Residents in adjoining neighborhoods expressed their concern that the implementation of a recreation management plan would increase OHV use and traffic congestion on roads accessing the Timber Mountain planning area. People living in these neighborhoods are concerned for the safety of their families, who use these roads, and for the inconvenience and extra noise that may be generated from increased traffic.

Residents living near the intersection of the Reservoir Road, Highway 238, and Mary Anne Drive intersection submitted their concerns for public safety due to increased traffic from people accessing the Timber Mountain planning area through the Jacksonville Reservoir road. They suggested that the Reservoir Road enters the highway near a blind corner. They also suggested that the junction is located immediately across from a popular parking area for the Jacksonville walking trail system, which also

contributes to traffic congestion. There is also concern for cumulative effects when combined with existing traffic associated with Applegate Christian Fellowship in Ruch.

How would the alternatives affect visual quality?

Some people commented that OHV use causes degradation of aesthetic and visual quality.

How would the alternatives affect public safety?

People have reported close calls of collisions with passenger motor vehicles and speeding OHVs and OHVs unexpectedly crossing roadways (i.e., Forest Creek Rd. and China Gulch Rd). Some people commented that roads are not wide enough to provide for two-lane traffic increasing risk of vehicle collisions.

A few people expressed their concern for the safety of children riding off-highway vehicles; they feel it is too dangerous a sport for young children and/or inexperienced young riders pose a safety concern for others using the area.

People who use the area for non-motorized recreation (mountain biking, horseback riding, and hiking) expressed their concerns for potential collisions with OHVs (also discussed under recreation conflicts).

How would the alternatives reduce or increase the potential for trespass on private lands?

Adjoining landowners and residents are experiencing trespass on their privately owned lands. Resources on some private lands are being damaged by unauthorized and unwanted off-highway vehicle use. Some landowners are concerned their lands will be damaged. Some private land owners have expressed that efforts to sign their private property are futile as some OHV users continue to tear down private property signs and knowingly trespass onto private land. Some landowners have stated they were threatened by OHV users when they confronted users to inform them they were trespassing on private land. These landowners are concerned with BLM's ability to keep users in designated areas especially over such a large area.

How would the alternatives affect air quality?

Some people expressed their concerns for increased air pollution from off-highway vehicle exhaust and dust stirred up from OHV use.

Legal Requirements

Conformance with Land Use Plans

Activities proposed under this EIS are in conformance with and tiered to the 2008 *Medford District Record of Decision (ROD) and Resource Management Plan* (RMP) (USDI 2008). The 2008 Medford District ROD/RMP allows for projects to be implemented consistent with the direction of either the 1995 or the 2008 RMP to allow for the transition from an old to a new resource management plan

Since planning for the development of this recreation management plan was initiated prior to the 2008 ROD/RMP, Ripararian Reserves, rather than Riparian Management Areas, were used to analyze the alternatives included in this EIS. Riparian Reserves provided a greater buffer distance and different requirements for vegetation management activities conducted within Riparian Reserves. Because this EIS is not proposing vegetation management activities, Riparian Reserves were used primarily to identify and compare the extent of OHV use in close proximity to riparian areas under each alternative. Project Design Features required for the protection of riparian areas, water quality, and aquatic habitats under each of the action alternatives would be the same under either the 1995 or 2008 Resource Management Plan.

The Medford District RMP allocates BLM-administered lands across the Medford District to various land use allocations, each accompanied by a set of Objectives and Management Direction. The Timber Mountain Recreation Management Area is primarily located on lands allocated to Timber Management Area and Riparian Management Area.

> **Timber Management Area:** One of the applicable laws governing the major portion of BLM-administered lands in the Timber Mountain planning area is the Oregon and California Railroad and Coos Bay Wagon Road Grant Lands Act of 1937 (O&C Act), for which sustainable timber production is the primary purpose. Lands allocated to Timber Management Area within the Timber Mountain Special Recreation Management Area are to be managed to assure continuous timber production that can be sustained through a balance of growth and harvest (USDI 2008).
>
> **Riparian Management Areas:** Riparian Management Areas are established to provide for the conservation of special status fish species; provide for riparian and aquatic habitat conditions; maintain and restore water quality; and to maintain and restore access to stream channels for all life stages of fish species.

Statutes and Regulations

All action alternatives have been designed to be in conformance with the direction given for the management of public lands in the Medford District by the following:

- **Federal Land Policy and Management Act of 1976 (FLPMA)**. Defines BLM's organization and provides the basic policy guidance for BLM's management of public lands.

- **National Environmental Policy Act of 1969 (NEPA)**. Requires the preparation of environmental impact statements for major Federal actions which may have a significant effect on the environment.

- **Endangered Species Act of 1973 (ESA)**. Directs Federal agencies to ensure their actions do not jeopardize species listed as "threatened or endangered" or adversely modify designated critical habitat for these listed species.
- **Clean Air Act of 1990 (CAA)**. Provides the principal framework for national, state, and local efforts to protect air quality.

- **Archaeological Resources Protection Act of 1979 (ARPA)**. Protects archaeological resources and sites on federally-administered lands. Imposes criminal and civil penalties for removing archaeological items from federal lands without a permit.

- **Safe Drinking Water Act (SDWA) of 1974 (as amended in 1986 and 1996)**. Protects public health by regulating the Nation's public drinking water supply.

- **Clean Water Act of 1987 (CWA)**. Establishes objectives to restore and maintain the chemical, physical, and biological integrity of the nation's water.

- **Oregon and California Lands Act of 1937 (O&C Act)**. Requires the BLM to manage O&C lands for permanent forest production. Timber shall be sold, cut, and removed in accordance with sustained-yield principles for the purpose of providing for a permanent source of timber supply, protecting watersheds, regulating stream flow, contributing to the economic stability of local communities and industries, and providing recreational facilities.

Decision Framework

The development of a recreation management plan and this Environmental Impact Statement will not revisit whether or not to allow OHV use in the Timber Mountain Recreation Management Area; that decision has already been made (USDI 2008). This Environmental Impact Statement will provide the information needed for the Responsible Official, BLM's Medford District Manager, to render a decision regarding the selection of a management plan to guide the management of OHV use in the Timber Mountain Recreation Management Area. The District Manager must decide whether to implement a recreation management plan with the selection of an action alternative, or whether to select the No-action Alternative.

Before a decision is made regarding a management plan, the public is being provided a chance to review and comment on this Draft EIS. All substantive public comments will be considered by the responsible official and interdisciplinary team in the preparation of a Final EIS for the Timber Mountain Recreation Management Plan.

In choosing an alternative for guiding OHV use in the Timber Mountain Recreation Management Area, the responsible official will consider the extent to which each alternative responds to the project's needs and the significant issues identified through scoping. The decision factors identified below incorporate the needs and significant issues identified above. The forthcoming Record of Decision will document the Responsible Official's rationale for selecting a course of action based on the decision factors listed below; the responsible official will consider the extent to which each alternative:

1. Contributes to the providing for a quality OHV recreation experience;
2. Contributes to the improvement of water quality (reduced sedimentation) within streams located in the Forest Creek, Birdseye Creek, Foots Creek, Galls Creek, Kane Creek, China Creek, Jackson Creek, and Willow Creek drainages;
3. Contributes to the restoration of coho critical habitat within and down stream of the Timber Mountain planning area;
4. Reduces impacts and contributes to the restoration of soils and site productivity;
5. Contributes to the restoration of aquatic habitat within and down stream of the Timber Mountain planning area;
6. Considers the interests of adjacent rural residential land owners; and
7. Responds to public safety and reduces conflicts among uses.

Relevent Strategies, Studies, & Plans

National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands

The Bureau of Land Management's National Management Strategy for Motorized Off-Highway Vehicle Use on Public Land facilitates a consistent approach for implementing better on-the-ground management of motorized vehicles designed to conserve soil, wildlife, water quality, native vegetation, air quality, heritage resources, while providing for appropriate motorized recreation opportunities. This strategy recognizes that off-highway vehicle use is an acceptable use of public land wherever it is compatible with established resource management objectives. The strategy does not replace existing regulations for managing motorized vehicle use. Rather, the national strategy is an effort to manage motorized OHV activities nationwide in full compliance with Executive Orders 11644 (1972) and 11989 (1978), and 43 CFR 8340, to promote consistency among decisions regarding the management of OHV uses, and to clarify legal authorities for managing motorized OHV uses for BLM land manager's.

Watershed Analysis

Under the previous RMP (1995), several formal watershed analyses were completed as part of implementing the Aquatic Conservation Strategy(ACS) of that plan. Watershed analysis under the Aquatic Conservation Strategy

used a systematic procedure for characterizing watersheds and was the primary tool for generating information to implement ecosystem management. Watershed analyses focused on issues and key questions that were the most relevant to the management of resource conditions and human values within a watershed analysis area at that time. While the Aquatic Conservation Strategy and watershed analyses completed under the ACS are no longer required under the 2008 RMP, the watershed analyses already completed provide useful information for the analysis completed in this EIS. The Timber Mountain planning area falls within portions of three separate watershed analysis areas: South Rogue-Gold Hill, Middle Applegate, and West Bear Creek. These watershed analysis documents are incorporated by reference to this EIS. Watershed analysis generally focused on existing information available at the time the analysis was conducted.

Data gaps were identified for each watershed analysis area; however, information determined to be necessary for completing a thorough analysis of various OHV management alternatives was obtained for this analysis. Data acquired and analysis conducted in association with the development of this Environmental Impact Statement was considered along with information contained in the South Rogue-Gold Hill, Middle Applegate, and West Bear Creek watershed analysis documents. Management Objectives and Recommendations of each Watershed Analysis document were considered during the development of the Timber Mountain Recreation Management Plan, when not in conflict with the 2008 RMP.

The following briefly summarizes the three associated watershed analyses:

South Rogue-Gold Hill Watershed Analysis

The 2001 (August) South Rogue-Gold Hill Watershed Analysis followed the six-step process outlined in the *Ecosystem Analysis at the Watershed Scale, Federal Guide for Watershed Analysis, version 2.2*. The South Rogue-Gold Hill Watershed Analysis Area encompassed about 41,029 acres within the Middle Rogue River Subbasin, south of the Rogue River, between Evans Creek and Bear Creek. The major streams covered in the analysis area are Kane Creek, Galls Creek, Millers Gulch, Foots Creek, and Birdseye Creek.

West Bear Creek Watershed Analysis

The 2001 West Bear Creek Watershed Analysis followed the six-step process outlined in the *Ecosystem Analysis at the Watershed Scale, Federal Guide for Watershed Analysis, version 2.2*. The West Bear Creek Watershed Analysis Area encompassed about 59,566 acres southwest of Bear Creek; the major streams covered in the analysis area are Wagner, Anderson, Coleman, Griffin, Jackson, and Willow Creeks.

Middle Applegate Watershed Analysis

The 1995 Middle Applegate Watershed Analysis followed the six-step process outlined in the *Draft Revised Federal Guide for Watershed Analysis, version 2.1*. The Middle Applegate Watershed Analysis Area encompasses about 83,585 acres within the Applegate River Subbasin. Five subwatersheds make up the Middle Applegate Watershed: Ferris/Slagle, Humbug/Chapman, Forest Creek and Spencer/Rock.

Department of Interior, Bureau of Land Management, Western Oregon Districts, Transportation Management Plan (1996, updated 2002).

The Western Oregon Districts, Transportation Management Plan, is not a decision document; rather it provides guidance for implementing applicable decisions of the Medford District Resource Management Plan (which incorporated the Northwest Forest Plan). Guidance from the Transportation Management Plan, to the extent that it was not in conflict with the 2008 RMP, was considered during the development of the Timber Mountain Recreation Management Plan.

Issues Considered but Eliminated from Detailed Analysis

Eliminate OHV use in the Timber Mountain Planning Area

The decision whether to close the Timber Mountain area to OHV use is a land use plan level decision, and is therefore outside the scope of analysis and decision framework identified for this recreation management plan. When public outreach began in 2003 for the development of this management plan, some people living adjacent to the planning area, or in nearby communities, complained that they were not aware that the 1995 Medford District Resource Management Plan designated the Timber Mountain area to be managed to provide for OHV use. Even though there was extensive public outreach conducted as part of BLM's land use planning process during the late 1980s and early 1990s, some of the people responding to scoping for this EIS felt they were not adequately notified of BLM's previous plans, which resulted in the designation of the Timber Mountain area for OHV use. These people felt that the OHV designations made under the 1995 RMP should be revisited, and requested BLM to consider current and potential OHV designations for the Medford District under the Western Oregon Plan Revision process.

The Western Oregon Plan Revision process considered thirteen areas on the Medford District BLM to be managed as Special Recreation Management Areas, focused on providing for OHV use. The Timber Mountain Special Recreation Management Area was analyzed to remain open under Alternative 2 and the Proposed Resource Management Plan, and was considered as closed to OHV use under Alternatives 1 and 3 (USDI 2008). The 2008 Medford District ROD designated the Timber Mountain Recreation Management Area to provide for OHV recreation (USDI 2008). Therefore, the BLM has an obligation to actively manage the existing OHV use in the Timber Mountain Special Recreation Management Area in a manner that protects resources, provides for public safety, and reduces conflicts among uses.

Special Recreation Use Permit Fees

There was a concern expressed that the recently implemented fee system for special recreation events is excessive. The proposal to develop a recreation management plan for the Timber Mountain Recreation Management Area does not involve issuing decisions or collecting fees for individual Special Recreation Use Permits. Furthermore, the fees charged for Special Recreation Use Permits are established by the Director of BLM in accordance with 43 CFR 2932.31. Therefore, the issue regarding fees collected for Special Recreation Use Permits is beyond the scope of analysis and decision framework established for this proposal.

Soil-born Diseases

A few comments were received expressing concern that OHV use can cause the spread of soil born diseases (Sudden Oak Death and *Phytophthera lateralis)*. *Phytophthera lateralis* only infects two species: primarily Port-Orford Cedar and occasionally Pacific yew. Mortality is less and often absent altogether on dry micro-sites. Pacific yew is much less susceptible to the pathogen than Port-Orford-cedar, and evidence indicates that it mainly becomes infected when in close association with many already-infected cedars (Murray and Hansen 1997). Port-Orford Cedar does not occur in the Timber Mountain planning area and Pacific yew occurs only in small numbers, scattered throughout the planning area and is primarily restricted to riparian areas. Because the primary host species does not occur in the planning area, and since Pacific yew is much less susceptible and occurs only in low numbers in the planning area, *Phytophthera lateralis* is not a concern for the management of the OHV area.

Phytophthera ramorum is a new species (2001) and study is ongoing. It currently is infecting host trees in 14 California counties and one Oregon county, all coastal. With Sudden Oak Death, *Phytophtera ramorum*, Tanoak is the only species being killed in Oregon. Its only occurrence in Oregon is in Curry County. The pathogen occurs mainly in the coastal region of California and Oregon in wetter and cooler natural environments. Nurseries, however, can create microclimates that mimic the environment favorable for *P. ramorum*. In Oregon, the climate in the coastal zones is favorable to its spread, but less favorable in drier conditions. Because the Timber Mountain planning area is not located in the wetter and cooler environment of the coastal region, this pathogen is not concern for the management of the Timber Mountain Recreation Management Area.

Trash Dumping, Vandalism, and Night Time Parties

There are ongoing problems in and adjacent to the planning area with night-time alcohol parties, vandalism, and trash dumping. While some people perceive this problem to be accociated with OHV use, these other ongoing problems are largely unrelated to OHV use and occur across public and private lands throughout the Medford District. Because these other ongoing problems are for the most part not related to the management OHV use, this issue was eliminated from detailed analysis under this EIS. Medford District law enforcement Rangers will continue to respond to citizen complaints regarding these other ongoing nuisance activities on BLM-administered land and will issue citations to persons found to be in violation of state or federal laws.

Chapter 2
Alternatives

Chapter 2. Alternatives

This chapter provides a description of the alternatives designed for managing off-highway vehicle (OHV) recreation in the Timber Mountain Recreation Management Area. Each alternative, except the No-Action Alternative, represents a means for satisfying the need for a recreation management plan, identified in Chapter 1, Purpose and Need. While this recreation management plan focuses on OHV use, other dispersed recreation is occurring in the planning area including hiking, horseback riding, mountain biking, driving for pleasure, hunting, target shooting, dispersed camping, and collection of special forest products (i.e. firewood and Christmas tree cutting, mushroom picking). These other forms of recreation will continue to be allowed throughout the planning area; the effects of the alternatives on non-OHV recreation are addressed in Chapter 3, Affected Environment & Environmental Consequences.

The range of alternatives developed also responds to the decision factors listed under the section titled Decision Framework in Chapter 1. A No Action Alternative (Alternative 1) is included for detailed analysis, providing a benchmark against which to evaluate the action alternatives and will answer the question: What would occur if a recreation management plan is not implemented?

Alternatives Analyzed in Detail

Five alternatives are included for detailed analysis in this Draft EIS, including the No Action Alternative. When presented in a comparative format, the analysis of a range of alternatives provides the decision maker with a reasoned choice among alternatives for meeting the project objectives. Alternatives that were considered but eliminated from detailed analysis are also described, along with the rationale for elimination (refer to the section titled Alternatives Considered but Eliminated from Detailed Analysis located near the end of this Chapter).

Identification of a Preferred Alternative - A preferred Alternative has not been identified at this time. Rather the Responsible Official has chosen to defer the selection of a preferred alternative until after the public review period. A Preferred Alternative will be identified in the Final EIS.

Alternative 1 – No Action

Alternative 1 describes the current management situation regarding OHV use in the Timber Mountain Recreation Management Area. The Medford District RMP designated the Timber Mountain area to be managed to provide for OHV recreation, with OHV use to be limited to designated roads and trails. However, the RMP did not complete final route designations. Under Alternative 1, OHV use would continue on all existing roads and trails in the Timber Mountain area, and general vicinity, unless otherwise closed. Final OHV route designations would not be completed and additional development or modification of facilities would not be authorized at this time. Alternative 1 does not address the stated need for this project (Chapter 1), which includes providing for a quality OHV recreation experience, protection of natural resources, providing for visitor safety, and minimizing conflicts among various uses.

Selection of the No-Action Alternative would not constitute a decision to close these lands to OHV use. The selection of the No-Action Alternative would not preclude future road or trail maintenance as program funds become available, nor would it preclude future site-specific proposals, and appropriate NEPA analysis, to develop or modify OHV facilities.

Description

Under the current management situation, there are about 88.3 miles of trails and 97.3 miles of roads used by OHVs across BLM-administered land in the planning area. OHV use is also occurring on adjacent private land. The BLM estimates that about 92.2 miles of trails and 98.1 miles of roads on private lands within the planning area are used by OHVs. Combining both private and public land there is estimated to be approximately 375.9 miles of OHV routes (trails and roads) within the planning area (Table 2-1) (Map 2-1).

Table 2-1 displays the approximate miles of existing trails and roads, by land ownership, within the planning area. Trails and roads are further divided into trail classes associated with OHV use. Road mileage displayed below includes open roads and roads closed by gates or barricades. Because trails have not been designated for the area, trail classes have been assessed based on the type of existing use observed. Trail classes generally define the type of vehicle use that is accommodated. Class 1 trails accommodate 3 to 4 wheeled machines up to 50 inches in width; Class 2 trails accommodate vehicles greater than 50 inches wide, such as 4x4 trucks and sports utility vehicles; Class 3 trails are designed to accommodate two-wheeled motorcycles. The section titled Components Common to all Alternatives includes discussion of state laws and regulations regarding OHV use and more detail concerning trail classifications.

Table 2-1. Alternative 1 – Current OHV use in the Timber Mountain OHV Area and Vicinity.

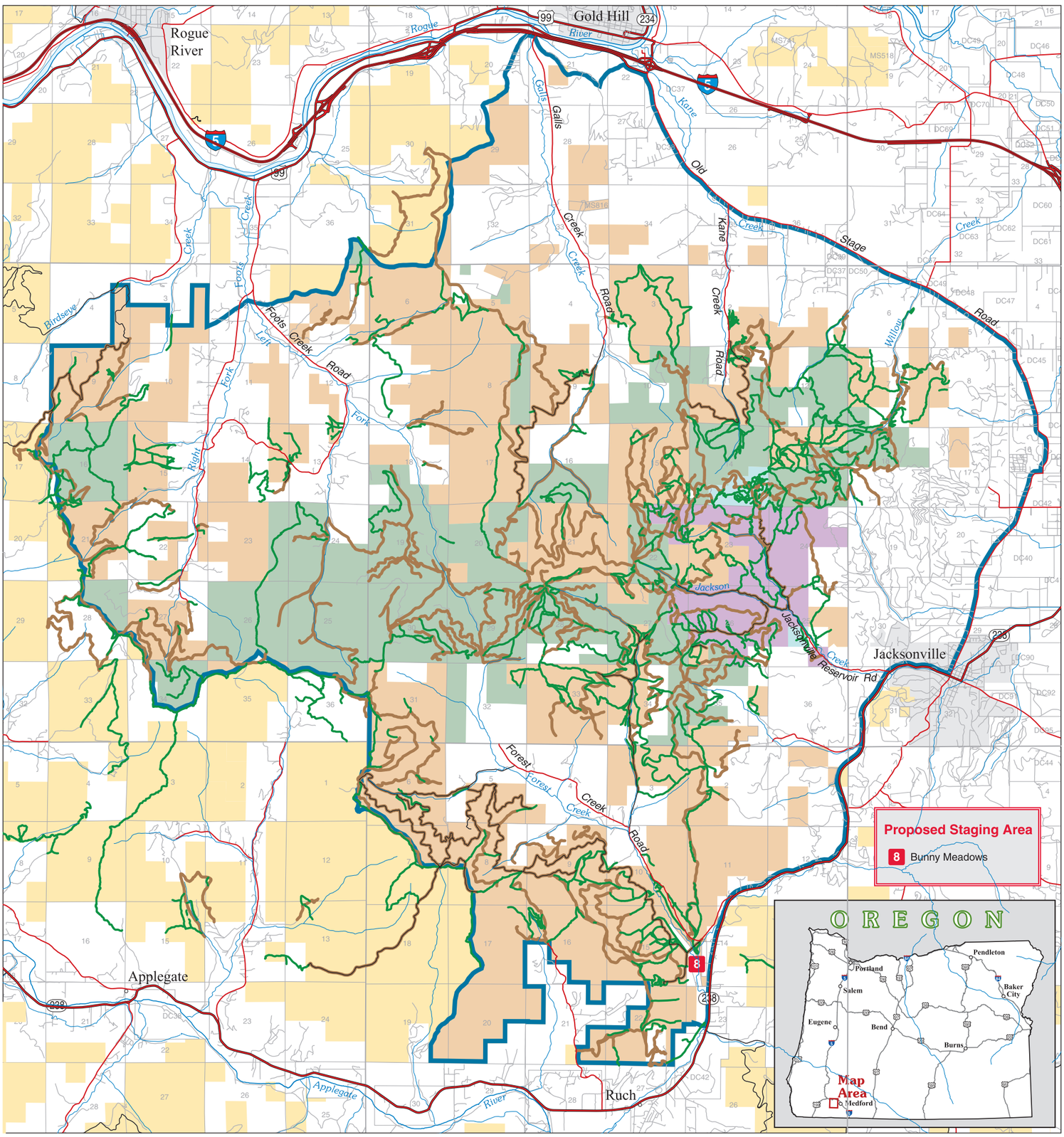
Trail Class	BLM-administered			Adjacent Non-Federal Lands			Total
	Existing		Proposed	Existing		Proposed	
	Trail	Road	New Trail	Trail	Road	New Trail	
1	32.6	15.3	na	50.6	13.0	na	111.5
2	23.3	81.5	na	18.7	84.3	na	207.8
3	32.3	0.5	na	22.9	0.8	na	56.5
TOTALS	88.3	97.3	na	92.2	98.1	na	375.8

In 2007, about 1,725 acres of the Timber Mountain planning area were temporarily closed to OHV use due to resource impacts, primarily sedimentation to Kane Creek and Forest Creek and impacts to soils from a hill climb north of Bunny Meadows staging area. This closure temporarily reduces the miles of trails reported above and is in effect until such time that impacts have been corrected and measures are in place to prevent reoccurrence of resource degradation (43 CFR 8341.2). The hill climb north of Bunny Meadows was water-barred, gullies filled in, and the disturbed area was mulched and closed using a fence. The riparian area along Forest Creek in Bunny Meadows was also fenced. The closure still remains in effect until the BLM has determined the area to be stabilized and recovered. No active restoration has occurred in the 1,525-acre closure area in the Kane Creek drainage. The Kane Creek area closure remains in effect until measures are implemented to correct and prevent reoccurrence of resource degradation (43 CFR 8341.2).

While people who frequently ride in the planning area are more familiar with land ownership patterns, many OHV riders are unable to distinguish differences between public and private lands in the Timber Mountain planning area. Because no trails have been formally designated, mapped, or signed on public lands, it is difficult for most people to keep track of the checkerboard land ownership patterns. Some private land owners have posted their properties as private with no-trespassing signs, while some landowners are not opposed to responsible OHV use on existing roads and some trails.

There are currently no fully developed staging areas on BLM-administered lands within the Timber Mountain area; Bunny Meadows staging area was recently signed to manage existing dispersed use, but has not been fully developed to address this use (Table 2-6). Riders utilize road turn-outs, flat areas, and wide intersections throughout the planning area as parking and unloading areas. Many riders utilize staging areas on the Motorcycle Riders Association land in T. 37 S., R. 3 W., in Section 25, and in the Lilly Prairie s area in Section 14. Other popular areas for off-loading OHVs for a day ride include Kane Creek Road (outside the closure area), China Gulch Road, Bunny Meadows staging area (historically used as a gravel stockpile site and a timber sale helicopter landing), and Pair-a-Dice Road. Additionally, some people that live in the vicinity of the planning area ride OHVs from their homes to trails in the OHV area.

Access to the Timber Mountain planning area is currently occurring from roads with public access and some roads without public access rights. Access routes, with public access to BLM-administered land within the planning area include portions of Birdseye Creek Road, Foots Creek Road, Galls Creek Road, Kane Creek Road, Forest Creek Road, Jacksonville Reservoir Road, and China Gulch Road.



Planning Area Boundary

Existing Use, On-Road

Existing Use, Off-Road

Interstate

Highway

County or State Road

BLM Road with Public Access

Other Road

Administered Land

BLM Land within Planning Area

BLM Outside Planning Area

Private or Other

Industrial Forest

City of Jacksonville

Motorcycle Rider Association

Urban Area

Please Note: This alternative map displays trail routes across privately owned lands and City of Jacksonville forest lands. At this time, no commitments have been made by adjacent land owners to participate in a managed off-highway vehicle trail system. Trail system networks displayed on these maps would be contingent upon entering into formal agreements with willing and cooperating land owners. Discussions have taken place with affected land owners to explore these opportunities and will continue as BLM works through this planning effort.

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N W E S

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Action Alternatives

This section discusses alternatives that were considered by the Responsible Official as alternatives that propose "action" in the form of managing designated OHV use in accordance with RMP direction. Four action alternatives, designed to attain the purpose and need identified in Chapter 1, are analyzed in detail in this Draft EIS. The alternative range looks at different ways to meet the stated Purpose and Need while responding to significant issues (incorporated into Decision Factors), also identified in Chapter 1.

Participating Private Land Owners

Opportunities exist to work with adjacent private landowners to manage OHV use across land ownership boundaries. Five neighboring landowners recognized that solutions for addressing issues associated with OHV use may result from working cooperatively with the BLM and other adjacent landowners to assess the current conditions and options. While these landowners have not committed to actively managing OHV trails on their lands, as part of the Timber Mountain OHV trail network, they have agreed to allow the BLM to analyze the use of OHV routes across their lands in the range of alternatives considered in this EIS.

The management of OHV route opportunities on adjacent private lands is recognized by the BLM as a connected activity and will be analyzed in conjunction with BLM's range of alternatives. The action alternatives analyzed only include routes being proposed as part of a trail system. BLM is not proposing decommissioning on private land with this management plan proposal. However, participating landowners have expressed their desire to keep OHV use primarily confined to trail routes identified through this EIS process. Therefore, the BLM assumes with the implementation of a management plan and effective law enforcement, that OHV use off of designated routes would decrease substantially on private lands.

The selection of an alternative with routes across private land would require a written agreement between the BLM and the participating landowner(s) to document responsibilities for coordination and cooperation between the BLM and the private land owner(s) in the management of OHV activities across ownership boundaries.

Alternatives 2, 3, and 5 analyze the potential management of OHV routes (trails and roads) across BLM-administered lands and adjacent private lands. OHV routes located on adjacent private lands are analyzed as a connected action under Alternatives 2, 3, and 5. "Connected actions…means that they are closely related and therefore should be discussed in the same impact statement. Actions are connected if they:

(i) Automatically trigger other actions which may require environmental impact statements.
(ii) Cannot or will not proceed unless other actions are taken previously or simultaneously.
(iii) Are interdependent parts of a larger action and depend on the larger action for their justification." (40 CFR 1508.25). Alternative 4 does not propose the management of trails across ownership boundaries and is not dependent on cooperative agreements with private landowners.

Alternative 2

Alternative 2 provides for well dispersed OHV use across the Timber Mountain planning area, while reducing the overall trail density and implementing project design features developed to provide protection to resources, improve visitor safety, and to reduce conflicts among uses. The OHV trail system proposed for management is dispersed across BLM-administered, private, and City of Jacksonville land.

This alternative would be dependent upon the development of written agreements between the BLM and adjacent participating private land owners to manage a connected system of trails across public and private lands. Proposed trail management on adjacent private lands is recognized as a connected activity and will be analyzed in conjunction with Alternative 2.

Description

Under Alternative 2, the BLM would designate and manage an estimated 111.2 miles of trails and roads on BLM-administered lands for OHV use (Table 2-2) (Map 2-2). Under this alternative, a total of 27.9 miles of roads and some trails have been proposed for use on adjacent private lands for the management of an OHV trail system across ownership boundaries.

Table 2-2 displays the approximate miles of trails and roads, by land ownership, proposed for managed OHV use within the planning area. Trails and roads are further divided into trail classes associated with OHV use. Road mileage displayed below includes open roads and roads closed by gates or barricades. Roads with an assigned trail class are roads located behind existing gates or barriers that serve to control passenger vehicle access. Roads listed under "open shared use roads" are those roads open to all vehicle traffic including OHV use. The section titled Components Common to all Alternatives includes discussion of state laws and regulations regarding OHV use and more detail concerning trail classifications.

Table 2-2. Trails/Roads by Trail Class and Land Ownership for Alternative 2.

Trail Class	BLM-administered			Adjacent Non-Federal Lands			Total
	Existing		Proposed	Existing		Proposed	
	Trail	Road	New Trail	Trail	Road	New Trail	
1	8.3	23.2	3.9	4.5	6.5	0	46.2
2	1.3	9.6	0	0	0	0	11.6
3	17.8	1.2	6.1	2.2	0.4	0.2	27.2
Open Shared Use Roads	na	39.8	na	na	14.1	na	53.9
TOTALS	27.4	73.8	10.0	6.7	21	0.2	138.9

Under this alternative, the BLM would construct 3.9 miles of Class 1 trails and 6.1 miles of Class 3 trails on BLM-administered land as shown in Table 2-2 and Map 2-2.

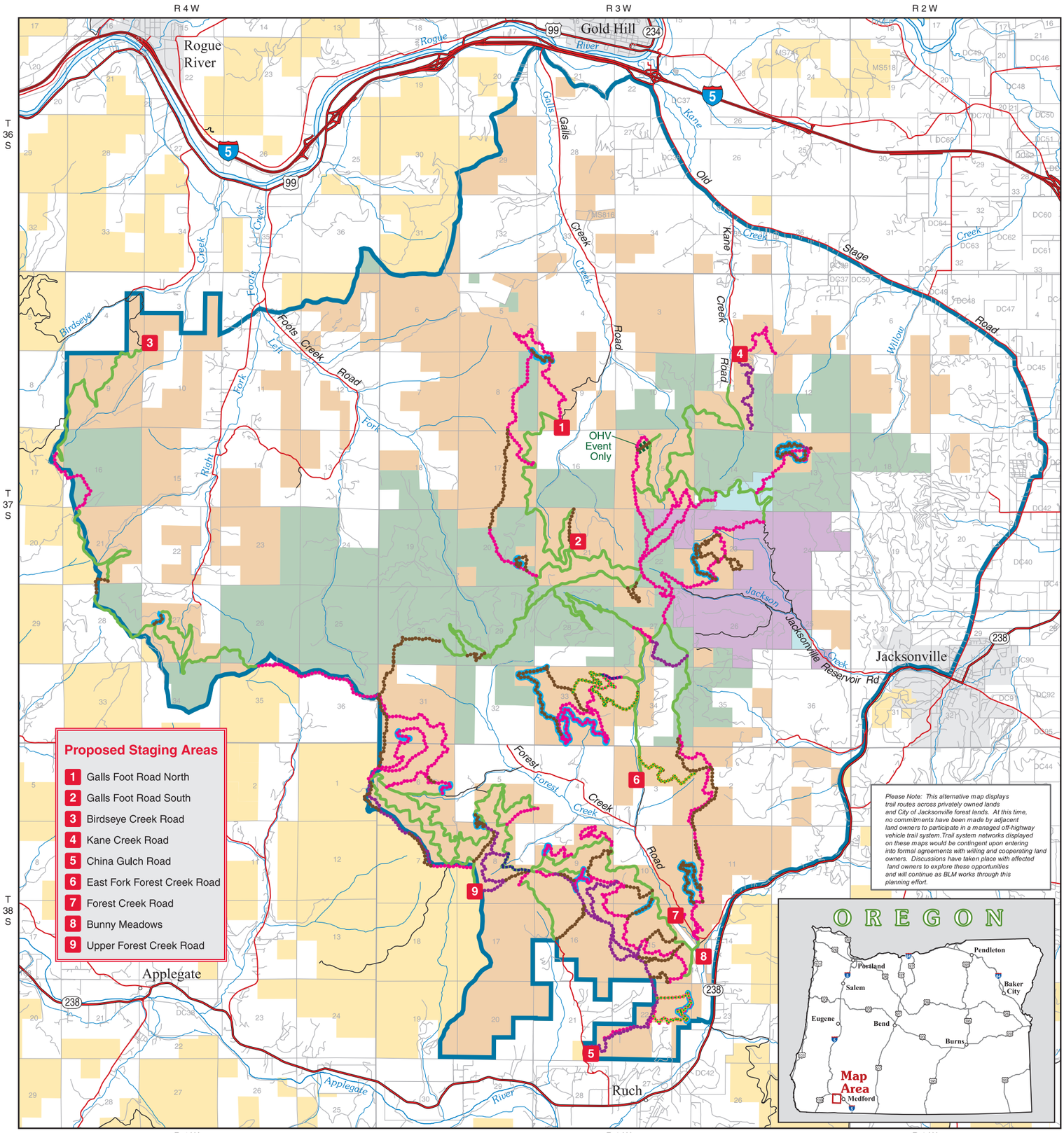
Nine staging areas would be managed on BLM-administered land to provide off-loading and loading areas for riders (Table 2-6). Four of the nine areas would require minor terrain modifications to level and/or slightly expand existing parking areas. Other improvements to the staging areas include rock surfacing, vegetation planting, vehicle control barriers, and the installation of information boards to display maps, visitor information, rules of conduct, and state laws and regulations regarding OHV use. One of the nine staging areas, upper Forest Creek, would be used primarily for an event staging area. One new staging area, designed to accommodate 25 to 45 vehicles, is proposed for construction just off of Forest Creek road. A more detailed description of each of the staging areas is included under the section titled Staging Area Development and Improvement below. These areas are located in a manner to disperse use across the OHV management area. Access to these staging areas would occur from BLM's public access roads. Use of dispersed off-loading areas would continue to be allowed unless posted as closed to this type of use.

Existing trails not proposed for management on BLM-administered lands are proposed for trail decommissioning. The objectives of decommissioning are to prevent further OHV use on trails not identified for management, and to place the land currently occupied by the trail back in to forest production. Under Alternative 2, the BLM proposes to decommission 60.8 miles of trails (24.3 miles of class 1, 22 miles of class 2, and 14.5 miles of class 3 trails) on BLM-administered lands.

Trail decommissioning would involve:

- Water barring, roughing up the trail surface, seeding, and mulching to decrease channeling and erosion.
- Barricading the entrance and pulling debris across the trail for the first 50 to 300 feet, depending on the level of use, the terrain, and surrounding vegetation (ease of access around barricades).

Map 2-2: Timber Mountain Recreation Management Plan
Draft Environmental Impact Statement
Alternative 2



LEGEND

- Planning Area Boundary
- Proposed Trail

Seasonal Trail Closure

- Wildlife Closure, March 1 - June 30
- Event-Wildlife Closure, March 1 - September 30
- Resource Closure, October 15 - May 15

Off Highway Vehicle Trails

- Class I - ATV
- Class II - 4x4
- Class III - Single Track
- Road Open to OHV
- OHV Event Only
- Interstate
- Highway
- County or State Road
- BLM Road with Public Access
- Other Road

Administered Land

- BLM Land within Planning Area
- BLM Outside Planning Area
- Private or Other
- Industrial Forest
- City of Jacksonville
- Motorcycle Rider Association
- Urban Area

N W E S

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Project Design Features for Alternative 2

Alternative 2 will implement Project Design Features described in the section titled Project Design Features Common to all Action Alternatives. Additionally, Alternative 2 would implement a seasonal restriction during the wet weather season (generally October 15 to May 15) on some trails along the lower slope positions which have the greatest potential for sediment production to aquatic systems.

Alternative 3

Alternative 3 provides for well dispersed OHV use across the Timber Mountain planning (Map 2-3), while reducing the overall trail density and implementing project design features developed to provide protection to resources, improve visitor safety, and to reduce conflicts among uses. This alternative is designed to enhance the OHV recreation experience through the installation of additional gates to control passenger vehicle access on specific OHV routes. This alternative therefore has fewer miles of open shared use roads than Alternative 2. The OHV trail system proposed for management is dispersed across BLM-administered, private, and City of Jacksonville land.

The implementation of Alternative 3 would be dependent upon the development of written agreements between the BLM and adjacent participating private land owners to manage a connected system of trails across public and private lands. Proposed trail management on adjacent private lands is recognized as a connected activity and will be analyzed in conjunction with Alternative 3.

Description

Under Alternative 3, the BLM would manage a total of 110.4 miles of trails and roads on BLM-administered lands for OHV use (Table 2-3) (Map 2-3). Under this alternative, a total of 27.8 miles of roads and some trails have been proposed for use on adjacent private lands for the management of an OHV trail system across ownership boundaries.

Under Alternative 3, the BLM would construct an additional 2.2 miles of Class 1 trails and 7.4 miles of Class 3 trails on BLM-administered land, as shown in Table 2-3 and Map 2-3, to increase trail loop opportunities on BLM-administered lands.

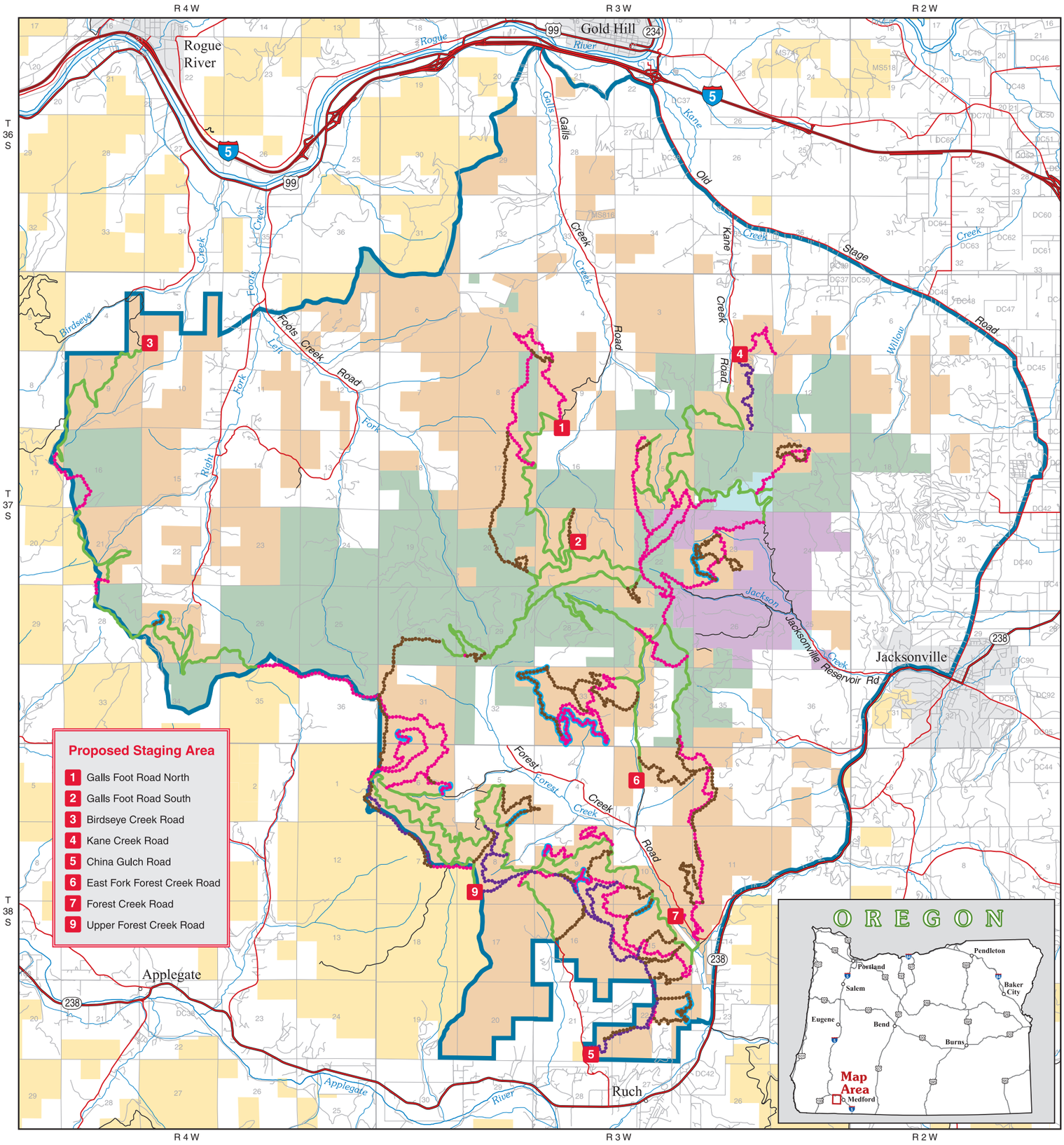
Table 2-3 displays the approximate miles of trails and roads, by land ownership, proposed for managed OHV use within the planning area. Trails and roads are further divided into trail classes associated with OHV use. Road mileage displayed below includes open roads and roads closed by gates or barricades. Existing roads with an assigned trail class are roads located behind existing gates or barriers that serve to control passenger vehicle access. Roads listed under "open shared use roads" are those roads open to all vehicle traffic including OHV use. The section titled Components Common to all Alternatives includes discussion of state laws and regulations regarding OHV use and more detail concerning trail classifications.

Table 2-3. Trails/Roads by Trail Class and Land Ownership for Alternative 3

Trail Class	BLM-administered			Adjacent Non-Federal Lands			Total
	Existing		Proposed	Existing		Proposed	
	Trail	Road	New Trail	Trail	Road	New Trail	
1	8.4	33.1	2.2	4.1	6.5	0	54.3
2	1.6	9.0	0	0	0	0	10.6
3	17.4	5.7	7.4	2.2	0.4	0.2	33.3
Open Shared Use Roads	0	25.6	na	0	14.4	na	39.9
TOTALS	27.4	73.4	9.6	6.3	21.3	0.2	138.1

Eight staging areas would be managed on BLM-administered lands to provide off-loading and loading areas for OHV users (Table 2-6). These areas are located to disperse use across the area and utilize BLM roads with public access. Four of the eight staging areas would require minor terrain modifications to level and/or slightly expand existing parking areas. Other improvements to the staging areas include rock surfacing, vegetation planting, vehicle control barriers, and the installation of information boards to display maps, visitor information, rules of conduct, and state laws and regulations regarding OHV use. One of the eight staging areas, upper Forest Creek, would be used primarily for an event staging area. One new staging area, designed to accommodate 25-to 45

Map 2-3: Timber Mountain Recreation Management Plan
Draft Environmental Impact Statement
Alternative 3



LEGEND

- Planning Area Boundary
- Proposed Trail

Off Highway Vehicle Trails

- Class I - ATV
- Class II - 4x4
- Class III - Single Track
- Road Open to OHV
- Interstate
- Highway
- County or State Road
- BLM Road with Public Access
- Other Road

Administered Land

- BLM Land within Planning Area
- BLM Outside Planning Area
- Private or Other
- Industrial Forest
- City of Jacksonville
- Motorcycle Rider Association
- Urban Area

Please Note: This alternative map displays trail routes across privately owned lands and City of Jacksonville forest lands. At this time, no commitments have been made by adjacent land owners to participate in a managed off-highway vehicle trail system. Trail system networks displayed on these maps would be contingent upon entering into formal agreements with willing and cooperating land owners. Discussions have taken place with affected land owners to explore these opportunities and will continue as BLM works through this planning effort.

N W E S

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vehicles, is proposed for construction just off of Forest Creek road. The existing Bunny Meadows Staging area would be closed under this alternative to move staging activities away from residential areas. The proposed new Forest Creek staging area would provide off-loading and loading facilities and other visitor amenities within about 0.5 mile of the existing Bunny Meadows staging area. A more detailed description of each of the staging areas is included under the section titled Staging Area Development and Improvement below. Use of dispersed off-loading areas would continue to be allowed unless posted as closed to this type of use.

The BLM also proposes to decommission 60.8 miles of trails (24.2 miles of class 1, 21.7 class 2 and 14.9 class 3 trails) on BLM-administered lands that would not be utilized for managed OHV use under this Alternative.

Project Design Features for Alternative 3:

Alternative 3 will implement Project Design Features described in the section titled Project Design Features Common to all Action Alternatives.

Alternative 4

Alternative 4 would manage an OHV trail system only on BLM-administered lands or those lands already under existing legal agreements (e.g., BLM controlled roads with public access rights). Under Alternative 4, OHV use would be confined to the southern portion of the planning area primarily within the Forest Creek and China Gulch drainages. This alternative would rely on BLM-administered lands and existing BLM controlled roads; therefore, no additional written agreements between the BLM and adjacent private land owners would be needed for the management of an OHV trail system.

Description

Under Alternative 4, the BLM would manage a total of 71.2 miles of trails and roads on BLM-administered lands for OHV use (Table 2-4) (Map 2-4). Under this alternative, a total of 0.4 mile of shared use road, which crosses private land, has been identified as part of the OHV trail system. This shared use road is a BLM controlled road[1] and carries public access rights to BLM administered lands.

Under this alternative, the BLM would construct an additional 3.7 miles of Class 1 trails and 3.5 miles of Class 3 trails on BLM-administered land as shown in Table 2-4 and Map 2-4.

Table 2-4 displays the approximate miles of trails and roads, by land ownership, proposed for managed OHV use within the planning area. Trails and roads are further divided into trail classes associated with OHV use. Road mileage displayed below includes open roads and roads closed by gates or barricades. Existing roads with an assigned trail class are roads located behind existing gates or barriers that serve to control passenger vehicle access. Roads listed under "open shared use roads" are those roads open to all vehicle traffic including OHV use. The section titled Components Common to all Alternatives includes discussion of state laws and regulations regarding OHV use and more detail concerning trail classifications.

Table 2-4. Trails/Roads by Trail Class and Land Ownership for Alternative 4.

Trail Class	BLM-administered			Adjacent Non-Federal Lands			Total
	Existing		Proposed	Existing		Proposed	
	Trail	Road	New Trail	Trail	Road	New Trail	
1	5.4	15.6	3.7	0	0	0	24.8
2	1.4	10.8	0	0	0	0	12.2
3	14.7	1.8	3.5	0	0	0	20.1
Open Shared Use Roads	na	13.8	na	0	0.4	0	14.1
TOTALS	21.5	42	7.2	0	0.4	0	71.2

Four staging areas would be managed on BLM-administered lands to provide off-loading and loading areas for OHV users (Table 2-6). These areas are located to disperse use across the area to be managed for OHV use. One of these staging areas, upper Forest Creek, would be used primarily for an event staging area. Three of the four areas would require minor terrain modifications to level and slightly expand existing parking areas. Other improvements may include surface maintenance, rock surfacing, vegetation planting, vehicle control barriers, and the installation of information boards to display maps, visitor information, rules of conduct, and state laws and regulations regarding OHV use. One new staging area, designed to accommodate 25 to 45 vehicles, is proposed for construction just off of Forest Creek road. The existing Bunny Meadows Staging area would be closed under this alternative to move staging activities away from residential areas. The proposed new Forest Creek staging area would provide off-loading and loading facilities and other visitor amenities within about 0.5 mile of the existing Bunny Meadows staging area. A more detailed description of each of the staging areas is included under

1 BLM controlled roads are roads operated and managed by the BLM which may be located on either private land with appropriate legal easements or BLM-administered land.

Map 2-4: Timber Mountain Recreation Management Plan
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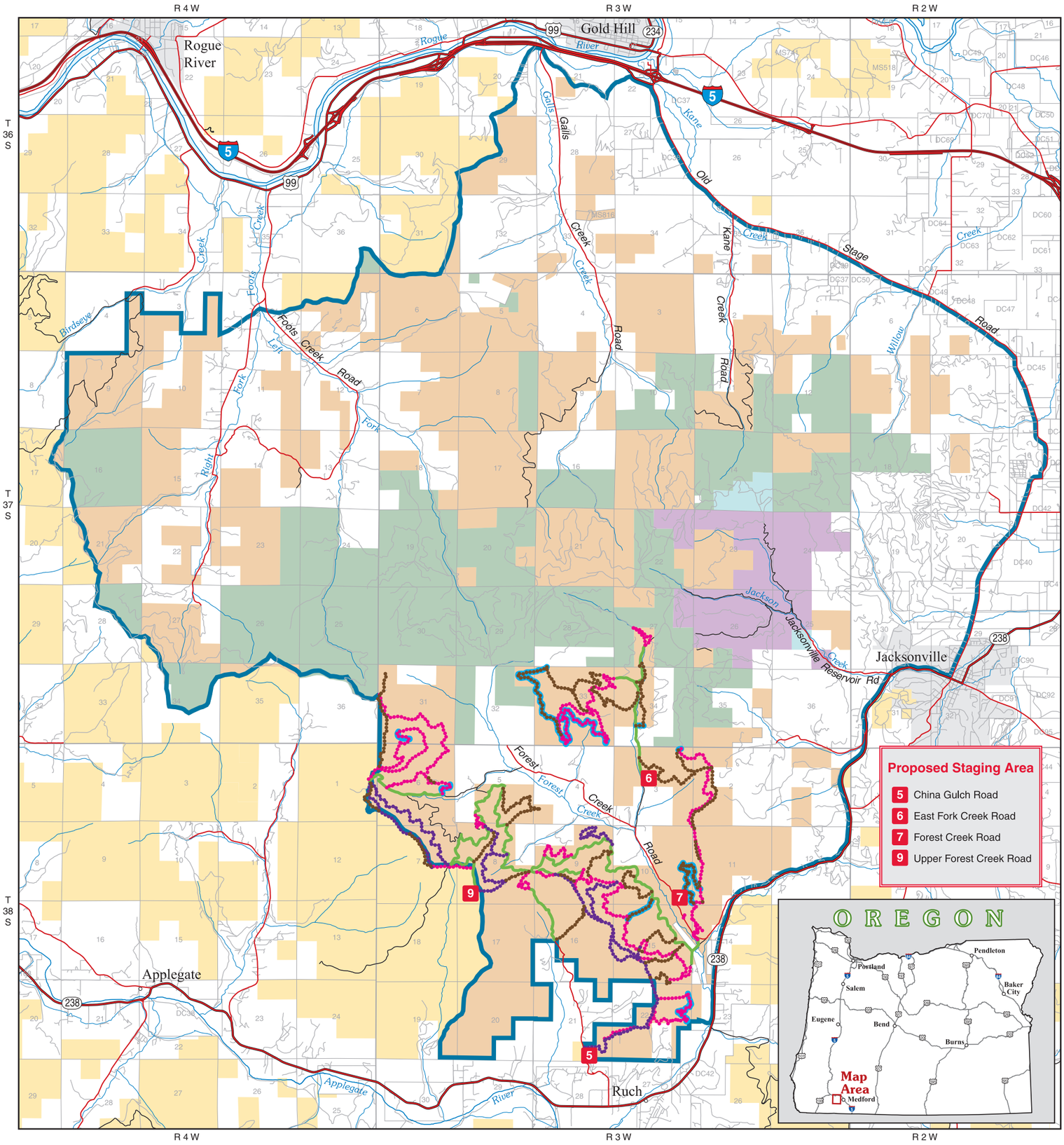
Alternative 4



LEGEND

- Planning Area Boundary
- Proposed Trail

Off Highway Vehicle Trails

- Class I - ATV
- Class II - 4x4
- Class III - Single Track
- Road Open to OHV
- Interstate
- Highway
- County or State Road
- BLM Road with Public Access
- Other Road

Administered Land

- BLM Land within Planning Area
- BLM Outside Planning Area
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- City of Jacksonville
- Motorcycle Rider Association
- Urban Area

Please Note: This alternative map displays trail routes across privately owned lands and City of Jacksonville forest lands. At this time, no commitments have been made by adjacent land owners to participate in a managed off-highway vehicle trail system. Trail system networks displayed on these maps would be contingent upon entering into formal agreements with willing and cooperating land owners. Discussions have taken place with affected land owners to explore these opportunities and will continue as BLM works through this planning effort.

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the section titled Staging Area Development and Improvement below. Use of dispersed off-loading areas would continue to be allowed unless posted as closed to this type of use.

The BLM also proposes to decommission 66.7 miles of trails (27.2 miles of class 1, 21.9 miles of class 2 and 17.6 miles of class 3 trails) on BLM-administered lands.

Project Design Features for Alternative 4

Alternative 4 will implement Project Design Features described in the section titled Project Design Features Common to all Action Alternatives.

Alternative 5

Alternative 5 provides for OHV use at a substantially reduced level. Alternative 5 is designed to reduce or eliminate OHV use in watersheds with Coho Critical Habitat and in some areas with granitic soils. Alternative 5 is also designed to maintain OHV use at further distances from rural residential areas in order to reduce the effects, primarily noise, from OHV use on adjacent rural residential areas.

The implementation of Alternative 5 would be dependent upon the development of written agreements between the BLM and adjacent participating private land owners to manage a connected system of trails across public and private lands. Proposed trail management on adjacent private lands is recognized as a connected activity and will be analyzed in conjunction with Alternative 5.

Description

Under Alternative 5, the BLM would manage a total of 15.7 miles of trails and roads on BLM-administered lands for OHV use (Table 2-5) (Map 2-5). Under this alternative a total of 14.9 miles of roads and some trails have been proposed for use on adjacent private lands for the management of an OHV trail system across ownership boundaries. Alterative 5 does not consider any new trail construction.

Table 2-5 displays the approximate miles of trails and roads, by land ownership, proposed for managed OHV use within the planning area. Trails and roads are further divided into trail classes associated with OHV use. Road mileage displayed below includes open roads and roads closed by gates or barricades. Existing roads with an assigned trail class are roads located behind existing gates or barriers that serve to control passenger vehicle access. Roads listed under "open shared use roads" are those roads open to all vehicle traffic including OHV use. The section titled Components Common to all Alternatives includes discussion of state laws and regulations regarding OHV use and more detail concerning trail classifications.

Table 2-5. Trails/Roads by Trail Class and Land Ownership for Alternative 5.

Trail Class	BLM-administered			Adjacent Non-Federal Lands			Total
	Existing		Proposed	Existing		Proposed	
	Trail	Road	New Trail	Trail	Road	New Trail	
1	2.2	3.7	0	1.1	5.1	0	12
2	0	0	0	0	0	0	0
3	3.9	0.2	0	0.2	0.1	0	4.4
Open Shared Use Roads	0	5.7	0	0	8.4	0	14.1
TOTALS	6.1	9.6	0	1.3	13.6	0	30.5

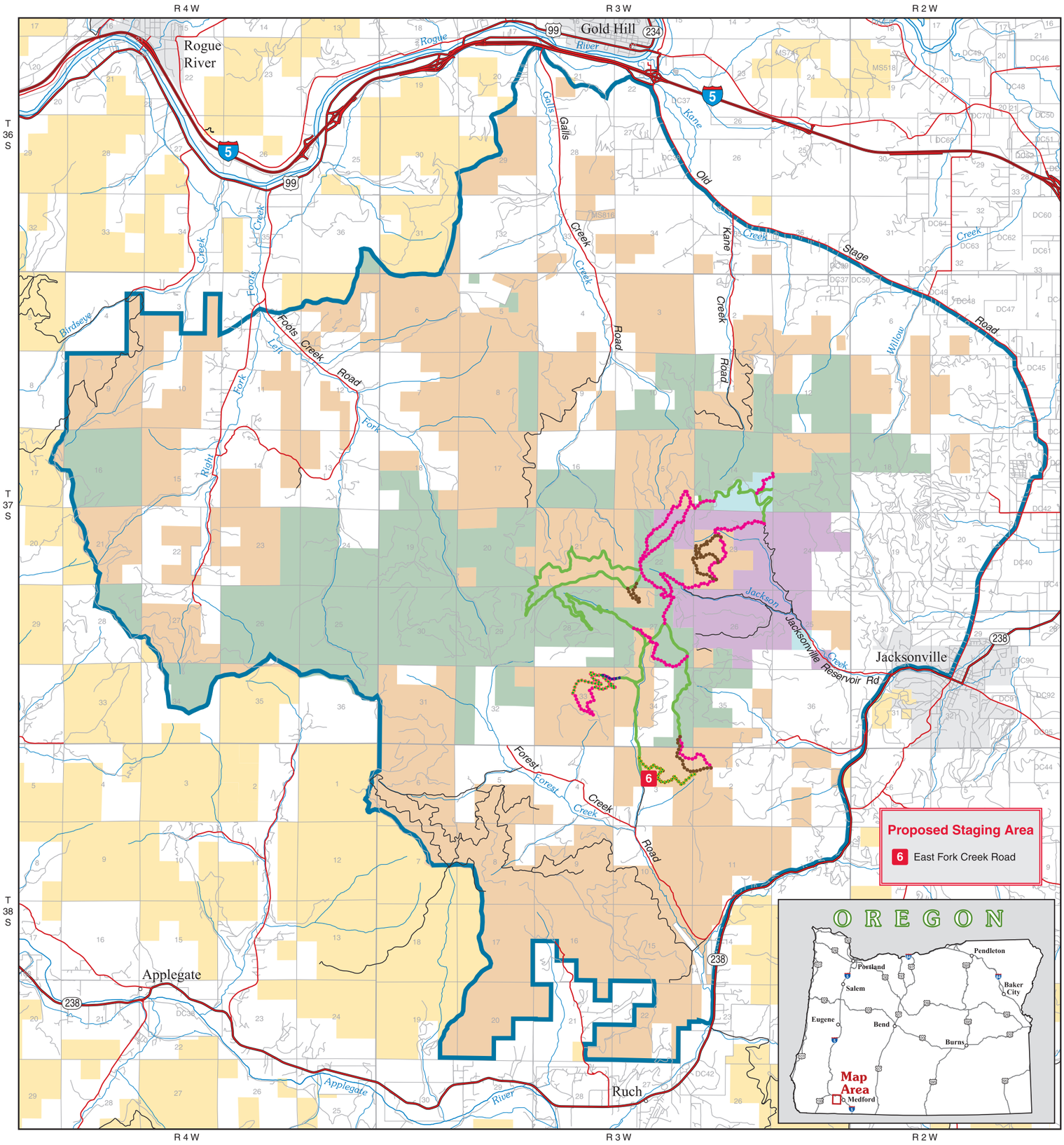
One staging area, East Forest Creek, would be managed to provide an off-loading and loading area for OHV use (Table 2-6). This staging area would require minor terrain modifications to facilitate parking, rock surfacing, vegetation planting, vehicle control barriers, and the installation of information boards to display maps, visitor information, rules of conduct, and state laws and regulations regarding OHV use. The existing Bunny Meadows staging area would be closed. Use of dispersed off-loading areas, in close proximity to the managed trail system would continue to be allowed unless posted as closed to this type of use.

The BLM also proposes to decommission slightly over 82 miles of trails (30.4 miles of class 1, 23.3 miles class 2, and 28.4 miles of class 3 trails) on BLM-administered lands.

Project Design Features for Alternative 5

Alternative 5 will implement Project Design Features described in the section titled Project Design Features Common to all Action Alternatives.

Map 2-5: Timber Mountain Recreation Management Plan
Draft Environmental Impact Statement
Alternative 5



LEGEND

- Planning Area Boundary

Seasonal Trail Closure

- Wildlife Closure March 1 - June 30
- Event-Wildlife Closure March 1 - September 30
- Resource Closure October 15 - May 15

Off Highway Vehicle Trails

- Class I - ATV
- Class III - Single Track
- Road Open to OHV
- Interstate
- Highway
- County or State Road
- BLM Road with Public Access
- Other Road

Administered Land

- BLM Land within Planning Area
- BLM Outside Planning Area
- Private or Other
- Industrial Forest
- City of Jacksonville
- Motorcycle Rider Association
- Urban Area

Please Note: This alternative map displays trail routes across privately owned lands and City of Jacksonville forest lands. At this time, no commitments have been made by adjacent land owners to participate in a managed off-highway vehicle trail system. Trail system networks displayed on these maps would be contingent upon entering into formal agreements with willing and cooperating land owners. Discussions have taken place with affected land owners to explore these opportunities and will continue as BLM works through this planning effort.

N W E S

1 0 1 2 Miles

1 0 1 2 Kilometers

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

MEDFORD DISTRICT

Timber Mountain Recreation Management Plan Draft Environmental Impact Statement

2009

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

M09-02-02

Staging Area Development/Improvement

The following staging areas are included under one or more of the alternatives being considered and analyzed in detail under this EIS. A staging area is a day use area for parking and unloading OHVs. Staging areas vary in size. Some staging areas are limited in size by the site conditions, while others are designed to accommodate a larger number of riders and vehicles. The visitor services provided will vary for each staging area. The types of visitor services provided may include informational signs and kiosks to dispense maps and information regarding the trail system; off-loading and loading ramps; restroom(s); benches and picnic facilities; and easy trail loops for warming up machines and for beginners to ride. A list of existing or proposed staging areas and a brief description of visitor services to be provided at each location follows below. Table 2-7 provides a summary of facilities provided at each staging area.

Staging Area No. 1. - Galls Foot Rd. North: This staging area is located at a road junction on Galls Creek Road in Section 9 (T. 37 S., R 3 W.). The area, as it currently exists, is approximately 0.5 acre in size and would require no modifications of the road surface. The site would facilitate parking for about 4 to 6 vehicles. Natural barriers such as large rocks may be placed at the adjacent trail head and along staging area boarder to contain vehicles to the site. The installation of an information board to post maps, regulations, and other user information would occur.

Staging Area No. 2 - Galls Foot Rd. South.: This staging area is located in Section 21 (T. 37 S., R. 3 W.) and is an existing feature (road intersections and old logging landing) about 1.5 acres in size. No modification would be needed to accommodate parking and off loading for 7 to 8 vehicles. Area is partially rock surfaced, additional rock surfacing would be completed. Natural barriers such as large rocks may be placed along staging area boarder to contain vehicles to the site. The installation of an information board to post maps, regulations, and other user information would occur.

Staging Area No. 3 - Birdseye Creek Rd.: This staging area, located off of Birdseye Creek Road in Section 4 (T. 36 S., R. 4 W.), would utilize a wide road intersection to accommodate OHV off-loading and loading for a few vehicles. This facility would not require any modification to accommodate a small number of vehicles. Natural barriers such as large rocks may be placed along staging area boarder to contain vehicles to the site. The installation of an information board to post maps, regulations, and other user information would occur.

Staging Area No. 4: Kane Creek Rd.: This trailhead would be located off of Kane Creek Road in Section 11 (T. 37 S., R. 3 W.). Although the area could accommodate some parking (1 to 2 vehicles) in its current condition, excavation would be required to develop the facility for accommodating additional vehicle parking (4 to 6 vehicles). Natural barriers such as large rocks may be placed along staging area boarder to contain vehicles to the site. The installation of an information board to post maps, regulations, and other user information would occur.

Staging Area No. 5 - China Gulch Rd.: Located off of China Gulch Road in Section 21 (T. 38 S., R. 3 W). The area is approximately 0.2 acres in size and would require some minor excavation work and rock surfacing to level and slightly expand the existing use area (to about 0.3 acre) to better accommodate vehicle parking (about 4 vehicles). Natural barriers such as large rocks may be placed along staging area boarder to contain vehicles to the site. The installation of an information board to post maps, regulations, and other user information would occur.

Staging Area No. 6 - East Fork Forest Creek Rd.: Located approximately 1 mile north of Forest Creek Road and East Forest Creek Road junction on the east side of the road in Section 3 (T. 37 S., R. 3 W.) This area would support about 7 to 8 vehicles, and is not intended to support event use. Area will serve as an overflow for the larger proposed Forest Creek Staging Area as well as a small dispersed site for trail access. An access road to this site (approx. 200 feet in length) provides ingress and egress to adjacent

to Forest Creek Road. The road would need to be resurfaced to allow for vehicle access. The area is approximately 2 acres in size and would require some minor excavation work and rock surfacing to level existing disturbed area to better accommodate vehicle parking. Native shrubs and trees would be planted to establish a visual site barrier from Forest Creek Road. Natural barriers such as large rocks may be placed along staging area boarder to contain vehicles to the site. Improvement s would include loading and unloading ramps, a vault toilet, and the installation of an information board to post maps, regulations, and other user information.

Staging Area No. 7 - Forest Creek Road: Located on the east side of Forest Creek Road approximately 2 miles northwest of the Forest Creek Road and Highway 238 junction. This area does not currently exist and would involve new construction to develop a parking area with off-loading and loading facilities about 2 to 3 acres in size. The area would support a large number of vehicles (25 to 35) and vehicles pulling trailers (about 10). A small loop warm-up track would be constructed (about 0.5 mile in length) to allow riders to warm up their motorcycles and ATVs prior to departing the area for a longer ride. The area would be developed with picnic tables and benches, and information boards to post maps, regulations, and other user information. Developments would also include the installation of one or two vault toilets. The staging area would be about 10 acres in size with about 5 acres of actual disturbed ground. Native shrubs and trees would be planted to establish a visual site barrier from Forest Creek Road. Natural barriers such as large rocks may be placed along staging area boarder to contain vehicles to the site.

Staging Area No. 8 - Bunny Meadows Staging Area: This is an existing area that was previously used as a gravel stockpile area and timber sale helicopter landing. The area has since become a popular area for accessing the Timber Mountain area and is used for off-loading and loading OHVs, and can support a large number of vehicles (20 to 30) and vehicles pulling trailers (10 - 20). Native shrubs and trees would be planted to establish a visual site barrier as well as a noise filter to Forest Creek Road. Natural barriers such as large rocks may be placed along staging area boarder to contain vehicles to the site. Improvements would include loading and unloading ramps, the installation of a vault toilet, and the placement of an information board to post maps, regulations, and other user information.

Staging Area No. 9 – Upper Forest Creek Rd. (Event): This area is located in a rock quarry in Section 8 (T. 38 S., R. 3 W.) and has been used previously as a helicopter landing site for timber harvesting and salvage. It is about 2 to 3 acres in size, would accommodate a large number of vehicles (approximately 50-60), and would require minor surface maintenance to be used for special recreation use events. Native shrubs and trees would be planted to establish canopy cover and provide a noise filter. This area is intended primarily to support large events. Due to its location it is likely to be utilized by long distance riders looking for long loop opportunities. Portable sanitation facilities would be required as part of the Special Recreation Use Permit during permitted events.

Table 2-6. Staging Areas by Alternative

Staging Area	1	2	3	4	5
1. Galls Crk Rd. North	*	Yes	Yes	No	No
2. Galls Crk. Rd. South	*	Yes	Yes	No	No
3. Birdseye Crk Rd.	*	Yes	Yes	No	No
4. Kane Crk Rd.	*	Yes	Yes	No	No
5. China Gulch Rd.	*	Yes	Yes	Yes	No
6. East Forest Creek	*	Yes	Yes	Yes	Yes
7. Forest Creek Road	*	Yes	Yes	Yes	No
8. Bunny Meadows	Yes	Yes	No	No	No
9. Upper Forest Creek - Event	*	Yes	Yes	Yes	No

* Areas likely have some ongoing dispersed use in or near the proposed trail head or staging area, but the areas are not signed promoted for use as trail heads or staging areas.

Table 2-7. Summary of Staging Area facilities.

Staging Area	No. Vehicles	Sanitation Facilities	Loading Facilities	Information boards, maps, & regulations
1. Galls Crk Rd. North	4-6	no	no	yes
2. Galls Crk. Rd. South	7-8	no	no	yes
3. Birdseye Crk Rd.	3-4	no	no	yes
4. Kane Crk Rd.	4-6	no	no	yes
5. China Gulch Rd.	4	no	no	yes
6. East Forest Creek	7-8	yes	yes	yes
7. Forest Creek Road	25-45	yes	yes	yes
8. Bunny Meadows	40-50	yes	yes	yes
9. Upper Forest Creek - Event	50-60	Portable during events	no	yes

Components Common to All Alternatives

Trail Classifications

Class 1: Trail specifications for Class 1 trail types are designed to accommodate 3 to 4 wheel machines that are 50 inches wide or less. Tread width varies from about 48 to 60 inches, with clearing widths up to 72 inches wide.

Class 2: Trail specifications for Class 2 trail types are designed to accommodate vehicles that are greater than 50 inches wide – generally these are 4-wheel drive SUVs, side-by-side utility vehicles, and pickup trucks requiring a wider tread and clearing width than class 1 vehicles.

Class 3: Trail specifications for Class 3 trails are designed to accommodate vehicles on two wheels (motorcycles). The tread width varies from 12 to 30 inches with a clearing width of up to 60 inches wide.

Open Shared Use Roads: Roads open to all types of vehicle travel including OHV use.

Roads behind gates - open to OHV use: These are shared use roads as well but have been identified as behind gates, or other barriers, which limit other vehicle travel and in doing so provide for an enhanced OHV recreation experience. OHVs on gated roads will still encounter other vehicles entering for administrative purposes.

Law Enforcement

Currently, the BLM staffs four Law Enforcement Rangers and contracts Deputy Sheriff's from Jackson and Josephine County Sheriff's Departments. These Rangers/Deputies are responsible for patrolling over 800,000 acres of BLM administered lands throughout Jackson and Josephine Counties. BLM Rangers are charged primarily with enforcement of Federal Laws/Rules/Regulations that pertain to the use, management, and development of public lands and their resources. Rangers can cite OHV riders for various violations to include (but not limited to): littering, resource damage, exceeding allowable noise levels, careless and reckless driving, and failure to possess OHV registration. Rangers are also deputized by the respective counties and can therefore enforce all State and County Laws as they apply to OHVs. The sheriff's deputies enforce all state and county laws and can cite for various violations including (but not limited to): riding without a helmet for those under 18 years of age, riding with a suspended driver's license, riding on a highway with an OHV that is not street legal and for expired vehicle tags.

State Laws Regarding OHV Use

OHV riders must display an ATV permit "decal" when operating on public land (and even then, the land must be specifically designated for ATV use). The permit decal must be permanently affixed to the vehicle and be clearly visible. There are three classes of ATVs.

Class I Permit

Defined:

- For vehicles 50" wide or less, **and ...**
- Dry weight of 800 pounds or less
- Have saddle or seat.
- Travels on three or four tires.
- Meet the safety equipment standards for off road vehicles. (see ORS)

Operating requirements:

- Have a valid driver's license, **or** …
- Youth under age 16 must be supervised by an adult over age 18 who is able to provide immediate assistance and direction to the children, **and ...**
- Youth and any passengers under age 18 must wear a helmet with the chin strap fastened.
- Operators with a suspended or revoked driver's license may not operate any class I, II, or III ATV.
- Permit fee. $10.00

Class II Permit

Defined:

- For vehicles more than 50" wide, **or** …
- Dry weight of more than 800 pounds.
- Meet the safety equipment standards for off road vehicles. (See ORS)

Operating requirements:

- A valid driver's license.
- Check with law enforcement officials in the area you wish to ride for any special requirements.
- Uninsured Class II off-road vehicles should contact Department of Motor Vehicles for more information.
- Permit fee. $10.00

Class III Permit

Defined:

- For vehicles riding on two tires, **and** …
- Dry weight of less than 600 pounds.
- Meet the safety equipment standards for off road vehicles. (see ORS)

Operating requirements:

- Must be at least 7 years of age
- Youth under age 16 must be supervised by an adult over age 18 who is able to provide immediate assistance and direction to the children, **and ...**
- Youth and any passengers under age 18 must wear a helmet with the chin strap fastened.
- Operators with a suspended or revoked driver's license may not operate any class I, II, or III ATV. Check with law enforcement officials in the area you wish to ride for any special requirements.
- Permit fee. $10.00.

The following state rule changes under the **Rider Fit Program** will take effect as of January 01, 2009.

- A Class I ATV operator under the age of 16, must meet all the following minimum physical size requirements in relationship to the vehicle;
- Brake Reach: With hands placed in the normal operating position and fingers straight out, the first joint (from the tip) of the middle finger will extend beyond the brake lever and clutch, and;

- Leg Length: While sitting and with their feet on the pegs, the knee must be bent at least 45 degrees, and;
- Grip Reach: While sitting upright on the ATV with hands on the handlebars and not leaning forward, there must be a distinct angle between the upper arm and the forearm, and;
- The rider must be able to turn the handle bars from lock to lock while maintaining grip on the handle bars and maintaining throttle and brake control.
- Disabled riders are allowed to use prosthetic devices or modified or adaptive equipment to achieve rider fit.

Also starting January 1, 2009, all youth under age 16 must complete on-line safety training. In addition, all youth under age 16 operating a Class I or Class III ATV on public lands must be supervised by an adult who is at least 18 years old and holds a valid ATV Safety Education Card. Therefore, any adult supervising a youth under age 16 must also complete the on-line safety training course starting on January 1, 2009:

- Starting January 1, 2010 all persons under age 31 must complete on-line safety training.
- Starting January 1, 2011 all persons under age 41 must complete on-line safety training.
- Starting January 1, 2012 all persons under age 51 must complete on-line safety training.
- Starting January 1, 2013 all persons under age 61 must complete on-line safety training.
- Starting January 1, 2014 all persons must complete on-line safety training.

Individuals are required to display a permit decal when operating an OHV on public land. A helmet is required only if **all** the following conditions are true: (1) under 18 years old, (2) operating a Class I or Class III OHV, and (3) riding on public land. If the OHV is being used for agriculture or forestry, or the lands are either owned or leased by the OHV rider, a helmet is not required.

All off road vehicles must be equipped with a properly installed U.S. Forest Service approved spark arrestor which has not been modified from its original manufacturer's specifications. The spark arrester must meet either the U.S. Department of Agriculture--Forest Service Standard 5100-1a, or the 80-percent efficiency level standard when determined by the appropriate Society of Automotive Engineers (SAE) Recommended Practices J335 or J350. These standards include, among others, the requirements that: (1) The spark arrester shall have an efficiency to retain or destroy at least 80 percent of carbon particles for all flow rates, and (2) the spark arrester has been warranted by its manufacturer as meeting this efficiency requirement for at least 1,000 hours subject to normal use, with maintenance and mounting in accordance with the manufacturer's recommendation. A spark arrester is not required when an off-road vehicle is being operated in an area which has 3 or more inches of snow on the ground.

All vehicles must be equipped with a muffler that conforms to the current noise level and defect standards of the Department of Environmental Quality for vehicles operated off-road. Allowable ambient noise levels vary by year of manufacture, type of OHV, and proximity to "Noise Sensitive Property."[2] Required safety equipment and noise level standards for OHVs is listed in Oregon Administrative Rules (OARs) at 735-116-0000 and 340-035-0005-0030. Kiosks will be kept posted with current guidelines, laws, and regulations.

Components Common to the Action Alternatives

Increased Patrols

If a course of action is selected for managing the Timber Mountain Recreation Management Area, BLM's strategy to keep off-highway vehicles on designated routes would be to increase law enforcement patrol by 4-wheel drive

2 "Noise Sensitive Property" means real property normally used for sleeping, or normally used as schools, churches, hospitals or public libraries. Property used in industrial or agricultural activities is not Noise Sensitive Property unless it meets the above criteria in more than an incidental manner. OAR Division 35 340-035-0015 (38).

patrol vehicles, motorcycles, and quads. The BLM would increase law enforcement capabilities by applying for funding with the State of Oregon ATV Grant Program. The goal of the ATV Grant Program is to provide opportunities for off-highway vehicle recreation. The grant program is funded from ATV permit sales and the percentage of the gasoline tax attributed to ATV use. The State of Oregon OHV allocation committee provides grant funding opportunities quarterly; law enforcement grant opportunities are offered once a year. The total grant allocations for law enforcement and emergency services were $1,101,153 for 2007 and $1,341,556 for 2008, with individual grants ranging from $11,000 to $179,000.

The OHV grant process requires that the applicant provide 20 percent of the project cost as matching funds. The matching fund component can be met with in-kind services or materials. Appropriated annual BLM funding would be used to meet the 20 percent matching funding or in-kind services/materials for requests placed to the State of Oregon OHV Grant opportunities. The Medford District BLM receives an annual budget to fund four full time BLM law enforcement personnel (Rangers) and contract deputies through Jackson and Josephine County Sherriff's departments. The BLM would also request an annual budget through agency appropriations for the operation and management of the Timber Mountain OHV area.

The BLM would utilize grant funding as well as agency appropriated funds to increase recreation staff patrols through a Trail Ranger Program. Utilizing uniformed staff and volunteers, the BLM would work in coordination with law enforcement patrols to increase compliance with the rules and regulations, and increase visitor safety on public lands. The premise behind the Trail Ranger Program is that an educated rider is a responsible rider. Trail Rangers would communicate with visitors, hand out maps, and remind visitors of responsible riding practices. Ethics and principles in programs such as "*Leave no Trace, Right Rider"* and *"TREAD Lightly!"* would be promoted through this program. Trail Rangers are regular BLM staff and volunteers and do not have law enforcement authority above that of a regular citizen. However, Trail Rangers would coordinate as needed with BLM and Jackson County law enforcement personnel when law enforcement issues arise. With regular patrols, Trail Rangers would be on the ground to provide help to visitors in need, as well as address maintenance needs, gather data regarding resource management issues, and OHV visitor trends.

It is assumed that law enforcement and BLM Trail Ranger patrols can be successful in gaining user compliance through education and enforcement for all of the **action** alternatives being considered under this EIS.

ROADS MANAGEMENT

No new roads are proposed under any alternative.

Off Highway Vehicles (OHV) Shared Use on Roads

Roads designated for OHV use would have the appropriate signing installed to warn all vehicles using the road(s) of their mixed-use designation. Roads will also continue to provide access for the management of other resource program areas including, but not limited to, timber resources, fuels management, mining, other recreational activities (hunting, dispersed camping, etc.) and rural interface areas (private property access).

Not Designated for OHV Use

Roads not proposed for designated trail route would continue to be managed under their current management strategy as part of the transportation system, with no OHV use allowed.

Project Design Features

Applicable Public Safety PDFs

Objective 1: Improve safety for all people recreating, commuting, or working in the OHV area

1. OHV riding is allowed during daylight hours only--no motorcycle use on any trails 30 minutes before sunrise or 30 minutes after sunset.

2. A 25 mile per hour speed limit would be implemented and posted on all main shared use roads.
3. A sign plan will be implemented to adequately sign trail and road intersections and shared use roads.
4. All state laws and regulations regarding OHV use will be actively enforced.
5. All operations on BLM-administered lands or federally funded projects are required to meet Occupational Safety and Health Association regulations for worker and public safety.

Applicable Riparian Protection PDFs

Objective 1: Protect Riparian Areas

1. Adjust or reconstruct existing stream crossings on managed trails to stabilize stream banks, channel bottom configurations, and reduce sediment delivery to streams. This may include, but is not limited to, realignment of the crossing to avoid paralleling the stream course; hardening the crossing with surfacing recommended by a watershed specialist; installation of bridges or boardwalks, and the use of erosion control measures to stabilize streambanks adjacent to the trail (e.g. rock rip-rap, vegetation plantings, seeding, approved mulch material etc.).
2. Adjust or reconstruct trails impacting springs, seeps, or wetlands to reduce or eliminate the effects of the trail. This may include, but is not limited to, realignment of the trail to avoid wetlands, springs, or seeps, or the installation of bridges, tread blocks, or boardwalks.
3. Design new trails to avoid springs, seeps, and wetlands.
4. Design new trails to avoid stream channel crossings where possible. If stream channel crossings are necessary to maintain the connectivity of the trail network, design trails to cross the stream channels perpendicular to the drainage to minimize the potential for sediment delivery.
5. Trails not identified for management would be decommissioned and the natural stream gradient and streambank would be re-established.

Applicable Stream Crossing Construction, Renovation, Maintenance, or Decommissioning PDFs.

Objective 1: Prevent Offsite Soil Erosion and Soil Productivity Loss

1. Stream crossing construction, reconstruction, or decommissioning will not occur during the wet season (October 15 to June 15) when the potential for soil erosion and water quality degradation exists. This restriction could be waived by the Responsible Official under dry conditions and with a specific erosion control plan (e.g. rocking, waterbarring, seeding, mulching, barricading). All construction activities would be stopped when recommendations of a watershed specialist (soil scientist, hydrologist, or fish biologist) indicate that resource damage would occur if construction is not halted.
2. Minimize vegetation clearing to the maximum extent possible to maintain stream bank stability, while maintaining the safety of riders.
3. All stream crossings will have the ingress and egress hardened with surfacing and appropriately drained.
4. Instream work on nonfish-bearing streams would be limited to periods of low flow for perennial streams and no flow for intermittent streams.
5. During instream work, perennial streams would be diverted around each work area in a manner that would minimize stream sedimentation, unless BLM watershed specialist recommends deviation from this practice (i.e. if the stream flow is too small to physically divert, or diversion would result in greater impacts to the site).
6. Use of sediment ponds, weed free straw bales, geotextile fabric or coconut fiber logs/bales, would be used to reduce the movement of sediment downstream from the project site.
7. Any material from constructing, reconstructing, or removing/decommissioning trail crossings would be moved to a site to prevent the material from re-entering the stream. Erosion control measures may be required around the stockpile site if needed to prevent sediment movement into streams.
8. The decommissioning of stream crossings would reestablish the natural stream gradient and stream bank contour.
9. Disturbance from constructing, reconstructing, or removing/decommissioning stream crossings will be seeded, mulched, planted, or other approved soil stabilization techniques, to stabilize exposed soils as soon after activities have been completed and before October 15.

10. Maintain large coarse woody material along stream banks, at a safe distance from the trail, to maintain the stability of stream banks.

Objective 2: Minimize or Prevent Impacts on Aquatic Species

1. Instream work period on fish-bearing streams would be from July 1 - September 15 for the Middle Applegate Watershed and June 15 to September 15 for the Rogue River Gold Hill and Bear Creek Watersheds.
2. Stream crossings (bridges, culverts, hardened crossings) would be designed to ensure upstream movement of aquatic species.
3. Minimize vegetation clearing to the maximum extent possible while maintaining the safety of riders to maintain habitat for aquatic and riparian associated species.
4. Maintain large coarse woody material along stream banks and at a safe distance from trail edges to maintain habitat for riparian associated species.

Objective 3: Prevent Chemical Water Pollution

1. During instream/inchannel work, all state and federal requirements for maintaining water quality would be met. Work requirements would include the following:
    a. Mechanized equipment would be inspected and cleaned before moving onto the project site in order to remove oil and grease, noxious weeds and excessive soil.
    b. Hydraulic fluid and fuel lines on heavy mechanized equipment must be in proper working condition in order to avoid leakage into streams.
    c. Waste diesel, oil, hydraulic fluid and other hazardous materials and contaminated soil would be removed from the site and disposed of in accordance with DEQ regulations. Areas that have been saturated with toxic materials would be excavated to a depth of 12 inches beyond the contaminated material or as required by DEQ.
    d. Equipment refueling would be conducted within a confined area a minimum of 100 feet from waterbodies, floodplains, or wetlands.
    e. Use spill containment booms or other equipment as required by DEQ.
    f. Equipment containing toxic fluids would not be stored in or near (within 300') a stream channel anytime.

Applicable Trail Maintenance, Construction, Reconstruction, or Decommissioning PDFs.

Objective 1: Prevent Offsite Soil Erosion and Soil Productivity Loss

1. Trail construction, reconstruction, or decommissioning will not occur during the wet season (October 15 to June 15) when the potential for soil erosion and water quality degradation exists. This restriction could be waived by the Responsible Official under dry conditions and with a specific erosion control plan (e.g. rocking, waterbarring, seeding, mulching, barricading). All construction activities would be stopped if the recommendations of a watershed specialist (soil scientist, hydrologist, or fish biologist) indicate that resource damage would occur if construction is not halted.
2. Use of sediment ponds, weed free straw bales, geotextile fabric or coconut fiber logs/bales, would be used to prevent or reduce the movement of sediment from the project site to stream channels.
3. Trails over 20 percent incline or decline will be treated to harden the surface. Techniques include but are not limited to tread blocks, rock surfacing, or soil amendments. Other techniques which meet the objective of reducing rutting and erosion will be used as needed.
4. Water drainage facilities (drain dips, waterbars, etc.) will be designed and constructed to insure rutting, rilling and/or gullying does not occur.
5. Water drainage facilities and trail treads will be maintained as needed to avoid excessive trail gullying and erosion. If excessive rutting, rilling, and gullying does occur the affected trails (or areas) will be shut down, rehabilitated, and rested in compliance with 43 CFR 8341.2(a).
6. Where possible, rolling grades and outsloping would be used on trails with grades that are less than 8%. These design features would be used to reduce concentration of flows and minimize accumulation of water from trail drainage.
7. Slash would be windrowed at the base of newly-constructed fill slopes to catch sediment.

8. Maintain large coarse woody material along trail edges, keeping rider safety in mind, to maintain the stability of the trail running surfaces.
9. Inventories would occur annually to identify and schedule ongoing trail maintenance needed to ensure resource protection and rider safety.

Objective 2: Protect Northern Spotted Owls

1. No staging areas will be located within 1320 feet of known northern spotted owl nest sites.
2. No trail construction or maintenance will take place within 195 feet of a known spotted owl nest site in during spotted owl breeding season.
3. No trail construction or maintenance that modifies spotted owl habitat will be permitted in cores or suitable (nesting, roosting and foraging) habitat during the breeding season.

Objective 3: Protect Special Habitats

1. No snags will be removed during trail construction or maintenance unless they are a threat to rider safety.
2. All course woody debris removed by trail construction or maintenance will be placed at a safe distance adjacent to the trail to continue to serve as habitat.
3. No re-routed trails will be located within 250 of mining adits unless they are located adjacent to an ungated open road.
4. No trails will be re-routed through talus that contains sufficient interstitial space to provide habitat for talus associate sensitive species.

Objective 4: Minimize the spread of noxious weeds

1. Mechanical trail-building, maintenance, and decommissioning equipment (e.g. Sweco trail dozer) would be power washed and free of all soil and vegetative material before entering a project area and prior to moving from site to site (field washing). A field washing station would include a high pressure pump, containment mat, filter system, and a holding tank. Filtered solids would be properly disposed. The BLM Botanist may recommend forgoing the requirement for field washing if weed species and densities are similar at all work sites.
2. Noxious weed populations in existing quarries and stockpiles would be treated prior to any authorized use.
3. Seeding of native grasses and/or an approved seed mix on highly disturbed, uncompacted soil (e.g., new staging areas and new trails cut and fill slopes, etc.) would occur.
4. On roads with known weed populations within the OHV management area, road grading and ditch-pulling would not occur during periods of weed seed production and distribution, approximately from July 15 to September 1.

Applicable Staging Area Maintenance, Construction, Reconstruction PDFs.

Objective1: Prevent Offsite Soil Erosion

1. Staging area construction, renovation, or maintenance would not occur during the wet season (October 15th to June 15th) when the potential for soil erosion and water quality degradation exists. This restriction could be waived by the Responsible Official under dry conditions and a specific erosion control plan (e.g. rocking, waterbarring, seeding, mulching, barricading). All construction activities would be stopped if determined by a watershed specialist (soil scientist, hydrologist, or fish biologist) that resource damage would occur if construction is not halted.
2. Staging areas would be surfaced with rock to reduce soil erosion. Soil disturbance outside of the running surface would be mulched and seeded with native grasses, or other approved seed, to stabilize soils prior to fall rains.
3. Slash would be windrowed at the base of newly-constructed fill slopes to catch sediment.

Applicable Trail Management PDFs

Objective 1: Prevent Chemical Water Pollution

1. Equipment maintaining and refueling would occur at a minimum 100 feet from waterbodies, floodplains, and wetlands.

Objective 2: Protect Northern Spotted Owls

1. All trails within 195 feet of known spotted owl nest sites will be closed during the critical breeding season (March 1 to June 30). If trails are located on un-gated open roads, those trails will remain open during the breeding season, which is March 1 to September 30. If elected by the BLM, protocol surveys could be conducted to determine if owls are nesting in order to eliminate the 195 foot buffer distance.

2. For organized events, all trails within 195 feet of known spotted owl nests will remain closed during the breeding season regardless of open road status. Again, protocol surveys could be conducted to remove this restriction.

Objective 3: Protect Raptors

1. All trails (not on open roads) within 1320 feet of an active raptor nest will be closed during the breeding season (March 1 to July 15).

Objective 4: Minimize the spread of noxious weeds

1. All OHVs will be free of all soil and vegetative material before entering the OHV management area.
2. Noxious weeds along trails will be inventoried and treated by BLM. Inventories would occur annually in combination with inventories for other trail maintenance needs. Treatments will be scheduled by priority and will occur based on the potential of the weed population to cause economic or environmental harm or harm to human health.
3. All staging areas and trailheads will be surveyed annually for noxious weeds.
4. All noxious weeds found at staging areas and trailheads that can be spread vegetatively will be treated in the spring season as soon as the plants can be effectively controlled, as determined by the BLM Botanist. In cases of severe infestations, the staging area or trailhead (or portions of the staging area or trailhead) may be closed until the weeds are treated.
5. All noxious weeds found at staging areas and trailheads that spread by seed will be treated before the plants develop mature fruits.
6. OHV use on designated trails with a high density of weeds would be limited to the dry season.
7. Trails passing through heavily infested areas of noxious weeds where control of spread proves unfeasible will be closed until weed populations are eradicated.

Objective 5: Protection of Special Status Plant Species

1. All vascular and nonvascular plants, lichens, and fungi populations on the Medford District Special Status Species list would be protected, as necessary, from the effects of the proposed project. The level of protection or effects mitigation would ensure that actions do not contribute to the need to list a species under the Endangered Species Act (see Table 2-8).
2. In areas scheduled for maintenance or decommissioning that are also adjacent to Special Status Plants, Lichens, and Fungi, all work will occur in the trail only. Equipment and machinery will be restricted to the trail in these areas. The BLM Botanist may prescribe treatments in these areas.
3. For organized events, trails adjacent to Special Status Species may require a maximum speed limit or a total closure.

Monitoring

1. Trails adjacent to Special Status Species (plants and wildlife) and habitats, where the trail tread continues to widen due to repeated parallel routing will be closed or rerouted.
2. Trails designated for re-routing to protect Special Status Species will be monitored to ensure that they remain effectively re-routed.
3. The lichen community along trails will be monitored every five years (or more depending on actual use) for effects of air pollution.
4. The lichen community in the vicinity of staging areas and trailheads will be monitored every two years (or more depending on actual use).
5. With regular patrols, Trail Rangers would be on the ground to provide help to visitors in need, as well as to gather to data regarding maintenance needs, resource management issues, and OHV visitor trends.
6. Decommissioned trails will be monitored to ensure routes remain closed to use.

Table 2-8. Required Site-Specific Project Design Features to Protect Special Status Plant Species by Alternative.

T_R	Sec. No.	Add. Sec.	Species Code	Site No.	Treat. Loc.	Alternatives					Mitigation for Use	Mitigation for Decommissioning	Rationale for Mitigation
						1	2	3	4	5			
T38S-R3W	15		CAGR14	3997	road	X	X	X	X	-	None	n/a	Road maintenance and decommissioning not planned.
T37S-R4W	27		CYFA	1006	road	X	-	-	-	-	n/a	n/a	No action alternative only. Road maintenance or decommissioning not planned. Protection by distance to trail (60').
T37S-R4W	27		CYFA	562	road	X	X	X	-	-	None	n/a	Protection by distance to trail (56').
T37S-R4W	27		CYFA	1296	road	X	X	X	-	-	None	n/a	Road maintenance and decommissioning not planned.
T37S-R4W	21		CYFA	9723	road	X	X	X	-	-	None	n/a	Protection by distance to trail (76').
T38S-R3W	9		CYFA	0581	road	X	X	X	X	-	None	n/a	Protection by distance to trail (49').
T38S-R3W	8		CYFA	1110	road	X	X	X	X	-	None	n/a	Road maintenance and decommissioning not planned.
T38S-R3W	7		CYFA	1111	road	X	X	X	X	-	None	n/a	Road maintenance and decommissioning not planned.
T38S-R4W	1		CYFA	0558	road	X	X	X	X	-	None	n/a	Protection by distance to trail (89').
T37S-R3W	21		CYFA	9941	road	X	X	X	-	X	None	n/a	Road maintenance and decommissioning not planned.
T37S-R3W	21		CYFA	9942	road	X	X	X	-	X	None	n/a	Protection by distance to trail (47').
T38S-R3W	8		EUVI8	9624	road	X	X	X	X	-	None	n/a	Protection by distance to trail (100').

Table 2-8. Required Site-Specific Project Design Features to Protect Special Status Plant Species by Alternative.

T_R	Sec. No.	Add. Sec.	Species Code	Site No.	Treat. Loc.	Alternatives 1	2	3	4	5	Mitigation for Use	Mitigation for Decommissioning
T36S-R3W	31		FRGE	9887	road	X	-	-	-	-	n/a	n/a
T38S-R3W	2		FRGE	350	road	X	-	-	-	-	n/a	n/a
T38S-R3W	22		FRGE	1808	road	X	X	X	X	-	None	n/a
T38S-R3W	16		FRGE	1818	road	X	X	X	X	-	None	n/a
T38S-R3W	21		SOPA	2477	road	X	X	X	X	-	None	n/a
T37S-R4W	12		CASE2	9621	trail	X	-	-	-	-	n/a	All machine work will occur within the trail bed only. All vegetation and debris manipulation (for decommissioning) is prohibited within 20' of the plant population boundary.
T37S-R3W	3		CYFA	9691	trail	X	-	-	-	-	n/a	None
T37S-R4W	9		CYFA	7561	trail	X	-	-	-	-	n/a	All machine work will occur within the trail bed only. All vegetation and debris manipulation (for decommissioning) is prohibited within 20' of the plant population boundary.
T37S-R4W	15		CYFA	9752	trail	X	-	-	-	-	n/a	None

Table 2-8. Required Site-Specific Project Design Features to Protect Special Status Plant Species by Alternative.

T_R	Sec. No.	Add. Sec.	Species Code	Site No.	Treat. Loc.	Alternatives 1	2	3	4	5	Mitigation for Use	Mitigation for Decommissioning
T37S-R3W	20		CYFA	0567	trail	X	X	X	-	-	Construct physical barrier adjacent to trail to protect plant population.	All machine work will occur within the trail bed only. All vegetation and debris manipulation (for decommissioning) is prohibited within 20' of the plant population boundary.
T37S-R4W	21		CYFA	9723	trail	X	X	X	-	-	None	None
T38S-R3W	22		CYFA	0958	trail	X	X	X	X	-	Construct physical barrier adjacent to trail to protect plant population.	All machine work will occur within the trail bed only. All vegetation and debris manipulation (for decommissioning) is prohibited within 20' of the plant population boundary.
T38S-R4W	1		CYFA	7556	trail	X	X	X	X	-	None	None
T38S-R3W	8		EUVI8	9624	trail	X	X	X	X	-	None	All machine work will occur within the trail bed only. All vegetation and debris manipulation (for decommissioning) is prohibited within 20' of the plant population boundary.
T37S-R3W	25		FRGE	7719	trail	X	-	-	-	-	n/a	All machine work will occur within the trail bed only. All vegetation and debris manipulation (for decommissioning) is prohibited within 20' of the plant population boundary.

Table 2-8. Required Site-Specific Project Design Features to Protect Special Status Plant Species by Alternative.

T_R	Sec. No.	Add. Sec.	Species Code	Site No.	Treat. Loc.	Alternatives					Mitigation for Use	Mitigation for Decommissioning
						1	2	3	4	5		
T37S-R3W	3		FRGE	7739	trail	X	-	-	-	-	n/a	All machine work will occur within the trail bed only. All vegetation and debris manipulation (for decommissioning) is prohibited within 20' of the plant population boundary.
T37S-R3W	33		FRGE	9489	trail	X	X	X	X	-	Relocate trail away from plant population. Decommission old trail. Construct physical barrier adjacent to old trail to protect plant population.	All machine work will occur within the trail bed only. All vegetation and debris manipulation (for decommissioning) is prohibited within 20' of the plant population boundary.
T38S-R3W	22		FRGE	1808	trail	X	X	X	X	-	Relocate trail away from plant population. Decommission old trail. Construct physical barrier adjacent to old trail to protect plant population.	All machine work will occur within the trail bed only. All vegetation and debris manipulation (for decommissioning) is prohibited within 20' of the plant population boundary.
T38S-R3W	2		FRGE	2740	trail	X	X	X	X	-	Relocate trail away from plant population. Decommission old trail. Construct physical barrier adjacent to old trail to protect plant population.	All machine work will occur within the trail bed only. All vegetation and debris manipulation (for decommissioning) is prohibited within 20' of the plant population boundary.
T38S-R3W	7		FRGE	4677	trail	X	X	X	X	-	Relocate trail away from plant population. Decommission old trail. Construct physical barrier adjacent to old trail to protect plant population.	All machine work will occur within the trail bed only. All vegetation and debris manipulation (for decommissioning) is prohibited within 20' of the plant population boundary.

Table 2-8. Required Site-Specific Project Design Features to Protect Special Status Plant Species by Alternative.

T_R	Sec. No.	Add. Sec.	Species Code	Site No.	Treat. Loc.	Alternatives					Mitigation for Use	Mitigation for Decommissioning
						1	2	3	4	5		
T38S-R3W	2		FRGE	7704	trail	X	X	X	X	-	Relocate trail away from plant population. Decommission old trail. Construct physical barrier adjacent to old trail to protect plant population.	All machine work will occur within the trail bed only. All vegetation and debris manipulation (for decommissioning) is prohibited within 20' of the plant population boundary.
T38S-R3W	2		FRGE	10687	trail	X	X	X	X	-	Construct physical barrier adjacent to trail to protect plant population.	All vegetation and debris manipulation (for decommissioning) is prohibited within 20' of the plant population boundary.

Alternatives Considered But Eliminated From Detailed Analysis

Eliminate OHV use in the Timber Mountain planning area: Many comments were received, primarily from residents living in neighborhoods surrounding the Timber Mountain planning area, requesting that BLM consider an alternative that would close the area to OHV use.

Rationale for elimination: Changing the OHV designation to close the Timber Mountain area to OHV use would require a plan level amendment. The purpose of this project is to implement RMP direction for managing OHV use in the Timber Mountain area in a manner that protects resources, provides for public safety, and minimizes conflicts among uses. Therefore, this alternative was eliminated because it is out of the scope of analysis of this Environmental Impact Statement.

Increased trail density on BLM-administered lands: OHV enthusiasts suggested increasing the trail density in the Timber Mountain planning area. Because the area was designated to provide for OHV use, they felt that the trail opportunities should be maximized to address the current and future demand for use areas.

Rationale for elimination: The Medford District RMP outlines the agency's responsibility to manage OHV use in a manner that protects resources, provides for public safety, and minimizes conflicts among uses. Analysis of the current management situation (Alternative 1) shows that impacts are occurring to resources as a result of the incremental effects of OHV use when combined with other past and ongoing human activities in the planning area (see Chapter 3). In order to comply with RMP direction and legal mandates, only alternatives that reduced trail densities were considered in detail. Therefore, this alternative was eliminated from detailed analysis.

Components of Alternatives Considered but Eliminated from Detailed Analysis

OHV use in the northeastern corner of the OHV area: Trails entering and leaving BLM lands in Section 13, T. 37 S, 3W, from and onto privately owned lands in Section 12 and 1, were originally considered for management as part of the OHV trail system. These trails would have allowed for access to OHV trails on BLM parcels in T. 37 S., R. 2 W, sections 7 and 8.

Rationale for elimination: Some private land owners in this area indicated they did not want to have OHV use on their lands, which eliminated some trail sections that would have provided trail connections and loop opportunities. Therefore this component was eliminated from detailed analysis under all action alternatives considered under this EIS. Because the trails are part of the baseline conditions, they do appear under the Alternative 1 scenario. A temporary closure of BLM lands in this area, has led to eliminating or reducing use on these trails, but they do still exist.

Additional OHV trail proposals: Additional trails were proposed for consideration for management or construction in the following areas: T. 37 S., R. 3 W., in sections 3, 5, 6, 7, 8, and 17; T. 38 S., R 3 W. in sections 7 and 18; T. 38 S., R. 4 W., in section 13.

Rationale for Elimination: These proposed trails had slopes that were too steep, poor access, were outside the planning area, or similar difficulties that would not have met the purpose and need of the management plan and were therefore eliminated from detailed analysis.

Use land exchanges to improve the management of OHV use: Several commenters suggested that BLM consider land exchanges to create more contiguous blocks of BLM-administered land further away from residential areas and decrease BLM-administered parcels and associated OHV use in closer proximity to residential areas.

Rationale for Elimination: While the RMP allows for the exchange of lands identified as Land Tenure Zone 2 to improve the management of resources on BLM-administered lands, no specific proposals are being considered at this time. There are many other resource considerations (timber, minerals, Threatened or Endangered species, etc) to evaluate when considering a land exchange in detail. This evaluation would likely extend beyond the scope of preparing a recreation management plan for OHV use in the Timber Mountain area, and includes complex issues such as ensuring the protection of existing legal easements and ensuring that the value of land exchanged is generally equal (+/- 20 %) or otherwise compensated monetarily. Additionally, the process for conducting a land exchanges involves national level review and can take years (5 to 10) to accomplish the exchange. Because of the complexities and time involved, the cost of land exchanges can be exorbitant. This action was eliminated from detailed analysis in this EIS because it would unnecessarily delay the selection and implementation of a course of action to manage OHV use in the Timber Mountain area.

Fence BLM-administered lands: One commenter suggested that the BLM fence in OHV on public lands so that private land owners do not have to fence them out.

Rationale for Elimination: The BLM anticipates that with the designation of a trail system, maps, signing, increased recreation and law enforcement patrols, and user education that the majority of trespass issues will be resolved and fencing boundaries between private and public lands would not be necessary. If future monitoring of OHV use patterns and identifies that some trespass issues still exist, site-specific solutions would be developed that could involve fencing, vegetation plantings, or other types of barriers that would help direct and control OHV use patterns.

Allow for night-time OHV use in the area: Some commenters requested that BLM allow night time OHV use in the area.

Rationale for elimination: This alternative was eliminated from detailed analysis due to public safety concerns associated with decreased visibility and increased potential for collisions with passenger vehicles on shared use roads. Therefore, this action was eliminated from detailed analysis because it would not meet the safety objectives of the plan's purpose and need.

Develop a campground in upper Kane Creek drainage: The development of a campground in upper Kane Creek was suggested to enhance the recreation experience in the Timber Mountain OHV area.

Rationale for elimination: The BLM does not hold road easements that provide for public access to the location suggested for development. The level of development and investment of funding needed for designing and constructing a campground facility would require legally binding long-term public access. Considering the lack of public easements, combined with the concern for current watershed conditions contributing to the degradation of water quality and aquatic habitat in Kane Creek, this action was eliminated from detailed analysis at this time.

Complete fire hazard reduction work: Some comments were received suggesting that BLM include fire hazard reduction work as part of this project to reduce the hazardous fuels and the risk of fire starts from human activities associated with OHV use.

Rationale for elimination: Fire hazard reduction work is outside the scope of this EIS and analysis and therefore eliminated from detailed analysis with this EIS. The objectives identified for this EIS is to develop options for managing OHV use. Fire hazard reduction work has been ongoing in the planning area for the past 5 to 7 years. Environmental analysis for fuels reduction work has been documented under separate NEPA documents. The effects of the alternatives on fire hazard and risk have been addressed in this EIS as well as the potential for cumulative effects of this action when considered in combination with other past and ongoing actions in the analysis areas.

Reduce sound decibel levels. Several comments were received suggesting that BLM reduce allowable sound decibel level to reduce impacts on adjacent residents.

Rationale for elimination: The State of Oregon regulates allowable sound levels for OHVs. The current level is 99 decibels measured at 18 inches at a 45 degree angle from the exhaust. Noise analysis completed for this EIS showed that currently there is potential for about 47 residents to hear sound above 60 decibels, the level at which sound can be perceived as noise above ambient sound level for a rural area, if Oregon State laws for OHV decibel levels are enforced. The selection of Alternative 2 through 5 would substantially reduce the number of residents exposed to sound levels above ambient conditions. With the enforcement of current Oregon State regulations for sound levels, and designation of routes within the Timber Mountain area to reduce noise impacts on adjacent residents, the BLM anticipates that the current impacts from sound would be reduced to acceptable levels (see Chapter 3, Noise). Therefore, this alternative has been eliminated from detailed analysis.

Re-engineer intersection of Mary Ann Drive and the Reservoir road: to reduce impacts to public safety: Residents living near the intersection of the Reservoir Road, Highway 238, and Mary Anne Drive intersection submitted their concerns for public safety due to the potential for increased traffic from people accessing the Timber Mountain OHV area through the Jacksonville Reservoir road. They explained that the Reservoir Road enters the highway near a blind corner and the junction is located immediately across from a popular parking area for the Jacksonville walking trail system, which also contributes to traffic congestion. There is also concern for cumulative effects when also combined with existing traffic associated with Applegate Christian Fellowship in Ruch.

Rationale for Elimination: The Reservoir road is under the jurisdiction of Jackson County, and Highway 238 is under the jurisdiction of the State of Oregon. BLM does not have the authority to implement changes in the alignment of this intersection. Therefore, this action was eliminated from detailed analysis under this EIS. The effects of the alternatives on traffic have been analyzed under this EIS. BLM has contacted other jurisdictional agencies and at this time there have been no safety issues identified specific to the intersection in question. BLM will continue to coordinate with other agencies managing the county and state roads and highways to provide them with information concerning the anticipated effects of implementing a management plan for the Timber Mountain OHV Area.

Close areas outside of the Timber Mountain planning area to OHV use: Some suggested that lands adjacent to the Timber Mountain area be closed to OHV use to reduce the likelihood of OHV use overflowing from the designated OHV area into surrounding areas.

Rationale for elimination: Changing OHV designations is not within the scope of the purpose and need identified for this recreation management plan. The purpose of this project is to implement a management plan for guiding OHV recreation and identifying final OHV routes in the Timber Mountain area. Therefore, this action was eliminated from detailed analysis.

Timber harvest and fuels reduction activities need to include mitigation to reduce impacts to OHV recreation: Some people expressed their concern that other resource management activities in the area have the potential to impact OHV recreation in the OHV use area, and that mitigation needs to be considered to reduce the impacts of timber management and fuels reduction on OHV use. Some people even suggested that timber management should not be allowed in the OHV area.

Rationale for elimination: One of the applicable laws governing the major portion of BLM-administered lands in the planning area is the Oregon and California Railroad and Coos Bay Wagon Road Grant Lands Act of 1937 (O&C Act), for which sustainable timber production is the primary purpose. For this reason, the majority of BLM-administered lands in the Timber Mountain planning area are assigned by the RMP to be managed for timber production. At the time that timber management or fuels reduction activities are proposed in the Timber Mountain area, the analysis of impacts to OHV use and other recreation activities will be addressed in the NEPA analysis associated with those projects. Environmental assessments associated with timber management and fuels reduction projects will also be available for public review and comment.

Designate play areas (rock crawls, hill climb, mud pit) for full size 4x4 passenger vehicles: Some commenters requested that the BLM develop proposals for a variety of OHV play areas including rock crawls, hill climbs, and mud pits for 4x4 vehicles (Class 2 OHVs).

Rationale for elimination: Areas which meet the criteria for these types of play areas were not identified in areas that could be managed in a manner to protect resources and public safety, and therefore were not analyzed in detail under this EIS.

Implement a user fee or permit system: Several comments were received suggesting that user fees and/or a permit system should be implemented to cover the cost of maintaining the OHV use area, control the number of users, and to promote responsible use.

Rationale for elimination: OHV riders are already charged taxes and fees in order to ride on public lands. The State of Oregon collects taxes on gasoline sold throughout the state. The portion of the gas tax attributed to OHV use is appropriated to the Oregon Department of Park and Recreation, OHV allocation Committee to contribute to the maintenance and development of OHV riding areas in Oregon. OHV riders are also required to purchase State of Oregon OHV stickers in order to ride on public lands throughout Oregon. The BLM plans to access these State assessed fees by applying for grant funding with the State of Oregon ATV Grant Program. An assumption common to all action alternatives developed and analyzed in detail under this EIS is that the BLM will be applying to the State of Oregon ATV Grant program to access these funds to facilitate the management of OHV use in the Timber Mountain area. Therefore, the implementation of an additional user fee system was eliminated from detailed analysis at this time.

Table 2-9. Comparison of the Alternatives

Purpose & Need and Significant Issues	Alternative 1 (No-Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Quality OHV Experience					
Total miles of OHV routes (estimated)	375.9 miles	138.9	138.1	71.2	30.5
Miles of OHV routes by land status (estimated)	• 185.6 miles existing on BLM-administered lands, • 190.3 miles existing on private lands	• 111.2 miles on BLM-administered lands, • 27.9 miles proposed on private lands[1]	• 110.4 miles on BLM-administered lands, • 27.8 miles proposed on private lands[2]	• 71.2 miles on BLM-administered lands, • 0.4 miles shared use road with easement across private land	• 15.7 miles on BLM-administered lands, • 14.9 miles proposed on private lands[3]
Miles of OHV routes by trail class (all ownerships)	Class 1: 111.5 Class 2: 207.8[4] Class 3: 56.5	Class 1: 46.2 Class 2: 11.6 Class 3: 27.2 Open shared use roads: 53.9	Class 1: 54.3 Class 2: 10.6 Class 3: 33.3 Open shared use roads: 39.9	Class 1: 24.8 Class 2: 12.2 Class 3: 20.1 Open shared use roads: 14.1	Class 1: 12 Class 2: 0 Class 3: 4.4 Open shared use roads: 14.1
Development or improvement of staging areas	Dispersed unloading and loading of OHVs would continue; no staging area developments or improvements are planned	Manage 9 staging areas: • 8 existing areas to be improved and/or maintained • 1 staging area to be constructed	Manage 8 staging areas: • 7 existing areas to be improved and/or maintained • 1 staging area to be constructed	Manage 4 staging areas: • 3 existing areas to be improved and/or maintained • 1 staging area to be constructed	Manage 1 staging areas: • 1 existing area to be improved

[1] To be implemented only with agreements from landowners.
[2] To be implemented only with agreements from landowners.
[3] To be implemented only with agreements from landowners.
[4] Includes existing open system roads.

Table 2-9. Comparison of the Alternatives

Purpose & Need and Significant Issues	Alternative 1 (No-Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Meets the minimum miles of OHV trails (60 miles) suggested to satisfy one day OHV user visits	Yes	Yes	Yes	Yes	No
Meets the miles of trails desirable to satisfy multi-day OHV user visits (200 miles)	Yes	No	No	No	No
Connectivity of the OHV trail system (Agreements)	Public and private lands—no agreements in place to ensure connectivity of OHV routes and loops.	Public and private lands—Cooperative agreements needed to ensure connectivity of OHV routes and loop trails. (Same as 3)	Public and private lands—Cooperative agreements needed to ensure connectivity of OHV routes and loop trails. (Same as 2)	Public lands—**no additional agreements needed** to ensure connectivity of OHV routes and loop trails.	Public and private lands—cooperative agreements needed to ensure connectivity of OHV routes and loop trails. (fewer private parcels involved than 2 & 3)
Soil Resources					
Acres out of production from roads & trails (BLM)	202	123	124	74	17
Miles of roads/trails on ravel prone soils	94	45	45	20	9

Table 2-9. Comparison of the Alternatives

Purpose & Need and Significant Issues	Alternative 1 (No-Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Miles of roads/trails on granitic soils	87	17	17	< 1	7
Water Resources					
Number of Trail-stream crossings on BLM lands[5]	500	142	138	142	43
Miles of trails in Riparian Reserves	21.5	4.5	4.5	5	1.4
Miles of trails decommissioned (BLM)	0	61	61	67	82
Threat for petrochemical pollution to surface or ground water supply	LOW (But greater than the Action Alternatives due to unrestricted riparian access)	LOW	LOW	LOW	LOW

[5] Includes dry draws that may carry water seasonally but do not have a defined channel.

Table 2-9. Comparison of the Alternatives

Purpose & Need and Significant Issues	Alternative 1 (No-Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Threatened & Endangered					
Miles of OHV use in spotted owl habitat	52	28	28	19	5
Number of spotted owl sites within 195 feet of OHV use[6]	7	3	3	3	0
Fritillaria gentneri sites potentially affected	15	8	8	8	0
Coho Salmon	*Indicators for water resources used as indicators for benefits/impacts to coho habitat*	*Indicators for water resources used as indicators for benefits/impacts to coho habitat*	*Indicators for water resources used as indicators for benefits/impacts to coho habitat*	*Indicators for water resources used as indicators for benefits/impacts to coho habitat*	*Indicators for water resources used as indicators for benefits/impacts to coho habitat*

[6] **Distance used to buffer noise disturbance for known spotted owl nest sites during nesting season.**

Table 2-9. Comparison of the Alternatives

Purpose & Need and Significant Issues	Alternative 1 (No-Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Noise					
No. of residents exposed to sound levels greater than 50dBA (within 1,707 ft. or 0.3 mile of an OHV route)[7]	305	100	100	87	2
No. of residents exposed to sound levels greater than 60dBA (within 427 ft. or 0.08 mile of an OHV route)[8]	47	9	9	4	1

[7] 50 dBA is average ambient sound level for a quiet rural neighborhood.

[8] Sound levels of 60 dBA or greater (10 dBA increase over ambient sound level) could be perceived as noise or annoying sound level.

Chapter3
Affected Environment & Environmental Consequences

Chapter 3. Affected Environment & Environmental Consequences

This chapter forms the scientific and analytical comparison of alternatives and answers the question:

> ***What are the effects of BLM's proposed alternatives for managing OHV recreation in the Timber Mountain area, and what would happen if the BLM did not do this project?***

The Affected Environment describes the existing conditions of the project planning area and associated analysis areas, and sets the environmental baseline for comparing the effects of the alternatives, including the No-Action Alternative. This chapter describes the present conditions of each affected resource (physical, biological, and social environments) within the Timber Mountain planning and analysis areas, followed by the estimated environmental effects of implementing the No-Action Alternative and the action alternatives. The affected environment is described to the level of detail needed to determine the effects to the environment of implementing an alternative for managing OHV use in the Timber Mountain planning area.

The impact analysis addresses direct, indirect, and cumulative effects on all identified affected resources of the physical, biological, and human environment. The analysis areas for actions proposed under this EIS vary by resource. The resource specific analysis areas are described by resource section.

Project, Planning, and Analysis Areas

The terms **project area**, **planning area** and **analysis areas** are used throughout this chapter. The following defines each term:

> The terms **project area** or treatment area are used interchangeably to describe where action is proposed, such as the trails proposed for maintenance, construction, or decommissioning.
>
> The term **planning area** is used to describe the overall area of consideration that was reviewed for the development of management alternatives.
>
> **Analysis areas** vary by resource and include those areas that could potentially be affected by the proposed action. In some cases the analysis area is confined to the project area and in other cases the analysis area extends beyond the project and planning area boundaries.

Consideration of Past Actions in the Analysis of Effects

The current condition of the lands affected by the proposed action is the result from a multitude of natural processes and human actions that have taken place over many decades. A catalogue and analysis, comparison, or description of all individual past actions and their effects, which have contributed to the current environmental conditions would be practically impossible to compile and unduly costly to obtain. Ferreting out and cataloguing the effects of each of these individual past actions would be a time consuming and expensive task, which would not add any clearer picture of the existing environmental conditions. It is possible to implement easier, more accurate, and less costly ways to obtain the information concerning past actions, which is necessary for an analysis of the impact on the environment that may result from the incremental impact of implementing this action, when added to other past, present, and reasonably foreseeable future actions. (See definition of "cumulative impact" in 40 CFR § 1508.7.)

As the Council on Environmental Quality (CEQ), in guidance issued on June 24, 2005, points out, the "environmental analysis required under NEPA is forward-looking," and review of past actions is required only "to the extent that this review informs agency decision-making regarding the proposed action." Use of

information on the effects of past actions may be useful in two ways according to the CEQ guidance. One is for consideration of the proposed action's cumulative effects, and secondly as a basis for identifying the proposed action's direct and indirect effects.

The CEQ stated in this guidance that "[g]enerally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." This is because a description of the current state of the environment inherently includes the effects of past actions. The CEQ guidance specifies that the "CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions." The importance of "past actions" is to set the context for understanding the incremental effects of the proposed action. This context is determined by combining the current conditions with available information on the expected effects of other present and reasonably foreseeable future actions.

Effects analyses completed for resources affected by alternatives developed for the Timber Mountain Recreation Management Plan, describe indicators of importance along with the spatial and temporal scale of importance (analysis area) for determining the effects of multiple actions (past, current, and reasonably foreseeable) on affected resources. The analyses look at all effects of the proposed management alternatives regardless of whether they are direct or indirect. Direct effects are the impacts caused by the action (activities) that occur at the same time and place; indirect impacts are those impacts caused by the action (activities) but occur later in time or farther removed in distance, but are still reasonably foreseeable. The term cumulative effects denotes the fact that the analyses of direct and indirect effects must not be done in isolation, but in the context of other actions whether from the past, present, or reasonably foreseeable future, and whether human-caused or natural. As discussed above, the current condition assessed for each affected resource inherently includes the effects of past actions.

Consideration of Ongoing and Reasonably Foreseeable Actions in the Analysis of Effects

The analysis of the effects of other present and reasonably foreseeable actions relevant to the effects of the proposed action is necessary. How each resource analysis considers ongoing and reasonably foreseeable actions is dependent on the geographic scale of concern and attributes considered during each resource analysis. Each resource analysis describes ongoing and reasonably foreseeable actions appropriate to their analysis area.

Soil Resources

Affected Environment

The soils within the Timber Mountain planning area were formed from parent material of the Klamath Mountains. The Klamath Mountains are complex areas characterized by steep, rugged terrain. The rock that makes up these mountains began forming over 200 million years ago as sediment deposited on the floor of an inland sea. The sediment was subsequently altered by heat and pressure (metamorphosed), folded and faulted, and then uplifted to form mountains. The metamorphic processes most likely were associated with "sea-floor spreading" or plate tectonics and, about 150 million years ago, there was an episode of intrusion of granitic material into the overlying rock.

The intense geologic deformations along with the intense shearing and faulting have weakened the rock. In steep topography, the soils are underlain by hard relatively unweathered bedrock. The soils formed in these materials are generally moderately deep or shallow and often have high rock content. In other areas the bedrock has been weathered to saprolite and the soils formed from this material exhibit more evidence of profile development than the soils that formed from harder bedrock. These soils are on more moderate topography, contain less rock fragment and are generally redder indicating a higher degree of weathering. In areas of granitic parent material, soils are generally coarse texture with little structure resulting in a high susceptibility to erosional forces.

The main area of concern is the granitic soils. The granitic soils on BLM land are mainly located in the Kane Creek and Jackson Creek drainages. There are numerous trails that take off of existing BLM logging roads that lead both up/down slope and traversing the slope. Most of the trails going up/down the slope are deeply rutted and high amounts of soil erosion from water and OHV activity is occurring. In many places, tree roots are exposed causing a stair-stepping effect on the landscape. Trails that traverse the slope at less than 8 percent are not as deeply rutted but a moderate to high amount of erosion is occurring. Most of these trails intersect with waterways that tend to increase the sediment production in local streams.

Soils formed from non-granitic material do not exhibit the deep rutting except in areas that are used excessively during the wet season. Many trails in this type of soil are very rocky as the soil has been displaced leaving only cobbles and stones on the surface. Minor ruts are apparent but the hard parent material is providing a stable base for the trail. In most areas, the lack of drainage and maintenance on the trails are causing deteriorating situations. It is also apparent that as a trail becomes too rutted or difficult to negotiate; users are moving off to the side and creating new paths.

Soils identified in the planning area are listed below along with a brief map unit description and soil characteristics. The locations of these soils on the landscape are on file at the BLM Medford District Office. The adjoining table indicates potential soil erosion hazard with and without trails.

25G/26G - Caris-Offenbacher gravelly loams, 50 to 80 percent slopes

This map unit is on hillslopes. Elevation is 1,000 to 4,000 feet. The mean annual precipitation is 25 to 40 inches, the mean annual temperature is 46 to 54 degrees F, and the average frost-free period is 100 to 160 days. This unit is about 60 percent Caris soil and 30 percent Offenbacher soil. The components of this unit occur as areas so intricately intermingled that mapping them separately was not practical at the scale used. Included in this unit are small areas of Tallowbox, Vannoy, and Voorhies soils; small areas of McMullin soils and Rock outcrop on ridges and convex slopes; and, on concave slopes, soils that are similar to the Caris and Offenbacher soils but have bedrock at a depth of more than 40 inches. Also included are small areas of Caris and Offenbacher soils that have slopes of less than 50 or more than 80 percent. Included areas make up about 10 percent of the total acreage.

The Caris soil is moderately deep and well drained. It formed in colluvium derived dominantly from metamorphic rock. Typically, the surface is covered with a layer of needles and twigs about 1 inch thick. The surface layer is very dark grayish brown gravelly loam about 7 inches thick. The upper 13 inches of the subsoil is dark yellowish brown very gravelly clay loam. The lower 11 inches is dark yellowish brown extremely gravelly loam. Bedrock is at a depth of about 31 inches. The depth to bedrock ranges from 20 to 40 inches. In some areas the surface layer is very gravelly loam or is stony. Permeability is moderate in the Caris soil. Available water capacity is about 2 inches. The effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high.

The Offenbacher soil is moderately deep and well drained. It formed in colluvium derived dominantly from metamorphic rock. Typically, the surface is covered with a layer of needles, leaves, and twigs about 1 inch thick. The surface layer is dark grayish brown and dark brown gravelly loam about 9 inches thick. The subsoil is reddish brown and yellowish red loam about 25 inches thick. Bedrock is at a depth of about 34 inches. The depth to bedrock ranges from 20 to 40 inches. In some areas the surface layer is very gravelly loam or is stony. Permeability is moderate in the Offenbacher soil. Available water capacity is about 4 inches. The effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high.

113G-McMullin-Rock outcrop complex, 35 to 60 percent slopes

This map unit is on hillslopes. Elevation is 1,000 to 4,000 feet. The mean annual precipitation is 18 to 40 inches, the mean annual temperature is 45 to 52 degrees F, and the average frost-free period is 100 to 180 days. This unit is about 60 percent McMullin soil and 30 percent Rock outcrop. The components of this unit occur as areas so intricately intermingled that mapping them separately was not practical at the scale used. Also included are small areas of soils that are similar to the McMullin soil but have more than 35 percent rock fragments or are less

than 12 inches or more than 20 inches deep over bedrock and McMullin soils that have slopes of less than 35 or more than 60 percent. Included areas make up about 10 percent of the total acreage.

The McMullin soil is shallow and well drained. It formed in colluvium derived dominantly from igneous and metamorphic rock. Typically, the surface layer is dark reddish brown gravelly loam about 7 inches thick. The subsoil is dark reddish brown gravelly clay loam about 10 inches thick. Bedrock is at a depth of about 17 inches. The depth to bedrock ranges from 12 to 20 inches. Permeability is moderate in the McMullin soil. Available water capacity is about 2 inches. The effective rooting depth is 12 to 20 inches. Runoff is rapid, and the hazard of water erosion is high.

Rock outcrop consists of areas of exposed bedrock. Runoff is very rapid in these areas.

158D-Ruch gravelly silt loam, 7 to 20 percent slopes

This very deep, well drained soil is on alluvial fans and foot slopes. It formed in alluvium derived dominantly from metamorphic rock. Elevation is 1,000 to 3,000 feet. The mean annual precipitation is 20 to 35 inches, the mean annual temperature is 50 to 54 degrees F, and the average frost-free period is 140 to 180 days.

Typically, the surface layer is dark brown gravelly silt loam about 7 inches thick. The upper 10 inches of the subsoil is reddish brown loam. The lower 53 inches is yellowish red loam. The depth to bedrock is 60 inches or more. In some areas the surface layer is cobbly or stony.

Permeability is moderately slow in the Ruch soil. Available water capacity is about 8 inches. The effective rooting depth is 60 inches or more. Runoff is slow or medium, and the hazard of water erosion is slight or moderate.

164D-Shefflein loam, 7 to 20 percent slopes; 165E-Shefflein loam, 20 to 35 percent north slopes; 166E-Shefflein loam, 20 to 35 percent south slopes

This deep, well drained soil is on alluvial fans. It formed in alluvium derived dominantly from granitic rock. Elevation is 1,000 to 4,000 feet. The mean annual precipitation is 25 to 40 inches, the mean annual temperature is 46 to 54 degrees F, and the average frost-free period is 100 to 160 days.

Typically, the surface layer is dark brown loam about 4 inches thick. The next layer is reddish brown loam about 6 inches thick. The upper 30 inches of the subsoil is reddish brown clay loam. The lower 16 inches is reddish brown sandy clay loam. Weathered bedrock is at a depth of about 56 inches. The depth to bedrock ranges from 40 to 60 inches. In some areas the surface layer is sandy loam or clay loam or is stony.

Permeability is moderately slow in the Shefflein soil. Available water capacity is about 8 inches. The effective rooting depth is 40 to 60 inches. Runoff is medium, and the hazard of water erosion is moderate or high depending on steepness of slope.

188G - Tallowbox gravelly sandy loam, 35 to 70 percent north slopes; 189G - Tallowbox gravelly sandy loam, 35 to 70 percent south slopes

This moderately deep, somewhat excessively drained soil is on hillslopes. It formed in colluvium derived from granitic rock. Elevation is 1,000 to 4,000 feet. The mean annual precipitation is 25 to 40 inches, the mean annual temperature is 46 to 54 degrees F, and the average frost-free period is 100 to 160 days.

Typically, the surface is covered with a layer of needles, leaves, and twigs about 1 inch thick. The surface layer is dark brown gravelly sandy loam about 6 inches thick. The upper 6 inches of the subsoil is dark brown sandy loam. The lower 11 inches is brown gravelly sandy loam. Weathered bedrock is at a depth of about 23 inches. The depth to bedrock ranges from 20 to 40 inches.

Permeability is moderately rapid in the Tallowbox soil. Available water capacity is about 3 inches. The effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high.

195E - Vannoy silt loam, 12 to 35 percent north slopes; 196E - Vannoy silt loam, 12 to 35 percent south slopes
This moderately deep, well drained soil is on hillslopes. It formed in colluvium derived dominantly from metamorphic rock. Elevation is 1,000 to 4,000 feet. The mean annual precipitation is 20 to 40 inches, the mean annual temperature is 46 to 54 degrees F, and the average frost-free period is 100 to 160 days.

Typically, the surface is covered with a layer of needles, leaves, and twigs about ¾ inch thick. The surface layer is dark brown silt loam about 4 inches thick. The next layer is reddish brown silt loam about 7 inches thick. The subsoil is yellowish red clay loam about 27 inches thick. Weathered bedrock is at a depth of about 38 inches. The depth to bedrock ranges from 20 to 40 inches. Permeability is moderately slow in the Vannoy soil. Available water capacity is about 5 inches. The effective rooting depth is 20 to 40 inches. Runoff is medium, and the hazard of water erosion is moderate.

197F - Vannoy-Voorhies complex, 35 to 55 percent south slopes
This soil map unit is on hillslopes at elevation ranging from 1,000 to 4,000 feet. The mean annual precipitation is 20 to 40 inches, the mean annual temperature is 46 to 54 degrees F, and the average frost-free period is 100 to 160 days. This unit is about 60 percent Vannoy soil and 30 percent Voorhies soil. The components of this map unit occur as areas so intricately intermingled that mapping them separately was not practical at the scale used.

The Vannoy soil is moderately deep and well drained. It formed in colluvium derived dominantly from metamorphic rock. Typically, the surface is covered with a layer of needles, leaves, and twigs about ¾ inch thick. The surface layer is dark brown silt loam about 4 inches thick. The next layer is reddish brown silt loam about 7 inches thick. The subsoil is yellowish red clay loam about 27 inches thick. Weathered bedrock is at a depth of about 38 inches. The depth to bedrock ranges from 20 to 40 inches. In some areas the surface layer is gravelly or very gravelly loam. Permeability is moderately slow in the Vannoy soil. Available water capacity is about 5 inches. The effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high.

The Voorhies soil is moderately deep and well drained. It formed in colluvium derived dominantly from metamorphic rock. Typically, the surface is covered with a layer of needles and twigs about 1 inch thick. The surface layer is very dark grayish brown and dark brown very gravelly loam about 8 inches thick. The upper 10 inches of the subsoil is brown very gravelly clay loam. The lower 18 inches is brown very cobbly clay loam. Weathered bedrock is at a depth of about 36 inches. The depth to bedrock ranges from 20 to 40 inches. Permeability is moderate in the Voorhies soil. Available water capacity is about 3 inches. The effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high.

208C-Xerorthents-Dumps complex, 0 to 15 percent slopes
This map unit is in areas on flood plains, stream terraces, and alluvial fans where excavated material was deposited during mining operations. The material in this unit commonly is referred to as mine tailings. Slopes range from nearly level to hummocky. Elevation is 1,000 to 4,100 feet. The mean annual precipitation is 20 to 50 inches, the mean annual temperature is 43 to 54 degrees F, and the average frost-free period is 100 to 180 days.

This unit is about 35 percent Xerorthents and 30 percent Dumps. Included in this unit are small areas of Camas, Evans, and Newberg soils on flood plains; Central Point, Foehlin, Medford, and Takilma soils on terraces; and Abegg, Josephine, Ruch, Shefflein, and Dumont soils on alluvial fans. Included areas make up about 35 percent of the total acreage. The Xerorthents vary too considerably to be classified at the series level. They are cobbly clay loam to extremely cobbly sandy loam and have as much as 90 percent gravel, cobbles, and stones. The Dumps consist mostly of gravel, cobbles, and stones and include little, if any, material of finer texture.

Permeability, available water capacity, and the effective rooting depth vary considerably in areas of this unit. There is a seasonal high water table in winter and spring, particularly in areas on flood plains.

Table 3-1. Trail Management and Soil Limitations.

The information in this table indicates the dominant soil condition. The numbers in the value column range from 0.01 to 1.00 with the larger value indicating a greater potential limitation.

		Hazard of Off-road or Off-trail Erosion		Hazard of Erosion on Roads & Trails	
Map Symbol and Soil Name	Pct of Map Unit	Rating Class and Limiting Features	Value	Rating Class and Limiting Features	Value
25G: Caris	60	Very Severe Slope/erodibility	0.95	Severe Slope/erodibility	0.95
25G: Offenbacher	29	Very Severe Slope/erodibility	0.95	Severe Slope/erodibility	0.95
26G: Caris	60	Very Severe Slope/erodibility	0.95	Severe Slope/erodibility	0.95
26G: Offenbacher	20	Very Severe Slope/erodibility	0.95	Severe Slope/erodibility	0.95
108E: Manita	80	Moderate Slope/erodibility	0.50	Severe Slope/erodibility	0.95
108F: Manita	85	Severe Slope/erodibility	0.75	Severe Slope/erodibility	0.95
113G: McMullin	60	Severe Slope/erodibility	0.75	Severe Slope/erodibility	0.95
113G: Rock Outcrop	29	Histosol – Not rated Horizon table contains no data	1.00	Histosol – Not rated Horizon table contains no data	1.00
158D: Ruch	80	Slight		Severe Slope/erodibility	0.95
164D: Shefflein	80	Slight		Severe Slope/erodibility	0.95
165E: Shefflein	80	Moderate Slope/erodibility	0.50	Severe Slope/erodibility	0.95
166E: Shefflein	80	Moderate Slope/erodibility	0.50	Severe Slope/erodibility	0.95
188E: Tallowbox	85	Moderate Slope/erodibility	0.50	Severe Slope/erodibility	0.95
188G: Tallowbox	85	Very Severe Slope/erodibility	0.95	Severe Slope/erodibility	0.95
189E: Tallowbox	85	Moderate Slope/erodibility	0.50	Severe Slope/erodibility	0.95
189G: Tallowbox	85	Severe Slope/erodibility	0.75	Severe Slope/erodibility	0.95
195E: Vannoy	80	Moderate Slope/erodibility	0.50	Severe Slope/erodibility	0.95
195F: Vannoy	80	Very Severe Slope/erodibility	0.95	Severe Slope/erodibility	0.95
196E: Vannoy	80	Moderate Slope/erodibility	0.50	Severe Slope/erodibility	0.95
197F: Vannoy	60	Very Severe Slope/erodibility	0.95	Severe Slope/erodibility	0.95
197F: Voorhies	30	Severe Slope/erodibility	0.75	Severe Slope/erodibility	0.95
208C: Xerorthents	35	Slight		Slight	
208C: Dumps	30	Histosol – Not rated Horizon table contains no data	1.00	Histosol – Not rated Horizon table contains no data	1.00

Environmental Consequences

Effects Common to all Alternatives

Soil erosion is a natural process which is normally offset by soil formation. The rate of natural erosion is a function of the physical properties of soil, slope, vegetative cover, and climate. Once the natural balance between these factors is disturbed, soil erosion may far exceed its natural rates. OHV use of public lands removes protective vegetative cover, disrupts chemical crusts, and alters many soil properties. Compacted by repeated OHV passes, soil becomes less permeable, which increases runoff. Devoid of a protective cover, soil is exposed to direct impact of raindrops and mechanical abrasion of OHV tires. In addition, unprotected soils are more vulnerable to erosion by raindrop impact, overland flow of water, and by wind-drifting (Tuttle 1987).

Soils can be severely impacted by OHVs through disturbance and compaction. Soil stabilizers include macrofloral elements (plants and associated organic material), microfloral elements (lichens, moss) and inorganic elements (soil crusts). These natural soil protective elements are highly vulnerable to vehicle use. The force of rolling wheels on soil displaces the protective elements and causes compaction which results in long lasting negative effects. Soil compaction can decrease water infiltration, increase runoff, and cause severe erosion problems (Wilshire 1983).

When a decrease in vegetation is combined with soil compaction, the cumulative effect is soil erosion. Soil erosion is the most noticeable OHV effect because it is easily seen on the ground's surface. With continual widening of roads and trails as riders avoid ruts and potholes combined with riders driving their vehicles straight up slopes and across streams, the amount of soil erosion caused by OHVs can become enormous. The watershed deterioration and the stream sedimentation and degradation that results are less obvious on the surface, but are proven effects of soil erosion (Webb 1983).

According to Hinckley et al. (1983), off-road vehicle (ORV) use increases overland flow sediment transport by causing surface changes that alter runoff hydraulics; channelization in vehicle tracks causes accelerated erosion. The concentrated flow of water in vehicle tracks result in the creation of channels and gullies. Noted measurable erosion on natural desert hill slopes was often confined to areas of channelized flow. Hinckley (1983) additionally noted that as the degree of slope length increases, the magnitude of net erosion caused by OHV traffic markedly increase. Off-highway vehicle traffic can change the speed, timing, quantity, and quality of water moving through and over the soil. The tracks of OHVs, especially on erosion sensitive soil surfaces, form continuous rills and channels, which can grow into continuous gullies (Heede 1983).

An investigation of three State Vehicular Recreation Areas in California has documented 10 to 25-fold increases in sediment yield relative to nearby undisturbed basins. Soil texture and slope length are the dominant factors controlling soil erodibility in these areas. Soil texture appeared to be the dominant factor affecting soil erodibility on steep, compacted, and devegetated hillslopes (Tuttle 1983). Sites with gravelly sandy loam soils would experience a noticeable increase in runoff (Foltz 2006).

Organic carbon content of the soil exposed in hillclimb gullies was comparable to the 'C' horizon values of undisturbed soil profiles demonstrating a significant (70%) loss of soil fertility due to accelerated erosion. Because of its high cation and water-holding capacities and its positive effect on aggregation, aeration, permeability, and biological activity of soils, organic matter content is one of the most important factors influencing soil fertility and productivity. Soil organic carbon is directly proportional to soil organic matter, which is one of the most important factors affecting soil fertility, and thus productivity. So in addition to providing a measure of erosion, soil organic carbon content also indicate the effects of soil loss on soil fertility (Tuttle 1983).

A study was conducted by the Rocky Mountain Research Station and the San Dimas Technology Development Center to evaluate ATV (aka OHV) impacts. Trails were classified into one of three disturbances classes of low, medium, and high, based on loss of litter and vegetation, trail width, and depth of wheel ruts. Following trail condition assessment, rainfall simulations were conducted to measure erosion parameters on each of the

three disturbance classes. While infiltration parameters decreased with increased levels of ATV traffic, there was no statistically significant difference among the three classification levels. There was, however, generally a significant difference between undisturbed and the combined disturbed conditions. Similar significant differences existed for inter-rill erosion. One can conclude that a site is either undisturbed or it is disturbed and attempting to quantify levels of disturbance from a hydraulic conductivity and raindrop splash viewpoint are unlikely to be successful. In the ATV case, a site is either disturbed or it is not with the undisturbed producing low sediment loss and the disturbed producing higher sediment losses. In all cases sediment loss would be expected to increase due to ATV traffic (Foltz 2006).

In summary, the two main effects of OHV use on the soil resource in the Timber Mountain area are increased erosion and compaction. Once the soil is disturbed by off-highway vehicles, erosion substantially increases producing higher sediment losses (Foltz 2006). The effect on the beneficial uses from this increase in soil erosion is a loss in soil productivity and increased sedimentation to local waterways. The loss of soil productivity would have a negative effect on vegetation, particularly tree growth, adjacent to the roads and trails. The increase in sedimentation to local waterways has a negative affect on stream flow and aquatic habitat. The measurement of these negative effects could be tied directly to the amount of soil disturbed by OHV use. Thus, the more roads and trails on the landscape, the greater the negative effects to the soil resource.

Parameters by which to measure the effects to the soil resource from the proposed alternatives would be the amount of trails/roads that exist or that are proposed on soils formed from granite parent material, existing or proposed trails/roads on steep ravel prone soils and the total amount of existing or proposed trails/roads in each alternative. Table 3-2 identifies the total miles of trails/roads under each alternative. Tables 3-3 and 3-4 illustrate the amount of trails and roads that would exist under each alternative on granitic soils and ravel prone soils. Tables 3-4 and 3-6 list the miles of roads/trails proposed to be established under each action alternative.

Table 3-2. Miles of Trails and Roads by Trail Class and Landowner Status by Alternative

Trail Class	BLM-administered			Adjacent Non-Federal Lands			Total
	Existing		Proposed	Existing		Proposed	
	Trail	Road	New Trail	Trail	Road	New Trail	
ALTERNATIVE 1							
1	32.6	15.3	na	50.6	13.0	na	111.5
2	23.3	81.5	na	18.7	84.3	na	207.8
3	32.3	0.5	na	22.9	0.8	na	56.5
TOTALS	88.3	97.3	na	92.2	98.1	na	375.8
ALTERNATIVE 2							
1	8.3	23.2	3.9	4.5	6.5	0	46.2
2	1.3	9.6	0	0	0	0	11.6
3	17.8	1.2	6.1	2.2	0.4	0.2	27.2
Open Shared Use Roads	na	39.8	na	na	14.1	na	53.9
TOTALS	27.4	73.8	10.0	6.7	21	0.2	138.9
ALTERNATIVE 3							
1	8.4	33.1	2.2	4.1	6.5	0	54.3
2	1.6	9.0	0	0	0	0	10.6
3	17.4	5.7	7.4	2.2	0.4	0.2	33.3
Open Shared Use Roads	0	25.6	na	0	14.4	na	39.9
TOTALS	27.4	73.4	9.6	6.3	21.3	0.2	138.1
ALTERNATIVE 4							
1	5.4	15.6	3.7	0	0	0	24.8
2	1.4	10.8	0	0	0	0	12.2
3	14.7	1.8	3.5	0	0	0	20.1
Open Shared Use Roads	na	13.8		0	0.4	0	14.1
TOTALS	21.5	42	7.2	0	0.4	0	71.2
ALTERNATIVE 5							
1	2.2	3.7	0	1.1	5.1	0	12
2	0	0	0	0	0	0	0
3	3.9	0.2	0	0.2	0.1	0	4.4
Open Shared Use Roads	0	5.7	0	0	8.4	0	14.1
TOTALS	6.1	9.6	0	1.3	13.6	0	30.5

Table 3-3. Existing Miles of Roads and Trails on Granitic Soils

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Trails on Slopes < 60%	46.3	2.4	2.4	0	1.2
Trails on Slopes > 60%	3.1	5.2	5.2	0.2	1.3
Roads on Slopes < 60%	30.5	1.7	1.7	0	0.4
Roads on Slopes > 60%	6.8	5.9	5.9	0	3.7
Total Miles	86.7	15.2	15.2	0.2	6.6

Table 3-4. Proposed Miles of Roads and Trails on Granitic Soils

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Trails on Slopes < 60%	n/a	1.6	1.6	0	0
Trails on Slopes > 60%	n/a	0	0	0	0
Roads on Slopes < 60%	n/a	0	0	0	0
Roads on Slopes > 60%	n/a	0	0	0	0
Total Miles	n/a	1.6	1.6	0	0

Table 3-5. Existing Miles of Roads and Trails on Ravel Prone Soils

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Trails on Slopes < 60%	25.4	15.2	15.2	10.1	3.1
Trails on Slopes > 60%	12.1	8.5	8.5	6.3	2.1
Roads on Slopes < 60%	28.6	8.5	8.5	1.6	1.5
Roads on Slopes > 60%	27.7	11.8	11.8	1.7	2.5
Total Miles	93.8	44.0	44.0	19.7	9.2

Table 3-6. Proposed Miles of Roads and Trails on Ravel Prone Soils

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Trails on Slopes < 60%	n/a	0.9	0.9	0.4	0
Trails on Slopes > 60%	n/a	0.3	0.3	0.3	0
Roads on Slopes < 60%	n/a	0	0	0	0
Roads on Slopes > 60%	n/a	0	0	0	0
Total Miles	n/a	1.2	1.2	0.7	0

It is estimated that a class 1 trail is about forty-eight inches wide and occupies approximately one-half acre per mile. A class 2 trail is about eighty-four inches wide and occupies about seven-tenths acres per mile while a class 3 trail is about twenty-four inches wide and occupies about one-quarter acre per mile (Bunk 2005). Based on these estimates Table 3-7 illustrates the total acres of soil that are taken out of vegetation production (trees, brush, and grass) due to roads and trails in the project area. Table 3-8 provides acres of BLM-administered land that would be out of vegetation production due to roads and trails.

Table 3-7. Acres of Soils out of production due to Roads and Trails

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Class 1	49.9	7.7	7.5	3.2	2.0
Class 2	42.0	1.3	1.6	1.4	0
Class 3	22.1	8.0	7.8	5.9	4.1
Roads	293.1	142.2	142.1	63.6	34.8
Total Acres	407.1	159.2	159.0	74.1	40.9

Table 3-8. Acres of BLM Soils out of production due to Roads and Trails

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Class 1	19.6	5.0	5.0	3.2	1.3
Class 2	23.3	1.3	1.6	1.4	0
Class 3	12.9	7.1	7.0	5.9	1.6
Roads	146.0	110.7	110.1	63.0	14.4
Total Acres	201.8	123.4	123.7	73.5	17.3

Effects of Alternative 1

This alternative continues the current use and number of roads and trails used for OHV activities. Currently road and trail density is very high (Table 3-2), unmanaged and new trails continue to be created. The majority of use is occurring in the Jackson Creek and Forest Creek watersheds with the Kane Creek and Willow Creek watersheds experiencing a noticeable increase in use over the last few years. As Table 3-7 illustrates, approximately four-hundred acres have been disturbed by OHV roads/trails and are currently not producing any vegetation. These trails and roads also channel rainfall off the landscape which causes the site to retain less water for vegetation use.

The upper portion of the Right Fork of Forest Creek, the Cantrall Gulch tributary of Jackson Creek, the eastern half of Kane Creek and all of Willow Creek consists of highly erodible soils formed from granite parent material. Most trails in these granitic soils are rutted at least few inches deep and those on slopes over twenty percent exhibit rills and gullies ranging in depth from two to twenty-four inches. There are over eighty-five miles of roads and trails on granitic soils in the planning area. All trails and roads on granitic soils exhibit erosion higher than normal and the majority of unmanaged vertical trails exhibit erosion rates several times higher than natural rates (possibly as high as the 10 to 25-fold increases in sediment yield reported by Tuttle 1983).

Ravel prone soils are another concern with OHV use with most of these soils being located in the upper one-third of the hillslopes in the Foots Creek, Galls Creek, Jackson Creek and Forest Creek drainages. These soils are generally on slopes over thirty-five percent and can be highly susceptible to disturbance factors as a result of the high gravel content in the surface layer. Although deep gullies don't form on these types of soils as a result of OHV use, rilling will occur and soil particles are often eroded from the surface layer resulting in a loose gravel mantle. There are approximately ninety miles of roads and trails on ravel prone soils across the landscape with about forty percent on slopes over sixty percent. Ravel prone soils on slopes over sixty percent are more susceptible to slope failure and roads/trails may affect the stability of these unstable areas.

Effects of Alternative 2 and 3

Alternative 2 and 3 would include a little over one-third of the existing trails and roads that currently exists. Most of the OHV use would be concentrated in the Forest Creek and Galls Creek drainage. Reducing the amount roads and trails open to OHV use by nearly two-thirds would reduce the amount of erosion coming from these trails by at least one-half in the short-term (<5 years). If the trails and roads are stabilized and rehabilitated, then erosion rates from these trails would reach near normal levels within five to ten years. Soil productivity on the trails would be very low long-term and may take decades to recover.

There would be approximately fifteen miles of trails and roads on granitic soils used by OHVs in the Kane Creek and Jackson Creek watershed. Rehabilitating and stabilizing the approximately seventy miles of roads and trails on granitic soils that would not be used under these alternatives would cause a short term increase in erosion (<3 years) but a long-term decrease in erosion rates. Erosion rates would continue to be much higher than normal in the areas where OHV use would continue on granitic soils. The proposal of approximately one-and-one-half miles of new trails on granitic soils would increase erosion rates from these new trails and would take about six-tenths acres out of vegetation production.

Trails and roads on ravel prone soils would be reduced by approximately one-half from the current situation although there still would be about eight miles of trails on potentially unstable slopes over sixty percent.

Alternative 2 includes a seasonal restriction on OHV use in the Forest Creek watershed on the lower one-third of slopes, which would minimize erosion during the time of year and in an area where soil particles would readily reach the streams and waterways.

Effects of Alternative 4

This alternative would manage OHV use only on BLM-administered lands in the Forest Creek drainage. The amount of trails and roads available for OHV use would be reduced by nearly eighty percent when compared to current conditions. Although soil erosion in the Forest Creek area would increase as a result of concentrated use, erosion rates would decrease dramatically in the other drainages in the planning area. This would be particularly beneficial in the drainages with granitic soils such as Jackson Creek, Kane Creek, Willow Creek, and Galls Creek. Under this alternative, only two-tenths of a mile of trail would exist on granitic soils; a very positive effect over current conditions.

Trails and roads on ravel prone soils would be reduced by approximately eighty percent from the current situation (Table 3-2). There would be about six miles of trails on potentially unstable slopes, slopes over sixty percent (Table 3-5), which is about one-half of the current condition.

Overall, this alternative greatly reduces the adverse cumulative effect to the soil resource in the planning area by concentrating use in one drainage area. Although it would take a few years to decommission and rehabilitate the trails not proposed for use, eventually positive effects would be realized by reducing the amount of erosion currently occurring across the planning area.

Effects of Alternative 5

This alternative affects the least amount of ground in comparison to the other alternatives with about a ninety percent reduction in roads and trails available for OHV use when compared to the current situation (Table 3-2). The roads and trails open for use under this alternative would be located near the upper ridge slopes in the Timber Mountain planning area.

Approximately seven miles of trails would be open for use with about two-and-one-half miles on granitic soils in the upper right fork of Forest Creek and the Jackson Creek drainages. Another four miles of roads on granitic soils in those same areas would be open for OHV use. Although the trails in these areas would continue to

have erosion rates several times higher than natural conditions, there would be noticeable decrease in erosion throughout the planning area as a result of this alternative.

Trails and roads on ravel prone soils would be reduced by approximately ninety percent from the current situation (Table 3-5). There would be about two miles of trails on potentially unstable slopes over sixty percent which is about one-sixth of the current condition (Table 3-5).

Overall, this alternative greatly reduces the negative cumulative effect to the soil resource in the planning area by limiting the amount of trails open for use and locating those trails near the ridge slopes between Timber Mountain and upper Jackson Creek watershed. Although it would take a few years to decommission and rehabilitate the trails not proposed for use, eventually positive effects would be realized by substantially reducing the amount of erosion currently occurring across the planning area.

In summary, the disturbance caused by OHV use detrimentally affects the capability of the soil to produce vegetation. The loss of topsoil from roads and trails along with the de-watering of the hill slopes can have a negative effect on site productivity for tree growth. Tables 3-7 and 3-8 display the estimated acreage out of vegetation production due to roads and trails. Soil particles that are eroded from trails/roads often leave the site and enter the local streams and waterways. The measurement of these effects can be directly correlated to the amount of roads/trails opened to OHV use and the season of use; particularly on granitic soils and in areas close to streams. Project Design Features (see Chapter 2) are included with all action alternatives to reduce soil erosion, and to minimize impacts to water quality and soil productivity.

Choosing trail sites on hillsides with low slope angle and making upslope trail lengths shorter can aid in minimizing erosion rate increases (Foltz 2006). Research and literature regarding the issues of OHV document the negative impact the environments sustain from them. Recovery times are dependent on many factors including soil types, magnitude of soil compaction, rainfall rates, propagation rates of vegetation, and the degree of human disturbance.

Water Resources

Affected Environment

Characterization

The planning area for the Timber Mountain Recreation Management Plan includes 21,932 acres of federal land administered by the Bureau of Land Management (BLM) and 34,456 acres of interspersed privately owned land. The *South Rogue-Gold Hill Watershed Analysis* (USDI 2001a), *Middle Applegate Watershed Analysis* (USDI 1995), *West Bear Creek Watershed Analysis* (USDI 2001b), and *Murphy Watershed Analysis* (USDI 2000) provide general water resources background information for the area of consideration. The watershed analyses reflect what was known about the watersheds at the time the watershed analyses were completed. The water resources analysis for this environmental impact statement relies on additional information, much of which is more recent than that contained in the watershed analyses.

Climate

Mild, wet winters and hot, dry summers characterize the Timber Mountain planning area. During the winter months, the moist, westerly flow of air from the Pacific Ocean results in frequent storms of varied intensities. Rain predominates in the lower elevations with the majority occurring in the late fall, winter, and early spring. There are no snow-dominated precipitation zones located within the Timber Mountain planning area. Approximately five percent of the planning area is located in the rain-on-snow zone. This zone occurs between approximately 3,500 and 5,000 feet elevation and is referred to as the transient snow zone. The snow level in this zone fluctuates throughout the winter in response to alternating warm and cold fronts.

Average annual precipitation ranges from approximately 22 inches at the lower elevations near the eastern portion to 36 inches at the higher elevations in the western portion of the planning area. Annual precipitation can fluctuate widely from year to year. During the summer months, the area is dominated by the Pacific high pressure system, which results in hot, dry weather, with low relative humidity. Prevailing winds are from the north or northwest and are usually light. Summer thunderstorm activity is common. Many of these storms are accompanied by measurable rainfall, resulting in numerous lightning-caused fires. Winds in excess of 50 miles per hour, from any direction, are common. Most of these storms enter the area from the south or southwest (USDI 2001b pp. 15-16, Maps 5-6; USDI 2001a, pp. 15-17, Maps 5-6; USDA 1995, pp. 27-28, Maps 5-6).

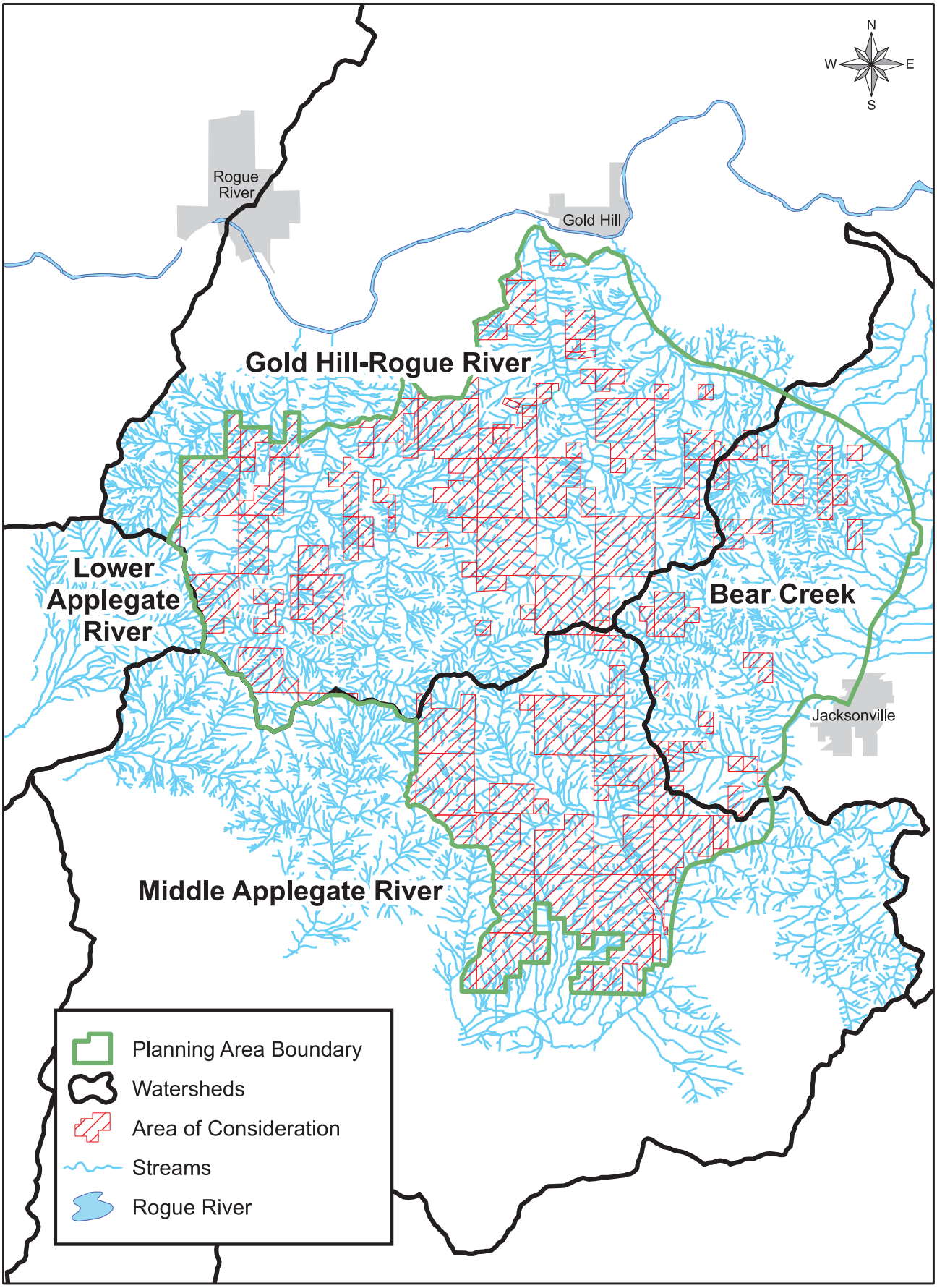
Planning Area Description

The 88.1 square mile (mi.^{2}) Timber Mountain planning area (34.3 mi.^{2} BLM and 53.8 mi.^{2} interspersed private lands) includes portions of four different watersheds: Gold Hill-Rogue River, Bear Creek, Middle Applegate River, and Lower Applegate River (Map 3-1). The Gold Hill-Rogue River and Bear Creek Watersheds are two of four watersheds within the Middle Rogue Subbasin. The Middle Applegate and Lower Applegate Watersheds are two of six watersheds within the Applegate Subbasin. The land within the planning area drains into: 1) the portion of the Rogue River from the confluence of Kane Creek down to the confluence with Birdseye Creek; 2) the portion of Bear Creek from Jackson Creek down to the confluence with Willow Creek; and 3) the portion of the Applegate River from the confluence of Forest Creek down to the confluence with Caris Creek.

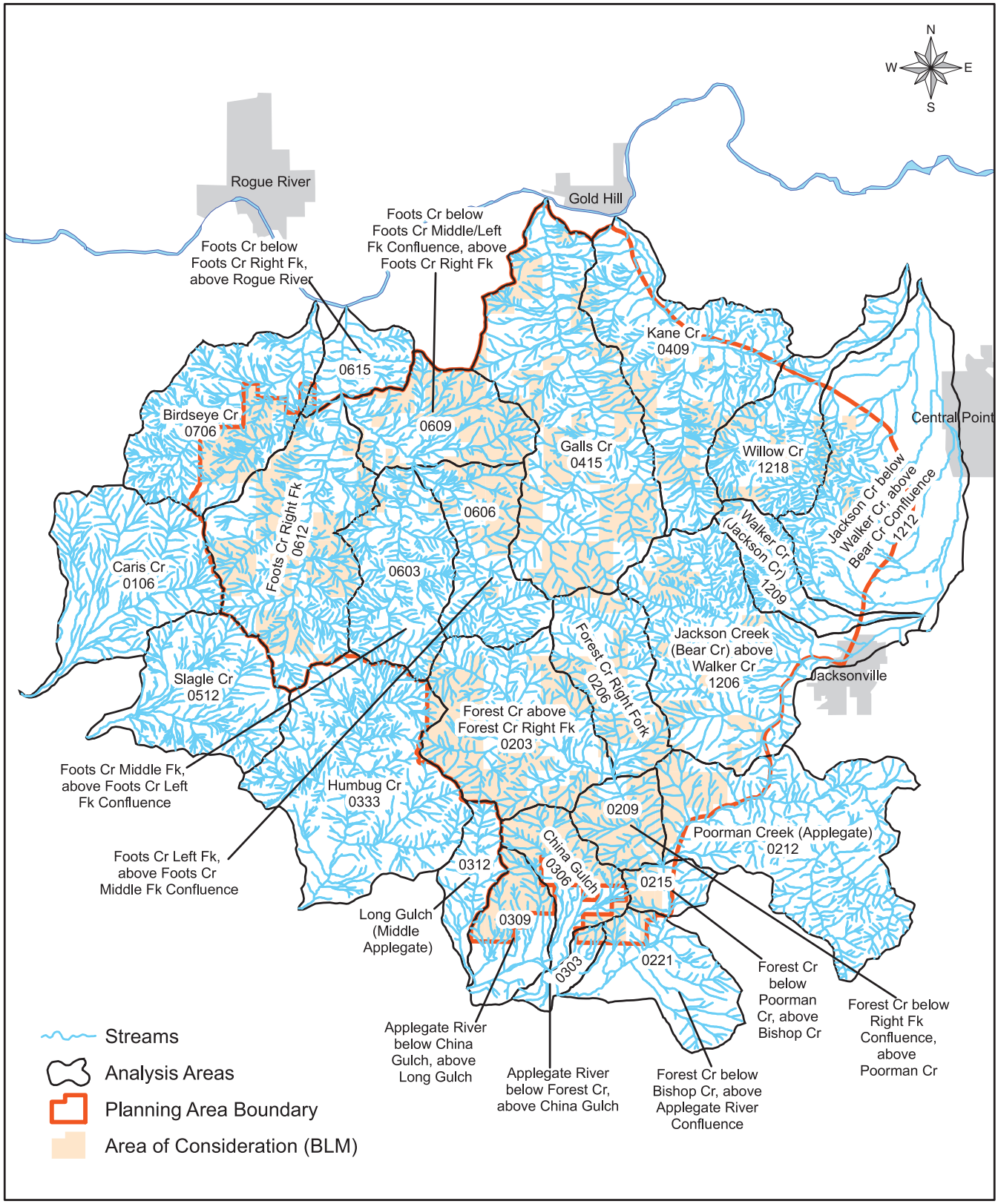
For purposes of analyzing the affected environment and the proposed project, the planning area is stratified into 25 analysis areas that are composed of hydrologic units delineated using drainage boundaries (Map 3-2). Eight analysis areas are completely within the planning area. The portions of the analysis areas outside the planning area boundary would not be directly affected by the proposed project activities, but are considered for cumulative effects analysis.

The analysis areas range in size from 564 to 8,497 acres (Table 3-9 to 3-12). The size of the analysis watershed is large enough to assess the cumulative effect of actions, that taken individually (site scale) may not be significant, but when combined with effects from everything else going on in the drainage, may have a potential significant impact ("cumulative effect"). The analysis areas are small enough to avoid "drowning out" evidence of adverse effects. As the size of the analysis area increases, there is an increasing possibility of the analysis indicating that there is "no problem" when in fact individual drainages may have issues of concern.

Map 3-1. Watershed Associated with the Timber Mountain Planning Area



Map 3-2. Analysis Areas Associated with the Timber Mountain Planning Area



Bear Creek Watershed Analysis Areas

The Bear Creek Watershed (Hydrologic Unit 1710030801, hereafter referred to the two letter code "BR") is located in the Middle Rogue Subbasin. The major Bear Creek Subwatershed within the planning area is Jackson Creek-Bear Creek (Subwatershed BR12). The analysis areas within the Bear Creek Watershed that overlap the planning area are shown in Table 3-9.

Table 3-9. Analysis Areas within the Bear Creek Watershed Associated with the Timber Mountain Planning Area

Analysis Area Number	Analysis Area Name	Analysis Area Description	Analysis Area (Acres)	BLM Acres (Percent) within Analysis Area	Non-BLM Acres (Percent) within Analysis Area	BLM Acres within Planning Area	Non-BLM Acres within Planning Area	Total Acres within Planning Area
BR1206	Jackson Cr (Bear Cr) above Walker Cr	All lands draining into Jackson Creek above Hwy 238 bridge in Jacksonville.	6,579	1,009 (15%)	5,570 (85%)	930	4,911	5,841
BR1209	Walker Cr (Jackson Cr)	All lands draining into Walker Cr., a Jackson Cr. tributary.	1,584	65 (4%)	1,519 (96%)	65	1,437	1,502
BR1212	Jackson Cr below Walker Cr, above Bear Cr Confluence	All lands draining into Jackson Cr. below the confluence with Walker Cr.	8,029	235 (3%)	7,793 (97%)	235	3,084	3,319
BR1218	Willow Cr	All lands draining into Willow Cr., a Jackson Cr. tributary.	3,220	724 (22%)	2,497 (78%)	724	1,751	2,475
TOTALS			**19,412**	**2,033 (10%)**	**17,379 (90%)**	**1,954**	**11,183**	**13,137**

Gold Hill-Rogue River Watershed Analysis Areas

The Gold Hill-Rogue River Watershed (Hydrologic Unit 1710030802, hereafter referred to with the two-letter code "RH") is located in the Middle Rogue Subbasin. The major Gold Hill-Rogue River subwatersheds within the planning area are Galls Creek-Rogue River (Subwatershed RH04), Foots Creek (Subwatershed RH06), and Ward Creek-Rogue River (Subwatershed RH07). The analysis areas within the Gold Hill-Rogue River Watershed that overlap the planning area are shown in Table 3-10.

Table 3-10. Analysis Areas within the Gold Hill-Rogue River Watershed Associated with the Timber Mountain Planning Area

Analysis Area Number	Analysis Area Name	Analysis Area Description	Analysis Area (Acres)	BLM Acres (Percent) within Analysis Area	Non-BLM Acres (Percent) within Analysis Area	BLM Acres within Planning Area	Non-BLM Acres within Planning Area	Total Acres within Planning Area
RH0409	Kane Cr	All lands draining into Kane Cr.	5951	1,069 (18%)	4,882 (82%)	1,028	3,750	4,778
RH0415	Galls Cr	All lands draining into Galls Cr.	8497	3,718 (44%)	4,779 (56%)	3,718	4,772	8,490
RH0603	Foots Cr Middle Fk, above Foots Cr Left Fk Confluence	All lands draining into Middle Fork Foots Cr. above confluence with Left Fork Foots Cr.	3391	246 (7%)	3,146 (93%)	246	3,146	3,391
RH0606	Foots Cr Left Fk, above Foots Cr Middle Fk Confluence	All lands draining into Left Fork Foots Cr. above confluence with Middle Fork Foots Cr.	2923	910 (31%)	2,013 (69%)	910	2,013	2,923

able 3-10. Analysis Areas within the Gold Hill-Rogue River Watershed Associated with the Timber Mountain Planning Area

Analysis Area Number	Analysis Area Name	Analysis Area Description	Analysis Area (Acres)	BLM Acres (Percent) within Analysis Area	Non-BLM Acres (Percent) within Analysis Area	BLM Acres within Planning Area	Non-BLM Acres within Planning Area	Total Acres within Planning Area
RH0609	Foots Cr blw Fts Cr M/L Fk Confl, abv Fts Cr Rt Fk	All lands draining into Foots Cr. below Middle Fork/Left Fork Foots Cr. Confluence, above Right Fork Foots Cr.	2948	1,821 (62%)	1,127 (38%)	1,821	1,127	2,948
RH0612	Foots Cr Right Fk	All lands draining into Right Fork Foots Cr.	5927	2,465 (42%)	3,462 (58%)	2,465	3,462	5,927
RH0615	Foots Cr below Foots Cr Right Fk, above Rogue River	All lands draining to Foots Creek below Right Fork Foots Cr.	1308	294 (22%)	1,014 (78%)	49	0	49
RH0706	Birdseye Cr	All lands draining into Birdseye Cr.	4682	2,464 (53%)	2,218 (47%)	1,036	367	1,403
TOTALS			**35628**	**12,986 (36%)**	**22,641 (64%)**	**11,273**	**18,637**	**29,910**

Middle Applegate Watershed Analysis Areas

The Middle Applegate River Watershed (Hydrologic Unit 1710030904, hereafter referred to with the two-letter code "AM") is located in the Applegate Subbasin. The major Middle Applegate River subwatersheds within the planning area are Forest Creek (Subwatershed AM02), Humbug Creek-Applegate River (Subwatershed AM03), and Slagle Creek-Applegate River (Subwatershed AM05). The analysis areas within the Middle Applegate Watershed that overlap the planning area are shown in Table 3-11.

Table 3-11. Analysis Areas within the Middle Applegate Watershed Associated with the Timber Mountain Planning Area.

Analysis Area Number	Analysis Area Name	Analysis Area Description	Analysis Area (Acres)	BLM Acres (Percent) within Analysis Area	Non-BLM Acres (Percent) within Analysis Area	BLM Acres within Planning Area	Non-BLM Acres within Planning Area	Total Acres within Planning Area
AM0203	Forest Creek above Forest Creek Right Fork	All lands draining into Forest Cr. above Right Fork Forest Cr.	4,924	2,634 (53%)	2,290 (47%)	2,633	2,290	4,923
AM0206	Forest Cr Right Fk	All lands draining into Right Fork Forest Cr.	2,819	1,323 (47%)	1,497 (53%)	1,323	1,497	2,819
AM0209	Forest Cr below Right Fk Confluence, above Poorman Cr	All lands draining into Forest Cr. below Right Fork confluence, above Poorman Cr.	1,388	1,245 (90%)	143 (10%)	1,245	143	1,388
AM0212	Poorman Cr (Applegate)	All lands draining into Poorman Cr., a Forest Cr. tributary.	6,959	2,247 (32%)	4,712 (68%)	722	475	1,198
AM0215	Forest Cr below Poorman Cr, above Bishop Cr	All lands draining into Forest Creek below Poorman Cr., above Bishop Cr.	773	416 (54%)	357 (46%)	299	129	428

Table 3-11. Analysis Areas within the Middle Applegate Watershed Associated with the Timber Mountain Planning Area.

Analysis Area Number	Analysis Area Name	Analysis Area Description	Analysis Area (Acres)	BLM Acres (Percent) within Analysis Area	Non-BLM Acres (Percent) within Analysis Area	BLM Acres within Planning Area	Non-BLM Acres within Planning Area	Total Acres within Planning Area
AM0221	Forest Cr below Bishop Cr, above Applegate R Confluence	All lands draining into Forest Creek below Bishop Cr., above Applegate River confluence.	2,693	1,255 (47%)	1,438 (53%)	184	82	266
AM0303	Applegate R below Forest Cr, above China Gulch	All lands draining into Applegate River below Forest Cr., above China Gulch.	564	119 (21%)	445 (79%)	91	0	91
AM0306	China Gulch	All lands draining into China Gulch.	1,897	1,238 (65%)	659 (35%)	1,224	0	1,224
AM0309	Applegate R below China Gulch, above Long Gulch	All lands draining into Applegate River below China Gulch, above Long Gulch.	1,865	935 (50%)	930 (50%)	842	0	842
AM0312	Long Gulch (Middle Applegate)	All lands draining into Long Gulch.	1,195	1,046 (88%)	149 (12%)	2	0	2
AM0333	Humbug Cr	All lands draining into Humbug Cr.	7,160	4,848 (68%)	2,312 (32%)	129	16	144
AM0512	Slagle Cr	All lands draining into Slagle Cr.	3,746	1,869 (50%)	1,877 (50%)	0	2	2
TOTALS			**35,984**	**19,176 (53%)**	**16,808 (47%)**	**8,694**	**4,633**	**13,327**

Lower Applegate River Watershed Analysis Areas

The Lower Applegate River Watershed (Hydrologic Unit 1710030906, hereafter referred to with the two-letter code "AL") is located in the Applegate Subbasin. Only a very small portion of one analysis area is located in the planning area. This piece, located within 80 feet elevation of the top of a ridge, is included in the project area only because an existing road along the ridge at the top of Foots Creek and Birdseye Creek in the Gold Hill-Rogue River Watershed crosses the ridge line into Caris Creek for approximately 0.7 miles. The lower Applegate River subwatershed containing this portion is Caris Creek-Applegate River (Subwatershed AL01). The analysis area within the Lower Applegate Watershed that overlaps the planning area is shown in Table 3-12.

Table 3-12. Analysis Areas within the Lower Applegate Watershed Associated with the Timber Mountain Planning Area

Analysis Area Number	Analysis Area Name	Analysis Area Description	Analysis Area (Acres)	BLM Acres (Percent) within Analysis Area	Non-BLM Acres (Percent) within Analysis Area	BLM Acres within Planning Area	Non-BLM Acres within Planning Area	Total Acres within Planning Area
AL0106	Caris Creek	All lands draining into Caris Cr.	4543	2652 (58%)	1891 (42%)	10	3	14

Planning Area Summary

The BLM manages 39 percent of the analysis areas associated with the planning area (Table 3-13). Analysis areas with 50 percent or more BLM management include: RH0609 Foots Creek below Middle and Left Forks above Right Fork (62 percent); RH0706 Birdseye Creek (53 percent); AM0203 Forest Creek above Right Fork (53 percent); AM0209 Forest Creek below Right Fork above Poorman Creek; AM0215 Forest Creek below Poorman Creek above Bishop Creek (54 percent); AM0306 China Gulch (65 percent); AM0309 Applegate River below China Gulch above Long Gulch (50 percent); AM0312 Long Gulch (88 percent); AM0333 Humbug Creek (68 percent); AM0512 Slagle Creek (50 percent); and AL0106 Caris Creek (58 percent) (Tables 3-10 to 3-12). Private lands encompass 61 percent of the analysis areas. There are approximately 304 acres of Forest Service lands in the Jackson Creek-Bear Creek Subwatershed immediately outside of the planning area.

Table 3-13. Acres Analyzed by Watershed for the Timber Mountain Planning Area

Watershed	Total Analysis Area Acres Analyzed within the Planning Area	BLM Acres Analyzed within the Planning Area	Total Analysis Areas Analyzed (Acres)[1]	BLM Acres (Percent) within Analysis Area
Bear Creek	13,137	1,954	19,412	2,033 (10%)
Gold Hill-Rogue River	29,910	11,273	35,628	12,986 (36%)
Middle Applegate River	13,327	8,694	35,984	19,176 (53%)
Lower Applegate River	14	10	4,543	2,652 (58%)
Totals	**56,388**	**21,932**	**95,567**	**36,848 (39%)**

[1]\Total includes entire analysis area, both inside and outside of the planning area.

Analysis Areas Considered but Eliminated from Detailed Study

Three of the analysis areas listed above are minimally impacted by alternatives analyzed for the Timber Mountain Recreation Management Plan. These analysis areas will not be analyzed in depth; however, they are still included in the calculations done for the planning area and individual analysis areas so that no cumulative effects are overlooked. Each of the three analysis areas are listed below with the rationale for elimination.

Caris Creek (AL0106)
Approximately 0.7 miles (two acres) of an existing, well-maintained BLM road (37-4-15) within the Caris Creek Analysis Area is proposed for OHV use to connect to other roads within the planning area. All other BLM lands within the planning area (eight acres) would be closed to OHV use. The 0.7 mile section of road represents less than one-tenth of one percent of the land in Caris Creek. The road is located within 80 feet elevation of the top of the ridge, over 500 feet from the nearest stream.

Slagle (AM0512)
Only a very small section (0.1 miles) of BLM Road 37-4-28 in the Slagle Creek Analysis Area is proposed for use in the alternatives. This piece of road is located along the ridge line at the top of Foots Creek in the Gold Hill-Rogue River Watershed. There are only two acres of private land within the planning area that fall within Slagle Creek.

Long Gulch (AM0312)
Only a very small section (0.3 miles) of OHV trails and BLM Road 38-3-7 in the Long Gulch Analysis Area is proposed for use in the alternatives. This trail is located along the ridge line at the top of Foots Creek in the Gold Hill-Rogue River Watershed. There are only two acres of BLM lands within the planning area that fall within Long Gulch.

Surface Water and Ground Water

The timing, magnitude, duration, and spatial distribution of streamflows are of importance to water users, riparian/floodplain landowners, aquatic life, and riparian and aquatic habitats. Sediment, nutrient, and wood routing are dependent upon streamflow regimes. Alterations to the natural hydrologic cycle have the potential to affect peak and low flows with subsequent changes to channel morphology, water quality and aquatic ecosystems (USDI 2001a p. 59; USDI 2001b p. 63).

The streamflow regime reflects human influences that have occurred since Euro-Americans arrived. Road construction, timber harvest, land development and water withdrawals are the major factors having the potential to adversely affect the timing and magnitude of both peak and low streamflows in the planning area (USDI 1995 pp. 20, 48-55, 78-79; USDI 2001b pp. 29-33, 63-71, 105-106, 124; USDI 2001a pp. 28-31, 59-66, 93, 110-111).

Based on hydrographs from Star Gulch, a rainfall-dominated tributary to the Applegate River located approximately seven miles south of the planning area, it is estimated that 80 to 90 percent of the annual water yield occurs from November through April in the Applegate River tributaries. Runoff usually peaks in February and March (USDI 1995 p. 49). Conditions are probably very similar throughout the Timber Mountain planning area.

General streamflow and groundwater characteristics are discussed in more detail in the watershed analyses covering the planning area (USDI 1995 pp. 20, 48-55, 78-79; USDI 2001b pp. 29-33, 63-71, 105-106, 124; USDI 2001a pp. 28-31, 59-66, 93, 110-111).

Surface water in the Timber Mountain planning area includes streams, ditches, springs, wetlands, and reservoirs. Streams in the planning 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.

When planning and analysis began for this management plan, streams categorized as perennial or intermittent on federal lands were required to have Riparian Reserves as defined in the 1995 Medford District Resource Management Plan (USDI 1995) and the Northwest Forest Plan (USDA and USDI 1994). The 2008 Medford District Record of Decision for BLM's Western Oregon Plan Revision recently adopted a new Resource Management Plan for the Medford District BLM, which applies new direction for riparian protection. Riparian Management Areas are now required under the 2008 Medford District Resource Management Plan (USDI 2008). However, the 2008 Record of Decision provides for a transition period, where projects implemented within two years of the signing of the 2008 ROD may follow the standards and guidelines of either the 1995 or the 2008 Resource Management Plan (USDI 2008). Therefore, this Draft EIS will use Riparian Reserve buffer distances to analyze and compare alternatives considered and analyzed in detail.

While the buffer distances for the 2008 RMP differ from the previous land use plan requirements, the Project Design Features required for the implementation of any action alternative under this recreation management plan would be the same under either Resource Management Plan. This occurs because there is no vegetation management planned under any of the alternatives, and Project Design Features focus on maintaining and restoring stream channels, water quality, and riparian conditions that provide for stream shade, sediment filtering, and large woody material. Therefore, the implementation of actions planned in and adjacent to riparian areas would be consistent with previous and current management direction. Additionally, due to the reasons stated above, the effects of implementing any of the action alternatives, as reported in this Draft EIS, would not be measurably different regardless of the width of buffers required for riparian protection.

All streams on BLM-managed lands within the analysis areas have been inventoried through on-the-ground stream surveys from 1996-2003 (USDI 1996-2003). Determination of streamflow characteristics (perennial, intermittent, etc.) for each stream on BLM lands was included as part of this inventory. Information on non-BLM lands has been determined using a combination of sources including USGS maps, interpretation of aerial

photography, and extrapolation based on data from streams on adjacent federal land. Stream location and types were then entered into the BLM GIS hydrography theme to calculate miles of stream by category (Table 3-14). All stream lengths are based on horizontal distance (map distance); actual distances are slightly longer, especially on steeper gradient streams.

There are approximately 1,444 miles of stream within the analysis area, of which 900 miles are within the planning area boundary. Within the planning area, 339 miles are on BLM-administered lands and 583 miles are on non-federal lands. There are 76.3 miles (8.5 percent) of perennial streams; 127.4 miles (14.2 percent) of long-duration intermittent streams; 288.9 miles (32.1 percent) of short-duration intermittent streams; and 406.8 miles (45.2 percent) of dry draws within the planning area. Stream drainage densities range from 6.0 to 12.0 miles per square mile (Table 3-14).

There are approximately 14 miles of privately-owned irrigation ditches on BLM-administered lands in the planning area and another 8 miles of ditches on private lands. The majority of the ditches are located in the Foots Creek Right Fork (RH0612), Jackson Creek below Walker Creek, above Bear Creek Confluence (BR1212), Forest Creek Right Fork (AM0206), and Forest Creek below Right Fork Confluence, above Poorman Creek (AM0209).

Forty springs, three wetlands, two reservoirs, two impoundments, and one seep on BLM-administered lands within the planning area were located during stream surveys and subsequently mapped in GIS. These features are contained within Riparian Reserves (and Riparian Management Areas).

On BLM-administered lands, locations of private water developments used for diverting, storing, and/or transporting water were identified during stream survey or a search of the Oregon Water Resources Department website[1] (Appendix A). BLM records were also checked to determine any right-of-ways or other authorizations for diversion structures, water storage, or water transport facilities in the planning area. Landowners who have obtained water rights from the State of Oregon for use of the water must also secure the required right-of-way from the BLM for installation and use of these facilities on public land. Landowners must initiate application for, and are usually granted, a right-of-way for water sources located on BLM lands if the landowner has a valid existing water right for the water source. Without a right-of-way for the transport facilities, the pipeline or ditch is in trespass, and the Bureau technically is not liable for damages that may occur to the facilities in the course of the Bureau's land management activities.

Ground water supplies in Jackson County serve primarily individual domestic users. Well water quality problems are prevalent throughout the Rogue Basin. Ground water quality problems including excessive amounts of fluoride, arsenic, nitrates, bacteria, salts and boron have been verified in Jackson County wells (Ryan and Dittmer 2002). Increasing demand from rural population density increases and years with below-normal precipitation have been identified as factors affecting ground water supplies in Jackson County (USDI 1994:3-13). The Medford District PRMP/EIS identified that an increase in rural population density has been accompanied by an increase in ground water diversion, and this trend is expected to continue (USDI 1994:3-13). The Timber Mountain planning area has not been identified as a critical groundwater area by the Oregon Water Resources Department (OWRD 1989).

Peak Flow

Surface disturbances such as land development and road construction that began after Euro-American settlement in the mid-1800s disrupted the hydrologic network and affected the timing, magnitude, and frequency of peak flows (USDI 2001a pp. 93-97).

The runoff pattern in the planning area is rain-dominated and produces peak flows that generally occur during the period of high rainfall after soils are saturated. Based on historical records from U.S. Geological Survey gauging stations in the Rogue River Basin, maximum peak flows in the planning area generally occur from December through March.
In the Middle Applegate Watershed, high flows have been moderated in the mainstem by the Applegate Dam, completed in 1980. There are fewer and smaller peak flows due to the flood control operations of the dam (USDI 1995, pp. 51-60).

Vegetation removal and soil compaction are the major causes of changes to hydrologic processes such as infiltration, interception, and evapotranspiration. The changes, both natural and human-caused, occurring individually or in combination, can result in increased magnitude and frequency of peak flows. Increases in size and frequency of peak flows may result in accelerated streambank erosion; scouring and deposition of stream beds; and increased sediment transport (USDI 2001b pp. 63-70).

A severe, extensive wildfire is the natural vegetation disturbance having the greatest potential to increase the size and frequency of peak flows. Loss of large areas of vegetation due to a wildfire would likely adversely affect the analysis area's hydrologic response. The primary human-caused vegetation disturbances that can potentially affect the timing and magnitude of peak flows in the analysis area are timber harvest, conversion of forested sites to agriculture use, and urban development (USDI 2001b pp. 63-70; USDI 2001a pp. 59-76).

1 http://egov.oregon.gov/ORWD/

Table 3-14. Stream Miles by Analysis Area, Stream Type, and Ownership within the Timber Mountain Planning Area

Analysis Area Number	Analysis Area Name	Miles of Stream by Type and Ownership								Total Stream Miles			STREAM DRAINAGE DENSITY (MI./MI.^{2})
		Perennial		Long Duration Intermittent		Short Duration Intermittent		Dry Draw					
		BLM	Private	BLM	Private	BLM	Private	BLM	Private	BLM	Private	All	
BR1206	Jackson Cr (Bear Creek) above Walker Creek	0.1	7.2	2.0	14.9	3.2	44.3	9.1	19.8	14.4	86.2	100.5	9.8
BR1209	Walker Creek (Jackson Cr)	0.1	0.0	0.0	7.0	0.0	17.0	1.5	2.9	1.6	26.8	28.4	11.5
BR1212	Jackson Cr below Walker Cr, above Bear Cr Confluence	0.0	10.0	0.0	24.3	0.2	26.0	3.4	11.4	3.6	71.6	75.2	6.0
BR1218	Willow Cr	0.2	1.3	0.2	9.0	2.2	21.1	12.0	14.4	14.5	45.8	60.4	12.0
Bear Creek Watershed Total		**0.4**	**18.4**	**2.2**	**55.2**	**5.6**	**108.3**	**25.9**	**48.5**	**34.1**	**230.4**	**264.5**	**8.7**
RH0409	Kane Cr	0.6	6.3	0.1	15.3	3.6	28.6	12.3	28.3	16.5	78.6	95.1	10.2
RH0415	Galls Cr	1.8	11.6	5.0	12.3	7.8	25.7	33.7	23.8	48.3	73.5	121.8	9.2
RH0603	Foots Cr Middle Fk, above Foots Cr Left Fk Confluence	0.0	6.6	0.2	6.0	0.5	20.8	3.0	25.9	3.6	59.3	62.9	11.9
RH0606	Foots Cr Left Fk, above Foots Cr Middle Fk Confluence	0.3	5.9	1.7	3.5	1.1	13.2	8.7	14.0	11.7	36.6	48.4	10.6
RH0609	Foots Cr below Foots Cr Middle/Lower Fk Confluence, above Foots Cr Right Fork	1.6	3.5	1.4	3.2	4.4	6.3	17.8	7.2	25.2	20.3	45.5	9.9
RH0612	Foots Cr Right	3.2	4.6	2.0	9.5	5.9	20.5	31.3	24.6	42.3	59.3	101.6	11.0

Table 3-14. Stream Miles by Analysis Area, Stream Type, and Ownership within the Timber Mountain Planning Area

Analysis Area Number	Analysis Area Name	Miles of Stream by Type and Ownership								Total Stream Miles			STREAM DRAINAGE DENSITY (MI./MI.^{2})
		Perennial		Long Duration Intermittent		Short Duration Intermittent		Dry Draw					
		BLM	Private	BLM	Private	BLM	Private	BLM	Private	BLM	Private	All	
	Fork												
RH0615	Foots Cr below Foots Cr Right Fork, above Rogue River	0.0	0.7	0.2	2.1	1.1	7.5	2.6	4.9	3.8	15.2	19.1	9.3
RH0706	Birdseye Cr	3.8	7.6	5.0	5.9	10.4	11.0	29.4	18.1	48.7	42.7	91.4	12.5
Gold Hill-Rogue River Watershed Total		**11.2**	**47.0**	**15.5**	**57.9**	**34.8**	**133.7**	**138.8**	**147.0**	**200.3**	**385.5**	**585.8**	**10.5**
AM0203	Forest Creek above Forest Creek Right Fork	2.7	9.3	6.6	5.7	3.6	6.9	23.7	15.5	36.7	37.3	74.0	9.6
AM0206	Forest Cr Right Fk	2.7	3.2	2.2	4.0	4.4	5.0	10.0	11.6	19.2	23.8	43.0	9.8
AM0209	Forest Cr below Right Fk Confluence, above Poorman Creek	2.5	1.1	2.3	0.0	4.4	0.2	8.3	0.7	17.5	2.1	19.5	9.0
AM0212	Poorman Cr (Applegate)	1.5	6.2	4.0	16.5	7.3	16.9	14.0	29.7	26.9	69.3	96.2	8.8
AM0215	Forest Cr below Poorman Cr, above Bishop Cr	0.0	1.1	0.4	0.6	1.1	1.4	3.8	1.7	5.4	4.9	10.3	8.5
AM0221	Forest Cr below Bishop Cr, above Applegate R Confl	0.0	2.9	2.0	5.1	3.9	3.4	9.0	3.2	15.0	14.6	29.6	7.0

Table 3-14. Stream Miles by Analysis Area, Stream Type, and Ownership within the Timber Mountain Planning Area

Analysis Area Number	Analysis Area Name	Miles of Stream by Type and Ownership								Total Stream Miles			STREAM DRAINAGE DENSITY (MI./MI.^{2})
		Perennial		Long Duration Intermittent		Short Duration Intermittent		Dry Draw					
		BLM	Private	BLM	Private	BLM	Private	BLM	Private	BLM	Private	All	
AM0303	Applegate R below Forest Cr, above China Gulch	0.0	0.5	0.0	0.6	0.8	2.4	0.9	1.5	1.7	5.1	6.8	7.7
AM0306	China Gulch	0.6	2.0	1.9	4.2	5.6	2.5	9.8	2.2	18.0	10.9	28.9	9.7
AM0309	Applegate R below China Gulch, above Long Gulch	0.0	2.8	2.4	4.4	3.8	1.7	7.2	2.8	13.3	11.7	25.0	8.6
AM0312	Long Gulch (Middle Applegate)	1.9	1.2	1.6	0.0	3.9	0.7	7.4	0.1	14.8	1.9	16.7	8.9
AM0333	Humbug Cr	4.2	6.9	7.1	4.2	12.5	10.5	47.3	17.8	71.1	39.5	110.5	9.9
AM0512	Slagle Cr	0.9	6.0	2.5	4.9	8.7	10.3	18.7	10.6	30.8	31.8	62.5	10.7
Middle Applegate Watershed Total		**17.0**	**43.0**	**33.1**	**50.3**	**59.9**	**62.0**	**160.2**	**97.4**	**270.3**	**252.8**	**523.1**	**9.3**
AL0106	Caris Creek	1.1	6.6	10.9	12.0	20.5	10.2	6.6	3.0	39.1	31.7	70.9	10.0
Lower Applegate Watershed Total		**1.1**	**6.6**	**10.9**	**12.0**	**20.5**	**10.2**	**6.6**	**3.0**	**39.1**	**31.7**	**70.9**	**10.0**
TOTALS		**29.7**	**115.1**	**61.8**	**175.3**	**120.7**	**314.2**	**331.6**	**295.8**	**543.7**	**900.4**	**1444.1**	**9.7**

Large amounts of vegetation removal in the transient snow zone can alter the streamflow regime and result in increased peak flow magnitudes (Christner and Harr 1982). This effect is minimal in the Timber Mountain analysis area due to the low percentage (five percent) of land in the transient snow zone.

Soil compaction affects the hydrologic efficiency within a watershed by reducing the infiltration rate and causing more rainfall to quickly become surface runoff instead of moving slowly through the soil profile to stream channels (Brown 1983). The resultant changes in flow routing have the potential to affect the timing and magnitude of peak flows. The duration of these changes is permanent for areas that are permanently compacted. (USDI 2001b pp. 63-70). Human activities that result in soil compaction within the analysis area include roads, yarding corridors, OHV trails, land development, agriculture, concentrated livestock grazing, and urban development. See the Soils section for discussion of soil compaction in the planning area.

Roads and vehicle trails are the major source of soil compaction within the analysis area (USDI 1995; USDI 2000; USDI 2001a; USDI 2001b). Roads quickly transport shallow subsurface flow intercepted by roadcuts and water from the road surface to streams (Wemple 1994). The road-altered hydrologic network may increase the magnitude of peak flows and alter the timing when runoff enters a stream. This effect is more pronounced in areas with high road densities, roads in close proximity to streams (Harr et al. 1979), and mid-slope roads (Jones 2000). Road density calculated from roads included in the GIS coverage is high in many of the analysis areas (Table 3-15). When OHV trails (Table 3-16) and roads not recorded in GIS are included, the road density is extremely high in many of the analysis areas.

The potential risk for peak-flow enhancement due to soil compaction and more efficient routing of flow by roads and trails is estimated to be high for the analysis area. Roads and OHV trails will continue to affect peak flows unless the roads and trails are decommissioned or obliterated. Decommissioning and/or obliteration are only effective in reducing risk of peak-flow enhancement if actions are taken to reduce off-site hydrologic impacts and allow restoration to begin (USDI 2001b pp. 63-70; USDI 2001a pp. 59-76). The impact of existing roads and OHV trails on peak-flow enhancement can be reduced significantly through consistent application and ongoing maintenance of site-specific Best Management Practices (BMPs) (Squyres, Pers. comm. 2007).

Areas compacted from yarding corridors and OHV trails are located throughout the forested portions of the analysis area. Tractor logging in the portions of the Timber Mountain planning area has created a rather dense network of skid trails, many of which continue to be used by OHVs (RVCOG 2001:7; USDI 2001b pp. 63-70).

Table 3-15. Road Miles by Analysis Area and Ownership within the Timber Mountain Planning Area

Analysis Area Number	Analysis Area Name	Analysis Area (Acres)	Roads on BLM within Analysis Area (mi.)	Roads on Private and USFS within Analysis Area (mi.)	Total Road Miles within Analysis Area	Road Density (mi./mi.^{2}) in Analysis Area
BR1206	Jackson Cr (Bear Cr) above Walker Cr	6579	4.28	61.02	65.30	6.35
BR1209	Walker Cr (Jackson Cr)	1584	0.04	24.75	24.80	10.02
BR1212	Jackson Cr below Walker Cr, above Bear Cr Confluence	8029	0.52	103.25	103.77	8.27
BR1218	Willow Cr	3220	1.20	19.52	20.71	4.12
Bear Creek Watershed Total		**19412**	**6.04**	**208.54**	**214.58**	**7.07**
RH0409	Kane Cr	5951	7.40	66.85	74.26	7.99
RH0415	Galls Cr	8497	23.88	75.57	99.45	7.49
RH0603	Foots Cr Middle Fork, above Foots Cr Left Fork Confluence	3391	0.90	25.80	26.70	5.04
RH0606	Foots Cr Left Fork, above Foots Cr Middle Fork Confluence	2923	2.06	20.42	22.48	4.92
RH0609	Foots Cr below Foots Cr Middle/Left Fork Confluence, above Foots Cr Right Fork	2948	4.17	13.61	17.79	3.86
RH0612	Foots Cr Right Fork	5927	10.45	34.74	45.19	4.88
RH0615	Foots Cr below Foots Cr Right Fork, above Rogue River	1308	0.14	14.36	14.50	7.09
RH0706	Birdseye Cr	4682	19.65	20.22	39.88	5.45
Gold Hill-Rogue River Watershed Total		**35628**	**68.66**	**271.59**	**340.25**	**6.11**
AM0203	Forest Creek above Forest Creek Right Fork	4924	25.11	15.17	40.29	5.24
AM0206	Forest Cr Right Fork	2819	8.67	14.48	23.16	5.26
AM0209	Forest Cr below Right	1388	10.42	1.06	11.47	5.29

Table 3-15. Road Miles by Analysis Area and Ownership within the Timber Mountain Planning Area

Analysis Area Number	Analysis Area Name	Analysis Area (Acres)	Roads on BLM within Analysis Area (mi.)	Roads on Private and USFS within Analysis Area (mi.)	Total Road Miles within Analysis Area	Road Density (mi./mi.^{2}) in Analysis Area
	Fork Confluence, above Poorman Cr					
AM0212	Poorman Cr (Applegate)	6959	12.75	54.49	67.24	6.18
AM0215	Forest Cr below Poorman Cr, above Bishop Cr	773	1.43	4.66	6.09	5.04
AM0221	Forest Cr below Bishop Cr, above Applegate River Confluence	2693	6.98	19.34	26.31	6.25
AM0303	Applegate River below Forest Cr, above China Gulch	564	0.84	6.16	7.01	7.95
AM0306	China Gulch	1897	4.68	6.85	11.53	3.89
AM0309	Applegate River below China Gulch, above Long Gulch	1865	0.00	9.17	9.17	3.15
AM0312	Long Gulch (Middle Applegate)	1195	1.04	2.74	3.78	2.03
AM0333	Humbug Cr	7160	6.22	22.44	28.66	2.56
AM0512	Slagle Cr	3746	1.35	14.11	15.46	2.64
Middle Applegate Watershed Total		**35984**	**79.49**	**170.68**	**250.17**	**4.45**
AL0106	Caris Creek	4543	7.65	16.13	23.78	3.35
Lower Applegate Watershed Total		**4543**	**7.65**	**16.13**	**23.78**	**3.35**
TOTALS		**95,567**	**161.84**	**666.94**	**828.78**	**5.55**

Table 3-16. Miles of Off-highway Vehicle (OHV) Trails (Not on Roads) by Analysis Area and Ownership within the Timber Mountain Planning Area

Analysis Area Number	Analysis Area Name	Analysis Area (Acres)	OHV Trails within Analysis Area (mi.) (BLM) (not on roads)	OHV Trails within Analysis Area (mi.) (Private and USFS) (not on roads)	Total OHV Trails within Analysis Area (mi.) (All) (not on roads)	OHV Trail Density (mi./mi.^{2}) in Analysis Area
BR1206	Jackson Cr (Bear Cr) above Walker Cr	6579	5.71	24.80	30.51	2.97
BR1209	Walker Cr (Jackson Cr)	1584	2.07	4.90	6.96	2.81
BR1212	Jackson Cr below Walker Cr, above Bear Cr Confluence	8029	0.84	0.10	0.95	0.08
BR1218	Willow Cr	3220	6.39	12.10	18.49	3.68
Bear Creek Watershed Total		19412	15.02	41.90	56.92	1.88
RH0409	Kane Cr	5951	7.42	6.66	14.08	1.51
RH0415	Galls Cr	8497	9.44	5.00	14.43	1.09
RH0603	Foots Cr Middle Fork, above Foots Cr Left Fork Confluence	3391	1.70	6.73	8.42	1.59
RH0606	Foots Cr Left Fork, above Foots Cr Middle Fork Confluence	2923	0.27	3.59	3.86	0.85
RH0609	Foots Cr below Foots Cr Middle/Left Fork Confluence, above Foots Cr Right Fork	2948	3.36	2.65	6.02	1.31
RH0612	Foots Cr Right Fork	5927	7.64	10.63	18.27	1.97
RH0615	Foots Cr below Foots Cr Right Fork, above Rogue River	1308	0.00	0.00	0.00	0.00
RH0706	Birdseye Cr	4682	2.13	2.11	4.24	0.58

Table 3-16. Miles of Off-highway Vehicle (OHV) Trails (Not on Roads) by Analysis Area and Ownership within the Timber Mountain Planning Area

Analysis Area Number	Analysis Area Name	Analysis Area (Acres)	OHV Trails within Analysis Area (mi.) (BLM) (not on roads)	OHV Trails within Analysis Area (mi.) (Private and USFS) (not on roads)	Total OHV Trails within Analysis Area (mi.) (All) (not on roads)	OHV Trail Density (mi./mi.^{2}) in Analysis Area
Gold Hill-Rogue River Watershed Total		35628	31.96	37.36	69.33	1.25
AM0203	Forest Creek above Forest Creek Right Fork	4924	6.29	2.73	9.02	1.17
AM0206	Forest Cr Right Fork	2819	13.07	8.79	21.86	4.96
AM0209	Forest Cr below Right Fork Confluence, above Poorman Cr	1388	11.61	0.56	12.17	5.61
AM0212	Poorman Cr (Applegate)	6959	0.86	0.00	0.86	0.08
AM0215	Forest Cr below Poorman Cr, above Bishop Cr	773	2.46	0.18	2.65	2.19
AM0221	Forest Cr below Bishop Cr, above Applegate River Confluence	2693	0.97	0.94	1.91	0.45
AM0303	Applegate River below Forest Cr, above China Gulch	564	0.12	0.00	0.12	0.14
AM0306	China Gulch	1897	4.67	0.00	4.67	1.58
AM0309	Applegate River below China Gulch, above Long Gulch	1865	0.41	0.00	0.41	0.14
AM0312	Long Gulch (Middle Applegate)	1195	0.41	0.00	0.41	0.22
AM0333	Humbug Cr	7160	7.31	3.61	10.92	0.98

Table 3-16. Miles of Off-highway Vehicle (OHV) Trails (Not on Roads) by Analysis Area and Ownership within the Timber Mountain Planning Area

Analysis Area Number	Analysis Area Name	Analysis Area (Acres)	OHV Trails within Analysis Area (mi.) (BLM) (not on roads)	OHV Trails within Analysis Area (mi.) (Private and USFS) (not on roads)	Total OHV Trails within Analysis Area (mi.) (All) (not on roads)	OHV Trail Density (mi./mi.^{2}) in Analysis Area
AM0512	Slagle Cr	3746	3.79	1.12	4.91	0.84
Middle Applegate Watershed Total		35984	51.98	17.93	69.91	1.24
AL0106	Caris Creek	4543	0.73	0.78	1.51	0.21
Lower Applegate Watershed Total		4543	0.73	0.78	1.51	0.21
TOTALS		**95,567**	**99.69**	**97.98**	**197.67**	**1.32**

Low Flow

Summer streamflows in the analysis area are highly influenced by human uses such as water withdrawals, creeks used as conveyance channels, and irrigation return flows. Because of this, summer low flows do not follow a natural, predictable pattern (RVCOG 1999:12). Low summer rainfall and sustained high evapotranspiration are the natural factors that affect summer streamflows in the analysis area (USDI 2001b pp. 63-70; USDI 2001a pp. 59-76; USDI 1995 pp. 51-60). The lowest streamflows generally occur in August and September (USDI 1995 pp. 51-60). Many of the streams are dry during the summer and fall months.

Total quantities of instream water are not sufficient to satisfy all existing uses of water in the analysis area (OWRD 1989 cited in West Bear and South Rogue Gold Hill watershed analyses (USDI 2001a pp. 59-76)); Ryan and Dittmer 2002). Analyses demonstrating the over-allocation of surface water compared to available summer flows are included in the various watershed analyses covering the Timber Mountain planning area (USDI 1995, pp. 51-52; USDI 2001a pp 62-64; USDI 2001b pp. 66-69).

The low summer flow situation in the analysis area is not likely to change substantially in the future. Years with below normal precipitation will be especially critical for fish and other instream uses. No new water diversions are being approved in the Bear Creek Watershed portion of the analysis area; in the Gold Hill-Rogue River Watershed portion of the analysis area, new water diversions are only being approved for stored water. There will not be any additional year-round withdrawals; however, increased groundwater development in the analysis area will further reduce streamflow. Jackson and Willow Creeks in the Bear Creek Watershed and Foots and Birdseye Creeks in the Gold Hill-Rogue River Watershed have been identified by ODFW as high priorities for summer streamflow restoration so there may be some low flow increases in these streams if such restoration occurs. (USDI 2001b pp. 63-70; USDI 2001a pp. 59-76). In the Middle Applegate Watershed, low flows have been moderated in the mainstem by the Applegate Dam, completed in 1980. There are fewer extreme low flow conditions, and releases of stored water from the reservoir have prevented the river from drying up completely (USDI 1995 pp. 51-60).

Stream Morphology

Prior to Euro-American influences, the analysis area consisted of free flowing streams that experienced normal events of flooding and drought. Bedload materials originating from upper reaches moved downstream, or were deposited on the floodplain. The streams probably had adequate amounts of large woody material to provide channel structure and dissipate the energy of peak flows. The lower reaches of the streams contained woody material washed downstream from the headwaters. Additional woody material was contributed by streamside woodlands. The lower reaches of the streams probably had greater sinuosities, side channels, and lower width/depth ratios, than what is seen today. Floodplain and meander widths were likely somewhat wider than they are today and streams easily accessed their floodplains. Beaver occupied many of these streams and built dams that added woody material to systems. The woody material trapped and stored fine sediments, and reduced water velocities (USDI 2001a, pp.93-97; USDI 2001b, pp. 71-72; USDI 1995, pp. 19-20, 78-82).

The arrival of Euro-Americans in the mid-1800s brought significant impacts to the streams that influenced the shape of the stream channels. Fur trapping, which began in the 1830s, substantially decreased the beaver population. The associated loss of beaver dams resulted in scouring of channel beds and banks and increased width/depth ratios (USDI 2001a, pp.93-97; USDI 2001b, pp. 71-72; USDI 1995, pp. 19-20, 78-82).

Instream mining began in the 1850s with the discovery of gold in Southwest Oregon and soon mining had a major influence on stream channels in the analysis area. By 1900 there were a number of hydraulic mines in Foots Creek, Birdseye Creek, Galls Creek, Kane Creek, Forest Creek, and Jackson Creek. Mining scoured out channel beds and banks, redeposited gravels outside of the streambed, and released large amounts of sediment into the stream. Streams were straightened and channelized, stream elevations dropped as banks were scoured out, and pools filled in with sediment (USDI 2001a, pp.93-97; USDI 2001b, pp. 71-72; USDI 1995, pp. 19-20, 78-82).

Logging and land clearing for agricultural use resulted in the removal of large woody material from stream channels in addition to removal of streamside trees. This depleted the existing large wood and sources for future large wood recruitment. Floods became more destructive without sufficient instream structure to slow the high stream energy. With increased streambank erosion and downcutting, the channels became entrenched (USDI 2001a, pp.93-97; USDI 2001b, pp. 71-72; USDI 1995, pp. 19-20, 78-82).

As the analysis area became more populated, roads were built and some streams were channelized or straightened to facilitate road construction. These channel-confining actions restricted the natural tendency of streams to move laterally. Channelization of some reaches occurred to prevent the loss of agricultural lands to flood damage. Low gradient streams in valley bottoms became entrenched and were not able to access the adjacent floodplain except during major peak flow events. Channel width/depth ratios increased and sinuosities were lowered as stream gradients increased. Stream velocity decreased along with a decrease in bedload transport capability which led to increased sediment deposition (USDI 2001a, pp.93-97; USDI 2001b, pp. 71-72; USDI 1995, pp. 19-20, 78-82).

Channel conditions, water quality, and riparian habitat in and around the planning area have changed considerably in the last 150 years primarily due to human activities such as logging, road building, removal of riparian vegetation, channelization, beaver removal, livestock grazing, irrigation development, and land alteration for agriculture and residential developments. Some of the results include fragmented connectivity of riparian habitat; reduced quantity of snags and large woody material; reduced streambank stability; increased sediment production to streams; and reduced stream shading. Lack of riparian vegetation and water withdrawals have contributed to increased stream temperatures that can stress aquatic life and limit the long-term sustainability of fish and other aquatic species. Sediment is mainly transported to streams from landslides (natural and human-caused), road/trail surfaces, fill slopes, and ditchlines. The combination of these factors has contributed to reduced stream channel complexity and stability resulting in poorer quality habitat for aquatic species and an increased susceptibility to streambank erosion (USDI 2001a, pp vii-ix).

In general, stream channels in the lower reaches downstream of the planning area have been straightened and channelized, stream elevations have dropped as streambeds are scoured out, and pools have filled in with sediment. In the upper reaches stream channels are deeply entrenched in steep V-shaped valleys. There is a deficit of large wood in these steep gradient channels. This lack of instream structure sufficient to slow high stream energy results in floods that are more destructive downstream (USDI 2001a, pp. 59-76; USDI 2001b, pp. 70-72).

In the lower reaches, stream channels are confined by roads and development, restricting the natural tendency of streams to move laterally. Some reaches have been channelized to prevent the loss of agricultural lands to flood damage. Low gradient streams in valley bottoms are entrenched and are unable to access the adjacent floodplain except during major peak flow events (USDI 2001a, pp. 59-76; USDI 2001b, pp. 70-72).

Throughout the analysis area, granite is found as discontinuous pods (less than two square miles each) in the eastern half of Kane Creek; mid-slope along Galls Creek; the upper portion of the Right Fork of Forest Creek; the headwaters of the Left and Middle Forks of Foots Creek; mid-slope of Right Fork of Foots Creek; the headwaters of Birdseye Creek; the Cantrell Gulch tributrary of Jackson Creek; and all of Willow Creek. Granitic rocks are the most erosive and unstable rock type found in the analysis area. Streams that flow through areas with granitics are subject to rapid erosion, especially on steep slopes. This keeps fresh granite near the surface, and the transported decomposed granite results in a substrate with a high percentage of coarse sand and increases the embeddedness of streams (USDI 2001a, pp. 59-76).

Water Quality

The 1996 amendments to the Safe Drinking Water Act (SDWA) mandated that state agencies conduct source water assessments for every public water system. A federally-regulated public water system provides water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average or at least 25 people for at least 60 days a year. The states must delineate the groundwater and surface water source areas which supply public water systems, inventory each of those areas to determine potential sources of contamination, and determine the most susceptible areas at risk for contamination.

The planning area falls within the source water areas for cities of Gold Hill, Rogue River, and Grants Pass. The surface water source for these three public water systems is the Rogue River. Portions of the planning area drain into the Rogue River approximately nine miles upstream from the Gold Hill public water system intake and approximately three miles upstream from the intake for the city of Rogue River.

Source water assessments have been completed by the DEQ and the Oregon Department of Human Services for the cities of Gold Hill, Rogue River, and Grants Pass. The completed assessments include an inventory of potential contaminant sources within the source water areas. Rural homesteads, grazing animals, forest harvest units, and 303(d) listed streams were identified as potential contaminant sources for the Gold Hill, Rogue River, and Grants Pass drinking water protection areas. No other potential contaminant sources that could occur within the planning area were identified in the state source water assessments.

The Oregon Environmental Quality Commission has adopted numeric and narrative water quality standards to protect designated beneficial uses. In practice, water quality standards have been set at a level to protect the most sensitive uses. Cold-water aquatic life such as salmon and trout are the most sensitive beneficial uses in the Rogue River and its tributaries (ODEQ 2004:5). The Oregon Department of Environmental Quality (DEQ) is required by the federal Clean Water Act (CWA) to maintain a list of stream segments that do not meet water quality standards for one or more beneficial uses. This list is called the 303(d) list because of the section of the CWA that makes the requirement. DEQ's 2004/2006 303(d) list is the most recent listing of these streams (ODEQ 2006a).

The BLM is recognized by Oregon DEQ as a Designated Management Agency for implementing the Clean Water Act on BLM-administered lands in Oregon. The BLM and DEQ have a Memorandum of Agreement (MOA) that defines the process by which the BLM will cooperatively meet State and Federal water quality rules and regulations. In accordance with the MOA, the BLM in cooperation with the Forest Service, DEQ, and the Environmental Protection Agency is implementing the Forest Service and Bureau of Land Management Protocol for Addressing Clean Water Act Section 303(d) Listed Waters (USDA and USDI 1999). Under the Protocol, the BLM will protect and maintain water quality where standards are met or surpassed, and restore water quality limited waterbodies within their jurisdiction to conditions that meet or surpass standards for designated beneficial uses. The BLM would also adhere to the State Antidegradation Policy (OAR 2005; 340-041-0004) under any proposed actions.

The EPA approved the Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WQMP) for the Bear Creek Watershed (2007) in the Middle Rogue Subbasin, and the Applegate Subbasin (2004). The Rogue Basin TMDL was issued by Oregon DEQ on December 22, 2008. Water quality restoration plans (WQRPs) for BLM-administered lands in the Gold Hill-Rogue River Watershed south of the Rogue River (USDI 2005); West Bear Creek (USDI 2006); and the Applegate Subbasin (2005) were prepared by the BLM and approved by the DEQ. Recovery goals focus on protecting areas where water quality meets standards and avoiding future impairments of these areas, and restoring areas that do not currently meet water quality standards. Necessary federal and state permits would be obtained for any proposed instream work.

Within the proposed Timber Mountain planning area, three streams are included on DEQ's 2004/2006 303(d) list: Forest, Jackson, and Galls Creeks (Table 3-17). Two additional streams, Birdseye and Humbug Creeks, immediately outside the planning area are also water quality limited for summer stream temperature (ODEQ

2006a); however, tributaries to those listed segments are within the planning area (Table 3-17). Other streams in the planning area and other parameters for the listed streams have been added to the water quality limited database, but are not on the 2004/2006 303(d) list due to insufficient data. DEQ does, however, consider these as waterbodies of potential concern. When the 2004/2006 303(d) List is next updated, Jackson, Galls, and Birdseye Creeks will be identified as water quality limited with an approved TMDL, rather than as 303(d) streams.

Table 3-17. 2004/2006 303(d) Listings in the Timber Mountain Planning Area (ODEQ 2006a)

Level 5 Watershed	Stream	River Miles	Parameter	Status
Middle Applegate	Forest Creek	0 to 9.3	Dissolved Oxygen	303(d)
			Flow Modification	Not needing a TMDL
			Habitat Modification	Not needing a TMDL
Middle Applegate	Humbug Creek	0 to 5.3	Temperature Summer	TMDL Approved
Bear Creek	Jackson Creek	0 to 12.6	Fecal Coliform Year Around	303(d)
			Temperature Oct. 1 to May 31	303(d)
			Temperature Summer	303(d)
Gold Hill-Rogue River	Galls Creek	0 to 4.5	Temperature Summer	303(d)
Gold Hill-Rogue River	Birdseye Creek	0 to 1.4	Temperature Summer	303(d)

Temperature

The nonpoint source temperature load allocation for Jackson and Galls Creeks is allocated 100 percent to natural sources. Any activity that results in anthropogenic-caused heating of the stream is unacceptable (ODEQ 2004:11. The *Bear Creek Watershed TMDL* (2007) identifies percent-effectiveness shade target for Jackson Creek and its tributaries (Table 3-18). Streams are considered recovered where current shade achieves the target shade or is 80 percent or greater. Current shade on Jackson Creek is less than the target (Table 3-18). The listed segment of Galls Creek is not located on BLM-administered lands (USDI 2005).

Table 3-18. TMDL Shade Target for Jackson Creek

Creek	Current Percent Effectiveness Shade	TMDL Shade Target[1] (Percent Effectiveness)	Percent Change
Jackson Creek	**46**	**88**	**42**
South Fork Jackson Creek	**83**	**88**	**5**

[1]TMDL shade target is the calculated percent effective shade provided when riparian vegetation reaches site potential.

Dissolved Oxygen

Dissolved oxygen concentration refers to the amount of oxygen dissolved in water. Dissolved oxygen is critical to the biological community in the stream and to the breakdown of organic material (MacDonald et al. 1991). Dissolved oxygen concentrations are primarily related to water temperature (MacDonald et al. 1991). When water temperatures increase, oxygen concentrations decrease. Oregon's dissolved oxygen standard describes the minimum amount of dissolved oxygen required for different water bodies (i.e., waters that support salmonid

spawning until fry emergence from the gravels, waters providing cold water aquatic resources, waters providing cool-water aquatic resources, etc.). The 30-day mean minimum for cold water aquatic life is 8.0 mg/l or 90 percent of saturation (ODEQ 2006a). Dissolved oxygen was not addressed in the Applegate Subbasin TMDL (2005), but is scheduled to be addressed as part of the five-year review of the plan.

Fecal Coliform

Waterborne pathogens include bacteria, viruses, protozoa, and other microbes that can cause skin and respiratory ailments, gastroenteritis, and other illnesses. Most drinking and recreational waters are routinely tested for certain bacteria that have been correlated with human health risk. If the average concentration of these bacteria falls below the designated standard, it is assumed that the water is safe for that use and that there are no other pathogenic bacteria that represent a significant hazard to human health (MacDonald et al. 1991). The four groups of bacteria most commonly monitored are total coliforms, fecal coliforms, fecal streptococci, and enterococci. Fecal coliform bacteria are mostly those coliform bacteria that are present in the gut and feces of warm-blooded animals. They can be directly linked to sanitary water quality and human health risks (USDI 2001b, pp. 72-84; USDI 2001a, pp.59-76).

State water quality criteria for bacteria states that for a 30-day log mean of 126 Escherichia (E.) coli (a species of fecal coliform) organisms per 100 ml, based on a minimum of five samples, no single sample shall exceed 406 E. coli organisms per 100 ml (OAR 2005). The purpose of the bacterial water quality standard is to protect the most sensitive designated beneficial use, which has been identified as water contact recreation. Prior to the establishment of E. coli data as the basis for the State bacteria criteria in 1996, the standard was written in terms of fecal coliform. The fecal coliform standard was a log mean of 200 fecal coliform per 100 milliliters based on a minimum of five samples in a 30 day period with no more than ten percent of the samples in the 30 day period exceeding 400 per 100 ml (ODEQ 1998:11). Fecal coliform data was used to develop the Oregon 1998 303(d) list when Jackson Creek was added. The *Bear Creek Watershed TMDL* (ODEQ 2007) identifies a percent reduction target for Jackson Creek of 73 percent.

Potential nonpoint sources of high bacterial levels in the analysis area include wildlife, livestock waste, failing septic systems, pets, and illegal discharges (ODEQ 2007). Forest practices or OHV activities are not identified as contributing to bacteria levels.

Sediment and Turbidity

Sedimentation is the natural process of sediment entering a stream channel. However, an excess of fine sediments (sand-size and smaller) can cause problems such as turbidity (the presence of suspended solids) or embeddedness (buried gravels and cobbles). Sedimentation is generally associated with storm runoff and is highest during fall and winter. Natural processes occurring in the analysis area such as landslides, surface erosion, wildfire, and flood events contribute to increased sedimentation (USDI 2001b, pp. 72-84; USDI 2001a, pp.59-76; USDI 1995, pp. 61-64).

Sediment sources in the analysis area resulting from human activities include roads; logging (tractor skid trails, yarding corridors, and landings); off-highway vehicle (OHV) trails; concentrated livestock grazing in riparian zones; urban, residential, and agricultural clearing of riparian zones; maintenance of irrigation diversions; irrigation return flows; irrigation ditch blowouts; and mining. The granitic soils in the headwaters of Kane, Galls, Foots, Forest, Birdseye, Jackson, and Willow Creeks are prone to surface erosion, especially after the surface is disturbed.

Roads appear to be the primary human-caused sediment source in the forested headwaters of the analysis area. Roads with one or more of the following features have the greatest potential for contributing substantial amounts of sediment to nearby streams: stream-adjacent location, mid-slope location, natural surface, and inadequate drainage control and maintenance. Table 3-19 shows road surface type and roads in riparian reserves by analysis area. For analysis purposes, the same widths were used for riparian reserves on federal lands and riparian areas

adjacent to streams on private lands. It is important to note that the information in Table 3-19 is not complete for roads on private lands. The BLM GIS transportation theme includes most of the BLM roads, but only a portion of roads on private lands. The GIS theme has been updated to include roads visible from aerial photographs in the Birdseye and Galls Foot timber sale planning areas. The surface type is unknown for 71 percent of the road miles. These "unknown" road miles are on private lands and they are mostly driveways to private residences and access roads for private timber companies. A high percentage of the road miles with unknown surface type are probably natural surfaced. The Galls Creek analysis area has the greatest number of road miles within riparian reserves of streams (40 miles). Roads are adjacent to a portion of all the major streams in the analysis areas and have directly contributed sediment to the stream channels. Road stream crossing densities are shown in Table 3-20.

Table 3-19. Road Surface Type and Proximity to Streams.

Analysis Area Number	Analysis Area Name	Road Surface Type					Roads in Riparian Reserves (federal lands) or Riparian Areas Adjacent to Streams (private lands)		
		Natural Surface (mi.)	Rocked Surface (mi.)	Paved Surface (mi.)	Unknown Surface (mi.)	Total Road Miles	Private (mi.)	BLM and FS (mi.)	All Ownerships (mi.)
BR1206	Jackson Cr (Bear Cr) above Walker Cr	9.96	2.61	1.41	51.32	65.30	24.62	1.52	26.14
BR1209	Walker Cr (Jackson Cr)	1.65	0.00	0.19	22.96	24.80	12.92	0.00	12.92
BR1212	Jackson Cr below Walker Cr, above Bear Cr Confluence	2.04	0.00	9.43	92.29	103.77	33.84	1.07	34.91
BR1218	Willow Cr	1.25	0.12	1.52	17.82	20.71	9.67	0.00	9.67
Bear Creek Watershed Total		**14.91**	**2.72**	**12.56**	**184.39**	**214.58**	**81.05**	**2.59**	**83.64**
RH0409	Kane Cr	1.34	4.82	6.17	61.93	74.26	32.04	2.50	34.54
RH0415	Galls Cr	2.74	23.43	2.28	71.00	99.45	35.43	4.22	39.65
RH0603	Foots Cr Middle Fork, above Foots Cr Left Fork Confluence	0.00	1.78	0.00	24.92	26.70	14.01	0.18	14.19
RH0606	Foots Cr Left Fork, above Foots Cr Middle Fork Confluence	5.08	2.00	0.00	15.40	22.48	10.10	1.13	11.24
RH0609	Foots Cr below Foots Cr Middle/Left Fork Confluence, above Foots Cr Right Fork	0.00	2.17	0.58	15.03	17.79	7.31	1.24	8.56
RH0612	Foots Cr Right Fork	2.05	13.03	1.94	28.17	45.19	19.10	2.64	21.74

Table 3-19. Road Surface Type and Proximity to Streams.

Analysis Area Number	Analysis Area Name	Road Surface Type					Roads in Riparian Reserves (federal lands) or Riparian Areas Adjacent to Streams (private lands)		
		Natural Surface (mi.)	Rocked Surface (mi.)	Paved Surface (mi.)	Unknown Surface (mi.)	Total Road Miles	Private (mi.)	BLM and FS (mi.)	All Ownerships (mi.)
RH0615	Foots Cr below Foots Cr Right Fork, above Rogue River	0.00	0.00	1.80	12.70	14.50	6.39	0.00	6.39
RH0706	Birdseye Cr	6.06	14.32	1.43	18.06	39.88	12.74	6.70	19.44
Gold Hill-Rogue River Watershed Total		**17.27**	**61.56**	**14.21**	**247.20**	**340.25**	**137.13**	**18.63**	**155.75**
AM0203	Forest Creek above Forest Creek Right Fork	7.89	19.12	0.76	12.52	40.29	8.09	4.38	12.47
AM0206	Forest Cr Right Fork	8.78	8.33	0.00	6.06	23.16	4.67	3.12	7.78
AM0209	Forest Cr below Right Fork Confluence, above Poorman Cr	0.44	9.44	0.00	1.60	11.47	0.83	2.56	3.39
AM0212	Poorman Cr (Applegate)	9.72	5.38	6.56	45.58	67.24	23.50	3.30	26.80
AM0215	Forest Cr below Poorman Cr, above Bishop Cr	0.03	0.99	0.00	5.07	6.09	1.55	0.28	1.83
AM0221	Forest Cr below Bishop Cr, above Applegate River Confluence	4.42	1.38	1.04	19.47	26.31	6.87	1.27	8.14
AM0303	Applegate River below Forest Cr, above China Gulch	0.00	0.22	1.06	5.73	7.01	2.38	0.38	2.76

Table 3-19. Road Surface Type and Proximity to Streams.

Analysis Area Number	Analysis Area Name	Road Surface Type					Roads in Riparian Reserves (federal lands) or Riparian Areas Adjacent to Streams (private lands)		
		Natural Surface (mi.)	Rocked Surface (mi.)	Paved Surface (mi.)	Unknown Surface (mi.)	Total Road Miles	Private (mi.)	BLM and FS (mi.)	All Ownerships (mi.)
AM0306	China Gulch	0.39	3.17	0.00	7.97	11.53	3.83	1.05	4.88
AM0309	Applegate River below China Gulch, above Long Gulch	0.00	0.00	0.00	9.17	9.17	5.04	0.00	5.04
AM0312	Long Gulch (Middle Applegate)	0.56	0.05	0.00	3.17	3.78	1.41	0.35	1.76
AM0333	Humbug Cr	2.37	3.20	2.15	20.94	28.66	12.53	1.66	14.19
AM0512	Slagle Cr	3.87	1.21	2.08	8.30	15.46	8.09	0.54	8.63
Middle Applegate Watershed Total		**38.46**	**52.49**	**13.64**	**145.58**	**250.17**	**78.80**	**18.88**	**97.68**
AL0106	Caris Creek	6.84	0.37	2.07	14.49	23.78	7.68	2.97	10.65
Lower Applegate Watershed Total		**6.84**	**0.37**	**2.07**	**14.49**	**23.78**	**7.68**	**2.97**	**10.65**
TOTALS		**77.48**	**117.15**	**42.48**	**591.67**	**828.78**	**304.66**	**43.07**	**347.72**

Table 3-20. Road Stream Crossings by Analysis Area.

Analysis Area Number	Analysis Area Name	Analysis Area (Acres)	Number of Road Stream Crossings by Stream Type and Ownership								Total Road Stream Crossings	Road Crossing Density (#/mi.^{2})
			Perennial		Long Duration Intermittent		Short Duration Intermittent		Dry Draw			
			BLM	Non-BLM	BLM	Non-BLM	BLM	Non-BLM	BLM	Non-BLM		
BR1206	Jackson Cr (Bear Cr) above Walker Cr	6,579	1	17	3	45	4	145	12	68	**295**	**29**
BR1209	Walker Cr (Jackson Cr)	1,584	0	0	0	22	0	70	0	20	**112**	**45**
BR1212	Jackson Cr below Walker Cr, above Bear Cr Confluence	8,029	0	23	0	88	0	134	3	53	**301**	**24**
BR1218	Willow Cr	3,220	0	0	0	21	0	48	8	30	**107**	**21**
Bear Creek Watershed Total		**19,412**	**1**	**40**	**3**	**176**	**4**	**397**	**23**	**171**	**815**	**27**
RH0409	Kane Cr	5,951	1	23	4	89	12	155	47	102	**433**	**47**
RH0415	Galls Cr	8,497	6	44	14	65	9	150	82	123	**493**	**37**
RH0603	Foots Cr Middle Fork, above Foots Cr Left Fork Confluence	3,391	0	13	0	23	0	66	5	58	**165**	**31**
RH0606	Foots Cr Left Fork, above Foots Cr Middle Fork Confluence	2,923	1	9	1	12	2	60	11	57	**153**	**34**
RH0609	Foots Cr below Foots Cr Middle/Left Fork Confluence, above Foots Cr Right Fork	2,948	0	5	0	13	5	21	5	27	**76**	**16**
RH0612	Foots Cr Right Fork	5,927	6	12	4	36	5	70	63	46	**242**	**26**
RH0615	Foots Cr below Foots Cr Right Fork, above Rogue River	1,308	0	0	0	9	0	40	0	10	**59**	**29**
RH0706	Birdseye Cr	4,682	5	15	13	20	32	47	112	43	**287**	**39**
Gold Hill-Rogue River Watershed Total		**35,628**	**19**	**121**	**36**	**267**	**65**	**609**	**325**	**466**	**1908**	**34**
AM0203	Forest Creek above Forest Creek Right Fork	4,924	2	25	13	17	13	22	100	38	**230**	**30**

Table 3-20. Road Stream Crossings by Analysis Area.

Analysis Area Number	Analysis Area Name	Analysis Area (Acres)	Number of Road Stream Crossings by Stream Type and Ownership								Total Road Stream Crossings	Road Crossing Density (#/mi.^{2})
			Perennial		Long Duration Intermittent		Short Duration Intermittent		Dry Draw			
			BLM	Non-BLM	BLM	Non-BLM	BLM	Non-BLM	BLM	Non-BLM		
AM0206	Forest Cr Right Fork	2,819	5	8	4	16	4	16	27	51	**131**	**30**
AM0209	Forest Cr below Right Fork Confluence, above Poorman Cr	1,388	2	5	6	0	9	1	35	1	**59**	**27**
AM0212	Poorman Cr (Applegate)	6,959	3	16	5	50	15	84	23	105	**301**	**28**
AM0215	Forest Cr below Poorman Cr, above Bishop Cr	773	0	1	0	3	1	7	9	7	**28**	**23**
AM0221	Forest Cr below Bishop Cr, above Applegate River Confluence	2,693	0	7	2	16	11	16	17	6	**75**	**18**
AM0303	Applegate River below Forest Cr, above China Gulch	564	0	0	0	3	2	9	0	7	**21**	**24**
AM0306	China Gulch	1,897	1	2	1	12	9	8	7	3	**43**	**15**
AM0309	Applegate River below China Gulch, above Long Gulch	1,865	0	6	0	13	0	6	0	4	**29**	**10**
AM0312	Long Gulch (Middle Applegate)	1,195	0	3	0	0	2	8	1	1	**15**	**8**
AM0333	Humbug Cr	7,160	0	0	3	11	7	45	7	41	**114**	**10**
AM0512	Slagle Cr	3,746	0	18	0	15	5	23	2	17	**80**	**14**
Middle Applegate Watershed Total		**35,984**	**13**	**91**	**34**	**156**	**78**	**245**	**228**	**281**	**1126**	**20**
AL0106	Caris Creek	4,543	2	9	8	23	19	19	7	8	**95**	**13**
Lower Applegate Watershed Total		**4,543**	**2**	**9**	**8**	**23**	**19**	**19**	**7**	**8**	**95**	**13**
TOTALS		**95,567**	**35**	**261**	**81**	**622**	**166**	**1270**	**583**	**926**	**3944**	**26**

Skid roads, yarding corridors, landings, and OHV trails in the planning area also contribute to accelerated surface erosion that likely enters the stream system. The amount of soil disturbance from these activities has not been calculated; however, from studying the aerial photos of the analysis areas, it is apparent that extensive logging on private timber lands in the headwaters has resulted in a high level of ground disturbance. OHV use of existing roads, skid roads and yarding corridors has increased the amount of sediment input to nearby streams.

The proliferation of OHV trails within the planning area continues to result in sediment input to streams in the analysis areas. Surface disturbance from OHV use is especially visible in the Timber Mountain planning area in Jackson Creek, Willow Creek, China Gulch and Upper Poorman Creek (USDI 1995; USDI 2001b). As with roads, proximity to streams, erodibility of soil, and number of trail stream crossings are factors in determining sediment input into the streams. Table 3-21 shows OHV trail type and trails in riparian reserves. Table 3-22 shows trail stream crossings and crossing density by analysis area.

Channelization, residential, urban, and agricultural clearing of riparian zones, and livestock grazing are the major sources of streambank destabilization and subsequent sediment input to the lower reaches of tributaries in the analysis area. Concentrated livestock grazing on streambanks results in erosion from trampling and streambank collapse. The 1991 ODFW stream habitat survey report for the lower third of Kane Creek mentioned evidence of heavy grazing in the riparian corridor causing significant bank erosion. A BLM survey of the tributary mouths (2000) noted the mouth of Foots Creek was bordered by houses with a complete lack of riparian vegetation; the mouth of Kane Creek was bordered by houses with a narrow riparian corridor remaining of 20 feet or less; and the area surrounding the mouth of Galls Creek was heavily developed with houses and roads. Concentrated livestock grazing on streambanks results in erosion from trampling and streambank collapse. Additional sediment sources in the lower reaches of the analysis area include annual maintenance of diversion structures (especially push-up gravel dams), irrigation return flows, and irrigation ditch blowouts. Sediment deposited in irrigation ditches during the winter is re-mobilized during the irrigation season (RVCOG 2001; USDI 2001b, pp. 72-84).

Although more prevalent in the past, mining is still taking place within the analysis area. Currently, mining claims consist of both lode and placer type claims. It is not known how much sediment is produced by mining in the area (USDI 2001b, pp. 72-84). A stream habitat survey conducted by ODFW in 1991 from the mouth of Foots Creek to the confluence of the Right and Left Forks noted heavy mining activity with dredging and large piles of tailings eroding into the creek (USDI 2001a, pp.59-76).

The State water quality criterion for sedimentation states that the formation of appreciable bottom or sludge deposits or the formation of any organic or inorganic deposits deleterious to fish or other aquatic life or injurious to public health, recreation, or industry shall not be allowed (ODEQ 1999:58). Beneficial uses affected include resident fish and aquatic life, and salmonid fish spawning and rearing. No streams within the analysis area are currently listed for sedimentation; however, Forest, Jackson and Willow Creeks were added to the Oregon Water Quality Integrated Report Database as a parameter of concern in 1998 (ODEQ 2006a) and ODEQ's Nonpoint Source Assessment (1988) identified sedimentation as a parameter of concern in Jackson, Walker (tributary to Jackson Creek), and Willow Creeks.

The State water quality criterion for turbidity states no more than ten percent cumulative increase in natural stream turbidities shall be allowed, as measured relative to a control point immediately upstream of the turbidity causing activities (ODEQ 1999: 57). Beneficial uses affected are resident fish and aquatic life, water supply and aesthetics (USDI 2001b, pp. 72-84). No streams within the analysis area are listed for turbidity; however, ODEQ's Nonpoint Source Assessment (1988) identified turbidity as a parameter of concern in Jackson and Willow Creeks (USDI 2001b, pp. 72-84).

Table 3-21. OHV Trail Type and Proximity to Streams

Analysis Area Number	Analysis Area Name	Analysis Area (Acres)	Miles of OHV Trail							Miles of Trail in Riparian Reserves (Federal) and Riparian Areas Adjacent to Streams (Non-federal)		
			Class 1 (OHV)		Class 2 (4x4)		Class 3 (Motorcycle)		Total Trails (All Owner-ships)	BLM	Non-BLM	Total Trails in Riparian Reserves
			BLM	Non-BLM	BLM	Non-BLM	BLM	Non-BLM				
BR1206	Jackson Cr (Bear Cr) above Walker Cr	6,579	1.74	15.15	0.53	1.63	3.45	8.02	30.51	0.85	12.22	13.07
BR1209	Walker Cr (Jackson Cr)	1,584	1.41	1.97	0.15	2.84	0.51	0.08	6.96	0.32	1.09	1.41
BR1212	Jackson Cr below Walker Cr, above Bear Cr Confluence	8,029	0.10	0.04	0.00	0.00	0.74	0.07	0.95	0.02	0.00	0.02
BR1218	Willow Cr	3,220	3.25	7.11	0.33	4.20	2.81	0.80	18.49	0.86	5.81	6.67
Bear Creek Watershed Total		**19,412**	**6.51**	**24.27**	**1.01**	**8.67**	**7.50**	**8.96**	**56.92**	**2.04**	**19.12**	**21.17**
RH409	Kane Cr	5,951	4.55	5.00	2.48	0.67	0.39	0.99	14.08	2.00	2.93	4.93
RH0415	Galls Cr	8,497	5.99	2.20	1.16	1.63	2.29	1.17	14.43	1.53	1.62	3.15
RH0603	Foots Cr Middle Fork, above Foots Cr Left Fork Confluence	3,391	0.19	2.38	0.88	1.08	0.63	3.26	8.42	0.36	1.81	2.16
RH0606	Foots Cr Left Fork, above Foots Cr Middle Fork Confluence	2,923	0.05	2.00	0.00	0.26	0.22	1.34	3.86	0.00	1.00	1.00
RH0609	Foots Cr below Foots Cr Middle/Left Fork Confluence, above Foots Cr Right Fork	2,948	1.63	2.25	1.69	0.40	0.04	0.00	6.02	1.15	0.85	2.00
RH0612	Foots Cr Right Fork	5,927	2.91	5.34	3.02	3.38	1.71	1.92	18.27	2.05	2.27	4.32

Table 3-21. OHV Trail Type and Proximity to Streams

Analysis Area Number	Analysis Area Name	Analysis Area (Acres)	Miles of OHV Trail							Miles of Trail in Riparian Reserves (Federal) and Riparian Areas Adjacent to Streams (Non-federal)		
			Class 1 (OHV)		Class 2 (4x4)		Class 3 (Motorcycle)		Total Trails (All Owner-ships)	BLM	Non-BLM	Total Trails in Riparian Reserves
			BLM	Non-BLM	BLM	Non-BLM	BLM	Non-BLM				
RH0615	Foots Cr below Foots Cr Right Fork, above Rogue River	1,308	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RH0706	Birdseye Cr	4,682	0.40	0.59	1.65	0.17	0.08	1.34	4.24	0.81	0.39	1.20
Gold Hill-Rogue River Watershed Total		**35,628**	**15.72**	**19.76**	**10.88**	**7.59**	**5.36**	**10.01**	**69.33**	**7.90**	**10.86**	**18.76**
AM0203	Forest Creek above Forest Creek Right Fork	4,924	0.16	1.77	2.47	0.26	3.66	0.70	9.02	0.54	0.51	1.05
AM0206	Forest Cr Right Fork	2,819	3.19	4.17	3.02	1.43	6.85	3.20	21.86	5.93	2.45	8.38
AM0209	Forest Cr below Right Fork Confluence, above Poorman Cr	1,388	3.41	0.07	4.09	0.49	4.12	0.00	12.17	3.46	0.33	3.79
AM0212	Poorman Cr (Applegate)	6,959	0.68	0.00	0.08	0.00	0.10	0.00	0.86	0.11	0.00	0.11
AM0215	Forest Cr below Poorman Cr, above Bishop Cr	773	0.72	0.16	0.88	0.02	0.86	0.00	2.65	0.61	0.17	0.78
AM0221	Forest Cr below Bishop Cr, above Applegate River Confluence	2,693	0.12	0.64	0.25	0.29	0.61	0.00	1.91	0.02	0.45	0.46
AM0303	Applegate River below Forest Cr, above China Gulch	564	0.00	0.00	0.00	0.00	0.12	0.00	0.12	0.00	0.00	0.00
AM0306	China Gulch	1,897	2.64	0.00	0.58	0.00	1.46	0.00	4.67	0.94	0.00	0.94
AM0309	Applegate River below China Gulch, above Long Gulch	1,865	0.00	0.00	0.00	0.00	0.41	0.00	0.41	0.00	0.00	0.00

Table 3-21. OHV Trail Type and Proximity to Streams

Analysis Area Number	Analysis Area Name	Analysis Area (Acres)	Miles of OHV Trail							Miles of Trail in Riparian Reserves (Federal) and Riparian Areas Adjacent to Streams (Non-federal)		
			Class 1 (OHV)		Class 2 (4x4)		Class 3 (Motorcycle)		Total Trails (All Owner-ships)	BLM	Non-BLM	Total Trails in Riparian Reserves
			BLM	Non-BLM	BLM	Non-BLM	BLM	Non-BLM				
AM0312	Long Gulch (Middle Applegate)	1,195	0.00	0.00	0.00	0.00	0.41	0.00	0.41	0.00	0.00	0.00
AM0333	Humbug Cr	7,160	2.73	1.19	0.17	2.21	4.41	0.21	10.92	0.00	2.37	2.37
AM0512	Slagle Cr	3,746	0.07	1.02	0.00	0.00	3.72	0.10	4.91	0.00	1.53	1.53
Middle Applegate Watershed Total		**35,984**	**13.73**	**9.02**	**11.52**	**4.70**	**26.72**	**4.21**	**69.91**	**11.61**	**7.81**	**19.42**
AL0106	Caris Creek	4,543	0.31	0.43	0.29	0.30	0.13	0.05	1.51	0.00	0.23	0.23
Lower Applegate Watershed Total		**4,543**	**0.31**	**0.43**	**0.29**	**0.30**	**0.13**	**0.05**	**1.51**	**0.00**	**0.23**	**0.23**
Totals		**95,567**	**36.27**	**53.49**	**23.71**	**21.26**	**39.72**	**23.24**	**197.67**	**21.55**	**38.03**	**59.58**

Table 3-22. OHV Trail Stream Crossings by Analysis Area

Analysis Area Number	Analysis Area Name	Analysis Area (Acres)	Number of Trail Stream Crossings by Stream Type and Ownership								Total Trail Stream Crossings	Trail Crossing Density (#/mi.^{2})
			Perennial		Long Duration Intermittent		Short Duration Intermittent		Dry Draw			
			BLM	Non-BLM	BLM	Non-BLM	BLM	Non-BLM	BLM	Non-BLM		
BR1206	Jackson Cr (Bear Cr) above Walker Cr	6,579	0	10	0	30	3	76	15	39	**173**	**17**
BR1209	Walker Cr (Jackson Cr)	1,584	2	0	0	2	0	9	17	4	**34**	**14**
BR1212	Jackson Cr below Walker Cr, above Bear Cr Confluence	8,029	0	0	0	0	0	0	5	0	**5**	**0**
BR1218	Willow Cr	3,220	1	3	0	7	8	28	24	13	**84**	**17**
Bear Creek Watershed Total		**19,412**	**3**	**13**	**0**	**39**	**11**	**113**	**61**	**56**	**296**	**10**
RH409	Kane Cr	5,951	1	2	1	5	16	13	31	12	**81**	**9**
RH0415	Galls Cr	8,497	4	2	1	2	5	8	18	7	**47**	**4**
RH0603	Foots Cr Middle Fork, above Foots Cr Left Fork Confluence	3,391	0	0	2	0	1	12	9	27	**51**	**10**
RH0606	Foots Cr Left Fork, above Foots Cr Middle Fork Confluence	2,923	0	0	0	0	0	7	0	3	**10**	**2**
RH0609	Foots Cr below Foots Cr Middle/Left Fork Confluence, above Foots Cr Right Fork	2,948	4	1	0	2	5	6	9	9	**36**	**8**
RH0612	Foots Cr Right Fork	5,927	0	2	3	2	6	17	25	23	**78**	**8**
RH0615	Foots Cr below Foots Cr Right Fork, above Rogue River	1,308	0	0	0	0	0	0	0	0	**0**	**0**
RH0706	Birdseye Cr	4,682	0	0	0	0	9	2	5	4	**20**	**3**
Gold Hill-Rogue River Watershed Total		**35,628**	**9**	**7**	**7**	**11**	**42**	**65**	**97**	**85**	**323**	**6**

Table 3-22. OHV Trail Stream Crossings by Analysis Area

Analysis Area Number	Analysis Area Name	Analysis Area (Acres)	Number of Trail Stream Crossings by Stream Type and Ownership								Total Trail Stream Crossings	Trail Crossing Density (#/mi.^{2})
			Perennial		Long Duration Intermittent		Short Duration Intermittent		Dry Draw			
			BLM	Non-BLM	BLM	Non-BLM	BLM	Non-BLM	BLM	Non-BLM		
AM0203	Forest Creek above Forest Creek Right Fork	4,924	2	0	0	2	1	1	24	3	**33**	**4**
AM0206	Forest Cr Right Fork	2,819	11	1	10	7	17	7	31	22	**106**	**24**
AM0209	Forest Cr below Right Fork Confluence, above Poorman Cr	1,388	8	1	4	0	9	0	21	1	**44**	**20**
AM0212	Poorman Cr (Applegate)	6,959	0	0	0	0	0	0	0	0	**0**	**0**
AM0215	Forest Cr below Poorman Cr, above Bishop Cr	773	0	1	3	0	1	0	15	0	**20**	**17**
AM0221	Forest Cr below Bishop Cr, above Applegate River Confluence	2,693	0	0	0	1	0	2	6	2	**11**	**3**
AM0303	Applegate River below Forest Cr, above China Gulch	564	0	0	0	0	0	0	0	0	**0**	**0**
AM0306	China Gulch	1,897	1	0	0	0	11	0	5	0	**17**	**6**
AM0309	Applegate River below China Gulch, above Long Gulch	1,865	0	0	0	0	0	0	0	0	**0**	**0**
AM0312	Long Gulch (Middle Applegate)	1,195	0	0	0	0	0	0	0	0	**0**	**0**
AM0333	Humbug Cr	7,160	2	0	3	5	3	8	8	12	**41**	**4**
AM0512	Slagle Cr	3,746	1	0	3	0	8	0	8	1	**21**	**4**
Middle Applegate Watershed Total		**35,984**	**25**	**3**	**23**	**15**	**50**	**18**	**118**	**41**	**293**	**5**
AL0106	Caris Creek	4,543	0	0	0	0	0	2	3	1	**6**	**1**
Lower Applegate Watershed Total		**4,543**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**1**	**6**	**1**
Totals		**95,567**	**37**	**23**	**30**	**65**	**103**	**198**	**279**	**183**	**918**	**6**

Provisional turbidity data results from RVCOG's water quality monitoring in Jackson Creek during the period from January 1992 to December 1999 are summarized in Table 3-23 (RVCOG 2000). Comparing the low median values to the very high maximum turbidity values, it is apparent that turbidity is often an acute pollution problem, as opposed to chronic. These acute situations are most often due to storm events or short-term point-source pollution incidents such as construction site run-off (Quinby, Pers. comm. 2001; USDI 2001b, pp. 72-84).

Table 3-23. Provisional Turbidity Data Summary

Statistic	Provisional Turbidity Data Summary	
	Jackson Creek	
	@ Scenic Ave.	@Blackwell Rd
Number of samples	87	70
Minimum (ntu[1])	1.5	1.9
Maximum (ntu)	144	500
Median (ntu)	13	15.2

1/ ntu = nephelometric turbidity unit
Source: RVCOG 2000 (USDI 2001b, pp. 72-84).

Groundwater Contamination from Motor Fuels

Many landowners adjacent to and down slope of the Timber Mountain planning area rely on wells and or streamflow for domestic water. Private wells are not required to have water quality tested, so information is not available. Because of concerns that OHV use could impact ground water quality, particularly contamination from fuel spills or unburned fuel making its way into the water supply, water from a number of sources in the planning area was tested for the presence of benzene, toluene, xylene, and Methyl Tertiary Butyl Ether (MTBE).

Benzene (also known as benzol, carbon oil, coal naphtha, cyclohexatriene, and phenyl hydride) is produced from petroleum and coal sources. It is used mainly in the manufacture of ethyl benzene (55 percent), cumene (24 percent), cyclohexane (12 percent), nitrobenzene (5 percent), detergent alkylate, chlorobenzenes and maleic anhydride. Benzene is a very minor component of gasoline. Its commercial use as a solvent has practically been eliminated because of its toxicity. However, it continues to be used as a solvent and reactant in laboratories. Benzene can contain small amounts of toluene and xylene (Canadian Centre for Occupational Health and Safety 1999).

Xylene (also known as dimethylbenzene, methyltoluene, xylol) occurs naturally in small quantities in petroleum stocks, coal tar and natural gas, and is formed during forest fires. Xylene is used as a constituent of motor and aviation fuels (Canadian Centre for Occupational Health and Safety 1999).

Toluene (also known as methylbenzene, methylbenzol, phenylmethane, and toluène) is used to make chemicals (e.g., benzene, toluene diisocyanate, benzoic acid), explosives, dyes and many other compounds. It is used as a solvent for inks, paints, lacquers, resins, cleaners, glues and adhesives, and is found in gasoline and aviation fuel. Some grades of toluene contain traces of xylene and benzene (Canadian Centre for Occupational Health and Safety 1999).

Benzene, toluene and xylene from dispersed use not associated with storage of large quantities of fuel are not likely to affect ground water, because they volatize rapidly in air, they attach to soil particles thus hindering

their ability to move quickly through the soil, and because they are generally only a risk if large amounts of fuel are spilled or if fuel is spilled directly into a surface water source (U.S. Environmental Protection Agency 2006). These compounds break down fairly quickly, making it unlikely that they could accumulate to significant levels from engine emissions or fuel spills of a few gallons. Even with major soil contamination related to long-term leakage of underground fuel storage tanks at gas stations, these compounds are only able to migrate a few yards each year in groundwater because they attach to soil particles (U.S. Environmental Protection Agency 2006).

MTBE, a compound used in oxygenated fuels, is a much greater concern. Although it breaks down to water and carbon dioxide when exposed to sunlight, it becomes non-volatile if it is fixed by precipitation or enters groundwater directly. If MTBE enters an anaerobic aquifer, it may take from 7 to 60 years to naturally degrade (Kinner 2001), so has potential to accumulate to significant levels over time. Since MTBE does not bind to soil particles, it can move freely with groundwater, potentially contaminating groundwater many miles from where it was introduced. To improve air quality, MTBE has been required as an oxygenate in California for a number of years, making up 12 percent of a gallon of gasoline. Due to growing environmental concerns, California stopped using MTBE in gasoline in 2003 (Davis 1999). Although use of MTBE was originally mandated by EPA to control air pollution, EPA is now considering banning MTBE nationwide because of growing groundwater contamination problems and associated health effects. Although not required as an oxygenate in Oregon, the Department of Environmental Quality has found during testing that MTBE is present in fuel supplies in Oregon at levels up to two percent MTBE per gallon of gasoline (ODEQ 2008). Based on the Timber Mountain planning area's proximity to California and the history of MTBE in Oregon's fuel supply, it is likely that OHVs in the Timber Mountain planning area are using motor fuels containing MTBE.

In August 2003, samples were collected from surface water in (Galls, Kane, and Right Fork Forest Creeks) and two springs (Walker and Oregon Belle Springs) located downslope of concentrated OHV use. Testing was conducted in late summer at low flows, since the flow in most streams at that time of year consists primarily of groundwater rather than direct rainfall runoff. The results of these tests are included in Appendix A. Benzene, toluene, xylene, or MTBE were not detected in any of the samples.

Foreseeable Future Actions

Reasonably foreseeable future actions planned for BLM-administered lands in the analysis area include three timber sales, fuels reduction treatments, routine road maintenance activities, and continued livestock grazing. The potential for the alternatives assessed in this Draft EIS to contribute to cumulative impacts when combined with these other reasonably foreseeable actions was assessed. The anticipated hydrological effects from other reasonably foreseeable actions are described below.

China Keeler, Galls Foot, and Birdseye Timber Sales

The China Keeler Timber Sale is scheduled to sell in 2009; Galls Foot and Birdseye Timber Sales are scheduled to sell in 2010. Anticipated effects of implementing the China Keeler and Galls Foot timber sales are disclosed in detail in the environmental assessments (EAs) associated with these projects. The China Keeler and Galls Foot EAs are available online at http://www.blm.gov/or/index.php. The environmental analysis for the Birdseye timber sale is in progress; the EA is anticipated to be out for public review in 2009. Road decommissioning and removal of drainage structures (culverts) would increase short-term sediment production and delivery to streams until such time as the removed channel crossings and ripped road beds stabilize and revegetate. Sediments entering the stream channel can affect channel shape and form, stream substrates, and the structure of fish habitats (Chamberlin et al. 1991). Decommissioning of these roads is expected to benefit sediment and hydrologic processes by reducing long-term sediment loading and stream channel extension. The timber sales would construct approximately six miles of new road, of which, 0.6 miles are temporary and would be removed after harvest and fuel reduction activities. All of the new road construction would occur in upslope areas, outside of riparian reserves. No harvest or new road construction is proposed in riparian reserves. Very little ground-based logging is proposed; however, any accessible openings created from these harvests would be susceptible to new use by OHVs. These timber sales also propose road improvements/maintenance to existing roads. Road improvements and maintenance are designed to help stabilize, improve drainage, and reduce sediment.

Fuels Reduction Treatments

Future fuels reduction treatments are likely to occur in the planning area. Fuels treatments would retain riparian buffers, require minimal ground disturbance, and would not remove large trees. All firelines would be waterbarred and rehabilitated following treatment. Reduction in canopy levels would not occur and ground compaction would not increase; therefore, peak flows would not be affected. The additional groundwater from reduced evapotranspiration (from the removal of vegetation) would not likely be significant and would not likely affect the stream systems within the planning area.

Routine Road Maintenance

Routine BLM road maintenance would entail a minimum level of maintenance to prevent major sediment input or repair drainage failures. This work would have a positive benefit to water quality.

Livestock Grazing

Portions of four grazing allotments (Applegate; Billy Mountain; Timber Mountain; and Sardine/Galls Creek) are located within the Timber Mountain planning area. Billy Mountain is the only active allotment at this time. The three vacant allotments (Applegate, Timber Mountain, and Sardine/Galls Creek) are closed to grazing in the Western Oregon Plan Revision/Final Environmental Impact Statement (USDI 2008: 2-56). Approximately 70 acres (BLM) of the Billy Mountain Allotment falls within the Timber Mountain planning area. These 70 acres are located near the top of the ridge in the Foots Creek watershed. Since there are no perennial or intermittent streams in this area, it is unlikely that cattle would congregate in this area and therefore, would not contribute sediment/turbidity to the stream system, nor cause streambank disturbance.

Timber Harvest on Private Lands

Under reasonably foreseeable future actions for private lands, it is assumed that private forest lands would continue to be intensively managed for timber production on a 60-year rotation (USDI 1994a). The actual timing of any private lands timber harvest is dependent on many factors, including valuations based on supply/demand, ownership, etc. Any future wildfire would likely accelerate harvesting/salvage on non-BLM lands.

Effects Common to All Alternatives

Important effects of OHV activities on soils and watershed function include soil compaction (Liddle 1997), diminished water infiltration, diminished presence and impaired function of soil stabilizers (plants and associated organic matter; lichens and moss; and soil crusts), and accelerated erosion rates. In turn, soil moisture available to vegetation is diminished, volumes and velocities of precipitation runoff increase, and soil erosion accelerates, leading to the formation of gullies and other surface changes (Webb et al. 1978; Iverson et al. 1981; Webb 1982; Hinckley et al. 1983; Wilshire 1983).

With increased erosion rates, rates of sedimentation and turbidity levels can increase and alter the water quality of a given watershed, including streams, rivers, and wetlands (Forman et al. 2003). Sediments can displace the water-holding volume of a wetland, thus diminishing or eliminating the wetland's hydrologic function (Luo et al. 1997). For example, where OHVs had traveled over the soil, Iverson et al. (1981) found that surface runoff was five times greater and yielded 10-20 times more sediment than where soils were undisturbed.

Wheel cuts and tracks within OHV trails may serve as water conduits that channel and direct water flow containing sediments and contaminants into aquatic ecosystems (Wemple et al. 1996; Forman et al. 2003). The generally impervious nature of soils compacted by OHV traffic enhances gully formation in these conduits, promoting additional flows of sediment and suspended solids into aquatic systems, effectively extending the drainage network of a given watershed, and potentially changing the peak runoff flows (Wemple et al. 1996). The presence of OHV trail networks is an important factor in determining the severity of potential sedimentation in nearby aquatic systems. In particular, Wemple et al. (1996) found that the drainage ditches along logging roads and the gullies that form below culvert outlets (where drainage flows pass under the road or cross-drains) on steep slopes served as the primary conduits linking surface flows to streams. The extent to which sediments

might be carried along these conduits and into aquatic systems depends primarily on the presence of obstructions below cross-drains and the spatial interval between them (Haupt 1959). In situations where cross-drains were positioned at sufficient distances from streams, the drainage discharge infiltrated the soil and did not contribute to sedimentation in streams (Haupt 1959). In areas characterized by soils with relatively low infiltration rates, such as those compacted from OHV use, transport of sediments over longer distances and into the aquatic system may be substantial.

Furniss et al. (2000) describe similar effects of road and/or trail networks across the landscape. In particular, they discuss the continuous "hydrologic connections" that facilitate sediment transport between surface flows and waterways. They go on to list ways in which water and associated sediments enter stream systems from roads, including (1) inboard ditches (ditches perpendicular to the road footprint and that bisect the road) delivering runoff to a stream at a road-stream crossing, (2) inboard ditches delivering water to a cross-drain plume that extends to the stream channel, (3) where sufficient discharge is available to create a gully or sediment plume that extends to the stream channel, (4) roads sufficiently close to streams so that the fill slope encroaches on the stream, and (5) landslide scars on the road fill. These connections provide direct routes for accelerated runoff transporting sediments and road-associated contaminants to natural drainage channels.

Effects of Implementing Alternatives

The hydrologic effects of implementing the action alternatives can be compared by examining the amount of OHV trail decommissioning; the change in miles of OHV trails within riparian reserves; and change in OHV trail-stream crossings included in each alternative.

Effects of Alternative 1 (No Action)

This alternative represents a continuation of the current management situation regarding OHV use within the Timber Mountain planning area. There are currently approximately 375.9 miles of OHV routes (trails and roads used by OHVs) within the planning area. There are no currently no fully developed staging areas on BLM; riders use road turnouts, flat areas, and wide intersections as parking and unloading areas. The decommissioning and maintenance of trails and the development of staging areas is not planned under Alternative 1. Without a management plan in place to guide use, funds for law enforcement would likely be limited under this alternative. Trail proliferation throughout the planning would likely continue (see Law Enforcement). Resource impacts would only be addressed through temporary closures such as the 2007 temporary closure of the hill climb north of Bunny Meadows and in the Kane Creek drainage. This type of reactive management only addresses resource degradation once it has occurred.

The hydrologic effects resulting from current OHV use in each of the analysis areas was described previously. Selection of this alternative would likely increase the magnitude of the impacts over time, especially as the popularity of OHV riding continues to increase and additional trails are created. Future vegetation/fuels treatments on BLM and private lands will become susceptible to trail creation by OHV users, due to decreased law enforcement effectiveness in comparison to the action alternatives. Skyline corridors and firelines have frequently been converted to OHV trails by users. BLM surveys have documented substantial increases in new trails in recent years, especially in riparian areas. Continued use of this area without a management plan would likely increase the timing/magnitude of peak flows; increase erosion, sedimentation, and turbidity; reduce stream shade; increase stream temperature; and increase the likelihood that more streams will become listed as water quality limited or that listed streams will become listed for more parameters. This alternative has the greatest potential for contributing to adverse cumulative effects when combined with other ongoing and reasonably foreseeable actions in the analysis area.

Effects of the Action Alternatives

All of the action alternatives (Alternatives 2 through 5) substantially reduce the amount of roads and trails open to OHV use, increase law enforcement effectiveness, and decommission trails on BLM lands not designated for use. Although the action alternatives differ in intensity and scope, selection of any of these four alternatives is expected to reduce impacts to water resources.

Alternative 2, 3, and 5 analyze the potential management of OHV routes across BLM-administered lands and adjacent private lands. OHV routes on private lands analyzed in these alternatives are only those proposed as part of the trail system; BLM is not proposing to decommission any trails on private lands. However, with the implementation of a management plan and effective law enforcement, OHV routes off of designated routes are expected to decrease on private lands, as well as on BLM lands. These alternatives require cooperative agreements between the BLM and adjacent participating private land owners in order to manage a system of OHV routes across private lands to provide connectivity from one BLM parcel to the next.

Alternative 4 proposes to manage a system of OHV routes on BLM-administered lands or those lands already under existing legal agreements (e.g. BLM-controlled roads with public access rights). This alternative is primarily confined to the southern portion of the planning area, primarily within the Forest Creek and China Gulch drainages. No cooperative agreements would be needed as this alternative relies on BLM-administered lands and existing BLM-controlled roads.

Trails that are designated for use under each of the action alternatives would be improved to reduce erosion and connectivity to stream systems. Site-specific trail designs using, but not limited to, the following methods would be implemented: installation of waterbars; use of hardened channel crossings; hardening of trail surfaces on steeper trails; and installation of sediment catchments to store mobilized sediments.

OHV Trail Decommissioning

Under all of the action alternatives, existing OHV trails (OHV routes not on roads) not proposed for management on BLM lands would be decommissioned (Table 3-24). The objectives of decommissioning are to prevent further OHV use on trails not designated for use; to prevent further resource degradation; and to restore the land currently occupied by these trails to forest production.

Decommissioning these trails would potentially involve some or all of the following treatments: waterbarring to divert sediment off trails to downslope areas where existing forest vegetation and forest debris would capture it; ripping up the trail surface to reduce compaction; seeding; and mulching to decrease channelization and erosion; barricading the trail entrance; and pulling debris across the trail for the first 50-300 feet to prevent access.

Where trails to be decommissioned have a direct connectivity to streams, some sediment from decommissioning activities will enter stream channels. Sediment inputs would be greatest during the first year following decommissioning activities and would rapidly diminish as vegetation becomes established in the old trail prisms. Although there would be short-term increase in sedimentation following trail decommissioning, the long-term benefit of eliminating these chronic sources of sediment input to aquatic systems would be expected to improve water quality over time.

Trail decommissioning within riparian reserves would likely provide the greatest benefit to stream systems. These are the trails that are most likely to be hydrologically connected to the streams due to their close proximity. These trails are also more likely to be directly connected to streams where trail-stream crossings exist. Elimination of these trails would likely reduce the altered peak flow regime in the planning area. Also, decommissioning and revegetating these non-designated trails would, over time, increase stream shading, potentially reducing stream temperatures. Table 3-25 compares the amount of trail decommissioning in riparian reserves by alternative. Table 3-26 shows the number of stream crossings that would be eliminated through the implementation of each of the action alternatives.

All of the action alternatives decommission a significant amount of OHV trails. Alternative 5, which is designed to reduce or eliminate OHV use in watersheds with Coho Critical Habitat, in some areas with granitic soils, and to buffer rural residential areas, decommissions the greatest number of miles of trail (approximately 82 miles) (Table 3-24). Alternative 4, the BLM-administered lands only alternative, decommissions 68 miles of trail and Alternatives 2 and 3 decommission 62 miles of trail (Table 3-24).

Alternative 5 also decommissions the greatest number of miles of trail in riparian reserves (20 miles) of the action alternatives, followed by Alternatives 2 and 3 (17 miles) and Alternative 4 (16.5 miles) (Table 3-25). All of the action alternatives eliminate a large number of stream crossings (Table 3-26), reducing direct sediment inputs to streams. The highest amounts of trail decommissioning in riparian reserves in each of the action alternatives would occur in the Kane Creek (0409), Right Fork Foots Creek (0612), and Forest Creek (0206 and 0209) analysis areas (Table 3-25). In Kane Creek, however, there are existing trails on private land in the upper reaches located on granitic sand. These trails are not proposed for decommissioning and will continue to be a chronic sediment source.

All of the action alternatives, except Alternative 5, propose new trail construction, some of which is within riparian reserves (Table 3-25). However, no new trail construction would cross or parallel any perennial or fish-bearing stream channels.

Because all of the action alternatives (Alternatives 2 through 5) substantially reduce the miles of roads and trails open to OHV use (by decommissioning trails not designated for use on BLM lands) and increase law enforcement effectiveness, any of these four alternatives is expected to reduce impacts to water resources. Therefore, the potential for any of the action alternatives to contribute to adverse cumulative effects when combined with other ongoing or reasonably foreseeable actions described above is low in comparison to the No-Action Alternative. The long-term effects of implementing any action alternative would contribute to a positive cumulative effect at the watershed scale.

Table 3-24. Miles of OHV Trail Decommissioning by Analysis Area, Trail Class, and Alternative (BLM Lands Only in Planning Area)

Analysis Area Number	Miles of OHV Trail Decommissioning by Analysis Area, Alternative, and Trail Class																
	Alt. 1 Total	Alternative 2				Alternative 3				Alternative 4				Alternative 5			
		Class 1 (OHV)	Class 2 (4x4)	Class 3 (Motor-cycle)	Total	Class 1 (OHV)	Class 2 (4x4)	Class 3 (Motor-cycle)	Total	Class 1 (OHV)	Class 2 (4x4)	Class 3 (Motor-cycle)	Total	Class 1 (OHV)	Class 2 (4x4)	Class 3 (Motor-cycle)	Total
BR1206	**0**	1.68	0.53	1.42	**3.63**	1.68	0.53	1.42	**3.62**	1.74	0.53	3.06	**5.33**	1.68	0.53	1.71	**3.91**
BR1206	**0**	0.85	0.15	0.51	**1.50**	0.85	0.15	0.51	**1.50**	1.41	0.15	0.51	**2.07**	1.41	0.15	0.51	**2.07**
BR1206	**0**	0.10	0.00	0.74	**0.84**	0.10	0.00	0.74	**0.84**	0.10	0.00	0.74	**0.84**	0.10	0.00	0.74	**0.84**
BR1206	**0**	3.04	0.33	2.81	**6.18**	3.04	0.33	2.81	**6.18**	3.25	0.33	2.81	**6.39**	3.25	0.33	2.81	**6.39**
Bear Creek Watershed Total	**0**	**5.67**	**1.01**	**5.48**	**12.15**	**5.67**	**1.01**	**5.47**	**12.15**	**6.51**	**1.01**	**7.11**	**14.63**	**6.44**	**1.01**	**5.76**	**13.21**
RH0409	**0**	4.26	2.48	0.39	**7.14**	4.26	2.48	0.39	**7.14**	4.55	2.48	0.39	**7.42**	4.54	2.48	0.39	**7.42**
RH0415	**0**	4.62	1.16	0.48	**6.26**	4.62	1.16	0.48	**6.26**	5.99	1.16	2.29	**9.44**	5.45	1.16	2.29	**8.89**
RH0603	**0**	0.09	0.88	0.55	**1.52**	0.09	0.88	0.55	**1.52**	0.19	0.88	0.56	**1.63**	0.19	0.88	0.63	**1.70**
RH0606	**0**	0.05	0.00	0.00	**0.05**	0.05	0.00	0.00	**0.05**	0.05	0.00	0.22	**0.27**	0.05	0.00	0.22	**0.27**
RH0609	**0**	1.44	1.69	0.04	**3.17**	1.44	1.69	0.04	**3.17**	1.63	1.69	0.04	**3.36**	1.63	1.69	0.04	**3.36**
RH0612	**0**	2.91	3.02	1.27	**7.20**	2.71	3.02	1.48	**7.20**	2.91	3.02	1.71	**7.64**	2.91	3.02	1.71	**7.64**

Table 3-24. Miles of OHV Trail Decommissioning by Analysis Area, Trail Class, and Alternative (BLM Lands Only in Planning Area)

Analysis Area Number	Miles of OHV Trail Decommissioning by Analysis Area, Alternative, and Trail Class																
	Alt. 1 Total	Alternative 2				Alternative 3				Alternative 4				Alternative 5			
		Class 1 (OHV)	Class 2 (4x4)	Class 3 (Motor-cycle)	Total	Class 1 (OHV)	Class 2 (4x4)	Class 3 (Motor-cycle)	Total	Class 1 (OHV)	Class 2 (4x4)	Class 3 (Motor-cycle)	Total	Class 1 (OHV)	Class 2 (4x4)	Class 3 (Motor-cycle)	Total
RH0615	**0**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
RH0706	**0**	0.35	1.57	0.08	**1.99**	0.35	1.57	0.08	**1.99**	0.35	1.57	0.08	**1.99**	0.35	1.57	0.08	**1.99**
Gold Hill-Rogue River Watershed Total	**0**	**13.72**	**10.79**	**2.82**	**27.33**	**13.52**	**10.79**	**3.03**	**27.33**	**15.67**	**10.79**	**5.30**	**31.76**	**15.12**	**10.79**	**5.36**	**31.28**
AM0203	**0**	0.00	2.13	1.19	**3.32**	0.00	1.82	1.32	**3.14**	0.00	1.99	1.17	**3.16**	0.11	2.47	3.66	**6.23**
AM0206	**0**	2.86	3.02	1.45	**7.34**	2.86	3.02	1.45	**7.34**	2.86	3.02	0.71	**6.60**	1.68	3.02	4.69	**9.39**
AM0209	**0**	0.10	3.94	1.44	**5.48**	0.01	3.94	1.53	**5.48**	0.10	3.94	1.16	**5.20**	3.41	4.09	4.12	**11.61**
AM0212	**0**	0.04	0.08	0.00	**0.11**	0.04	0.08	0.00	**0.11**	0.04	0.08	0.00	**0.11**	0.04	0.08	0.10	**0.22**
AM0215	**0**	0.10	0.80	0.33	**1.23**	0.10	0.80	0.33	**1.23**	0.10	0.80	0.33	**1.23**	0.10	0.88	0.86	**1.85**
AM0221	**0**	0.11	0.13	0.61	**0.85**	0.12	0.13	0.60	**0.86**	0.11	0.13	0.61	**0.85**	0.12	0.25	0.61	**0.97**
AM0303	**0**	0.00	0.00	0.12	**0.12**	0.00	0.00	0.12	**0.12**	0.00	0.00	0.12	**0.12**	0.00	0.00	0.12	**0.12**
AM0306	**0**	2.35	0.00	0.73	**3.08**	2.42	0.00	0.72	**3.14**	2.17	0.00	0.73	**2.90**	2.64	0.58	1.46	**4.67**
AM0309	**0**	0.00	0.00	0.41	**0.41**	0.00	0.00	0.41	**0.41**	0.00	0.00	0.41	**0.41**	0.00	0.00	0.41	**0.41**

Table 3-24. Miles of OHV Trail Decommissioning by Analysis Area, Trail Class, and Alternative (BLM Lands Only in Planning Area)

Analysis Area Number	Miles of OHV Trail Decommissioning by Analysis Area, Alternative, and Trail Class																
	Alt. 1 Total	Alternative 2				Alternative 3				Alternative 4				Alternative 5			
		Class 1 (OHV)	Class 2 (4x4)	Class 3 (Motor-cycle)	Total	Class 1 (OHV)	Class 2 (4x4)	Class 3 (Motor-cycle)	Total	Class 1 (OHV)	Class 2 (4x4)	Class 3 (Motor-cycle)	Total	Class 1 (OHV)	Class 2 (4x4)	Class 3 (Motor-cycle)	Total
AM0312	**0**	0.00	0.00	0.23	**0.23**	0.00	0.00	0.23	**0.23**	0.00	0.00	0.23	**0.23**	0.00	0.00	0.24	**0.24**
AM0333	**0**	0.23	0.17	0.00	**0.40**	0.23	0.17	0.00	**0.40**	0.67	0.17	0.00	**0.83**	0.67	0.17	1.05	**1.88**
AM0512	**0**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
Middle Applegate Watershed Total	**0**	**5.80**	**10.27**	**6.49**	**22.56**	**5.79**	**9.96**	**6.70**	**22.45**	**6.06**	**10.13**	**5.46**	**21.65**	**8.76**	**11.52**	**17.31**	**37.60**
AL0106	**0**	0.08	0.02	0.00	**0.10**	0.06	0.02	0.00	**0.08**	0.08	0.02	0.00	**0.10**	0.08	0.02	0.00	**0.10**
Lower Applegate Watershed Total	**0**	**0.08**	**0.02**	**0.00**	**0.10**	**0.06**	**0.02**	**0.00**	**0.08**	**0.08**	**0.02**	**0.00**	**0.10**	**0.08**	**0.02**	**0.00**	**0.10**
TOTALS	**0**	**25.26**	**22.10**	**14.79**	**62.15**	**25.03**	**21.78**	**15.20**	**62.01**	**28.31**	**21.95**	**17.87**	**68.13**	**30.40**	**23.35**	**28.43**	**82.18**

Table 3-25. Miles of Existing and Proposed OHV Trails in Riparian Reserves and Net Reduction of OHV Trails in Riparian Reserves on BLM Lands in Planning Area by Analysis Area and Alternative.

Analysis Area Number	Miles of OHV Trails in Riparian Reserves on BLM Lands by Alternative												
	Alt. 1	Alt. 2			Alt. 3			Alt. 4			Alt. 5		
	OHV Trails	Existing Trails	Proposed Trails	Net Reduction	Existing Trails	Proposed Trails	Net Reduction	Existing Trails	Proposed Trails	Net Reduction	Existing Trails	Proposed Trails	Net Reduction
BR1206	**0.85**	0.09	0.00	**0.76**	0.10	0.00	**0.76**	0.00	0.00	**0.85**	0.09	0.00	**0.76**
BR1209	**0.32**	0.07	0.02	**0.22**	0.07	0.02	**0.22**	0.00	0.00	**0.32**	0.00	0.00	**0.32**
BR1212	**0.02**	0.00	0.00	**0.02**	0.00	0.00	**0.02**	0.00	0.00	**0.02**	0.00	0.00	**0.02**
BR1218	**0.86**	0.00	0.00	**0.86**	0.00	0.00	**0.86**	0.00	0.00	**0.86**	0.00	0.00	**0.86**
Bear Creek Watershed Total	**2.04**	**0.16**	**0.02**	**1.86**	**0.17**	**0.02**	**1.85**	**0.00**	**0.00**	**2.04**	**0.09**	**0.00**	**1.95**
RH0409	**2.00**	0.00	0.00	**2.00**	0.00	0.00	**2.00**	0.00	0.00	**2.00**	0.00	0.00	**2.00**
RH0415	**1.53**	0.09	0.03	**1.41**	0.09	0.03	**1.41**	0.00	0.00	**1.53**	0.00	0.00	**1.53**
RH0603	**0.36**	0.00	0.00	**0.36**	0.00	0.00	**0.36**	0.00	0.00	**0.36**	0.00	0.00	**0.36**
RH0606	**0.00**	0.00	0.04	**0.00**	0.00	0.04	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**
RH0609	**1.15**	0.00	0.00	**1.15**	0.00	0.00	**1.15**	0.00	0.00	**1.15**	0.00	0.00	**1.15**
RH0612	**2.05**	0.00	0.00	**2.05**	0.00	0.00	**2.05**	0.00	0.00	**2.05**	0.00	0.00	**2.05**
RH0615	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**
RH0706	**0.81**	0.00	0.00	**0.81**	0.00	0.00	**0.81**	0.00	0.00	**0.81**	0.00	0.00	**0.81**
Gold Hill-Rogue River Watershed Total	**7.90**	**0.09**	**0.07**	**7.78**	**0.09**	**0.07**	**7.78**	**0.00**	**0.00**	**7.90**	**0.00**	**0.00**	**7.90**
AM0203	**0.54**	0.13	0.26	**0.15**	0.13	0.24	**0.17**	0.15	0.24	**0.15**	0.00	0.00	**0.54**
AM0206	**5.93**	2.15	0.00	**3.78**	2.15	0.00	**3.78**	2.99	0.03	**2.90**	1.26	0.00	**4.67**
AM0209	**3.46**	0.79	0.26	**2.42**	0.79	0.26	**2.42**	0.87	0.26	**2.33**	0.00	0.00	**3.46**
AM0212	**0.11**	0.00	0.00	**0.11**	0.00	0.00	**0.11**	0.00	0.00	**0.11**	0.00	0.00	**0.11**
AM0215	**0.61**	0.19	0.29	**0.13**	0.19	0.29	**0.13**	0.19	0.29	**0.13**	0.00	0.00	**0.61**
AM0221	**0.02**	0.00	0.04	**0.00**	0.00	0.04	**0.00**	0.00	0.04	**0.00**	0.00	0.00	**0.02**

Table 3-25. Miles of Existing and Proposed OHV Trails in Riparian Reserves and Net Reduction of OHV Trails in Riparian Reserves on BLM Lands in Planning Area by Analysis Area and Alternative.

Analysis Area Number	Miles of OHV Trails in Riparian Reserves on BLM Lands by Alternative												
	Alt. 1	Alt. 2			Alt. 3			Alt. 4			Alt. 5		
	OHV Trails	Existing Trails	Proposed Trails	Net Reduction	Existing Trails	Proposed Trails	Net Reduction	Existing Trails	Proposed Trails	Net Reduction	Existing Trails	Proposed Trails	Net Reduction
AM0303	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**
AM0306	**0.94**	0.00	0.00	**0.94**	0.00	0.00	**0.94**	0.00	0.00	**0.94**	0.00	0.00	**0.94**
AM0309	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**
AM0312	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**
AM0333	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**
AM0512	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Middle Applegate Watershed Total	**11.61**	**3.25**	**0.84**	**7.54**	**3.25**	**0.82**	**7.56**	**4.21**	**0.85**	**6.57**	**1.26**	**0.00**	**10.36**
AL0106	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Lower Applegate Watershed Total	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**	0.00	0.00	**0.00**
TOTALS	**21.55**	**3.51**	**0.93**	**17.18**	**3.51**	**0.91**	**17.19**	**4.21**	**0.85**	**16.52**	**1.35**	**0.00**	**20.21**

Table 3-26. Number of Trail-Stream Crossings by Analysis Area and Alternative on BLM Lands in the Planning Area and Change in Number from Current.

Analysis Area Number	Analysis Area Name	Number of Trail-Stream Crossings by Analysis Area and Alternative on BLM Lands								
		Alt. 1 (No Action)	Alternative 2		Alternative 3		Alternative 4		Alternative 5	
			Number	Change from Current	Number	Change from Current	Number	Change from Current	Number	Change from Current
BR1206	Jackson Cr (Bear Cr) above Walker Cr	18	4	-14	4	-14	0	-18	2	-16
BR1209	Walker Cr (Jackson Cr)	19	5	-14	5	-14	0	-19	0	-19
BR1212	Jackson Cr below Walker Cr, above Bear Cr Confluence	5	0	-5	0	-5	0	-5	0	-5
BR1218	Willow Cr	33	4	-29	4	-29	0	-33	0	-33
Bear Creek Watershed Total		**75**	**13**	**-62**	**13**	**-62**	**0**	**-75**	**2**	**-73**
RH0409	Kane Cr	51	1	-50	1	-50	0	-51	0	-51
RH0415	Galls Cr	28	9	-19	9	-19	0	-28	3	-25
RH0603	Foots Cr Middle Fork, above Foots Cr Left Fork Confluence	23	0	-23	0	-23	0	-23	0	-23
RH0606	Foots Cr Left Fork, above Foots Cr Middle Fork Confluence	1	0	-1	0	-1	0	-1	0	-1
RH0609	Foots Cr below Foots Cr Middle/Left Fork Confluence, above Foots Cr Right Fork	18	0	-18	0	-18	0	-18	0	-18
RH0612	Foots Cr Right Fork	41	0	-41	0	-41	0	-41	0	-41
RH0615	Foots Cr below Foots Cr Right Fork, above Rogue River	0	0	0	0	0	0	0	0	0
RH0706	Birdseye Cr	14	0	-14	0	-14	0	-14	0	-14
Gold Hill-Rogue River Watershed Total		**176**	**10**	**-166**	**10**	**-166**	**0**	**-176**	**3**	**-173**

Table 3-26. Number of Trail-Stream Crossings by Analysis Area and Alternative on BLM Lands in the Planning Area and Change in Number from Current.

Analysis Area Number	Analysis Area Name	Number of Trail-Stream Crossings by Analysis Area and Alternative on BLM Lands								
		Alt. 1 (No Action)	Alternative 2		Alternative 3		Alternative 4		Alternative 5	
			Number	Change from Current	Number	Change from Current	Number	Change from Current	Number	Change from Current
AM0203	Forest Creek above Forest Creek Right Fork	27	27	0	23	-4	27	0	0	-27
AM0206	Forest Cr Right Fork	124	50	-74	50	-74	72	-52	38	-86
AM0209	Forest Cr below Right Fork Confluence, above Poorman Cr	51	25	-26	25	-26	25	-26	0	-51
AM0212	Poorman Cr (Applegate)	0	0	0	0	0	0	0	0	0
AM0215	Forest Cr below Poorman Cr, above Bishop Cr	19	8	-11	8	-11	8	-11	0	-19
AM0221	Forest Cr below Bishop Cr, above Applegate River Confluence	6	3	-3	3	-3	3	-3	0	-6
AM0303	Applegate River below Forest Cr, above China Gulch	0	0	0	0	0	0	0	0	0
AM0306	China Gulch	17	1	-16	1	-16	3	-14	0	-17
AM0309	Applegate River below China Gulch, above Long Gulch	0	0	0	0	0	0	0	0	0
AM0312	Long Gulch (Middle Applegate)	0	0	0	0	0	0	0	0	0
AM0333	Humbug Cr	5	5	0	5	0	4	-1	0	-5
AM0512	Slagle Cr	0	0	0	0	0	0	0	0	0
Middle Applegate Watershed Total		**249**	**119**	**-130**	**115**	**-134**	**142**	**-107**	**38**	**-211**
AL0106	Caris Creek	0	0	0	0	0	0	0	0	0
Lower Applegate Watershed Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTALS		**500**	**142**	**-358**	**138**	**-362**	**142**	**-358**	**43**	**-457**

Fish & Aquatic Habitat

Affected Environment

The Timber Mountain planning area encompasses portions of nine major catchments in the Middle Applegate, Rogue River/Gold Hill (South Rogue-Gold Hill), and Bear Creek Fifth Field Watersheds. The planning area also includes a portion of the ridge top of a fourth watershed, the Lower Applegate; however, no activities are proposed within this watershed that would interface with any stream channels. Therefore, the Lower Applegate Watershed will not be examined in further detail in the fisheries and aquatic habitat analysis. The large catchments within the planning area all have known fish-bearing stream segments, including 33.9 miles of salmonid spawning and rearing habitat located within the Timber Mountain planning area (see Table 3-27 below, and Map 3-3). Four streams (Foots, Birdseye, Galls, and Forest Creeks) are actively used as spawning and rearing habitat by coho salmon *(Oncorhynchus kisutch)*, which were listed as threatened under the Endangered Species Act (ESA) in 1997. In addition, the Rogue River tributaries of Foots, Galls, and Kane Creeks are considered to be among the most productive summer steelhead (*O. mykiss)* spawning streams in the entire Rogue River basin by the Oregon Department of Fish and Wildlife (ODFW), supporting historical spawning runs of over 1,000 fish each (Everest 1973).

Table 3-27. Fish-bearing Stream Miles by Catchment within and out of the Timber Mountain Planning Area

Catchment	Coho* River Miles	Steelhead/Rainbow River Miles	Cutthroat River Miles	Total Fish Miles within the Planning Area
Birdseye	1.5	4.5	5.8	1.1
Foots	3.8	12.2	14.5	13.5
Kane	0	4.5	5.7	3.8
Galls	2.7	6.1	7.2	7.1
Forest	4.6	5.7	12.4	8.4
Humbug	1.6	1.9	4.2	0
China	0	0.5	0.5	0
Jackson	0	7.8	7.8	0
Willow	0	2.5	2.5	0
Totals	**14.2**	**45.7**	**60.6**	**33.9**

*** Includes observed distribution or listed distribution from ODFW records (occupied Coho Critical Habitat) only, not assumed historic distribution (unoccupied Coho Critical Habitat).**

The lower reaches of the streams draining the Timber Mountain planning area have been significantly altered by land use practices such as mining and logging, road and home building, and diversion and allocation of water. Channels have been straightened and incised, reducing habitat complexity. Riparian corridors have been encroached upon by roads, residences, and in some cases agriculture practices, reducing canopy cover and increasing peak summer water temperatures. In several streams, water rights for withdrawals exceed baseline summer flows, which can lead to dewatered channels during the summer months (USDI BLM 1995, USDI BLM 2001). In addition, several streams draining lands within the planning area have been placed on the Oregon Dept. of Environmental Quality (ODEQ) 303(d) list for failing to meet water quality standards (see Water Resources, Water Quality section).

The majority of riparian habitats in good condition are located in the upper portions of these catchments within the planning area. These upper catchment basins lie primarily in forested lands managed by BLM and private

landholders. Although many miles of roads and trails bisect these areas, and mineral and timber extraction has and is occurring; riparian conditions generally are much better in these upper reaches. Habitat complexity exists in the form of natural stream channels, coarse large wood, and greater pool/riffle ratios. Riparian corridors remain relatively intact, providing shade and a source of large wood and organic material to the streams.

Some of these catchments drain areas of highly erodible granitic soils (see Soil Resources Section), which are sensitive to disturbances, including those associated with poorly located, designed, or over-used roads and trails. Granitic soils are prone to erosion, and could be sources of sediment input to the stream system during storm events (USDI BLM 2001). High amounts of fine sediment (such as decomposed granitic sand or silt) can have negative impacts to stream and aquatic organism health. This sediment can fill in pools, cover spawning gravel, and smother eggs (Meehan et al. 1991). Reduced substrate availability and complexity may decrease the diversity and quantity of aquatic organisms, upsetting the ecological balance of the stream system. Increased turbidity from high sediment amounts can disrupt feeding and territorial behavior of juvenile salmonids, which can lead to decreased growth rates and increased mortality. These effects may be far-reaching, and stream reaches many miles downstream of point-sources of sediment input (including areas designated as Coho Critical Habitat) have the potential to be negatively impacted (Meehan et al. 1991). Currently, elevated levels of sediment delivery are occurring in certain reaches in many of the drainages within the Timber Mountain planning area (see Water Resources section).

OHV use has been occurring largely unchecked in the planning area for many years, and many miles of trails now bisect each of the catchment areas (see Water Resources Section, Tables 3-15 and 3-16). OHV use in the area has increased in past years, resulting in higher trail densities, and encroachment into new areas. To date, direct degradation of aquatic habitats resulting from OHV use in the Timber Mountain planning area has been documented in each of the major catchments. In general, while there are many roads, there are few OHV trails (OHV routes not located on roads) in close proximity (i.e. parallel to or crosses the stream) to fish bearing stream channels. The majority of the OHV trails off of roads are located higher up in the drainages.

The magnitude of effects resulting from OHV use on fish and aquatic habitat vary considerably across the landscape in the Timber Mountain planning area. Many variables contribute to the observed effects, they include: frequency, season, and extent of OHV use; geology (soil types), topography, gradient, and location of trails, and whether trails are hydrologically connected to the stream network. The location of trail segments, in relation to aquatic habitats, is one of the most important factors considered when determining the probability of a particular trail to contribute to aquatic habitat degradation. The type of trail, and the amount of use it receives, may not directly influence aquatic habitats. For example, a class 3 trail segment receiving a high level of use, located on stable soils on a ridge top, would have a low probability to contribute sediment to aquatic habitats because it is not hydrologically connected to the stream network. However, a class 2 trail (i.e. old road) that parallels a large stream and crosses many tributaries is considered to be hydrologically connected and would have a high probability of impacting aquatic habitat. When this situation occurs on highly erosive soils, such as granitic soils, the risk is increased.

The type of trail (i.e. class, steepness, maintenance, etc) is also an important consideration. Class 1 and 2 trails are often located on old roads, which tend to be relatively flatter grade, and many have water drainage structures incorporated into the design of the road. Water drainage structures are important for adequately dispersing water run-off to prevent or reduce gullying and erosion. Class 3 trails are typically user created, often located on old skid trails or cable corridors, which may be located on steeper grades, and are unlikely to have water drainage structures. While the amount of disturbed ground is likely to be greater with class 1 and 2 trails (wider trail widths), rates of erosion from class 3 trails may be higher due to increased steepness and lack of adequate water drainage. This is an important consideration for assessing the current condition. However, under the action alternatives project design features are included for maintenance to resolve water drainage and trail design issues that are currently contributing to higher rates of erosion.

In summary, although generalizations can be made about roads and trails (i.e. increased density leads to increased sedimentation), they are different with respect to their potential to contribute to degradation of aquatic

habitats. The soil and water resources sections of this document include a detailed analysis of the potential for roads and trails to contribute sediment to streams. The following fisheries analysis recognizes that trails contributing sediment to aquatic habitat in headwater streams has the potential to affect downstream fish habitat (excess sediment eventually moves downstream). Special attention is given to those road/trail segments known to be directly contributing to the degradation of fisheries habitats.

The major impact of concern to fish and aquatic habitats from OHV use is fine-sediment delivery to streams, resulting in increased sedimentation and turbidity. Other potential impacts include degradation of other water quality parameters (including temperature), and reduction of riparian vegetation. These impacts are related primarily to the density and locations of roads and OHV trails within drainage basins. In general, drainages with higher road/trail densities are likely to have a greater occurrence of roads and trails that are hydrologically connected to stream channels, and hence habitats that are impacted by OHV use to a greater extent.

Direct and indirect negative impacts to fish, from fine-sediment delivery and retention, includes the potential to smother eggs while in redds and reduced opportunities for juvenile salmonids to feed as a result of increased turbidity in the water column (Meehan et al. 1991). Decreased opportunities to feed may result in reduced rates of growth and survival. In addition, reduced diversity and availability of aquatic macro-invertebrates (forage for juvenile salmonids and other aquatic organisms), as a result of habitat modification (substrate covered by a layer of fine-sediment), may further reduce feeding opportunities for aquatic organisms. Reduced growth rates, increased rates of intraspecific aggression, and increased levels of mortality to juvenile steelhead trout have been observed to be correlated with increased substrate embeddedness (Suttle et al. 2004). Negative effects to fish habitat, such as loss of spawning and rearing habitat (as riffles and pools fill in with sediment), can lead to indirect negative effects to fish populations, including reduced production of fish. Cederholm et al. (1981) found an increase in the percentage of fine sediments in spawning gravel when as little as 2.5% of a drainage basin area was covered by roads.

The use of OHV's near stream corridors increases the potential for water pollution due to spills of oil or gasoline. Although the likelihood of such a spill occurring near a water source may be low (see Water Resources section), contamination of stream water by petroleum based chemicals would likely lead to direct mortality of juvenile salmonids and other aquatic organisms at and downstream of the spill site.

Trails crossing streams, particularly active streams (intermittent and perennial channels) may be chronic point-sources of sediment input into the stream system, or may "capture" stream flow and re-route it along a segment of trail, causing rutting, erosion, and transport of fine-sediment to downstream reaches. Stream side roads and trails decrease vegetative cover, which can lead to decreases in stream-side shade, bank and ground stability, and nutrient and wood inputs. Streamside roads and trails can also increase sediment delivery to streams and increase water turbidity.

Of additional concern is the potential to change the magnitude and timing of stream flows as a result of increased road and trail densities within catchments (Meehan et al. 1991). Roads/trails that cut into side-slopes of hillsides can intercept sub-surface flow, which may then be diverted onto the road/trail surface, where it can be quickly transported into the stream system (see Water Resources section). Significant increases in peak-flows as a result of high road/trail densities may alter stream channels, increase rates of scour, and negatively impact populations of aquatic organisms.

Coho Critical and Essential Fish Habitat

On May 5, 1999, the National Oceanic and Atmospheric Association Fisheries (NOAAF) (formerly the National Marine Fisheries Service) designated Coho Critical Habitat (CCH) for the threatened Southern Oregon/Northern California (SONC) coho salmon. Critical habitat includes "all waterways, substrate, and adjacent riparian zones below longstanding, naturally impassable barriers." It further includes "those physical or biological features essential to the conservation of the species and which may require special management considerations or

protection...", including all historically accessible waters (F.R. vol. 64, no. 86, 24049). CCH is broken into occupied CCH, habitat known to support coho based on observation or historical records, and unoccupied CCH, which is habitat that is assumed to be capable of supporting populations of coho should the species be recovered. The upper distribution of unoccupied CCH is often determined by fisheries biologists, using available information and professional judgment to estimate the historical extent of coho distribution. Determinations are usually based on stream conditions such as stream size, gradient, and the presence and nature of natural barriers such as waterfalls. Lacking information regarding historical distribution of coho salmon, and in the absence of natural fish migration barriers, fisheries managers often consider unoccupied CCH to include stream reaches known to be accessible to other migratory fish, particularly to steelhead. In most cases, this document will consider unoccupied CCH to include all waters known to be accessible to steelhead trout. Portions of all nine of the major catchments encompassed by the planning area are considered CCH (Table 3-28).

Essential Fish Habitat (EFH) has been defined by NOAA fisheries as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." This definition includes all waters historically used by anadromous salmonids of commercial value (including coho salmon but not steelhead trout). EFH within the Timber Mountain planning area overlaps CCH on all streams (see table 3-28 below). More information regarding EFH may be found at: http://www.nmfs.noaa.gov/ess_fish_habitat.htm.

Table 3-28. Miles of Coho Critical and Essential Fish Habitat by stream and within the Timber Mountain Planning Area

Miles of CCH/EFH total and within OHV planning area		
Catchment	Total CCH miles	CCH miles in Planning area
Rogue River Gold Hill Watershed		
Birdseye Creek	4.5	0.2
Foots Creek	12.2	11.1
Galls Creek	6.1	6
Kane Creek	2.7	2.7
Watershed Total	**25.2**	**20**
Bear Creek Watershed		
Willow Creek	2.5	0
Jackson Creek	7.8	0
Watershed Total	**10.3**	**0**
Middle Applegate Watershed		
Forest Creek	11	6.7
China Gulch	.5	0
Humbug Creek	1.9	0
Watershed Total	**12.4**	**6.7**
Planning Area		
Total	**47.9**	**26.7**

Proper Functioning Condition

Several perennial stream reaches on BLM-managed lands within the Timber Mountain planning area have been assessed on-site for Proper Functioning Condition (PFC). PFC is a qualitative method for assessing the condition of riparian-wetland areas (USDI and USDA 1998). The PFC assessment considers hydrology, vegetation, and erosion/deposition attributes and processes to assess stream channel and riparian conditions. The assessment places riparian areas into one of four categories: Proper Functioning Condition (PFC), Functional-At Risk (FAR), Nonfunctional (NF), and unknown. The functional-at risk category is further defined by a trend: upward, downward, or not apparent. The PFC assessment describes how well physical processes are functioning within riparian/wetland areas; it is not a desired condition, nor an indicator of biological habitat suitability (USDI and USDA 1998). In other words, stream reaches that have been assessed to be PFC may not necessarily be in good

condition from a fisheries perspective. BLM assessed stream miles within the Timber Mountain planning area are displayed in Table 3-29.

Table 3-29. PFC Assessed Miles, by Watershed, within the OHV Planning Area.

Watershed	BLM Stream Miles Assessed	# Miles PFC	# Miles FAR	# Miles NF
Middle Applegate	0.38	0.38	0	0
South Rogue/Gold Hill	22.22	13.68	8.44	0.10
Bear Creek	1.38	0.58	0.70	0

BLM stream surveyors noted OHV trails impacting stream reaches and contributing to NF and FAR determinations in two reaches in each of the South/Rogue Gold Hill and Bear Creek watersheds. Very few of the Middle Applegate drainages have been assessed for PFC.

Following are descriptions of current fisheries and aquatic habitat conditions found in each watershed and their associated drainages within the Timber Mountain planning area.

Middle Applegate River Watershed

A detailed description of the entire Middle Applegate Watershed is available in the Middle Applegate Watershed Analysis, prepared by the BLM in August, 1995. Following is a description of the particular Middle Applegate catchments within the project area.

Middle Applegate River tributaries that lie within the Timber Mountain planning area include a large portion of the Forest Creek catchment, and small portions of Humbug Creek and China Gulch.

Forest Creek

Forest Creek is a 35.2 square mile, moderately steep subwatershed in the Middle Applegate River Watershed, located primarily south and east of Timber Mountain. Portions of this catchment are composed of granitic soils (see Soils Section). Flows in lower Forest Creek may be subsurface in the dry summer months, although several spring-fed pools near the mouth of the creek have been observed to retain cool water year-round. The entire catchment upstream of the Poormans Creek confluence is located within the OHV planning area.
The lower half of the subwatershed can be characterized as a relatively shallow-gradient stream channel flowing through agricultural and residential lands, including the community of Ruch. The stream parallels highway 238 for several miles below the Poormans Creek confluence, before flowing into the Applegate River.

Riparian and instream habitat conditions are severely degraded in lower Forest Creek. The stream channel is deeply incised in many places, and lacks complexity, structure, and pools. Some segments of the stream are almost completely denuded of riparian vegetation other than grasses and blackberries. Furthermore, water has been over-allocated from this stream, and withdrawals often exceed baseline summer flows, leading to de-watered channels during the irrigation season (USDI BLM 1995). Past mining operations are evident in the lower subwatershed as well. Mine tailings and dredged and re-routed channels can be found along certain segments of the creek, particularly above the town of Ruch.

Extensive gold mining operations have also impacted the upper subwatershed, as evident by the numerous piles of tailings found near the banks of Forest Creek (including both forks). Past dredging operations have significantly altered the creek channel, removed and relocated substrate, and created an impassible barrier to

upstream migration by anadromous fish. This barrier is located at river mile 4.5, just upstream of the Poormans Creek confluence (USDI BLM 1995).

Riparian habitat conditions are generally better in the upper subwatershed (upstream of Poormans Creek confluence) than in the lower, as riparian vegetation exists to help stabilize banks, provide shade to the stream, and contribute wood and other organic matter to the stream. The upper half of the sub-watershed consists of steeper headwater tributaries that feed the main stem and Right Fork of Forest Creek, located on BLM and private lands. This area is primarily managed for timber, and much of it has been harvested in the past. Roads parallel and provide access to both forks of the creek, and forest stands have been opened up by timber and thinning operations, facilitating access to many areas by OHV users. As such, there are many trails resulting in increased erosion as a result of OHV use, which has been identified as contributing to aquatic habitat degradation in the Forest Creek catchment. The main-stem of Forest Creek is bordered by a number of residences, and the stream channel itself lies entirely within private ownership, upstream of the Right Fork confluence.

The Right Fork of Forest Creek has high amounts of sediment present in the stream. Decomposed granitic sand dominates the pool substrate of BLM stream reaches AM 0206-1030, AM 0206-AM 0206-1003, AM 0206-1005, and AM 0206-1009. These four reaches are located on the Right Fork. Reach AM 0206-1023 (located on a tributary to the Right Fork) was also found to have high amounts of sediment in it. Accelerated rates of sediment delivery to these reaches likely results from impacts to upstream reaches, including erosion associated with recent timber harvest (private land), roads, and OHV trails.

Forest Creek has been listed on the Oregon Department of Environmental Quality (ODEQ) 303(d) list as not meeting dissolved oxygen content standards (see Water Resources Section).

<u>Fish and Designated Fish Habitat</u>: In spite of the generally poor habitat conditions found on Forest Creek, populations of fish persist. Coho salmon are known to spawn and rear in lower Forest Creek. Spawning coho adults have been observed to just below the highway 238 bridge crossing as recently as fall of 2001 by ODFW surveyors, and summer snorkel surveys conducted by ODFW found juvenile coho over-summering in the spring fed pools near the mouth of Forest Creek.

ODFW considers Forest Creek to provide suitable spawning and rearing habitat to coho up to river mile 4.5 (just above the Poormans Creek Confluence). Steelhead trout also migrate up Forest Creek as far as river mile 4.5, where further migration to both species is blocked by an artificial barrier composed of old mine tailings. Given the relatively flat gradient found upstream of this barrier, it is likely that the historic distribution of both steelhead and coho extended considerably farther upstream; this document will assume that distribution could have extended up both forks, to the extent of present day cutthroat trout distribution.

Cutthroat trout (*O. clarki)* have been documented as high as 2.0 miles up the Right Fork, and up to 1.9 miles up the main stem of Forest Creek (USDI BLM 1995). Presence/Absence surveys conducted by the BLM in 2003 did not document cutthroat in the Right Fork of Forest Creek on BLM administered lands, indicating a possible reduction in cutthroat distribution in this drainage (note, however, that fish distribution is not static in time, and changes in response to environmental conditions such as wet vs. drought periods). Other species likely present at times in lower reaches of Forest Creek include: redside shiner (*Richardonius balteatus)*, reticulate sculpin (*Cottus perplexus*), pacific lamprey (*Lampetra tridentata*), and during particularly wet falls, possibly fall chinook salmon (*O. tshawytscha*) near the mouth of Forest Creek.

<u>Riparian Trails:</u> There are an estimated (from GIS) about 52.5 miles of OHV trails that are not located on roads within the Forest Creek subwatershed, of which about 15 miles are within a riparian reserve width of stream channels (includes all ownerships) in the Forest Creek subwatershed. These trails include 89 crossings over active

(intermittent and perennial) stream channels, of which 75 are on BLM administered lands. The majority of the trails (11 miles) are on BLM lands within Riparian Reserves. These trail/stream crossings are point sources of sediment input to aquatic habitats. The Right Fork of Forest Creek is a popular place for OHV use. Many single-track trails take off from the 38-3-10 road, and head up-slope, away from the riparian area of the Right Fork. One trail does by-pass an old, blocked road, providing access to several trails within the Riparian Reserve on BLM-managed lands (T. 37 S., R. 3 W., Sections 34 and 27). One of these trails, located within the Riparian Reserve, parallels the stream adjacent to fish habitat (cutthroat trout) for approximately one-third of a mile and crosses the stream 4 times. However, it does not appear as if this trail receives high use. The main stem of Forest Creek above the Right Fork confluence does not appear to be as popular an OHV use area as the Right Fork. The trails here are concentrated in the upslope areas.

Humbug Creek and China Gulch

The Timber Mountain planning area includes a very small portion of the Humbug drainage, incorporating areas just below the ridge tops (drainage divide between Humbug and Foots Creeks). Less than 150 acres of the Humbug drainage lies within the management area, and the mainstem channel is not included within the proposed OHV planning area. Both the Humbug and China Gulch drainages are small, flow south through a mix of Ponderosa pine and oak woodlands, and are bordered in their lower sections by private agriculture and rural residential lands. The main-stems of both of these drainages lie almost entirely on private residential lands.

Although impacted by roads located near the stream channel, riparian habitat conditions have been described as healthy for Humbug Creek by an ODFW aquatic inventories crew in 1996. An intact riparian corridor surrounds the stream channel, providing shade, bank stability, and a source for future nutrient and wood inputs. One factor that was noted as negative in each surveyed reach of Humbug Creek was a lack of large wood (ODFW 1996). Additionally, the percent of fines recorded by surveyors throughout the fish bearing portion of the mainstem was 32 percent; ODFW considers greater than 20 percent fines undesirable to aquatic organisms. Point sources of sediment delivery to Humbug Creek have not been specifically identified; likely contributors are the roads that parallel the mainstem and Left Fork of Humbug Creek, and which are located within the riparian corridors of these channels.

Riparian and instream conditions have been described as poor for China Gulch (Rossa 2004); extensive past mining, logging, clearing of riparian areas for residences and agriculture, and high densities of roads and trails have had a severe impact on this drainage. The channel of the main-stem of China Gulch is incised and dominated by fine-sediment and clay, reducing habitat availability for aquatic organisms.

Fish and Designated Fish Habitat: ODFW considers the lower 1.6 miles of the mainstem of Humbug Creek suitable spawning and rearing habitat for coho salmon (see the following website: http://rainbow.dfw.state.or.us/nrimp/default.aspx?pn=coho_dist); this reach will be considered to be occupied CCH and EFH. Steelhead trout have been documented upstream an additional 0.1 miles of Humbug Creek, and up to river mile 0.2 in the Balls Branch, a tributary to Humbug Creek (USDI BLM 1995). Cutthroat trout presence in Humbug Creek has been verified up to approximately river mile 4.0 in the main-stem, river mile 0.35 in the Left Fork of Humbug Creek, and river mile 0.2 in the Balls Branch. Steelhead have only been documented in the lower 1/2 mile of China Gulch. Presence of other fish species in these drainages has not been documented.

Unoccupied CCH/EFH includes the additional 0.1 miles of the mainstem of Humbug Creek and 0.2 miles of Balls Branch which are known to support steelhead in the Humbug Drainage. ODFW does not consider China Gulch as suitable habitat to support spawning or rearing by coho salmon. However, lacking any data regarding historical use of this stream by coho, it will be assumed that coho could access lower reaches during periods of ample flow, and unoccupied CCH will include the lower 0.5 miles of the stream known to support steelhead.

Riparian Trails: There are an estimated 11 and 4.7 miles OHV trails not located on roads in the Humbug and China drainages, respectively. In the Humbug drainage, there are about 2.4 (1 mile on BLM) miles of trail within a Riparian Reserve width of stream channels, while in China Gulch there is approximately one mile (all BLM). No trails exist in close proximity to fish bearing channels in either drainage.

Rogue River/Gold Hill Watershed (South):

The Rogue River/Gold Hill fifth-field Watershed is divided into the north and south by the Rogue River mainstem. Only the streams on the south side of the Rogue River are included in the Timber Mountain planning area. The north side of the Rogue River/Gold Hill fifth field Watershed will not be addressed in this analysis as there would be no potential for any of the alternatives to affect aquatic habitat or fish north of the Rogue River. Following is a description of the particular Rogue River/Gold Hill drainages within the Timber Mountain planning area.

Portions of the Rogue River/Gold Hill tributaries of Birdseye, Foots, Kane, and Galls Creeks lie within the Timber Mountain planning area. These streams, with the exception of Birdseye Creek, are among the most productive summer steelhead spawning streams in the entire Rogue River basin. A study conducted by ODFW in the early 1970's, in part to quantify summer steelhead spawning habitat, classified Foots, Kane, and Galls creeks as "class 1" streams, supporting an estimated spawning population of over 1,000 fish each (Everest 1973). These streams represent three of only six streams (out of a total of 93 surveyed) in the Rogue River basin to be determined as class 1 streams.

ODFW spawning surveys have documented a trend of declining productivity in several of the streams in the watershed (fig. 3-1) with significant reductions of returning adult steelhead noted in Kane, Foots, and Galls Creek. In addition, recent presence absence surveys conducted by the BLM have documented a reduction in observed fish distribution in Kane Creek (ODFW 2002, USDI 2001, USDI 2003).

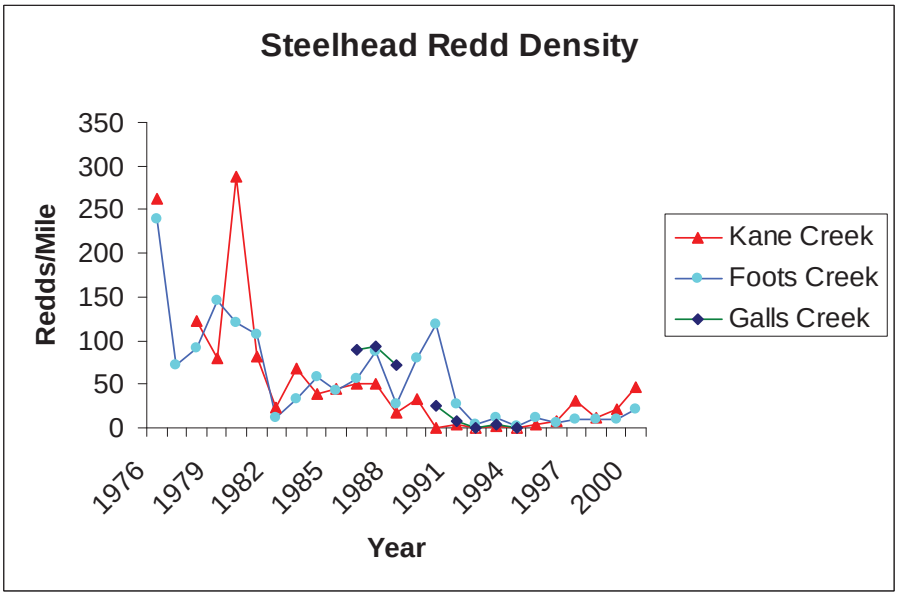


Figure 3-1. Decline of Steelhead Redd densities in Select RRGH Watershed Streams
(Data from ODFW annual steelhead redd counts and is available on-line at: http://rainbow.dfw.state.or.us/nrimp/information/index.htm)

Foots Creek

The Foots Creek subwatershed is 25.8 square miles in size, and lies adjacent (east) of the Birdseye Creek drainage basin. The creek flows north from its headwaters west of Timber Mountain for approximately 7 miles before entering the Rogue River southeast of the City of Rogue River. The entire subwatershed upstream of the mainstem and Right Fork confluence is within the Timber Mountain planning area.

The vast majority of the mainstem riparian areas and fish bearing channels on Foots Creek and its main forks are on private, residential lands. Riparian and in-stream habitat conditions throughout these lower reaches can generally be characterized as degraded. The lower subwatershed has been severely impacted by past mining activity, resulting in a dredged, down-cut channel that lacks complexity, pools, and sinuosity (USDI 2001). Piles of tailings can still be observed near the creek banks to this day.

Habitat surveys conducted by the ODFW in 1991 documented that substrate in the lower 1.7 miles of the mainstem of Foots Creek was dominated by gravel and cobble (43 percent each), and that fines accounted for 10 percent or less of all substrates present (ODFW 1991). The high percentage of gravels and low percentage of fines indicates that suitable spawning habitat is abundant through this section of the stream. Riffles were the most common habitat type, indicating a limited availability of quality rearing habitat.

Roads parallel both the left and right forks up into the steep, granitic headwaters of this drainage. Clearing of vegetation and construction of roads and residences have further constrained and channelized the creek, and have contributed to bank de-stabilization, erosion, lack of shade, and lack of coarse large wood in and near the stream. The creek channel has down-cut as much as 10 feet near its mouth, below the Highway 99 bridge-crossing.

Stream flows in lower portions of Foots Creek may be sub-surface (possibly due to irrigation withdrawals or aggraded mine tailings) in the dry summer months, resulting in dewatered channels in the lower sub-watershed (personal observation). Water rights for irrigation withdrawals do exceed base-line summer flows most years, exacerbating low or no flow conditions in the summer months, increasing water temperatures, and decreasing dissolved oxygen content (USDI BLM 2001). ODFW has identified Foots Creek as a priority for summer stream flow restoration.

Stream channel and riparian areas in the upper Left Fork of Foots Creek (upstream of the Middle Fork confluence) are in better condition. A well vegetated riparian corridor exists, providing shade and a source of coarse large wood to the creek (USDI BLM 2001). Pools are more frequent in this upper section than in lower portions of Foots Creek, adding to habitat complexity and providing important rearing habitat for juvenile salmonids and other aquatic organisms.

<u>Fish and Designated Fish Habitat:</u> Despite the altered habitat conditions that currently prevail on Foots Creek, it remains one of the most productive steelhead streams in the Rogue River Basin. In addition, federally listed "threatened" coho salmon spawn and rear in Foots Creek. ODFW records indicate that coho use the mainstem of Foots Creek, to river mile 3.8. Occupied CCH/EFH extends to this point, and includes the mainstem of Foots Creek below the forks. Coho have not been documented in the Right or Middle Forks of Foots Creek, and the ODFW does not consider the forks to be suitable spawning and rearing habitat (see the following website: http://rainbow.dfw.state.or.us/nrimp/default.aspx?pn=coho_dist). However, this document will assume that coho could have historically utilized habitat accessible to anadromous fish in the forks, and unoccupied CCH and EFH will include the 6.6 miles of stream accessible to steelhead in both the Middle and Right Forks of Foots Creek, and to river mile 5.6 on the Left Fork (including the mainstem).

Foots Creek is a very important summer steelhead spawning and rearing stream, possessing some of the highest observed densities of returning adult fish found in the entire Rogue River basin (Everest 1973). Recently, ODFW steelhead surveys conducted in the spring of 2002 found an average of 69.4 steelhead redds per mile on Foots Creek, up from the average for all years of 57 per mile (ODFW 2002). Steelhead have been documented up to river mile 3.9 (measured from the mouth of Foots Creek) on the Left Fork, up to river mile 4.1on the Right Fork, and up to river mile 2.5 on the Middle Fork.

Other species present in Foots Creek include: cutthroat and resident rainbow trout (both species distributions extend quite high up all three forks of Foots Creek), redside shiner, and reticulate sculpin.

Occupied CCH and EFH extends upstream to river mile 5.6, which includes the mainstem and continues up the Left Fork of Foots Creek. Unoccupied CCH and EFH will assume that coho were historically present to observed steelhead distribution, and include 4.1 miles up the Right Fork of Foots Creek, and 2.5 miles up the Middle Fork of Foots Creek.

Riparian Trails: Within the Foots Creek subwatershed, there are an estimated 52.5 miles of OHV trails not located on roads, of which 9.6 miles (3.6 on BLM) are within a riparian reserve width of stream channels. This includes 70 trail/stream crossings, of which 22 are on BLM-administered lands. The majority of the riparian trails are in the Right Fork of Foots Creek.

Galls Creek

The 13.3 square mile Galls Creek drainage basin lies adjacent and west of the Kane Creek drainage, and east of the Foots Creek catchment. BLM managed lands account for 44 percent of the drainage basin area, but the entire mainstem channel is within private lands. BLM managed lands do include 0.13 miles of the channel of the West Branch of Galls Creek, the only fish bearing reach in the drainage not on private lands. Nearly the entire drainage basin in contained within the OHV planning area.

Galls Creek is a perennial stream that has been observed to often have interrupted surface flow during the late summer. In September of 2005, large portions of the West Branch of Galls Creek were observed to be completely dry. It is unknown to what degree this phenomenon is natural or has been influenced by past activities within the watershed. For example, mining can lead to unnatural levels of substrate aggradations, fire exclusion may have promoted unnaturally high levels of vegetative water demands, and excessive sedimentation induced by roads and trails can increase aggradations of substrates and exacerbate sub-surface flow conditions. Galls Creek does provide spawning and early season rearing habitat for summer steelhead and coho salmon.

The lower 2.5 miles of the mainstem of Galls Creek was surveyed by the ODFW, and can be characterized as having a relatively low gradient channel (1-3 percent throughout) located in an open V-shaped valley and constrained 100 percent by terraces (ODFW 1991). Pools account for only 15 percent of all habitat units, with cobbles (54 percent) and gravels (31 percent) dominating the substrate composition. Rural residential/agriculture are the primary land uses in this lower segment (ODFW 1991). The mainstem channel continues upstream through private residential and agriculture lands for an additional two miles, to the confluence of the East and West Branches of Galls Creeks. No instream habitat data is available for this reach. The West Branch of Galls Creek is the larger of the forks, and fish use continues for approximately 1.4 miles up this fork, and an additional 0.9 miles up a major tributary to the West Branch. Lands upstream of the East and West Branch confluence are forested and managed primarily for timber by the BLM and private land holders.

OHV use is occurring in Galls Creek, and trail related erosion has been noted as contributing to instream habitat degradation to certain tributary reaches surveyed by the BLM (USDI 2005). However, the extent of use and degradation, and impacts to fisheries resources are generally much less in the Galls Creek drainage than in the adjacent Kane Creek drainage (see Kane Creek below). Pool habitats have not been observed to be impacted by excessive sedimentation in the surveyed fish bearing reaches of Galls Creek. Fine particulate substrates (including silt and sand) are reported to account for less than 10 percent of all substrates in the lower 2.5 miles of stream channel surveyed by ODFW (ODFW 1991), and 15 percent through the 0.13 mile BLM reach of the West Branch of Galls Creek (USDI 2001). The ODFW considers greater than 20 percent fines in substrate “undesirable”.

Irrigation withdrawals exceed baseline summer flows most years, exacerbating low or no flow conditions in lower stream reaches in the summer months, increasing water temperatures, and decreasing dissolved oxygen content (USDI 2001). Galls Creek has been placed on the state 303(d) list for not meeting temperature criteria (see Water Resources Section). Low/no surface flow conditions are also common in channels in the upper watershed; the BLM managed fish-bearing reach of the West Branch has been observed to be dry or puddled numerous years during the summer (USDI 2001; USDI 2002; USDI 2005).

Fish and Designated Fish Habitat: Galls Creek was also historically a major summer steelhead spawning stream in the Rogue Basin, supporting spawning runs of 1,000 adult fish (Everest 1973). Steelhead surveys conducted by ODFW between 1986 and 1994 found an eight year average of 36.4 redds per mile of stream. Numbers of redds varied each year, from a high of 186 in 1987 to 4 in 1994, with a generally declining trend apparent. Steelhead and rainbow trout distribution extends up to river mile 6.1 on the West Branch of Galls Creek. Cutthroat trout distribution has been reported to extend an additional 1.1 miles up the east fork of the West Branch of Galls Creek. Like Kane Creek, nearly the entire fish bearing section of Galls Creek is located on private lands.

ODFW considers Galls Creek to be suitable spawning and rearing habitat for coho salmon to approximately river mile 2.7. Occupied CCH and EFH will be considered to extend upstream to this point. In addition, given the absence of migration barriers to anadromous fish, this document will assume that historic use of Galls Creek by coho salmon extended farther upstream, and unoccupied CCH and EFH will be considered to extend up to river mile 6.1 (the upper extent of historically observed anadromous fish use).

Riparian Trails: There are about 15 miles of OHV trails not located on roads within the Galls Creek drainage, of which 3.1 miles (1.5 on BLM) are within a Riparian Reserve width of stream channels. There are an estimated 22 crossings over active stream channels, of which 10 are on BLM-administered lands. One class 2 trail does cross the mainstem channel of Galls Creek (steelhead habitat), and several other trail segments exist in close proximity to fish habitat as well. In addition, OHV use in the headwaters has been documented and found to be contributing to stream-habitat degradation by BLM stream surveyors.

Kane Creek

The mainstem of Kane Creek flows roughly north from its headwaters approximately 6.5 miles to its confluence with the Rogue River. The drainage basin lies adjacent to and east of the Galls Creek drainage, and encompasses 9.3 square miles. Roughly the upper fifth of this area is within the Timber Mountain planning area. BLM managed lands within the drainage account for only 18 percent of the area (USDI 2001), and 88 percent of all stream miles in the basin are encompassed by private lands.

Kane Creek is a perennial stream that has been observed to often have interrupted surface flow during the late summer. In September of 2005, the mainstem of Kane Creek was observed to be almost completely dry, with only a few very small pools containing surface water. Only stream reaches far up into the headwaters had continuous surface flow. It is unknown to what degree this phenomenon is natural or has been influenced by past activities within the watershed. Nearly the entire fish-bearing reach of Kane Creek often goes dry during the summer; therefore, it does not provide much quality summer rearing habitat, annually, for juvenile salmonids. It does provide spawning and early season rearing habitat for summer steelhead; Rogue River summer steelhead seem to be adapted, and may even prefer, to spawn in small streams that commonly dry up in the summer (Everest 1973).

Fish of many species and varying life stages would be able to access Kane Creek during periods of ample flow, including during the winter months when many species would have historically sought refuge from flood events occurring on the mainstem of the Rogue River. It is reasonable to assume that Kane Creek did and continues to provide winter habitat to salmonids (including coho salmon) and other species of aquatic organisms.

The lower 2.2 miles of the mainstem of Kane Creek was surveyed by the ODFW in 1991, and was described as having a relatively low gradient channel (1-5 percent throughout) located in an open V-shaped valley and constrained 100 percent by terraces (ODFW 1991). Pools accounted for only 14% of all habitat units, while gravel (40 percent), cobble (33 percent), and sand (19 percent) dominated the substrate composition. Rural residential development and heavy grazing were identified as the primary land uses in this lower segment of Kane Creek (ODFW 1991). The channel continues upstream through private residential and agriculture lands for an additional 2.5 miles. No instream habitat data is available for this segment of Kane Creek. At river mile 4.7, the channel continues upstream through BLM managed lands for roughly 0.5 miles, and above this the headwater reaches of Kane Creek are encompassed by private industrial timber lands.

The segment of Kane Creek that flows through BLM managed land has a moderate gradient (5-8 percent) channel located in a narrow and steep valley. Pool habitat is limited to an occasional plunge pool. Aquatic habitat is very poor due to excessive sediment deposition throughout this reach. Decomposed granitic sand accounts for 80-100 percent of all substrates in pool habitats, with deposits as much as 10 inches in depth observed (USDI 2005). The pools have accumulated so much sand (see photo #1 below) that many of them no longer function as pools. Many of the riffle areas have excessive amounts of deposited sand as well. This situation appears to be declining; in 2001 substrate composition throughout this reach was described as 10 percent silt, 30 percent sand, 25 percent gravel, 25 percent cobble, and 10 percent boulder (USDI 2001). This same reach was surveyed using the same protocol in September of 2005, and substrate composition was found to have changed dramatically, as decomposed granitic sand now accounts for 69 percent of all substrates, followed by cobble (13 percent) and boulder (10 percent) (USDI 2005). Suitable aquatic habitat capable of supporting populations of salmonids has been greatly reduced in this section of Kane Creek due to the large accumulation of sand. The deposition of sediment (granitic sand) throughout this reach is so extensive, that the reach is no longer capable of storing any additional inputs; hence additional inputs will be transported downstream to other aquatic habitats and stored where conditions permit, potentially impacting the entire fish bearing reach of Kane Creek.

As described in the water resources section of this document, road densities within this basin are very high, and they are a contributing factor to the high levels of sediment loading that are impacting fish and aquatic habitat in the Kane Creek drainage. Channels in the Kane Creek drainage are receiving sediment inputs from older poorly designed and/or located roads, also used by OHVs, on both private and federal land. The roads (which are no longer accessible to full size vehicles) are located on areas of highly erodible granitic soils. Access to these roads is from BLM-managed land and other private land further up the basin. Trails have been observed to capture and divert stream flow resulting in accelerated rates of erosion and enabling direct transport of sediment to aquatic habitats in Kane Creek.

In 2007, about 1,525 acres of BLM-administered land in the Kane Creek drainage were temporarily closed to OHV use due to increased sediment impacts on Kane Creek. The Kane Creek area closure remains in effect until measures are implemented to correct and prevent reoccurrence of resource degradation (43 CFR 8341.2). No active restoration has occurred in the 1,525-acre closure area in the Kane Creek drainage.

Surface water rights in Kane Creek exceed base low flows, and water withdrawals are capable of dewatering Kane Creek during the summer months (USDI 2001). It is not known to what degree these withdrawals may influence the no surface flow conditions that persist throughout the summer months in lower reaches of Kane Creek. The points of diversion are located below the section of Kane Creek that flows through BLM lands, so flows through this section should not be influenced by these withdrawals. Yet this section has often been observed to be devoid of surface flow during the summer.

Figure 3-2. Reach RH 0409:321 of Kane Creek, Dominated by Decomposed Granite (winter 2002)

Fish and Designated Fish Habitat: Kane Creek was historically one of the more important summer steelhead spawning streams in the Rogue Basin, capable of supporting 1,000 spawning fish annually (Everest 1973). Recently, ODFW steelhead surveys conducted in 2002 estimated densities of 28.8 steelhead redds per mile, down from the 25 year average of 45.5 redds per mile (ODFW 2002). A declining trend in steelhead redd abundance is apparent in Kane Creek over the past 25 years (see chart one). The upper-extent of use by steelhead has been identified to be up to around river mile 4.5 on Kane Creek (USDI 2001).

In addition to the migratory steelhead, resident rainbow and cutthroat trout also reside in Kane Creek. Rainbow trout distribution historically extended up to river mile 4.5, and cutthroat trout to river mile 5.7. Presence/Absence surveys conducted by the BLM in the early spring of 2003 did not document any species of fish in Kane Creek from approximately river mile 4.9 and up (USDI 2003). Downstream habitats located on private land were not surveyed. Visual surveys of this same reach of Kane Creek in the summer of 2005 found the channel to be dry (USDI 2005), and obviously void of fish. It is possible that fish use this upper reach of Kane Creek only during periods of high flow, or that they have been extirpated from this reach due to habitat degradation. The vast majority of the historically observed fish bearing section of Kane Creek is located on private lands.

Coho salmon have not been documented in Kane Creek, and ODFW records do not indicate that Kane Creek is considered suitable habitat for migration, spawning or rearing for coho (see the following website: http://rainbow.dfw.state.or.us/nrimp/default.aspx?pn=coho_dist). However, given the size, low gradient, and lack of natural barriers, it is very likely that Kane Creek was historically accessible to coho salmon. For the purposes of this document, Kane Creek will be considered to be unoccupied CCH and EFH from its mouth upstream to observed historic anadromous fish distribution (river mile 4.5).

Riparian Trails: Within the Kane Creek drainage, there are an estimated 14.1 miles of OHV trails (not located on roads), of which 5 miles exist within a Riparian Reserve width of stream channels, and includes 38 crossings over active stream channels. Of these trails, roughly 2 miles are on BLM administered lands. Several trails, originating from the BLM road located in T. 37 S., R. 3 W., section 11 (SW of the SE 1/4), proceed onto private timber lands, are located within riparian corridors of Kane Creek and tributaries, and show signs of significant erosion. Deep ruts and captured stream flow were observed on an old road and nearby single-track trail. These trails, which are located in areas of granitic soil, are chronic sources of sediment delivery to Kane Creek during rain events.

Birdseye Creek

The 4,681-acre Birdseye Creek drainage basin lies west of the Foots Creek and east of the Scheffelin Gulch drainages. BLM managed lands account for 53 percent of the drainage, but the majority of the fish bearing channels (95 percent) are within private lands. BLM-managed lands do include two segments totaling 0.3 miles of fish-bearing channel of the mainstem of Birdseye Creek, above the Left Fork Confluence. Small portions of the main-stem and the majority of the left fork of Birdseye Creek lie within the Timber Mountain planning area.

The main-stem of Birdseye Creek below the forks is surrounded by private residential and agricultural lands. Birdseye Creek road is well removed from the riparian corridor throughout this lower stream segment. Above the forks, a well vegetated riparian corridor dominated by mature alder, Big Leaf maple, and young to old Douglas fir and Ponderosa pine surrounds the Left Fork and lower main-stem of Birdseye Creek. Large cobble and gravel are prominent in the Left Fork, but BLM surveyors noted that fines and sand did comprise from 30-60 percent of all substrates in three surveyed reaches of the perennial channel. Fine substrate and decomposed granitic sand comprises 30-70 percent of the substrate in middle reaches of the main-stem (USDI 2003). The percentage of fines and sand found throughout this drainage are high, above the ODFW benchmark 20 percent, and likely result from past management activities, particularly road building and past riparian harvest.

The upper main-stem of Birdseye Creek (from T. 37 S., R. 4 W., Section 5 and upstream) flows through a large area that was burned and subsequently salvage-logged in 1987/1988. Granitic soils are found in this area. Vegetation throughout this entire section is composed of young re-planted conifers and various brushy species. Very few large trees may be found in the riparian corridor. ODFW presence/absence surveyors noted granitic sands and sediment as the dominant substrates in upper Birdseye Creek, reducing the quality of fish and aquatic organism habitat (ODFW 2001). The high amounts of sand and sediment in this section of stream are likely a result of the large fire and logging operations that have impacted this portion of the drainage.

Large wood (greater than 24 inches diameter) is generally lacking in the drainage; BLM surveyors tallied only 22 pieces in 1.3 miles of perennial mainstem channels (includes mainstem and Left Fork of Birdseye Creek) surveyed. This would equate to about 1 piece per 100 meters of stream, well below the ODFW benchmark of 3 “key” pieces (roughly equivalent to 24 inches diameter) per 100 meters.

Water withdrawals for irrigation can exceed natural stream flow on Birdseye Creek, leading to de-watered channels, particularly in the lower mile of the creek. ODFW has identified Birdseye Creek as a priority for summer stream flow restoration (USDI BLM 2001). In addition, Birdseye Creek has been placed on the ODEQ’s 303(d) list for exceeding instream summer temperature criteria (see the Water Resources Section).

Fish and Designated Habitat: ODFW considers Birdseye Creek to be suitable spawning and rearing habitat for coho salmon to approximately river mile 1.5. Occupied CCH and EFH will be considered to extend upstream to this point. In addition, given the absence of migration barriers to anadromous fish, this document will assume that historic use of Birdseye Creek by coho salmon extended farther upstream, and unoccupied CCH and EFH will be considered to extend an additional 1.6 miles up the mainstem, to river mile 4.2, and 0.3 river miles up the Left Fork of Birdseye Creek, the upper extent of historically observed anadromous fish use.

Steelhead and cutthroat trout distributions were documented in the main-stem of Birdseye Creek to river mile 4.3 in 2001 by ODFW presence/absence surveyors. Steelhead and Cutthroat trout have been found up to 0.3 and 1.5 miles (respectively) up the Left Fork of Birdseye (USDI BLM 2001). Presence of other fish species has not been verified, but likely includes sculpins, red-sided shiners, and lamprey, especially in lower stream reaches.

There is currently an old culvert located on the mainstem of Birdseye Creek (T. 37 S., R. 4 W., at the intersection of sections 16 and 17) that is perched and plugged on the upstream end of the pipe that is a complete barrier to fish passage at this time. This culvert is located on the 4.3 spur, a closed road about 2 miles upstream of the confluence of the mainstem and Left Fork of Birdseye Creek, within the range of steelhead and unoccupied CCH.

Riparian Trails: In the Birdseye drainage, there is approximately 4.2 miles of OHV trails (not located on roads), 1.2 miles in riparian areas (0.8 on BLM-managed land). There are only eleven identified trail/stream crossings, of which 9 are located on BLM-administered lands. One road, road 37S-04W-4.02, although closed to full sized vehicles, is used by OHV riders. The road parallels the Left Fork of Birdseye Creek and exists within the Riparian Reserve for about three quarters of a mile. This natural surface road crosses 6 intermittent and three perennial channels. One of the perennial crossings, located approximately 2 miles upstream of the upper extent of fish in the drainage, is in the process of failing, as evidenced by a plugged undersized culvert, and large rut on the road which routes captured flow and displaced road fill (in the form of fine sediment) down the road and back into the Left Fork. This road/trail is a chronic source of sediment directly to the Left Fork of Birdseye Creek, and excessive sedimentation of pool habitats has been observed downstream of the road crossing. It is the failing culvert rather than use by OHVs that is the primary mechanism by which sediment is being routed into the aquatic system from this road/trail.

Bear Creek Watershed

A detailed description of the Bear Creek Watershed is available in the Bear Creek Watershed Assessment, prepared by the Rogue Valley Council of Governors in 2003. Following is a description of the particular Bear Creek drainages within the project area.

Two major channels, Jackson and Willow Creeks, flow from the Timber Mountain planning area into the Bear Creek Watershed.

Jackson Creek

Jackson Creek drains 16,139 acres of lands located east of Timber Mountain. The creek flows east through the City of Jacksonville, and then heads north to its confluence with Bear Creek. The upper third of the subwatershed is within the Timber Mountain planning area, and the majority of the drainage lies within private ownership. Jackson Creek has been placed on the 303(d) list by ODEQ as failing to meet water temperature and fecal coliform criteria (see Water Resources section).

Jackson Creek is highly degraded along almost its entire length, and is the most altered stream within the analysis area. Historic extensive mining in the drainage resulted in many tons of substrate being turned over and removed from stream channels, and tailings piles still line many channels. Currently, the lower two thirds of the mainstem channel are paralleled by rural highways and sub-divisions that now constrain the creek, and have led to severely down-cut channels (up to 15 feet) in some places (RVCOG 2003). Riparian and in-stream habitat conditions resemble a road side ditch in this section. The stream has very few pools, no meander or channel complexity, and riparian vegetation is composed primarily of blackberry vines. Numerous road crossings and diversion structures act as man-made barriers to fish passage in this lower portion of Jackson Creek.

Conditions improve little upstream of the City of Jacksonville, as roads follow Jackson Creek and its major tributaries far up into the headwaters of this subwatershed. Jacksonville Reservoir lies 1.5 miles upstream of the town of Jacksonville, and the creek enters this reservoir through a sand delta that is devoid of any vegetation. Although the dam is a complete passage barrier to any fish species present to this point (none have been documented in recent years), Jacksonville Reservoir does act as a sediment trap, helping to block downstream delivery of fine sediment particles to lower reaches of Jackson Creek (fig. 3-3).

Figure 3-3. Jackson Creek as it enters Jacksonville Reservoir, Large Deposits of Granitic Sand (winter 2002)

The area from the reservoir up into the headwaters received heavy OHV use historically, and continues to, receive some OHV use. The City of Jacksonville has worked to prevent off-road OHV use on City of Jacksonville forest land, pending the completion of a recreation plan. Pockets of granitic soils (see Soil Resource section) are common in this area, and high levels of erosion are occurring due to heavy OHV use in previous years on granitic soils. While OHV use has been more regulated on City lands over the past year or two, erosion is still occurring as a result of past heavy use.

Riparian corridors in general are more intact in the upper portion of the watershed, as the stream flows through mixed hardwood/conifer forests. However, several riparian reaches have been heavily impacted by OHV use.

Fish and Designated Habitat: Fish use in Jackson Creek is currently limited to the lower 4.4 miles of the mainstem, and approximately 3.4 miles of tributaries due to constructed passage barriers (ODFW 1999). This is roughly six miles downstream of the Timber Mountain planning area. Sculpin, steelhead, rainbow, and cutthroat trout have been documented in this lower portion of Jackson Creek. Coho salmon have not been documented in Jackson Creek, and ODFW records do not show Jackson Creek as being considered suitable spawning and rearing habitat, but it is highly probable that they were historically present in lower reaches, given the flat gradient and the size of the stream.

Riparian Trails: There are over 38 miles of OHV trails not located on roads in the Jackson Creek subwatershed. Approximately 14.6 miles exist within a Riparian Reserve width of stream channels, of which 1.2 miles are on BLM managed lands. There are 132 identified trail crossings over active stream channels, of which 6 are located on BLM-administered lands. Many of these trails have been observed to be contributing to excessive sediment input into the Jackson Creek subwatershed. As the nearest fish populations are many miles downstream of the Jacksonville Reservoir, there are no trails in close proximity to fish habitat.

Willow Creek

Willow Creek, and its major tributary, Lane Creek, drain the extreme northeast corner of the Timber Mountain planning area. Only the uppermost portion of this small drainage (9.5 square miles) lies within the planning area. The majority of this drainage area is composed of private lands.

Fish and riparian habitat in Willow Creek are poor below the Lane/Willow confluence, lacking pools and channel complexity. Substrate is composed primarily of silt, and riparian vegetation consists primarily of blackberry vines (ODFW 1999), as the stream flows through privately owned agricultural lands.

Above the confluence of Willow and Lane Creeks, riparian habitat conditions improve. Lane Creek's main-stem was determined to be in Properly Functioning Condition as it flows through BLM land (reach BR 1221: 1703) approximately 0.5 mile below the OHV planning area. A high pool to riffle ratio exists as the stream flows through an intact riparian reserve. Substrate in this reach is dominated by the presence of decomposed granitic sand, a possible indicator of erosion occurring in up-stream reaches.

Both Willow and Lane Creeks were found to have summer water temperatures that exceed the 303 (d) list criteria (RVCOG 2003). See Water Resources Section for more detail.

Fish and Designated Habitat: Anadromous fish use in Willow Creek includes only the lower 2.5 miles of stream. Steelhead and rainbow trout are the only native species of fish ever documented in Willow Creek. Some non-native sunfish may access lower portions of the creek from privately stocked ponds (RVCOG 2003). Rainbow trout may be found as high as river mile 3.5.

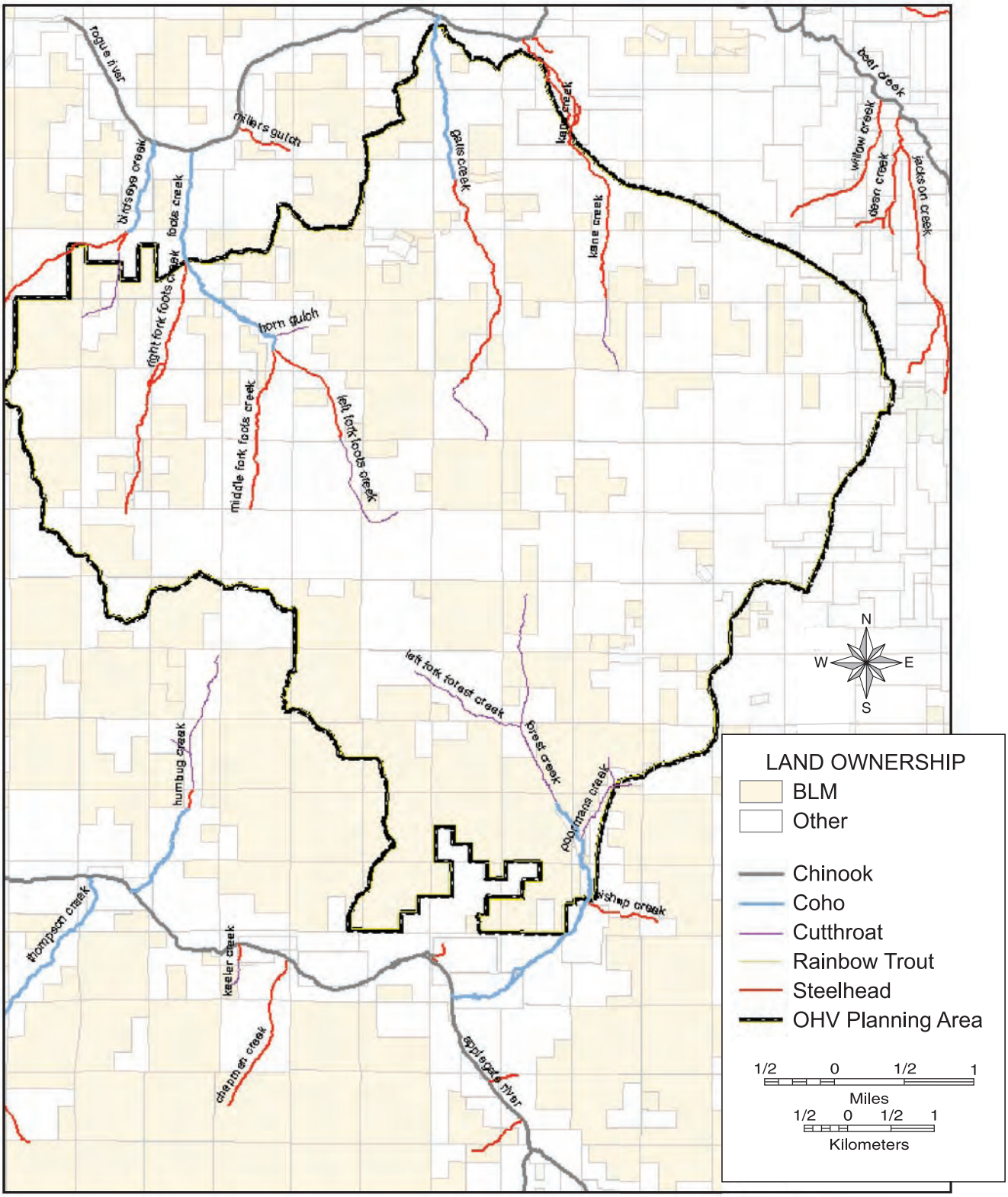
Riparian Trails: In the Willow Creek drainage, there are over 18 miles of OHV trails not located on roads; 6.7 miles are in riparian areas, of which 0.9 miles are on BLM lands. Forty-seven crossings over active channels have been identified, of which 10 are located on BLM-administered lands. As the nearest populations of fish are many miles downstream, no trails are in the vicinity of fish habitat. However, there is a documented network of trails that exist near channels in granitic soils, and excessive sedimentation of aquatic habitats is occurring in the drainage.

Aquatic Habitat Current Condition Summary

Fisheries and aquatic habitat has been degraded from a host of past and ongoing activities in each of the three watersheds.

- There are nearly 60 miles of documented OHV trails (not located on roads) in riparian areas within the planning area, of which 22 miles are on BLM administered lands.
- Highly elevated levels of sediment have been found to be impacting aquatic habitat in Birdseye, Kane, Willow, Jackson, and Forest Creeks, and in China Gulch. OHV use has been identified as contributing to increased sediment delivery and retention in all of these streams, except for the Birdseye Creek drainage.
- Impacts in the Birdseye Creek drainage are primarily the result of the 1987 wildfire and subsequent salvaging, which increased road densities and removed potential future wood delivery to the stream channel. Additionally, the failure of an old culvert on a closed road is contributing sediment to Birdseye Creek.
- Moderately elevated levels of sediment have been found to be impacting fish habitat in Humbug Creek, and sediment levels were found to be within desirable levels in the Foots and Galls Creek catchments.
- Impacts occurring to Jackson Creek as a result of OHV use are less likely to impact fish, as Jacksonville Reservoir acts as a large sediment trap, keeping much of the mobilized sediments from reaching downstream habitats used by fish.
- Fish habitat is highly degraded in Kane Creek where pools and riffles are completely clogged by deep deposits of granitic sand. A combination of older poorly designed roads and OHV use is contributing to sediment levels in Kane Creek.
- Degraded habitat conditions in Kane Creek are likely contributing to a reduction in fish distribution in the previously occupied uppermost reaches of the stream. Similar conditions are apparent in the Right Fork of Forest Creek, although to a lesser extent.

Map 3-3. Fish Distribution for Streams within or Adjacent to the Timber Mountain Planning Area



Environmental Consequences

The following analysis of effects disclosed for each of the alternatives is based on the description of alternatives included in Chapter 2, Alternatives. The consideration of ongoing and reasonable foreseeable actions described below was also considered in this analysis.

Consideration of Ongoing and Foreseeable Future Actions

The effects analysis also includes an assessment of the cumulative impacts of the direct/indirect effects of the alternatives when added incrementally to past, present, and reasonably foreseeable actions. This section will present reasonably foreseeable future actions that were considered in the analysis of cumulative impacts to fisheries resources.

Galls/Foot China/Keeler, and Birdseye Timber Sales: If implemented, the Galls/Foot (proposed in the Foots and Galls Creek drainages), China Keeler (China Gulch), and the Birdseye (Birdseye Creek and Scheffelin Gulch) timber sales are not anticipated to result in any measurable effects at the outlets of the drainages. Detailed effects of implementing the Galls Foot and China Keeler timber sales are disclosed in Galls Foot and China Keeler project EAs (available online at http://www.blm.gov/or/index.php). The Birdseye timber sale environmental analysis is in progress; the EA is anticipated to be released for public review in 2009.

Of main concern to fisheries and aquatic resources would be the addition of up to an estimated 17 cubic yards of sediment to stream channels upstream of known fish distribution. The effects would be spread out primarily amongst four drainages (Birdseye Creek, Galls Creek and Left and Right Forks of Foots Creek). Sediment additions would occur primarily as a result of decommissioning riparian roads and removing associated drainage structures (such as culverts) that are currently chronic sources of sediment input to these drainages. Sediment released into the channels upstream of fish habitat would slowly be released as episodic pulses to fish habitat, or be transported quickly through fish habitat during a flood event as a pulse of turbidity that would not be detectable beyond expected turbidity levels from other sources occurring during such an event. The amount of sediment released to channels from road decommissioning would be much less than the amount released over the life of the riparian roads should they not be decommissioned. Road density would be decreased in the Birdseye drainage by 2 miles as a result of planned decommissioning of three riparian road segments, and the net of all road work proposed in the Galls Creek drainage would lead to a decrease of 0.9 miles. In the Foots Creek drainage, the net of all proposed road work would lead to an increase of 1.2 miles. All new road construction would occur in upslope areas, out of Riparian Reserves, while several miles of riparian roads would be decommissioned. Very little tractor harvest is proposed under any of these timber sales, but accessible openings created by any removal of vegetation would be susceptible to new use by OHVs, particularly the new roads and yarding corridors. As no harvest or road construction is planned in Riparian Reserves, new trails created in openings resulting from actions occurring under these timber sales would not have direct connectivity to stream channels, minimizing the potential of any newly created user trails to contribute sediment to stream channels.

Private Timber Harvest: Future timber harvest on private lands would likely occur within the watersheds. The water resources analysis of this EIS addresses future timber harvest on private lands, and assumes that it will continue to occur at a similar rate as has occurred in the past, with similar effects to aquatic habitats. Private lands are governed under state forestry regulations, and as such receive a different level of protection than federal lands. Analysis of effects from private timber harvest generally considers the worst case scenario (i.e. all suitable forested lands would be logged at about 60 year tree-growing rotations). At this time, it is not known when or where private timber harvest will occur in the watersheds. This analysis will assume that all suitable private lands will continue to be subject to timber harvest, and that the amount of disturbance to aquatic systems as a result of this harvest will continue similar to present rates.

Future Fuels Treatments: Many acres of fuel treatments are tentatively planned in the planning area. Fuels treatments would leave riparian buffers, require minimal ground disturbance, and would not remove trees larger than 7 inches diameter. Fire lines would be waterbarred and rehabilitated after ignition operations were

completed. Canopy levels would not be reduced by treatments, nor would ground compaction increase. The only effect fuels treatments may have to fisheries resources is a possible increase in ground water storage and subsequent release to streams throughout the dry season. However, any extra water available is likely to be utilized by remaining vegetation before entering stream channels. For these reasons, fuels treatments are not expected to directly impact fisheries resources. Treated areas would be at increased risk for new OHV use, particularly where fuels units have connectivity with roads or existing OHV trails.

Effects of Alternative 1 (No-Action)

Under this alternative, OHV use in the planning area would continue under the current management situation (see Chapter 2), with an estimated at 375.8 miles of trails and roads used by OHVs, across all ownerships. This alternative assumes that funding opportunities for increasing law enforcement would be limited without a plan in place to guide the management of OHV use. Additionally, the large number and miles of OHV routes (an estimated 376 miles) extensive use patterns, and inadequate signing would hamper the effectiveness of current law enforcement patrols. While no new trails are planned to be constructed, the risk for user created trails would be much higher than the action alternatives. No reduction in trail density would occur.

The effects to fish and aquatic habitat currently occurring as a result of OHV use in each of the catchments have been described above. Should this alternative be selected, it is anticipated that the magnitude of impacts would increase over time, as the trend in increasing popularity of OHV riding would likely continue (see Recreation section). Trail densities and related erosion to aquatic habitats appears to have increased dramatically in the planning area in the last several decades, as evidenced by BLM surveys, which have documented substantial increases in new trails in the vicinity of stream channels. It is expected that this trend would continue, leading to accelerated rates of trail erosion. This would lead to further increases in sediment delivery to aquatic habitats. It is not known exactly where new trails would likely be created, or how increasing use would concentrate or disperse the use, but several assumptions appear valid: 1) New openings, roads, skid trails, etc. created on either private or public lands would be vulnerable to use (i.e. user created new trails). 2) It is probable that areas in close proximity to currently popular or heavy use areas would initially be the most impacted by new use. 3) As use increases, people will actively seek out less crowded areas. This would likely lead to increased use and new trails in areas currently not receiving high levels of use, such as Foots Creek. Any new openings created in these less used catchments (from a future timber sale, for example) would then be at elevated risk of being utilized by OHVs.

Assuming that the Galls Foot and Birdseye timber sales are implemented in the future, and that private lands in the area will continue to be managed for timber harvest, it would be expected that increased use and increased trail densities would be observed in the Galls, Foots, and Birdseye Creek catchment basins. Similarly, future planned and/or occurring fuels treatments in these catchments are likely to facilitate increased OHV trail development by reducing vegetative cover and opening stands, making them more readily accessible to OHV use. This phenomenon has been observed in the Forest Creek subwatershed, where an increase in OHV use is apparent in past treatment areas. New OHV use in future timber sale or fuels treatment units would lead to accelerated rates of erosion. However, it may or may not affect aquatic habitats based on location and site conditions.

Creation of new trails that are hydrologically connected to stream channels would increase the risk for contributing sediment to aquatic habitats. New trails (and existing trails and roads) with hydrologic connectivity with channels would be chronic sources of sediment input to those channels; hence any sediment inputs would lead to growing accumulations of sediment in aquatic habitats. As sedimentation of upstream habitats increased, pulses of stored sediment would eventually begin to migrate to fish bearing reaches. This would lead to further declines in fish habitat and productivity, on top of the degradation that has already occurred as a result of past and ongoing activities within the watersheds and individual catchments. This is particularly concerning to fisheries resources since Foots and Galls Creeks have the best remaining habitats of all the drainages in the OHV

planning area. Both of these streams still provide quality habitat to SONC coho, and they are both very important summer steelhead spawning streams.

In summary, it is anticipated that the trend in declining fish and aquatic habitat that has been apparent within the planning area would continue under the current management situation. Cumulatively, with planned timber sales and fuels treatments proposed in the Galls, Foots, and Birdseye catchment basins; these three streams would be particularly vulnerable to increased OHV use and associated accelerated rates of erosion and habitat degradation.

Effects of the Action Alternatives

The action alternatives, though all different in their aim and scope, do have some common elements and outcomes. All action alternatives would reduce the amount of roads and trails open to OHV use, including substantial reductions in Riparian Reserve trails (Table 3-30). The decommissioning of trails on BLM-administered lands would occur under all action alternatives, which would be expected to reduce impacts occurring to aquatic habitats as a result of OHV use.

Although each alternative would designate areas open to OHV use and by definition all other areas would then be closed, the analysis of alternatives does not include trail decommissioning on private land. However, the selection of any of the action alternatives would not preclude pursuing future opportunities to work with adjacent private land owners to decommission and restore watershed conditions. Where trail densities are not reduced, benefits to fish and aquatic habitat would be expected to be less than in drainages where trail densities are actively reduced through decommissioning with selection of an action alternative. Selection of any of the action alternatives would represent a beneficial effect to aquatic habitats, to some degree, to each of the catchments within the planning area.

Existing trails proposed for management would be maintained to ensure adequate water drainage and reduce gullying and erosion. Required Project Design Features would include, but are not limited to, the installation of water bars, use of hardened crossings or bridges for any trails that cross stream channels, hardening of trail surfaces for all trails with a grade over 20 percent, and site specific installation of sediment catchments that would be constructed at the downslope end of trails to catch and store mobilized sediment. See Chapter 2, Project Design Features for more detail.

Additionally, trails on BLM lands not proposed to be designated open would be decommissioned in some manner. Decommissioning may be accomplished by “natural” means, where the trail is simply barricaded or blocked by some fashion, and allowed to revegetate naturally, or by roughing up the surface and seeding or planting vegetation. Water drainage structures would be incorporated as needed to reduce surface flow and erosion. Natural trail decommissioning involves very little ground disturbance and has little to no risk to increase erosion and sedimentation rates. Decommissioning with mechanized equipment (roughing the surface, ripping, barricading, installation of drain-dips, out-sloping, etc.) would involve more initial ground disturbance, which could potentially lead to short term increases in sediment transport down the trail, increasing risk of sediment deposition to aquatic habitats. However, water drainage control devices would be employed diverting the majority of displaced sediments off the trail prism, onto downslope areas where existing vegetation and forest debris would filter sediment from water run-off. Decommissioning trails with direct connectivity with stream channels, such as at trail/stream crossings, would result in some sediment reaching the stream channels. Inputs would be greatest the first year following the ground disturbing activities, and would rapidly diminish in following years as vegetation establishes itself on the old trail prisms. The short-term increases in sediment following trail decommissioning would be less than annual inputs contributed to streams from the existing trails, and over time, chronic sources of sediment input into aquatic habitat would be eliminated. The implementation of required Project Design Features would minimize the amount of sediment reaching the channel during and following project implementation (see Chapter 2, Project Design Features).

Drainages with higher trail densities in and near Riparian Reserves on BLM lands would benefit the most from trail decommissioning; it is in these drainages that a higher percentage of trail/stream crossings would be

eliminated, and hence more point sources of sediment to aquatic habitat eliminated. Aquatic habitat in the Rogue River-Gold Hill and Middle Applegate Watershed streams would benefit the greatest from trail decommissioning proposed under the action alternatives (see Tables 3-30 and 3-31 below), while conditions in Jackson and Willow Creeks would likely remain relatively unchanged. Alternatives 2 and 3 propose roughly the same amount of decommissioning (see Chapter 2), while Alternatives 4 and 5 propose considerably more.

Trails located on private lands in the pocket of granitic sand in upper reaches of Kane Creek are not currently proposed to be decommissioned under any alternative, but access to these trails would be somewhat limited as trails providing access from BLM lands would be decommissioned. However, other routes from private lands to this area would still provide access. Given the extensive rutting that has already occurred, even if use of the area decreased, ongoing erosion would still contribute sediment to Kane Creek and continue to impact aquatic habitat. Those trails that contribute sediment to Kane Creek will continue to be a source of sediment for some time unless actively restored.

All of the action alternatives, except for Alternative 5, propose new trail construction, some of which would occur in Riparian Reserves. No new trail construction would cross or parallel any perennial or fish bearing stream channels. Because of this, stream temperatures would have no probability of being increased as a result of any of the new trail construction under any of the action alternatives.

To summarize, sediment inputs to fish and aquatic habitat (including CCH and EFH) would be expected to be considerably reduced as a result of the trail decommissioning (particularly the Riparian Reserve trails with direct hydrological connectivity) on BLM-administered lands, and trail maintenance on all trails proposed to be managed for OHV use under the action alternatives.

Table 3-30. Miles of trails (not located on roads) in Riparian Reserves on BLM lands in the Planning Area

Miles of OHV Trails in Riparian Reserves (& not on roads) by Alternative					
Catchment	No Action Alternative	Alternative 2	Alternative 3	Alternative 4	Alternative 5
South Rogue - Gold Hill Watershed					
Birdseye Creek	0.8	0	0	0	0
Foots Creek	3.6	0.1	0.1	0	0
Galls Creek	1.5	0.1	0.1	0	0
Kane Creek	2	0	0	0	0
Watershed Total	**7.9**	**0.2**	**0.2**	**0**	**0**
Bear Creek Watershed					
Willow Creek	0.9	0	0	0	0
Jackson Creek	1.2	0.2	0.2	0	0.1
Watershed Total	**2.1**	**0.2**	**0.2**	**0**	**0.1**
Middle Applegate Watershed					
Forest Creek	11	4.1	4.1	5.1	1.3
China Gulch	1	0	0	0	0
Humbug Creek	0	0	0	0	0
Watershed Total	**12**	**4.1**	**4.1**	**5.1**	**1.3**
Planning Area					
Total	**22**	**4.5**	**4.5**	**5.1**	**1.4**

Note: Table includes miles of proposed new riparian trail on BLM lands for the Action Alternatives.

Table 3-31: Number of Trail/Stream Crossings within the Planning Area for all Ownerships

Number of trail/stream channel crossings by alternative, all ownerships					
Catchment	No Action Alternative	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Rogue River Gold Hill Watershed					
Birdseye Creek	11	2	2	2	2
Foots Creek	70	49	49	49	49
Galls Creek	22	12	12	12	12
Kane Creek	38	20	20	20	20
Watershed Total	**130**	**81**	**81**	**81**	**81**
Bear Creek Watershed					
Willow Creek	47	38	38	38	38
Jackson Creek	132	127	127	127	127
Watershed Total	**179**	**165**	**165**	**165**	**165**
Middle Applegate Watershed					
Forest Creek	89	47	47	48	32
China Gulch	12	0	0	0	0
Humbug Creek	0	0	0	0	0
Watershed Total	**101**	**47**	**47**	**48**	**32**
Total	**410**	**293**	**293**	**294**	**278**

Note: Table 3-31, above, assumes trail decommissioning would only occur on BLM lands, and that all existing private trail/stream crossings would remain.

Effects of Alternative 2

Alternative 2 would allow the most spatially distributed OHV use of any of the action alternatives, but would reduce the amount of roads and trails open to OHV use by approximately 237 miles across all ownerships, a 63 percent reduction compared to the No-Action Alternative. On BLM lands, 73.6 miles of OHV routes would be designated as open, in comparison to about 185.6 miles currently open, a reduction of over 60 percent. In addition, the BLM proposes to decommission 60.8 miles of trail on BLM lands, and construct 10 miles of new trail. Alternative 2 would result in a 17.5 mile net reduction of trails in Riparian Reserves (an 80 percent reduction). Alternative 2 is unique among the action alternatives in that it also proposes a seasonal closure of trails on BLM-administered lands with direct hydrological connectivity to stream channels during the wet season (approximately October 15 to May 15, depending on weather).

South Rogue-Gold Hill Watershed (Birdseye, Foots, Galls and Kane Creek Drainages)
Within the South Rogue-Gold Hill Watershed, routes open to OHV use in the Birdseye, Foots, Galls, and Kane Creek catchments, trails in Riparian Reserves on BLM-administered lands would be reduced by 7.7 miles (a 97 percent reduction). All routes proposed for OHV use in the vicinity of stream channels and riparian areas would be limited to existing roads, with the following exceptions: one existing class-one trail that would cross an intermittent stream channel in the headwaters of the Kane Creek drainage on private lands; a proposed new class 3 trail in Galls Creek would cross the top of a Riparian Reserve of an intermittent stream for less than 150 feet; and a proposed new trail in the Foots Creek drainage would result in about 250 of new trail within the Riparian Reserve of an intermittent stream.

Neither of the proposed new trails would cross any stream channels; they would not be directly hydrologically connected to aquatic systems. However, the trail in the Foots drainage would take off from an existing road within 10 feet of the stream channel. Any sediment routed down the trail during rain events would eventually reach the road, which is directly connected to the stream. Because the trail would be constructed with required project design features, including adequate water drainage features, and because the trail would be closed during the wet season, erosion and transport of sediment from this trail would be minimal. Any sediment from the trail that did make its way to the road would be limited to a single annual pulse as the first major rain event of the year washed eroded particles downslope towards the road, and eventually on to the intermittent stream. Sediment would either be stored in the stream or transported down as a brief pulse of increased turbidity. In either case, the sediment would eventually reach fish habitat (cutthroat trout) in the Left Fork of Foots Creek, most likely in the form of a brief undetectable pulse of increased turbidity that would not be discernable beyond turbidity levels likely to occur during the first major rain event of the season from all other sources. However, it is recommended that excess water dips be constructed on the steep portion of the trail within the Riparian Reserve, and that a small catch basin be constructed (but not within the road prism or road drainage ditch) to capture as much sediment as possible. This catch basin would need periodic maintenance as it filled with captured sediment over time. This would serve to capture the majority of large particulates mobilized down the trail; suspended fines (turbidity) would likely still be carried by any water flowing down the trail and on into the stream system. Seasonal closures of riparian trails under Alternative 2 would ensure that no OHV use would be allowed to disturb soils during the wet season. Any inputs of sediment or turbidity resulting from this trail would be greatly offset by a reduction in sediment resulting from decommissioning 3.6 miles of Riparian Reserve trail in other parts of the Foots Creek subwatershed.

The proposed new trail in Galls Creek would be located over 100 feet as from the very top of the intermittent channel. This trail would have a low probability of contributing eroded sediment to the channel, and even less chance of impacting fish habitat as the nearest populations of fish are located 0.9 miles downstream.

The maintenance, improvement, and use of three existing undeveloped staging areas under Alternative 2 would have a low risk for any sediment to reach streams. The staging area in the Birdseye drainage is located near a ridgetop and the staging areas in the Galls Creek drainage are located midslope and near a ridgetop. Maintenance and improvement work includes rock surfacing, placement of barriers to control vehicles, and installation of kiosks for posting visitor information. Rock surfacing would help to reduce any potential for sediment from use of these existing areas. The low elevation staging area proposed in the Kane Creek drainage would require some minor excavation to level and slightly enlarge and existing wide area near an intersection. The Kane Creek staging area is not located within a Riparian Reserve, and would not be hydrologically connected with any stream channels.

Bear Creek Watershed (Willow Creek and Jackson Creek Drainages)
Within the Bear Creek Watershed, routes open to OHVs would also be substantially reduced. Riparian Reserve trails on BLM-administered land would be reduced by 1.9 miles (90 percent reduction). In the Willow Creek drainage less than one mile of trail would be designated open on BLM lands within the entire drainage basin. All trails in the drainage would be near a ridge top, and would not cross any active stream channels or Riparian Reserves. Roughly 2000 feet of class 3 trail is proposed to be constructed near a ridge top in the drainage. The proposed new trail would not cross any riparian areas, but would cross the tops of 5 dry draws. Dry draws only

conduct surface flow during high precipitation events that typically only occur once every year or two. As such, there is very little risk of this trail contributing sediment downstream to aquatic habitats; vegetation and debris in the draws would suffice to capture the majority of any sediment routed down the draws from the new trail.

In the Jackson Creek catchment, designated open routes on BLM lands would also be reduced, but to a much lesser extent. Routes would be located in upslope areas, and only one trail, located on a road, would cross any stream channels or Riparian Reserves. One new class 3 trail, roughly 0.7 miles long, would be constructed along a ridge top, which would not cross any streams or draws. This trail would not be hydrologically connected to stream channels and would have no probability to contribute sediment to aquatic habitats.

No staging areas are proposed in either the Willow or Jackson Creek catchment basins under the alternatives.

Middle Applegate River Watershed (Forest Creek, China Gulch & Humbug Drainages)
Within the Middle Applegate River Watershed, managed OHV routes within the Timber Mountain planning area in the Humbug Creek drainage would be limited to near ridge top areas dividing the Foots and Humbug Creek catchments. Trails within the China Gulch drainage would be reduced considerably. No trails located off of existing roads would be hydrologically connected to aquatic habitats in either drainage. One road would remain designated as open that crosses several stream channels and Riparian Reserves in the China Gulch drainage. In addition, one existing staging area in the China Gulch drainage would be utilized and improved. The staging area, located at the junction between two existing roads, would be expanded slightly, and rock surfacing added. The China Gulch staging area is not located within a Riparian Reserve or near any streams. With the implementation of project design features the risk of sediment delivery to streams would be low.

Within the Forest Creek catchment, trails in Riparian Reserves would be reduced by 6.9 miles (a 63 percent reduction). Similar to the Alternatives 3 and 4, OHV use under Alternative 2 would be more concentrated in this sub-watershed than in any of the other catchment basins. Aquatic habitat in Forest Creek has the greatest potential to be affected by trails on BLM lands of any of the drainages in the planning area because over half of the proposed 44 miles of trails open to OHV use under this alternative would be in the Forest Creek catchment. This would include 7.7 miles of proposed new trail. An estimated 4.1 miles of trails would be located in Riparian Reserves (includes new construction) and would have 11 and 13 crossings over long and short duration intermittent channels respectively.

Approximately 0.8 miles of the new construction would occur within Riparian Reserves, and would involve three new crossings over short-duration intermittent channels. These crossings could contribute sediment and turbidity annually to aquatic habitat in Forest Creek. However, crossings would be constructed to minimize erosion potential (see required project design features in Chapter 2), and the trail design would incorporate drainage structures, which would minimize the erosion and transport potential of sediment off the trail and into aquatic habitats. The points at which the proposed trails intersect the stream channel, the streams are classified as short-duration intermittent streams. This means that water flows only during the wettest part of the year, which further reduces amount of sediment carried downstream. Additionally, under Alternative 2, these trails would be closed to OHV use during the wet season. Therefore, it is anticipated that the amount of sediment potentially contributed to aquatic habitats would be minimal from the new trail construction.

One new trail, proposed to be constructed under every action alternative except for Alternative 5, is a potential concern for fisheries and aquatic habitat resources. This new trail would take off from an existing road in a Riparian Reserve only 30 feet from a road crossing over a perennial stream. This trail would be located less than 1,000 feet from cutthroat trout habitat in the mainstem of Forest Creek below the forks. Although the trail would quickly exit the Riparian Reserve and connect to a ridge, as it has direct connectivity with the road and via the road to the perennial stream, it has potential to be a chronic source of sediment input to aquatic habitat. Strict adherence to required Project Design Features and the construction of a sediment catch basin would greatly minimize the potential for the new trail to contribute mobilized sediment to the perennial Forest Creek tributary. However, suspended fine sediment (turbidity), would likely still be periodically contributed to aquatic habitats from this trail.

Of the 24 potential trail/stream crossings on BLM-administered lands, 21 already exist, and all cross intermittent channels. Of these, half cross long duration intermittent streams, characterized as typically flowing for greater than 30 days, but not all season. All trails with hydrological connectivity would be upgraded to improve the drainage capability of the trails by installation of water bars and dips to divert water routed down the trails off the trail surface and into downslope vegetation. Hardened stream crossings are also proposed to be installed to protect stream banks and reduce mobilization of sediment from the crossings themselves. Seasonal closures would be enacted on these trails during the wet season. Although allowing use on these trails would lead to continued erosion and ultimately sediment deposition to aquatic habitats, inputs would be reduced from current levels as a result of the mitigation measures described above.

Approximately 17.5 miles of OHV trails, not located on roads, are proposed to be decommissioned. There would be a net reduction of 9.8 miles of OHV trails in the Forest Creek subwatershed within the planning area. Even with continued use of some existing Riparian Reserve trails, and the proposed new trail construction in Riparian Reserves, an estimated 6.9 miles of riparian trail would be decommissioned under this alternative. Sediment and turbidity inputs to aquatic habitats in Forest Creek resulting from OHV trails would be reduced considerably as compared to current conditions.

Four staging areas are proposed in the Forest Creek subwatershed under this alternative, one on a ridge top, and three near mainstem channels of Forest Creek. The use of an existing ridge top staging area (Staging Area 9), which has no connectivity with aquatic habitat, would not impact fisheries or aquatic resources. Staging Area 6, located in an existing opening east of the Right Fork of Forest Creek and the road that parallels the stream, is within the Riparian Reserves of both the Right Fork of Forest Creek and a small intermittent stream channel. To provide access to this area, a culvert would need to be placed over the roadside ditch. Work on this area would be completed during the instream work period, during the dry season. Disturbed ground in and around the ditch would be seeded and mulched (standard PDFs for this type of work) to stabilize the soil. This would minimize the amount of dirt available to be transported away from the work area, down the ditch, and into aquatic habitat. Some exposed soil particles would likely be mobilized however, and would be expected to affect aquatic and fish habitat in the Right Fork of Forest Creek in the nature of a brief turbidity pulse during the first major rain event of the season following work. The amount of sediment anticipated would be negligible, it is estimated to be similar or less than the amount of sediment produced from normal roadside ditch cleaning.

Staging Area 7 would be located just northwest of the currently existing Bunny Meadows staging area (Staging Area 8), to the east of the Forest Creek road and mainstem channel of the creek. This area does not currently exist, and would require excavation (estimated 5 acres of disturbance). Staging Area 7 would not be located in a Riparian Reserve, nor have hydrological connectivity with any stream channels, and hence would not impact fisheries or aquatic resources. Staging area 8 would be the existing Bunny Meadows staging area that has been historically used for many years. No additional ground disturbance would be required to utilize this staging area and therefore there no potential for increased sedimentation or impacts to aquatic resources.

To summarize, Alternative 2 proposes to substantially reduce the amount of trails open to OHV use on BLM lands in all three watersheds in the planning area, and impose seasonal restrictions for some trails during the rainy season. Reductions in riparian trails coupled with seasonal closures during the winter would lead to benefits in all three watersheds as well, though some streams would benefit more than others. The streams in the South Rogue - Gold Hill Watershed would all see major reductions in both upland and riparian trails on BLM lands. This is anticipated to lead to reductions in sediment inputs as trails are decommissioned. Aquatic habitat in Foots, Birdseye, and Galls Creeks would benefit more so than in Kane Creek, as the severely rutted trail system on private lands would continue to annually produce granitic sand directly into fish habitat in Kane Creek. Stream systems in the Middle Applegate Watershed would also see substantial trail reductions, particularly in the Humbug and China drainages. Use would be concentrated in Forest Creek, but a 63 percent reduction in Riparian Reserve trails would still yield benefits to aquatic habitats. Benefits to the Bear Creek Watershed would be less noticeable, as there is lower proportion of BLM lands, and therefore less trail decommissioning proposed in the Jackson and Willow Creek catchments. As sediment inputs would be reduced, in all streams to some

extent, implementation of this alternative would ultimately have a positive effect to fish and fish and aquatic habitat (including CCH/EFH) as compared with the No-Action Alternative.

Effects of Alternative 3

Routes in Alternative 3 are essentially the same as Alternative 2, with minor differences in trail classification. Some roads proposed as open to use under Alternative 2 would be closed to full size vehicles. The Bunny Meadows Staging Area would not be utilized under this alternative, but all other staging areas as described for Alternative 2 are proposed to be used. The major difference between the two alternatives from a fisheries and aquatic habitat perspective is that under Alternative 3, no seasonal closure would be enforced during the wet season. The analysis of this alternative will focus primarily on the difference that not implementing the seasonal closure would have on fisheries and aquatic habitat, as new trail construction, trail decommissioning, and staging areas, both in and outside of Riparian Reserves would be essentially the same with respect to their effects to aquatic resources.

South Rogue-Gold Hill (Birdseye, Foots, Galls, and Kane Creek Drainages)
Within the South Rogue-Gold Hill watershed, trails in Riparian Reserves would be reduced as described under Alternative 2 (a 7.7 mile reduction as compared to current conditions). No trails would be located in Riparian Reserves on Birdseye or Kane Creeks. Omitting a seasonal trail closure would not change impacts to aquatic effects to either of these drainages as compared with Alternative 2.

In the Galls Creek drainage, 0.1 miles of trail would be open in Riparian Reserves. The proposed new trail construction would not cross any stream channels, but it would take off from a road that is hydrologically connected to a short term intermittent stream channel. The proposed road/trail intersection is about 100 feet down the road from where the road intersects the stream channel. Allowing use throughout the rainy season would increase the potential of this proposed trail segment to contribute eroded sediment down the trail to the road, and then down the road to the stream crossing, especially during heavy precipitation events. Because the intermittent stream is characterized as a short-duration intermittent, typically flowing for less than 30 days annually, inputs would only occur for short periods during or following high-precipitation events. Given that sediment would have to first migrate 100 feet down the road to even reach the channel, it is likely that most inputs would occur in the nature of increased turbidity during periods when the road was actively transporting water, and during periods when aquatic systems would be running high and turbid from all other sources. As such, it would not be discernable above the turbidity levels anticipated to be present in fish habitat resulting from all other sources during such times. The small amount of increased sediment/turbidity that may result from the construction and use of this trail would be offset by the decommissioning of 1.4 miles of trails within Riparian Reserves under this alternative.

In the Foots Creek sub watershed, an estimated 0.1 miles of trail would be allowed in Riparian Reserves, as described previously for Alternative 2. The road/trail junction would be located within 10 feet of the stream crossing (also a short duration intermittent stream), therefore there is a high potential for sediment and turbidity inputs to the stream. Any sediment routed down the trail during rain events would eventually reach the road, which is directly connected to the stream. The start of the trail would be located less than 0.5 mile from cutthroat trout habitat, and could potentially be a chronic source of sediment to habitat, episodically contributing sediment from the trail, onto the road, and into the intermittent channel. Inputs of sediment would occur only when the stream had flow; as the stream is a short duration stream, characterized as typically flowing less than 30 days annually, inputs would only occur during and after high precipitation events that occur during the winter months. Over time, as sediment accumulates in the channel of the intermittent stream, it would likely migrate downstream and slowly be released as small pulses to cutthroat habitat in the top of the Left Fork of Foots Creek. It is recommended that excess water dips be constructed on the steep portion of the trail within the Riparian Reserve, and that a small catch basin be constructed (but not within the road prism or road drainage ditch) to capture as much sediment as possible. This catch basin would need periodic maintenance as it filled with captured sediment over time. This would serve to capture the majority of large particulates mobilized down the trail; suspended fines (turbidity) would likely still be carried by any water flowing down the trail and on into

the stream system. Any increased sediment inputs resulting from the proposed new trail would be offset by reductions in sediment resulting from the decommissioning of 3.5 miles of trails in Riparian Reserves under this alternative.

Sediment catchments, as described above are not anticipated to be as effective under this alternative, as OHV use would continue to be allowed during the wet period. Repeatedly driving of OHVs through the catch basins would disturb accumulated sediment, and during wet periods would enable it to be mobilized out of the catch basin, to the road/ditch system, and onto the intermittent channels.

Bear Creek Watershed (Willow and Jackson Creek Drainages)
In the Bear Creek Watershed, trails would be reduced as described under Alternative 2. No trails would cross active stream channels, hence omitting a seasonal closure would not change affects to fish or aquatic habitat in these streams as compared with Alternative 2.

Middle Applegate Watershed (Forest Creek, China Gulch, and Humbug Creek drainages)
Within the Middle Applegate Watershed, no trails in Riparian Reserves in either the Humbug or China drainages would be allowed; omitting a seasonal closure would not change affects to fish or aquatic habitat in these streams as compared with Alternative 2.

Alternative 3 proposes the same amount and location of trails and new trail construction in Riparian Reserves of Forest Creek as Alternative 2. Without the seasonal restrictions, the new trail construction and use of existing trails with connectivity to aquatic systems would increase the potential for and magnitude of sediment transport off the trails and into aquatic habitats, as compared with Alternative 2. Improvements in trail drainage and addition of hardened crossings, coupled with a substantial reduction in Riparian Reserve trails (6.9 miles proposed) would still represent a reduction in trail related sediment inputs into aquatic habitats as compared with what is currently occurring.

To summarize, Alternative 3 would essentially allow for the same spatial use by OHVs across the planning area as Alternative 2, but would also allow use of all OHV trails throughout the rainy season. Allowing use through the wet season would increase the potential for erosion and sediment mobilization and hence the potential for modification of aquatic habitats under this alternative as compared with Alternative 2. Decommissioning trails, particularly trails in Riparian Reserves, across the planning area and within each of the major stream basins would lead to an overall reduction in chronic sources of sediment input as compared with the current condition (Alternative 1).

Effects of Alternative 4

Alternative 4 proposes to reduce the amount of roads and trails open to OHV use across all ownerships by approximately 304 miles, as compared to the No Action Alternative, a reduction of 80 percent. On BLM lands, 71.2 miles of route would be designated as open, as opposed to approximately 185.6 miles currently open, a reduction of over 60 percent. About 7.2 miles of new trail would be constructed, and 66.7 miles would be decommissioned on BLM lands. This alternative would concentrate all OHV use to BLM lands in the Middle Applegate Watershed, primarily the China Gulch and Forest Creek sub-watersheds, including 5.1 miles of trails (includes new trail construction) in Riparian Reserves. Because OHV use would not be allowed on BLM land in the South Rogue-Gold Hill or Bear Creek Watersheds, Alternative 4 would yield the greatest benefits of any of the action alternatives to those watersheds. Because use would be concentrated in Forest Creek, Alternative 4 would potentially contribute the greatest impacts to habitat in Forest Creek compared with the other Action Alternatives.

South Rogue-Gold Hill (Birdseye, Foots, Galls, and Kane Creek Drainages)
Bear Creek Watershed (Willow and Jackson Creek Drainages)
Within the South Rogue-Gold Hill Watershed, trails in Riparian Reserves would be eliminated completely, as all 7.9 miles of documented trail in Riparian Reserves in the planning area would be decommissioned. Likewise for the Bear Creek Watershed, where all 2.1 miles of the documented Riparian Reserves trails would

be decommissioned. No staging areas would be utilized in either Watershed. Chronic sources of sediment input in both of these watersheds would cease as decommissioned trails stabilized and rehabilitated. As is the case for any of the Action Alternatives, benefits to aquatic habitats would be greatest in the Foots and Birdseye catchments, and least in the Kane Creek and Jackson catchment basins, which would continue to be affected by roads and trails located on private lands that are contributing large amounts of decomposed granitic sand directly to instream habitat.

Middle Applegate Watershed (Forest Creek, China Gulch and Humbug Creek Drainages)
Managed OHV routes within the Humbug Creek drainage would be limited to near ridge top areas. Trails within the China Gulch drainage would be reduced considerably. No trails located off of existing roads would hydrologically connected to aquatic habitats in either drainage. One road would remain designated as open that crosses several stream channels and Riparian Reserves in the China Gulch drainage. In addition, one existing staging area in the China Gulch drainage would be utilized and improved. The staging area, located at the junction between two existing roads, would be expanded slightly, and rock surfacing added. The China Gulch staging area is not located within a Riparian Reserve or near any streams. With the implementation of project design features the risk of sediment delivery to streams would be low.

In Forest Creek, 5.1 miles of trail through Riparian Reserves would be open to OHV use, which would include a total of 26 stream crossings, of which 4 existing crossings would be over perennial channels, including the Right Fork of Forest Creek just upstream (about 70 feet) of Cutthroat Trout habitat. New trail construction would be similar to that proposed under Alternatives 2 and 3, but with two additional trail segments, neither of which would cross any stream channels. This alternative is unique among all the Action Alternatives as it would allow for OHVs to cross a perennial and fish bearing channel. As such, it would stand to have the greatest potential to directly negatively impact fish habitat, although as mentioned the impacts would be limited to Forest Creek.

Improving the crossings to hardened surfaces would reduce sediment mobilization from the stream bed at the crossings as compared to current conditions. The main concern with the crossings would be the potential for erosion and sediment mobilization at the approaches to the crossings, particularly during rain events. Eroded and mobilized sediment would have direct connectivity with wetted stream channels, and a high probability of migrating to those channels and modifying aquatic habitat. Installation of additional water bars would mitigate the potential somewhat, but would not eliminate it entirely. Hence, OHV use, and especially use during the wet season, would allow for chronic contributions of sediment to aquatic habitats to continue from these riparian trails. Cutthroat trout habitat in the Right Fork of Forest Creek, already impacted by high levels of sediment, would continue to be impacted should this alternative be selected. However, reducing the amount of riparian trails and crossings in other locales of Forest Creek, coupled with trail improvements, would still ultimately yield a reduction in sediment inputs to the Forest Creek subwatershed as compared with the current condition.

To summarize, Alternative 4 would eliminate all use and decommission all trails on BLM lands in all of the planning area streams except for Forest Creek and China Gulch. This would lead to substantial reductions of chronic sources of sediment input in the South Rogue-Gold Hill, and Bear Creek Watershed streams. As is true for any of the action alternatives, benefits to aquatic habitats would be greatest for streams with higher percentages of BLM ownership; hence Foots, Birdseye, and Galls Creeks would stand to benefit more so than Kane or Jackson Creeks. However, fish and aquatic habitat in Forest Creek would be impacted more so under this alternative than any of the other Action Alternatives. As compared with the Alternative 1 (No-Action), selection of this alternative would still result in a reduction of sediment input to Forest Creek as a result of trail decommissioning, enforcing proper use, and implementation of an ongoing maintenance plan.

Effects of Alternative 5

Alternative 5 would allow OHV use on only 30.5 miles of road and trails, a 92 percent reduction as compared to the No-Action Alternative. On BLM lands, 15.7 miles of OHV routes would be designated as open, as opposed to approximately 185.6 miles currently open, a reduction of over 90 percent. BLM proposes to decommission 82.1 miles of trail on BLM lands, and no new trail construction is proposed under Alternative 5. Trails in Riparian Reserves would be reduced by 20.6 miles (a 94% reduction). This alternative would concentrate use in the eastern and southern portions of the planning area, primarily in the Jackson and Forest Creek catchments. Alternative 5 proposes to decommission more trail, and more Riparian Reserve trail, than any of the other Action Alternatives. As such, it would yield the greatest benefits to aquatic habitats, in all of the drainage basins within the planning area.

South Rogue-Gold Hill Watershed (Birdseye, Foots, Galls, and Kane Creek Drainages)
Bear Creek Watershed (Willow and Jackson Creek Drainages)
Within the South Rogue-Gold Hill Watershed, trails in Riparian Reserves would be eliminated completely, as all 7.9 miles of documented trail in Riparian Reserves would be decommissioned. In the Bear Creek Watershed, less than 0.1 mile of Riparian Reserve trail would remain open, while over 2 miles of Riparian Reserve trail would be decommissioned. The small portion of remaining trail would be in the top of the Jackson Creek catchment, would not cross any channels, and would have no direct hydrological connectivity with aquatic habitat. Chronic sources of sediment input in both of these watersheds would cease as decommissioned trails stabilized and rehabilitated. As is the case for any of the Action Alternatives, benefits to aquatic habitats would be greatest in the Foots and Birdseye catchments, and least in the Kane Creek and Jackson catchment basins, which would continue to be affected by roads and trails located on private lands that are contributing large amounts of decomposed granitic sand directly to instream habitat. No staging areas are proposed in either of these watersheds under Alternative 5.

In the Middle Applegate Watershed, no OHV use would be allowed in the planning area within either the Humbug or China drainages; these drainages would benefit slightly more under this alternative than under Alternatives 2 or 3. Trails in Riparian Reserves would be considerably reduced in Forest Creek under Alternative 5, as compared to any of the other alternatives, as only 1.3 miles of Riparian Reserve trails would remain open. Eight existing trail/stream crossings would remain under this alternative as opposed to 24 crossings under Alternatives 2 and 3, and 26 under Alternative 4. This substantial reduction in OHV trail/stream crossings under Alternative 5 would greatly reduce the potential for inputs of sediment to aquatic habitat in Forest Creek, as compared with any of the other alternatives. This alternative would utilize only staging area No. 6, the East Forest Creek staging area, which is within the Riparian Reserve of the Right Fork of Forest Creek (see affects analysis for Alternative 2).

To summarize, Alternative 5 would greatly reduce the amount of trails, including those in Riparian Reserves, in each of the catchment basins within the planning area. Selection and implementation of this alternative would ultimately lead to the greatest benefit to aquatic habitat as it would decommission more trails, and eliminate more chronic sources of sediment input to the stream networks than any of the other alternatives.

Action Alternatives Summary

- Selection of any of the action alternatives would be beneficial to aquatic habitat in each of the nine catchment basins within the planning area as compared to the No Action Alternative.
- Alternative 5 would be the most beneficial to aquatic resources across the landscape, as it would decommission the most miles of trail and limit trail/stream crossings more so than any of the other alternatives.
- Alternative 4 would provide the greatest benefits to aquatic habitat in the South Rogue-Gold Hill and Bear Creek Watersheds, but would be the least beneficial to aquatic habitat in Forest Creek drainage.

- Alternative 2, while allowing more widespread OHV use, would also spread the OHV impacts across the landscape, similar to Alternative 3, but more extensive than Alternatives 4 and 5.
- Aquatic habitat in Forest Creek would not be as impacted under Alternatives 2, as under Alternative 4, as a result of dispersing the use across a broader area. Aquatic habitats in all of the other catchments would be at slightly greater risk, although the potential for trail derived erosion to contribute sediment to aquatic habitats would be greatly minimized by seasonal closures during the wet season.
- Alternative 3, which would not include a seasonal closure, would have a greater potential to impact aquatic and fisheries resources across the landscape than Alternative 2, but would have less impact to habitat in Forest Creek than under Alternative 4 as a result of dispersing use across a broader area.
- Chronic sources of sediment would be eliminated as a result of proposed BLM trail decommissioning, and further minimized as a result of trail improvements proposed for open to use trails across all land ownerships.
- Increased effectiveness of law enforcement patrols would also serve to dissuade new user created trails.
- Selection of an Action Alternative would allow for enforcement of unauthorized use of areas not posted as "open areas". This would deter use in any areas opened up by future planned timber sales and fuels reductions projects on BLM lands and private lands.
- Trail decommissioning on BLM lands and upgrading proposed open to use trails across all ownerships, to enhance water drainage capabilities and reduce erosion, would reduce sources of sediment contributing to habitat degradation under current conditions (No-Action Alternative.)

Botany

Affected Environment

Bureau Special Status Plants, Lichens, and Fungi (SSP) include species that are listed as threatened or endangered under the Endangered Species Act (ESA), Federal candidates for listing, State listed, de-listed Federal, and Bureau designated Sensitive species. For these species, the BLM implements recovery plans, conservation strategies, and approved project design criteria of biological opinions, and ensures that actions authorized, funded, or carried out by the BLM do not contribute to the need to list a species under the ESA. Additionally, District Watch species are included on the SSP list but special protection or management is discretionary.

In July 2007, the Survey and Manage requirements were removed from the Resource Management Plans of nine BLM Districts (including Medford's) through the Record of Decision To Remove the Survey and Manage Mitigation Measure Standards and Guidelines from Bureau of Land Management Resource Management Plans Within the Range of the Northern Spotted Owl (July 2007 ROD). Conservation of rare and little known species is provided for by the BLM's, and other Agencies, Special Status Species Programs, the underlying land and resource management plans, and relevant agency programs and policies.

On February 6, 2008, the Oregon State Office Instruction Memorandum No. OR-2008-038 updated the State Director's Special Status Species List to incorporate the July 2007 ROD and to include species additions and deletions from the application of the most recent scientific data.
For the 20 species of fungi that are on the Medford District Sensitive Species list, 19 are former Survey and

Manage species whose status determined that pre-disturbance surveys were impractical and not required; one species is a hypogeous (underground) fungus, as are other of the previously referenced fungi, where pre-disturbance surveys would be impractical. Oregon State Office Information Bulletin No. OR-2004-145 reaffirmed this. Bureau policy (Manual Section 6840) would be met by known site protection and large-scale inventory work (strategic surveys). Two species do not have suitable habitat within the Timber Mountain OHV planning area.

The Timber Mountain planning area is partially within the range of two plant species federally listed as endangered, *Limnanthes floccosa* ssp. *grandiflora* and *Lomatium cookii,* and is entirely within the range of *Fritillaria gentneri*, also a federally listed endangered plant. *Fritillaria gentneri* occurs at 55 sites within the planning area; 15 of these sites are within 100 feet of an existing road or trail; no sites are within 100 feet of any proposed new trail. *Lomatium cookii* occurs in vernal pool habitat north of Medford and in seasonally wet soils north of Takilma, Oregon. Populations, suitable habitat, or soil conditions for *Lomatium cookii* have not been found in the project area. *Limnanthes floccosa* ssp. *grandiflora*, like *Lomatium cookii*, is associated with vernal pool habitat. It is endemic to a forty square mile area centered in the Agate Desert region near the city of Medford, Oregon. Populations, suitable habitat, or soil conditions for *Limnanthes floccosa* ssp. *grandiflora* have not been found in the planning area.

Surveys for all SSP, except the 20 species of fungi, on the Medford District Sensitive Species list were conducted in 2002 through 2007. Surveys were conducted using the intuitive controlled and the complete survey methods (see definitions).

Table 3-32. Special Status Plants Found within the Timber Mountain Planning Area

Scientific Name	Common Name	Heritage Rank*	ORNHIC List**	Total Occurrences[1]	Occurrences w/in 100'[2]
Camissonia graciliflora	slender-flowered evening-primrose	G4/S2	2	1	1
Carex serratodens	saw-tooth sedge	G5/S2	2	4	1
Cypripedium fasciculatum	Clustered lady's slipper	G4/S3	2	124	17
Eucephalus vialis	wayside aster	G3/S3	1	5	2
Fritillaria gentneri	Gentner's fritillary	G1/S1	1	55	15
Mimulus bolanderi	Bolander's monkeyflower	G4/S1	2	8	0
Mimulus congdonii	Congdon's monkeyflower	G4G5/S1?	2	4	0
Pallaea andromedifolia	coffee fern	G4/S2	2	1	0
Solanum parishii	Parish's nightshade	G4/S2	2	1	1

1 = All Special Status Plant populations within the Timber Mountain Planning Area
2 = All Special Status Plant populations within the Timber Mountain Planning Area and within 100 feet of an existing road and/or an existing or proposed trail.
*Heritage Rank: an international system for ranking rare, threatened, and endangered species
G = Global Rank
S = State Rank
1 = Critically imperiled because of extreme rarity or because it is somehow especially vulnerable to extinction or extirpation, typically with 5 or fewer occurrences.
2 = Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (extirpation), typically with 6-20 occurrences.
3 = Rare, uncommon, or threatened but not immediately imperiled, typically with 21-100 occurrences.
4 = Not rare and apparently secure but with cause for long-term concern, usually with more than 100 occurrences.
5 = Demonstrably widespread, abundant, and secure.
? = Not yet ranked or assigned rank is uncertain.
**ORNHIC List: Oregon Natural Heritage Information Center maintains extensive databases of Oregon biodiversity, concentrating on rare and endangered plants, animals, and ecosystems.
1 = taxa which are threatened or endangered throughout their range or which are presumed extinct.
2 = taxa which are threatened, endangered, or possibly extirpated from Oregon but are stable or more common elsewhere.

Table 3-33. Sensitive Fungi with Suitable Habitat within the Timber Mountain Planning Area

Scientific Name	Heritage Rank	ORNHIC List	NWFP Sites
Boletus pulcherrimus	G2G3/S2	1	44
Dermocybe humboldtensis	G1G2/S1	1	4
Gomphus kauffmanii	G2G4/S3?	3	71
Gymnomyces fragrans	G2G3/S1S3	1	2
Leucogaster citrinus	G3G4/S3S4	3	46
Otidea smithii	G2/S2	3	10
Phaeocollybia californica	G2?/S2?	1	36
Phaeocollybia olivacea	n/a	n/a	109
Phaeocollybia oregonensis	G2?/S2?	1	13
Phaeocollybia pseudofestiva	G3/S3?	3	45
Pseudorhizina californica	G4/S2	2	42
Ramaria largentii	G3/S2?	3	20
Ramaria spinulosa var. *diminutiva*	GUT2/S1?	1	1
Rhizopogon chamaleontinus	G2G3/S1S2	2	1
Rhizopogon clavitisporus	G2G3/S1S2	2	4
Rhizopogon ellipsosporus	G2G3/S1S2	2	5
Rhizopogon exiguus	G2G3/S1S2	2	3
Sowerbyella rhenana	G3G4/S3	3	64

Special Status Species (within 100 feet of a road or trail)

Camissonia graciliflora
The slender-flowered evening-primrose is a small native annual that is found in California, Oregon, and Baja California. This plant reaches the northernmost extension of its range in Jackson and Josephine Counties, Oregon. It is found on generally clay soils in savannahs, oak woodlands, and Joshua-tree woodlands. The single site in the project area that is within 100 feet of a road or trail is just off the uphill side of an existing jeep road and consists of six plants. The habitat is a small grassy opening in a wedgeleaf ceanothus stand. There are 13 populations on the Medford District; most occur in the Middle Applegate River and Little Applegate River watersheds. Population size on the District ranges from two to 400 individuals, with an average of 69 individuals.

Carex serratodens
The saw-tooth sedge is a native perennial that is found in California, Oregon, and Arizona. In southwest Oregon, it reaches the northernmost extension of its range, Jackson, Josephine, and Douglas Counties. It usually occurs in wetlands, such as stream banks and moist meadows, but it can occasionally be found in non wetland habitat, including coastal prairie, foothill woodland, mixed evergreen forest, and yellow pine forest. The single site in the project area that is within 100 feet of a road or trail is along an intermittent stream in the Middle Fork Foots Creek drainage of the Rogue River-Gold Hill watershed. The riparian area at the population site has been extensively altered from its natural state by historic mining but is currently stable. The existing trail bisects the sedge population at one end. There are 46 populations on the Medford District. Population size on the District ranges from one to 5000 individuals, with an average of 148 individuals.

Cypripedium fasciculatum
Clustered lady's slipper is a long-lived native perennial orchid found in eight western states and is considered rare throughout its range. Locally this orchid generally inhabits conifer forests with at least 60% canopy cover and usually on northerly aspects. This species also requires a mycorrhizal association for seed germination and development and probably long-term maintenance. It is a candidate for listing as threatened or endangered by

the State of Oregon. The species' large overall range and the number of known populations suggest that it is not in immediate danger of extinction, however, the small size of most populations, their isolated nature, and the presence of conflicting land uses warrant concern for the species' long-term survival throughout its range. There are 974 known sites in the Medford District. Eighty-seven percent of these populations consist of less than 20 individuals. Population size on the District ranges from one to 290 individuals, with an average of 10 individuals. There are 16 populations in the project area that are within 100 feet of a road or trail.

Eucephalus vialis
Wayside aster is a native perennial that is found in central and southern, western Oregon and one border county in northern California. It is generally found growing in openings and edges of drier upland Douglas-fir forests with mixed hardwoods. Wayside aster tolerates some disturbance and seems to prefer open to partially shaded habitats. Locally, after wildfire, this species thrives.

This plant is considered rare throughout its range and is listed as threatened by the State of Oregon. There are 60 populations on the Medford District. Population size on the District ranges from one to 1200 individuals, with an average of 81 individuals. There is one population in the planning area that is within 100 feet of a road or trail. The area of the aster population was commercially thinned and had the understory treated in 2001; the population was discovered in 2005. This population is 800 feet long and located along a ridgeline. The population area is sparsely occupied by a few groups or single plants. An OHV trail bisects the population its entire length.

Fritillaria gentneri
Gentner's fritillary is a native perennial found in Jackson and Josephine Counties of southern Oregon and in Siskiyou County, California. This lily is listed as endangered under the federal ESA and through the Oregon Revised Statute 564 and the Oregon Administrative Rule 603-730. Under these laws, plants on Federal and State (including other non-Federal public) lands are provided protection. However, no protection or conservation requirements are provided for on private lands. This plant occupies a wide range of habitats; most commonly it is found in or on the edges of dry, open, mixed-species woodlands at elevations below 5064 feet. There are 126 known sites on the Medford District (all Oregon sites) of which 86% consist of less than 20 flowering plants. There are two populations just across the state border in Siskiyou County, California with a total of 146 plants. Population size on the District ranges from one to 735 flowering individuals, with an average of 19 individuals. There are 14 populations in the project area that are within 100 feet of a road or trail. The population size for these 14 sites ranges from one to 21 flowering plants, with an average of 4 individuals. The U.S. Fish and Wildlife Service Recovery Plan for *Fritillaria gentneri* was approved on July 21, 2003. The Timber Mountain planning area is within recovery unit 1. The Recovery Plan requires 1000 flowering plants in each of four recovery units (in a minimum of two *Fritillaria* management areas per unit) for delisting. *Fritillaria* management areas have not yet been established.

Solanum parishii
Parish's nightshade is a native perennial found in southwest Oregon and California. It is considered rare in Oregon. On the Medford District, this plant is usually found in chaparral, oak woodland, and pine forests. There are 77 populations on the Medford District. Population size on the District ranges from one to 67 individuals, with an average of 3 individuals. There is one population in the project area that is within 100 feet of a road or trail. This population is in chaparral habitat and consists of a single plant.

Sensitive Fungi with Suitable Habitat within the Timber Mountain Planning Area

Boletus pulcherrimus
This species is the red-pored bolete mushroom. It is listed as endemic to the Pacific Northwest, including northern California, but has also been reported from New Mexico. In the range of the Northwest Forest Plan (NFP), there are 44 known sites. Within the boundary of the Medford District, four sites are on BLM in the vicinity of Hyatt and Howard Prairie Lakes, one is on the Rogue River National Forest, and one is on private land near Shale City. The nearest site to the planning area is approximately 20.3 air miles away in the vicinity of Shale

City. NFP habitat data in GeoBOB, the BLM geo-database, is available only for some of the Medford and Winema sites. Plant community data shows this species occurs on White fir/Douglas-fir early mature forests, Douglas-fir/White fir/Ponderosa pine young forest, White fir/chinquapin communities, and Shasta red fir/chinquapin communities. Elevation ranges from 4620′ to 5640′. Habitat data for other NFP sites is in humus in association with roots of mixed conifers (Grand fir, Douglas-fir) and hardwoods (tanoak) in coastal forests. The species is a mycorrhizal fungus dependent on the health of its symbiotic partnership with mixed conifers. It is also associated with grand fir, Douglas fir, tan oak, bigleaf maple, and vine maple.

Dermocybe humboldtensis

This species is a green-brown cap mushroom with olive-yellow gills. *Dermocybe humboldtensis* is endemic to California and Oregon. In the range of the NFP, there are four known sites. There are no sites located within the boundary of the Medford District. Two sites are located on the BLM Roseburg District and two sites on the California BLM's Arcata Field Office. The nearest site to the project area occurs on the BLM Roseburg District approximately 48.7 air miles away. Habitat data for the Roseburg sites is incomplete; community type is listed as Ponderosa Pine-Douglas-fir for one site. Other NFP habitat data lists suitable community types as coastal dune Redwood/Douglas-fir and Redwood/Sitka spruce. The species is an ectomycorrhizal fungus dependent on the health of its symbiotic partnership with species in the genus *Pinus*. It is also associated with Douglas-fir and Ponderosa pine.

Gomphus kauffmanii

This species is a tan-colored false chanterelle. *Gomphus kauffmanii* is endemic to western North America being found in Oregon, Washington, California, Idaho, and British Columbia. In the range of the NFP, there are 71 known sites with four sites occurring on the Medford District. The site nearest to the planning area is 12.2 air miles away in the vicinity of Bald Mountain, south of Talent, Oregon. This site is in a young conifer plantation stocked with Douglas-fir and white fir. The species is an ectomycorrhizal fungus dependent on the health of its symbiotic partner, presumed *Abies* or *Tsuga*. It is also associated with Pacific silver fir, subalpine fir, Shasta red fir, Noble fir, lodgepole pine, Douglas fir, Pacific yew, western red cedar, western hemlock, mountain hemlock, Pacific dogwood, oak species, vine maple, chinquapin, salal, and huckleberry.

Gymnomyces fragrans

This species is a pale cinnamon brown false truffle. *Gymnomyces fragrans* is known from only six collections in Oregon, California, and Idaho. In the range of the NFP, there are two known sites with one site occurring within the boundary of the Medford District on Forest Service land. The site nearest to the project area is 16.7 air miles away on Rogue River-Siskiyou National Forest land in the vicinity of Dutchman Peak. The species is a mycorrhizal fungus dependent on the health of its symbiotic partnership with Douglas-fir and mountain hemlock, especially of middle elevation Douglas-fir forests.

Leucogaster citrinus

This species *i*s a pale to dark yellow false truffle. *Leucogaster citrinus* is endemic to the Pacific Northwest. In the range of the NFP, there are 46 known sites with one site occurring on the Medford District. The site nearest to the planning area is 23.6 air miles away in the vicinity of the Dead Indian Summit. This site is in a white fir forest with western white pine. The species is a mycorrhizal fungus dependent on the health of its symbiotic partnership with white fir, subalpine fir, lodgepole pine, western white pine, Douglas-fir, and western hemlock and seems to be abundant in lower elevation Douglas-fir forests. Other associated trees and woody species include Pacific silver fir, grand fir, mountain hemlock, tanoak, California laurel, vine maple, pinemat manzanita, Oregon grape, salal, rhododendron, salmonberry, and huckleberry.

Otidea smithii

This species is a deep purple brown cup fungus. It is known from Washington, Oregon, and northern California with some reports from Idaho and British Columbia. In the range of the NFP, there are ten known sites with one site occurring within the Medford District boundary but on Forest Service land. The site nearest the project area is 13.9 air miles away on Rogue River-Siskiyou National Forest land in the vicinity of Applegate Lake. This site is in a Ponderosa pine-Douglas-fir association with poison oak as the dominant understory shrub at an elevation

of 2300 feet. This fungus is a saprobe on forest litter under Douglas-fir, western hemlock, ponderosa pine, bigleaf maple, Oregon white oak, and black cottonwood. It may also form a symbiotic association with the fine root systems of certain plants. Other woody associates include vine maple, Oregon grape, twinflower, honeysuckle, poison oak, and *Rubus* species.

Phaeocollybia californica
This species is an orange-brown gilled mushroom with a long pseudorhiza. It is endemic to the Pacific Northwest and northern California. In the range of the NFP, there are 36 known sites with two sites occurring within the Medford District boundary. The site nearest the planning area is approximately 14.7 air miles away on the slopes of Sloan Mountain near the confluence of the Applegate and Rogue Rivers. This site is in a Douglas-fir forest with California black oak and with poison oak being the dominant understory shrub. NFP habitat data shows this species is associated with oaks and possibly tanoak in mature mixed evergreen forests. Other woody associates include vine maple, Oregon grape, salal, rhododendron, and huckleberry.

Phaeocollybia olivacea
This species is a dark olive, glutinous, gilled mushroom with a long pseudorhiza. It is endemic to Washington, Oregon, and northern California. There are 110 known sites in the GeoBOB database. Nine sites are within the Medford District boundary with the site nearest the planning area being approximately 8.8 air miles away in the vicinity of Grants Pass. Medford District habitat data shows an association with Douglas-fir and Port Orford cedar. Other habitat data reports mycorrhizal associations also with western hemlock, redwood, Sitka spruce, tanoak, white fir, and mixed conifer forests with Fagaceae and Pinaceae. Elevation ranges from sea level to 3060 feet.

Phaeocollybia oregonensis
This species is a gray-brown, glutinous, gilled mushroom with a long pseudorhiza. In the range of the NFP, it is known only from 14 sites. It is endemic to the Pacific Northwest and British Columbia. The site nearest the planning area is approximately 58.2 air miles away on the BLM Coos Bay District near the Coquille River and the town of Camas Valley. This species is an ectomycorrhizal fungus dependent on the health of its symbiotic partnership with Douglas-fir, western hemlock, and pacific silver fir. It has been reported from late successional forests but has been reported from a 30 year old Douglas-fir plantation. Other woody associates include vine maple, salal, rhododendron, and huckleberry.

Phaeocollybia pseudofestiva
This species is a dark to olive green, glutinous, gilled mushroom with a long pseudorhiza. It is endemic to western North America occurring in British Columbia, Washington, Oregon, and northern California. There are 46 sites in the GeoBOB database. Four sites are within the Medford District boundary with the site nearest the planning area being approximately 8.8 air miles away in the vicinity of Grants Pass. Medford District habitat data for one site near Lake Selmac has the site located in a Tanoak-Douglas-fir-Canyon live oak forest. The other two Medford District sites are also valley bottom sites, Blue gulch which is west of Grants Pass and Reeves creek north of Kerby. Other habitat data reports a mycorrhizal association with species of Pinaceae, mixed conifers and hardwoods.

Pseudorhizina californica
This species is an olive-brown to grey-brown false morel. It is endemic to western North America occurring in British Columbia, Washington, Oregon, California, Idaho, western Montana, and western Wyoming. There are 42 sites in the GeoBOB database. There are two known sites occurring within the Medford District boundary but on Forest Service land. The site nearest the planning area is 17.3 air miles away on Rogue River-Siskiyou National Forest land in the vicinity of Donomore Peak near the state border. This fungus is found fruiting on or adjacent to well-rotted stumps or logs of coniferous trees or on soil rich in brown rotted wood.

Ramaria largentii
This species is a pale orange to deep orange coral mushroom. It is endemic to the Pacific Northwest (Washington, Oregon, and northern California). There are 20 known sites in the GeoBOB database. Two sites are on the Medford District. The site nearest the planning area is 18.2 air miles away in the headwaters area of Cochrane Gulch northwest of Merlin, Oregon. This is an ectomycorrhizal species that depends on forest components of Douglas-fir, western hemlock, western white pine, or true firs. This species has been found in young to mature Douglas-fir forests.

Ramaria spinulosa var. *diminutiva*
This species is a brown coral fungus known from only one site in the range of the NFP. There are only four known sites throughout its range. The single Oregon site is in the BLM Roseburg District in a late successional Douglas-fir forest at 1200′ elevation. This site is approximately 45.8 air miles from the planning area and is southeast of Roseburg. This is an ectomycorrhizal species that is associated with species in the Pinaceae family.

Rhizopogon chamaleontinus
This species is a white globose underground truffle fungus. It is known from one site in the range of the NFP but is also known from Idaho. The single NFP site is within the Medford District boundary but is located on Oregon Department of Forestry land near Galice. The site is approximately 24.9 air miles from the planning area. The species is an ectomycorrhizal fungus dependent on the health of its symbiotic partner. Habitat data for this site is Douglas-fir forest at 3300′ elevation.

Rhizopogon clavitisporus
This species is an underground truffle fungus with little published information. The Oregon Natural Heritage Information Center tracks three sites within the range of the NFP. There is also one known site in Idaho. The ecology and biology of this species is unknown and requires further research. One site is within the boundary of the Medford District and is closest to the planning area being 7.9 air miles away in the vicinity of McKee Bridge. The habitat at this site is Douglas-fir and Ponderosa pine forest. Other habitat data includes forests of Douglas-fir, lodgepole pine, Englemann spruce, and subalpine spruce. This species is an ectomycorrhizal fungus dependent on the health of its presumed symbiotic partnership with members of the Pinaceae family.

Rhizopogon ellipsosporus
This species is a brown subglobose underground truffle fungus. It is known from only five sites in the NFP area; four are within the Medford District boundary (two on the Medford District, two on the Rogue River-Siskiyou National Forest) and one in the northern Oregon Cascades. The nearest site is approximately 2.5 air miles from the project area near Cantrall-Buckley Park. The species is an ectomycorrhizal fungus dependent on the health of its symbiotic partner. Habitat data lists an association with Douglas-fir and Sugar Pine.

Rhizopogon exiguus
This species is a white mottled globose underground truffle fungus. It is endemic to Oregon and Washington with only five known sites. The nearest site is approximately 16.3 air miles away in the vicinity of Waters Creek on the Siskiyou National Forest. The elevation is 2800′. The species is an ectomycorrhizal fungus dependent on the health of its symbiotic partner. Habitat data lists an association with low elevation Douglas-fir. Other habitat data also list western hemlock as an associate.

Sowerbyella rhenana
This species is a fungus that forms orange to yellow-orange cup-shaped sporocarps. It is known from Washington, Oregon, and California (also Europe and Japan). There are 13 known sites within the Medford District boundary; all 13 sites are located on BLM managed land. The nearest site is approximately 6.0 air miles away in the vicinity of Williams, Oregon. The species habitat is generally moist coniferous forests with a variety of mature trees. Medford District site habitat is mid-seral Douglas-fir and Ponderosa pine forests.

Air Quality Sensitive Lichens

Lichens, lacking roots, conducting tissue, and stomata, get their water and regulate gas exchange directly in the atmosphere across their entire surface area. Because of their biology, lichens readily accumulate air pollutants which can influence their growth patterns or occurrence in the lichen community. Some lichens in the Pacific Northwest have had their sensitivity to air pollutants rated (USFS). Three species of lichens that are rated as sensitive to air pollution are present in over 90 percent of the lichen surveys conducted along trails in the project area. Although the Geiser L.H. & Neitlich P. 2007 study showed the Medford area to be absent of lichens sensitive to air quality and therefore polluted, the fine scale surveys conducted by the BLM has three species of the highest indicator value for clean air present in over 90 percent of its surveys in the project area. Only two species are present that are of the highest indicator value for polluted air; the two species are present in 27 percent and 6 percent of the surveys in the project area. Lichen observations from surveys conducted from 2002 to 2007 show good air quality and provide a baseline for future monitoring.

Noxious Weeds and Introduced Plants

Noxious weeds are generally nonnative plants that cause or are likely to cause economic or environmental harm or harm to human health. Introduced plants are species that are nonnative to the ecosystem under consideration. Introduced plants may adversely affect the proper functioning condition of the ecosystem.

No species from the Federal noxious weed list are known to occur within the planning area. Ten species of noxious weeds, listed by the Oregon Department of Agriculture, have been documented within the project area. Most of these noxious plants are associated with the road and trail systems and other recently disturbed sites. Some weed occurrences are associated with high levels of historic disturbance, such as past ground-based logging systems.

Noxious weeds are found throughout the project area and adjacent private lands but reported predominately in the south portion. All species of noxious weeds in the project area are on the Oregon Department of Agriculture List B. “B” designated weeds are weeds of economic importance which are regionally abundant but may have limited distribution in some counties. Two species are also “T” list weeds. “T” list weeds are target species for which the Oregon Department of Agriculture will develop and implement a statewide management plan. Table 3-34 lists the noxious weeds and introduced plants within the project area.

Table 3-34. Noxious Weeds and Introduced Plants within the Timber Mountain Planning Area

Scientific Name	Common Name	ODA List*
Aira caryophyllea	Silver hairgrass	
Alyssum alyssoides	Pale madwort	
Anagallis arvensis	Scarlet pimpernel	
Anthriscus caucalis	Bur-chervil	
Avena fatua	Wild oat	
Brassica nigra	black mustard	
Bromus briziformis	Rattlesnake brome	
Bromus diandrus	Ripgut brome	
Bromus hordeaceus	Soft brome	
Bromus japonicus	Japanese brome	
Bromus secalinus	Rye brome	
Bromus sterilis	Poverty brome	
Bromus tectorum	Cheatgrass	
Centaurea maculosa	Spotted knapweed	B, T
Centaurea solstitialis	Yellow star-thistle	B, T
Cerastium glomeratum	Sticky chickweed	
Cirsium arvense	Canada thistle	B
Cirsium vulgare	Bull thistle	B
Convolvulus arvensis	Field bindweed	B
Cynosurus echinatus	Bristly dogstail grass	
Cytisus scoparius	Scotch broom	B
Dactylis glomerata	Orchardgrass	
Daucus carota	Queen Anne's lace	
Dipsacus fullonum	Fuller's teasel	
Dipsacus laciniatus	cutleaf teasel	B
Erodium cicutarium	Redstem stork's bill	
Euphorbia crenulata	Chinese caps	
Euphorbia peplus	Petty spurge	
Festuca pratensis	Meadow fescue	
Geranium molle	Dovefoot geranium	
Glecoma hederacea	Ground ivy	
Hypericum perforatum	Common St. Johnswort	B
Hypochaeris radicata	Hairy catsear	
Lactuca serriola	Prickly lettuce	
Lolium arundinaceum (Festuca a.)	Tall fescue	
Lolium perenne	perennial ryegrass	
Lotus corniculatus	Birdfoot deervetch	
Myosotis discolor	Changing forget-me-not	

Scientific Name	Common Name	ODA List*
Plantago lanceolata	narrowleaf plantain	
Poa bulbosa	Bulbous bluegrass	
Prunella vulgaris	Common selfheal	
Rosa eglanteria	Sweetbriar rose	
Rubus discolor	Himalayan blackberry	B
Rubus laciniatus	Cutleaf blackberry	
Rumex acetosella	Ground sorrel	
Rumex crispus	Curly dock	
Scleranthus annuus ssp. *annuus*	German knotgrass	
Sonchus asper ssp. *asper*	Spiny sowthistle	
Taeniatherum caput-medusae	Medusahead	B
Taraxacum officinale	Common dandelion	
Torilis arvensis	Spreading hedgeparsley	
Tragopogon dubius	Yellow salsify	
Tragopogon pratemsis	Jack-go-to-bed-at-noon	
Trifolium dubium	Suckling clover	
Trifolium repens	White clover	
Valerianella locusta	Lewiston cornsalad	
Verbascum blattaria	Moth mullein	
Verbascus thapsus	Common mullein	
Veronica persica	Persian speedwell	
Vicia cracca	bird vetch	
Vicia sativa	Garden vetch	
Vulpia myuros var. *hirsuta*	Rat-tail fescue	
Vulpia myuros var. *myros*	Rat-tail fescue	
Yabea microcarpa	False carrot	

* Oregon Department of Agriculture Noxious Weed Control Rating System:
"B" Designated Weed – a weed of economic importance which is regionally abundant but which may have limited distribution in some counties.

"T" Designated Weed – a priority noxious weed designated by the Oregon State Weed Board as a target on which the Oregon Department of Agriculture will develop and implement a statewide management plan.

Oregon Department of Agriculture List B Noxious Weeds

Spotted knapweed (*Centaurea maculosa*) is a biennial or short-lived perennial forb native to Europe and introduced to North America in the late 1800s. It reproduces solely from seed. Each plant produces about 1000 seeds. Seeds remain viable for seven years and germinate throughout the growing season. There are two reported populations in the project area. Spotted knapweed can dominate sites attaining high densities even in undisturbed areas. It lowers forage value and displaces native plants. Successful control methods include digging, pulling, biological, and chemical.

Yellow star-thistle (*Centaurea solstitialis*) is an annual or biennial with a deep taproot. The yellow flower heads are spined producing 35-80+ seeds. Large plants can produce over 100,000 seeds. Seed dispersal is mainly via gravity with longer distances by birds, animals, humans, vehicles, and commercial crops. Seeds can remain viable in the soil seedbank for six to 10 years. Nonnative honeybees are the main pollinator of yellow star-thistle, accounting for 50 percent of seed set. There are 1,949 sites reported for the Medford District and 96 sites for the project area. This weed is a native of Eurasia. It lowers forage value, increases farming and ranching costs, depletes soil moisture, displaces native plants, decreases plant diversity, and is toxic to horses. Successful control methods include chemical, biological, cultural, and mechanical (including pulling and mowing).

Canada thistle (*Cirsium arvense*) is a perennial with an extensive root system. This prickly rose-purple flowered plant can produce up to 1,500 wind transported seed per flowering shoot. Seed can remain viable in the soil for 20 years. Vegetative reproduction contributes to local spread and persistence. The large fibrous taproot can send out lateral roots as deep as three feet below the ground, from which shoots sprout up at frequent intervals. It also regenerates from root fragments less than one inch in length. There are 896 sites reported for the Medford District and one site for the project area. This weed is a native of Eurasia. Detrimental effects include displacement of native species, decrease of plant diversity, reduced forage, and serves as an alternate host for insects and pathogenic microorganisms that attack various crops. Successful control methods include biological, chemical, cultural, and some limited success with mechanical methods.

Bull thistle (*Cirsium vulgare*) is a taprooted biennial with spiny stems, leaves, and inflorescences. Each flower head can produce up to 250 seeds. Most seed falls within six feet of the parent plant but is capable of long distance transport by wind and animals. Seed survival is very low, as is seedling and rosette survival. It is estimated to take 200 seeds to produce one flowering plant. Bull thistle seedlings are poor competitors and require bare mineral soil to survive. This weed is a native of Eurasia. Personal knowledge of Resource Area botanists and recent records have verified sites within the project area and along roads. Detrimental effects include displacement of native species, decrease of plant diversity, limits wildlife movement, and reduced forage. Active control methods are not usually employed. Bull thistle is eventually outcompeted by other vegetation for light, moisture, and nutrients.

Field bindweed (*Convolvulus arvensis*) is a persistent, perennial vine of the morning-glory family which spreads by rhizome and seed. It is a weak-stemmed, prostrate plant that can twine and may form dense tangled mats. Field bindweed is native to Eurasia but has spread to many parts of the world and is now a cosmopolitan species. Field bindweed is now a serious weed problem in all parts of the continental USA, except for the southeastern states. It lowers forage value, increases farming and ranching costs, depletes soil moisture, displaces native plants, and decreases plant diversity. Casual observation and recent records have verified sites within the project area and along roads. Field bindweed must be managed for several years to bring it under control. Field bindweed control entails chemical applications, disking or hand-pulling on a regular basis.

Scotch broom (*Cytisus scoparius*) is a perennial shrub native to Europe and Africa. It was introduced into the United States as an ornamental, and later used to stabilize roadcuts. Scotch broom invades roadsides, pastures, and other disturbed places. It produces a large amount of long-lasting seed (up to 80 years). It can form dense fields that displace native plants and degrade habitat for wildlife. There are 462 sites reported for the Medford District and two sites for the project area. Successful control methods include manually pulling the entire plant, chemical, controlled burning, and a combination of cutting and herbicide treatment.

Cutleaf teasel (*Dipsacus laciniatus*) is a biennial plant native to Europe and introduced in North America in the 1700s. It spends its first year as a basal rosette then sends up a flowering stalk six to seven feet tall. A single teasel plant can produce over 2000 seeds. Seeds may remain viable for at least two years. Seeds generally are spread close to the adult plant but long distance transport may be accomplished by birds and running waterways. Teasel is an aggressive exotic species that can take over savannas if allowed to become established. Cutleaf teasel can form large dense monocultures that exclude all native vegetation. Successful control methods include digging and herbicides.

Common St. Johnswort (*Hypericum perforatum*) is a perennial forb introduced from Eurasia as an ornamental plant. It can form dense stands in meadows, pastures, rangelands, disturbed sites, and along roads. It is toxic to livestock but also has medicinal value. Casual observation and recent records have verified sites within the project area and along roads. Detrimental effects include displacement of native species, decrease of plant diversity, and reduced forage. Successful control methods include biological and chemical.

Himalayan blackberry (*Rubus discolor*) is a perennial bramble introduced from Western Europe that forms large impenetrable thickets of prickly canes. It colonizes disturbed sites including waste areas, pastures, forest plantations, roadsides, and waterways. Casual observation and recent records have verified sites within the project area and along roads. Detrimental effects include displacement of native species, decrease of plant diversity, reduced forage, inaccessibility by humans and animals. Successful control methods include mechanical, prescribed burning, and chemical.

Medusahead (*Taeniatherum caput-medusa*) is an annual grass introduced from Eurasia. It inhabits disturbed sites, grassland, openings in chaparral, oak woodlands, and rangelands, especially on sites with clay soils where deep soil moisture is available late in the growing season. Casual observation and recent records have verified sites within the project area and along roads. This weed is a native of Eurasia. Detrimental effects include displacement of native species, decrease of plant diversity, and reduced forage. Successful control methods include chemical, mechanical, prescribed burning, and re-vegetation.

Environmental Consequences

This section describes the anticipated effects of the alternatives, including the No-Action Alternative. The affected environment section above describes the existing conditions of the project planning area and provides the environmental baseline for comparing the effects of the alternatives, including the No-Action Alternative.

Table 3-35. Road and Trail data by Alternative

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Road/trail total miles	375.8	138.9	138.1	71.2	14.1
Proposed new trail construction	0	10.2	9.8	7.2	0
Trail decommissioning	0	60.8	60.8	66.7	82.1

Effects of Alternative 1

Special Status Plants

Thirty-seven Special Status Plant populations are within 100 feet of an OHV trail or road. Twenty of these are adjacent to roads and are adequately protected from the direct effects of ongoing activities, due to their location relative to OHV activities. Meaning that the populations would be difficult to reach from the road system due to cut banks, fill slopes, or other barriers to OHVs. Seventeen populations are adjacent to trails and could be adversely affected; the most of all alternatives. Twelve of the 17 populations are within 20 feet of an OHV trail and are likely to be adversely affected by vehicles or trail maintenance activities.

Noxious weeds and introduced plants

Noxious weed and introduced plant populations are often associated with roads and trails. Alternative 1 includes the most miles of roads and trails. Under Alternative 1, annual monitoring and control work of trailside weed populations, as planned under the action alternatives, would not occur. Noxious weed control and inventory work along OHV trails and roads would continue to compete for Resource Area time and funding. Resource Area weed control projects are prioritized by threat and treatability; weed inventory and control work in the Timber Mountain planning area may fall to a lower priority than other areas across the Medford District.

Air quality sensitive lichens
Three species of lichens that are rated as sensitive to air pollution are present in over 90 percent of the lichen surveys conducted along trails in the planning area. BLM has three species of the highest indicator value for clean air present in over 90 percent of its surveys in the planning area. Only two species are present that are of the highest indicator value for polluted air; the two species are present in 27 percent and 6 percent of the surveys in the project area. This indicates good air quality in the planning area. Because these species do not appear to be affected by the current level of use, this trend is not anticipated to change. However, monitoring for these species is not included under the No-Action Alternative.

Sensitive fungi
There are no known locations of sensitive fungi species within the planning area. This alternative uses the most miles of roads and trails, 375.8 miles. Since no trail decommissioning would occur under this alternative, existing levels of soil compaction from trails would continue to contribute to poor conditions for fungi survival. Therefore, this alternative has the highest potential for habitat degradation for Sensitive fungi species.

Wildfire
Alternative 1, with the highest number of miles of trails has the highest risk of human-caused wildfire (see Fire and Fuels). Although the risk for wildfire has not been eliminated, recent (fig. 3-27) and ongoing fuels reduction activities associated with the Forest Creek timber management and fuels reduction project, Jackson Creek, Galls Creek, and Foots Creek Fuels Reduction projects help to reduce the chance of a wildfire ignition from natural or human-caused source to grow into a large-scale high severity fire event. A severe wildfire could destroy native plant communities and rare plant habitat and would increase the area's susceptibility to noxious weed and introduced plant establishments.

Effects of Alternatives 2 & 3

Alternatives 2 and 3 are discussed together as both alternatives would manage nearly the same miles of trails; therefore, the effects to botanical resources would be the same under either alternative.

Special Status Plants
Of the 37 Special Status Plant populations that are within 100 feet of an OHV trail or road, 20 are adjacent to roads and 17 are adjacent to trails. Populations that are adjacent to roads are adequately protected from the direct effects of proposed activities due to their location relative to OHV activities. Meaning that the populations would be difficult to reach from the road system due to cut banks, fill slopes, or other barriers to OHVs. Trails adjacent to six Special Status Plant populations would be decommissioned and therefore would not have subsequent effects from OHV use. Trails adjacent to 11 Special Status Plant populations are proposed to be used. These populations would be protected from the direct effects of proposed activities through the implementation of project design features (see Chapter 2, Project Design Features and Table 2-8).

Noxious weeds and introduced plants
Alternative 2 includes 37 percent of the roads and trails in comparison to Alternative 1. Noxious weed inventory work along trails open to OHV use and staging areas would be conducted annually and control activities would be prioritized and accomplished based on threat and treatability.

Air quality sensitive lichens
Three species of lichens that are rated as sensitive to air pollution are present in over 90 percent of the lichen surveys conducted along trails in the planning area. BLM has three species of the highest indicator value for clean air present in over 90 percent of its surveys in the planning area. Only two species are present that are of the highest indicator value for polluted air; the two species are present in 27 percent and 6 percent of the surveys in the project area. This indicates good air quality in the planning area. Because these species do not appear to be affected by the current level of use, this trend is not anticipated to change. These species would be monitored periodically to detect any changes in localized effects of OHV caused air pollution (see Chapter 2, Monitoring).

Sensitive fungi
This alternative uses only 37 percent of the roads and trails that are currently used in Alternative 1. For Sensitive fungi, this alternative results in reducing current impacts to habitat as a result decommissioning 60.8 miles of trails. Trail decommissioning would occur through natural or mechanical decommissioning (roughing or ripping the surface and revegetating). Benefits from mechanical decommissioning (ripping) are more immediate; the benefits of natural decommissioning occur over the long-term.

Wildfire
Risk of human-caused fire starts would be less under Alternatives 2 and 3 than Alternative 1 as a result of decommissioning trails and reducing the area accessed by humans and OHVs (see Fire and Fuels).

Effects of Alternative 4

Special Status Plants
Of the 37 Special Status Plant populations that are within 100 feet of an OHV trail or road, 20 are adjacent to roads and 17 are adjacent to trails. Populations that are adjacent to roads are adequately protected from the direct effects of proposed activities. Trails adjacent to eight Special Status Plant populations would be decommissioned and therefore would not have subsequent effects from OHV use. Trails adjacent to nine Special Status Plant populations are proposed to be used. These populations would be protected from the direct effects of proposed activities (see Chapter 2, Project Design Features, and Table 2-8).

Noxious weeds and introduced plants
Alternative 4 includes only 19 percent of the roads and trails currently used under Alternative 1. Noxious weed inventory work along trails open to OHV use and staging areas would be conducted annually and control activities would be prioritized and accomplished based on threat and treatability. Because trails are confined to the southeast portion of the planning area, noxious weed work would be more manageable than Alternatives 1, 2, and 3.

Air quality sensitive lichens
The presence of several species of air quality sensitive lichens indicates good air quality in the planning area. Although this trend is not expected to change, trails under this Alternative are confined to the southeast portion of the planning area which could result in more concentrated OHV use along the trails open to OHVs. These species would be monitored periodically to detect any changes in localized effects of OHV caused air pollution (see Chapter 2, Monitoring) although monitoring would be less extensive than Alternatives 2 and 3 due to fewer miles of trails open to OHV use.

Sensitive fungi
This alternative uses 19 percent of the roads and trails in Alternative 1. For Sensitive fungi, results in reducing current impacts to habitat as a result decommissioning 66.7 miles of trails. Under this alterative, about 5 more miles of trails are proposed for decommissioning in comparison to Alternatives 2 and 3. Trail decommissioning would occur through natural or mechanical decommissioning (roughing or ripping the surface and revegetating). Benefits from mechanical decommissioning are more immediate; the benefits of natural decommissioning occur over the long-term.

Wildfire
Risk of human-caused wildfire starts and the resultant effects on native plant communities, rare plant habitat, and noxious weed and introduced plant establishments, would be less than for Alternatives 1, 2, and 3 since OHV use would be confined to the southwest portion of the planning area. This alterative reduces OHV access to about half the miles proposed for management under Alternatives 2 and 3 and about 19 percent of what is currently accessed by OHVs under Alternative 1.

Effects of Alternative 5

Special Status Plants

Of the 37 Special Status Plant populations that are within 100 feet of an OHV trail or road, 20 are adjacent to roads and 17 are adjacent to trails. Populations that are adjacent to roads are adequately protected from the direct effects of proposed activities. Trails adjacent to all 17 Special Status Plant populations would be decommissioned and therefore would not have subsequent effects from OHV use.

Noxious weeds and introduced plants

Alternative 5 includes only 8 percent of the roads and trails currently used under Alternative 1, the least of any. Noxious weed inventory work along trails open to OHV use and staging areas would be conducted annually and control activities would be prioritized and accomplished based on threat and treatability. Trails are confined to the east central portion of the project area and noxious weed work would, therefore, be more manageable than all other Alternatives.

Air quality sensitive lichens

The presence of several species of air quality sensitive lichens indicates good air quality in the planning area. Although this trend is not expected to change, trails under this Alternative are confined to a much smaller portion of the planning area (east central portion), which could result in more concentrated OHV use along the trails open to OHVs. These species would be monitored periodically to detect any changes in localized effects of OHV caused air pollution (see Chapter 2, Monitoring) although monitoring would be less extensive than Alternatives 2, 3 and 4 due to fewer miles of trails open to OHV use.

Sensitive fungi

There are no known locations of sensitive fungi species within the planning area. This alternative proposes the use of only 8 percent of the roads and trails currently used under Alternative 1. For Sensitive fungi, this alternative results in reducing current impacts to habitat as a result decommissioning 82.1 miles of trails. Trail decommissioning would occur through natural or mechanical decommissioning (roughing or ripping the surface and revegetating). Benefits from mechanical decommissioning are more immediate; the benefits of natural decommissioning occur over the long-term.

Wildfire

Risk of human-caused wildfire starts and the resultant effects on native plant communities, rare plant habitat, and noxious weed and introduced plant establishments, would be less than for Alternatives 1, 2, 3, and 4 since OHV use would be confined to the central portion of the planning area. This alterative reduces OHV access to about 21 percent of the miles proposed for management under Alternatives 2 and 3, and about 8 percent of what is currently accessed by OHVs under Alternative 1.

Table 3-36. Special Status Plant Populations Potentially Affected by Alternative

Sensitive Species	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Camissonia graciliflora	1	1	1	1	0
Carex serratodens	1	0	0	0	0
Cypripedium fasciculatum	17	13	13	6	2
Eucephalus vialis	2	2	2	2	0
Fritillaria gentneri	15	8	8	8	0
Solanum parishii	1	1	1	1	0
TOTAL	37	25	25	18	2

Definitions

Complete Survey – A 100 percent visual exam of potential suitable habitat in the survey area.

GeoBOB – The geo-database (Geographic Biotic Observations) is an application with which BLM botanists, biologists, managers and other specialists enter, query and manage data on species of interest including special status, threatened, and endangered species. Initially, this geo-database was used for the entire NFP area; currently it is used for the BLM in Oregon and Washington.

Intuitive Controlled Survey - This method includes a complete survey in habitats with the highest potential for locating Survey and Manage species. The surveyor traverses through the project area enough to see a representative cross section of all the major habitats and topographic features, looking for the target species while en route between different areas. Most of the project area will have been surveyed. When the surveyor arrives at an area of high potential habitat (that was defined in the pre-field review or encountered during the field visit), a "complete survey" for the target species should be made.

Strategic surveys – Landscape-scale surveys designed to collect information about a species, including its presence and habitat.

Terrestrial Wildlife

Affected Environment

The Timber Mountain planning area provides habitat for many wildlife species. Some animals migrate through the planning area, others are year-round residents and still others utilize the habitat on a seasonal basis. The occurrences of 36 Bureau Special Status Species were considered in the preparation of this section. Seventeen species were considered for inclusion in this analysis but were determined to have a very low likelihood to occur in the planning area (see Table 3-38). Twenty-One Special Status Species were known or had the potential to occur within the planning area and will be addressed below.

Interagency Special Status/Sensitive Species Program

In July 2007, the Survey and Manage requirements were removed from the Resource Management Plans of nine BLM Districts (including Medford's) through the Record of Decision To Remove the Survey and Manage Mitigation Measure Standards and Guidelines from Bureau of Land Management Resource Management Plans Within the Range of the Northern Spotted Owl (BLM 2007). The Pacific Northwest Regional Office of the U.S. Forest Service and Oregon/Washington State Office of the Bureau of Land Management established an interagency program (ISSSSP) for the conservation and management of rare species. Management of Oregon/Washington Bureau of Land Management Special Status and Sensitive Species follows agency policy documented in Section 6840 of the BLM Manual.

For the purposes of this document, Special Status Species (SSS) include those species that are listed as threatened or endangered, are proposed for listing as threatened or endangered, or are candidates for listing as threatened or endangered by the U.S. Fish and Wildlife Service, under the Endangered Species Act (ESA) of 1973, as amended. Also included under the 6840 policy are species listed as Bureau Strategic and Sensitive. For these species, the BLM implements recovery plans, conservation strategies, and approved project design criteria of biological opinions, and ensures that actions authorized, funded, or carried out by the BLM do not contribute to the need to list a species under the ESA.

On July 25, 2007, the Oregon State Office Instruction Memorandum No. OR-2007-072 updated the State Director's Special Status Species List to incorporate the July 2007 ROD and to include species additions and deletions from the application of the most recent scientific data. In accordance with this IM, analysis of Strategic species is not required in NEPA documents such as this and therefore will not be included. The Special Status Species discussed in this section are known or suspected to be present in the proposed planning area. Only those species

that have a reasonable likelihood to be present in the planning area are included – not species that would be considered an "accidental" in the planning area.

Migratory Birds

Migratory birds are addressed due to concern regarding downward population trends, habitat declines, and to comply with the Migratory Bird Treaty Act. No migrants found on the Medford District BLM are listed as endangered or threatened, but some are USFWS identified Birds of Conservation Concern (Federal Register Vol. 68, No. 25, 6179, USFWS Strategic Plan 2004-20014, BLM Washington Office Instruction Memorandum 2008-050). Neotropical birds, as a group, are not special status species but several species are also designated as SSS species. Ten of the birds on this list are known to occur in the Ashland Resource Area, Medford District BLM.

Game Birds Below Desired Condition

Game Birds Below Desired Condition (GBBDC) were designated in the US Fish and Wildlife Service's 2004-2014 strategic plan (USFWS 2004). GBBDC will be included in this document to address guidance from the BLM Washington Office Instruction Memorandum 2008-050. GBBDC are species whose populations are below long-term averages or management goals, or for which there is evidence of declining population trends. There are four species that were determined to occur on the Medford District and the planning area.

General Habitat

Plant associations in this project area are diverse and include a mosaic of white oak woodland, hardwood stands dominated by madrone and oak, shrubland and early, mid and mature conifer stands. The primary tree species in the project area are Douglas-fir, ponderosa pine, madrone and white oak. Shrub species include manzanita, deerbrush ceanothus, wedgeleaf ceanothus. Hardwood tree species in riparian areas include willow, ash and maple. This assortment of vegetations types provides for a wide array of wildlife species habitats and needs.

Species Known or Suspected to Occur in the Planning Area

Northern Spotted Owl (Strix occidentalis caurina)

The Northern Spotted Owl was listed as a threatened species under the ESA on June 26, 1990 (55 FR 26114). Much more is known about this species and its' habitat than most others present in the planning area. No habitat in the Timber Mountain planning area is designated as US Fish and Wildlife Service (USFWS) Critical Habitat Unit (CHUs) for the spotted owl. The area contains eleven known spotted owl pair sites as defined by the Interagency Spotted Owl Protocol. Under the 1994 Northwest Forest Plan, 100 acres of the best, most contiguous Northern Spotted Owl habitat around each of the spotted owl pair sites, known as of January 1, 1994 in the Matrix land allocation, were established as a "core area" of habitat. These cores were given the designation "Unmapped Late-Successional Reserve" in the NWFP ROD. While no longer required under the current land use plan, eight of these sites were previously designated "spotted owl cores."

Spotted owls tend to be associated with forest stands in which many of the trees are more than 80 years old, and stands that contain some old growth forest structures such as large, decadent live and dead trees. Generally, the greater the amount of forest greater than 80 years old, the greater the probability for finding spotted owls within those forests (Bart and Forsman 1992).

Generally, "suitable habitat" refers to habitat that functions as nesting, roosting, and/or foraging. Spotted owls usually occupy larger forested stands exhibiting older forest structure that normally includes mature or old growth conifers with limited fragmentation. The stand usually has multiple canopies, with the secondary canopy often composed of both conifers and hardwoods under a conifer overstory. Canopy closure at nest sites is usually 60 percent or greater, with conifers at least 24 inches dbh. Most spotted owl nests have been found in mature and old growth forests. They do not build their nests, but use the broken tops of trees, cavities within trees, or existing platforms that may have been built by other birds or mammals, or may be accumulations of natural

debris. Nests are most often found in forests with higher levels of complexity and structure (i.e., trees of different species, size, shape, and condition).

Although roosting habitat varies, for the purposes of this document it is defined as forested stands containing diversity in forest structure, crown closures of at least 40 percent, and some trees of at least 11-24 inches dbh. Integrated with the above factors are topography, slope, elevation, and aspect, all of which contribute to the ability of a spotted owl to survive. The spotted owl also can forage within roosting habitat. Roost sites are typically denser, multistoried stands in which owls can move around in to find favorable microclimate conditions depending upon the season or weather.

Spotted owl foraging habitat is the most variable, but may be largely influenced by the variable nature of prey species and the susceptibility of prey species to capture. Generally, foraging habitat is characterized by high canopy closure and complex structure. Foraging habitat has the least number of required characteristics. A stand could be considered as foraging habitat as long as a spotted owl can locate and capture prey while remaining in sufficient cover (normally a minimum of at least 40 percent canopy closure) to escape predation. This description does not include any stand where tree density is too dense to allow a spotted owl to fly through. In this document nesting, roosting, and foraging habitat are referred to as "suitable" habitat. Descriptions of all McKelvey habitats are listed below.

Since the late 1980s, most of the known adult spotted owls on the Ashland Resource Area of the Medford district BLM have been captured and individually marked with a plastic leg band of a site-specific color and/or pattern. These birds are also marked with unique numbered USFWS aluminum leg bands. Most of the juvenile owls produced have also been captured and marked with a standard color "juvenile band" and a USFWS band. Many birds were banded prior to 1990 although there was no effort to catch and band every spotted owl at every site. Since 1990, the policy of banding adults and juveniles was in effect until approximately 1995 across the resource area and has largely been applied to the planning area. This has allowed biologists to track movements of individual adults and juvenile owls. Two years of protocol surveys were completed August 2004 on approximately 4,300 acres of suitable habitat in the planning area. As a result one new owl site was located and surveyors documented presence at 9 of the 11 known owl sites.

Current and Potential Spotted Owl Habitat within the OHV Planning Area

In 1992, the Ashland Resource Area completed a 100 percent inventory and classification of all resource area lands as to their current suitability and potential for future suitability for use by spotted owls. The information sources for this classification were:

- Operations Inventory data from the BLM Micro Storms System
- Aerial photographs
- Biologists' personal knowledge of the stands
- Field checks of questionable stands

The Medford District BLM modified the McKelvey Habitat based rating system to identify Northern Spotted Owl Habitat. As the Spotted Owl is closely associated with late-successional and old-growth habitat, it is assumed that habitat suitable for Northern Spotted Owl nesting, roosting, and foraging is also suitable for other old-growth associated species. The acreage of BLM-administered lands within the planning area was placed into one of the six possible habitat categories (Table 3-37)

Private lands were not included in the habitat classification because inventory data on those lands was not available.

Table 3-37. Current Spotted Owl Habitat Types in the Planning Area

	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
Acres in Planning Area	1303	4205	4166	6180	2987	3049
Percent of Planning Area	5.9	19.2	19.1	28.2	13.6	14.0

Habitat type definitions for Table 3-37:

Type 1: Nesting: (optimal-meets all spotted owl life requirements). Canopy closure greater than 60 percent and canopy structure multi-layered. Overstory trees greater than 21" dbh. Deformed, diseased, and broken top trees present. Large snags and down logs present. This is the best approximate we have for "old-growth" for planning purposes. This category is considered late-successional.

Type 2: Roosting/Foraging: (meets requirements for spotted owl roosting, foraging and dispersal). Canopy closure usually greater than 60 percent, with generally single layer structure. Overstory trees greater than 16" dbh. Snags and down wood less prevalent than #1; may be very little. This is the best approximate we have for "mature"stands for planning purposes. This category is considered late- successional.

Type 3: Potential Habitat Only: (meets no known spotted owl needs currently). Canopy closure less than 40 percent due to disturbance (logging, fire, etc.), but the area has the potential to become (grow into) habitat #1 or #2 as described above if given enough time and appropriate management. No attempt was made to estimate the time until the stands would reach a habitat type 1 or type 2 conditions. Some residual stands in this category might require only a few decades. Others stands, such as recovering clearcuts, might take a century or more.

Type 4: No Potential: (meets no known spotted owl needs currently). Canopy closure less than 40 percent. Natural limitations of the site will not allow the area to develop into habitat type #1 or #2 as described above. Examples include: chaparral, natural meadows, rocky scablands, and oak woodlands.

Type 5: Dispersal with potential: (currently provides structure believed to be important for spotted owl dispersal). Canopy closure greater than 40 percent. Disturbance (fire, logging, etc.) has created this condition, but the area has the potential to become (grow into) habitat #1 or #2 as described above if given sufficient time and appropriate management.

Type 6: Dispersal with no potential: (currently provides structure believed to be important for spotted owl dispersal. Canopy closure greater than 40 percent. Natural conditions limit the canopy closure and forest development potential (tree size and stocking) to the point that the stand will most likely never reach habitat conditions consistent with habitat #1 or #2 as described above.

Currently there are 5,508 acres of habitat suitable for spotted owl nesting, roosting, or foraging (Type 1 + Type 2) within the planning area. This represents approximately 25.1 percent of the federal land base in the OHV area. These federal acres are intermixed with adjoining private lands. As a result, the landscape as a whole will never approach the appearance of a contiguous block of late-successional habitat regardless of the management on federal land. It is assumed that private lands intermingled inside the planning area will not provide substantial amounts of suitable spotted owl habitat over time. Current and past land management practices employed on private lands in the area support this assumption.

Flammulated Owl (Otus flammeolus)
The flammulated owl is classified as a migratory species and is on the US Fish and Wildlife Service's list of *Birds of Conservation Concern* (USFWS 2002). Primary habitat is conifer forest intermixed with oak-woodland and grassland in mixed conifer communities with relatively closed canopies. They tend to nest in ponderosa pine trees even in the mixed conifer forests. This species has been most often detected during spotted owl inventories. Nests mainly have been located in abandoned northern flicker or pileated woodpecker cavities in large pine trees and snags. Although thought to occur there are no known nest sites in the planning area.

Olive-sided Flycatcher (Nuttallornis borealis)
The olive-sided flycatcher is classified as a migratory species and is on the US Fish and Wildlife Service's list of *Birds of Conservation Concern* (USFWS 2002). In Oregon, olive-sided flycatchers are found to be most abundant in the Cascade slopes. They prefer open forests with uneven canopies and residual dominant sized trees to perch from. Presence in early successional forests depends on the availability of snags or residual trees for foraging. Although the BLM hasn't conducted systematic point counts, olive-sided flycatchers are thought to be common in the planning area during summer months and can be detected quite easily by their distinctive call.

Rufus Hummingbird (Selaphorus rufus)
The rufus hummingbird is classified as a migratory species and is on the US Fish and Wildlife Service's list of *Birds of Conservation Concern* (USFWS 2002). In Oregon, this species inhabits riparian thickets and open forest edges adjacent to meadows where nectar producing vegetation is abundant. Although no systematic point counts have been conducted, rufus hummingbirds are thought to be common breeders in the planning area in the summer. A lack of diagnostic field marks can make it difficult to distinguish rufus hummingbirds from Allen's hummingbirds at a distance (Selsphorus sasin) and their calls are identical.

Band-tailed Pigeon (Patagioenas fasciata)
The band-tailed pigeon is a migratory bird and is designated as a Game Bird Below Desired Condition (USFWS 2004). This pigeon is generally found in temperate and mountain coniferous and mixed forests and woodlands, especially pine-oak woodlands, and locally in southern lowlands; also forage in cultivated areas, suburban gardens and parks (Subtropical and Temperate zones). They will often forage in diverse habitats not used for nesting. Mineral springs and mineral graveling sites are important for mineral intake by adults, especially during the nesting season (Jarvis and Passmore 1992).

Mallard (Anas platyrhynchos)
The mallard is a migratory bird and is designated as a Game Bird Below Desired Condition (USFWS 2004). The mallard is the most widespread and abundant duck in North America. It usually nests on ground in upland area near water. The nest is placed under overhanging cover or in dense vegetation for maximum concealment. Nest sites include grasslands, marshes, bogs, riverine floodplains, dikes, roadside ditches, pastures, cropland, shrubland, fencelines, rock piles, forests, and fragments of cover around farmsteads (Arnold et al. 1993). Mallards are extremely flexible and quickly adapt to changes in landscape, precipitation, and temperature. Although mallards are found in the planning area, most potential nesting and foraging habitat is found on private land.

Mourning Dove (Zenaida macroura)
Mourning doves are a migratory bird and are designated as a Game Bird Below Desired Condition (USFWS 2004). The Mourning Dove is the most widespread and abundant game bird in North America. Despite being hunted throughout most of its range, it remains among the 10 most abundant birds in the United States. A dove may have up to five or six clutches in a single year. They nest primarily at woodland or grassland edge, usually in trees but readily on ground in absence of suitable trees or shrubs (Eng 1986). Site characteristics are as varied as habitat types used. Doves will use variety of coniferous and deciduous trees, shrubs, vines, human made structures, and the ground. Human alteration of original vegetation in North America is generally beneficial for this species, with creation of openings in extensive forests and plowing of grasslands for cereal-grain production of particular importance.

Wood Duck (Aix sponsa)

Wood ducks are a migratory bird and are designated as a Game Bird Below Desired Condition (USFWS 2004). They nest in forested wetlands, including along rivers, swamps, marshes, ponds, and lakes. Mature forests are needed for development of trees with suitable cavities. Wood ducks prefer sites close to or over water and near good brood-rearing areas; depending on availability of cavities, will use nest sites within 2 km of water (Bellrose 1976). Wood ducks are suspected to occur in the planning area but most potential habitat is found at lower elevations and on private land away from existing trails.

Northwestern Pond Turtle (Actinemys marmorata marmorata)

The northwestern pond turtle is designated as an ISSSSP sensitive species. They inhabit ponds, marshes, and slow moving portions of creeks and rivers, which have rocky or muddy bottoms. Partially submerged logs, vegetation mats, mud banks, rocks, and tree branches within ponds or adjacent to slow moving portions of the rivers provide areas for sunning (Nussbaum et al.1983, Stebbins 1985, Brown 1985). They are generally found below 1,850 meters in elevation.

Preferred nesting habitat is dry, clay soil on a southern aspect and can be up to several hundred meters from water. Nesting season is June and July; young hatch in the fall and may overwinter in the nest. NW pond turtles generally overwinter under the terrestrial duff layer but some have been documented hibernating in lentic bottom mud. They have been observed (in other parts of their range) to travel up to 500 meters from water to find overwintering sites. Some individuals are known to utilize terrestrial habitat over ten months of the year. Turtles have been found to generally stay in one place in areas with heavy snow pack, but may move up to 5-6 times in a winter in areas with little or no snow. Consequently, this species is somewhat dependant on upslope as well as aquatic habitat conditions. The steep fast-moving streams, shaded pump-chances and lack of ponds in the planning area represents marginal habitat for this species. Only opportunistic surveys have been conducted and there are no known western pond turtle sites in the planning area. Pond turtles have been observed on private property along Forest Creek within the OHV planning area.

Townsend's Big-eared Bat (Plecotus townsendii)

The Townsend's big-eared bat is designated as an ISSSSP sensitive species. Preferred habitat is caves, crevices, attics and abandoned mines. They have low tolerance to changes in temperature and humidity and removal of trees around these sites may change airflow patterns to make the area less desirable as a hibernaculum, maternity, or roosting site. Food consists primarily of moths, and other arthropods. Maternity roosts and hibernacula each have different, and relatively narrow environmental windows; they are usually in different places, though large adits/mines may have environmental conditions conducive to both maternity roosts and hibernacula. This species is very sensitive to disturbance; known maternity colonies and hibernacula are protected through seasonal restrictions. The standard bat inventory technique of mist netting over water sources does not usually result in captures of this species because their superior echolocation ability allows the bats to detect and avoid the nets. Historic surveys of mine adits documented this species in the planning area.

Fringed Myotis (Myotis thysanodes)

The fringed myotis is designated as an ISSSSP sensitive species. Although considered cave-dwellers, they are habitat generalists and will also occupy buildings or bridges. There are no records of this species occurring in the planning area. They have been documented in the Applegate Valley and little is known of their distribution and abundance in Oregon.

Pallid Bat (Antrozous pallidus)

The pallid bat is designated as an ISSSSP sensitive species. This species is usually found in brushy, rocky desert terrain, but has been observed at edges of coniferous and deciduous woods and in open farmland. Narrow crevices in caves, mine shafts, and buildings serve as day roosts in summer for most pallid bats, but the species has been known to roost in a variety of other places, including rock piles, and hollow trees. Semidarkness and overhead protection characterize day roosts. Pallid bats use night roosts to rest between foraging bouts or to consume particularly large prey. Night roosts usually are near, but separated, from day roosts. Bridges may also be used as night roosts. Warmer temperatures may play a significant role in the selection of night roosts. Other

criteria for suitable night roosts includes darkness, protection from precipitation and wind, and being sufficiently open to allow free flight when the bats are disturbed. Winter roosts of pallid bats are not well known (Verts and Carraway 1998). The Pacific Pallid Bat is intolerant of disturbance and will readily abandon roosts (Csuti et al. 1997). There are no records of this species occurring in the planning area but have been documented in the Applegate Valley.

Chase Sideband (Mondenia chaceana)

The Chase sideband (snail) is designated as an ISSSSP sensitive species. Habitat attributes include lower reaches of major drainages, in talus and rock slides, under woody debris in moist conifer forests, in caves, and in shrubby areas in riparian corridors. Rocks and large woody debris serve as refugia during the summer and late winter seasons (USDA and USDI 2003). This sideband is very difficult to identify and is easily confused for other Monadenia species. Approximately 8,200 acres were surveyed in the planning area and only two locations were suspected to be Chase sideband. The two specimens were sent for confirmation to malocologist expert, Terry Frest. At the time this document was prepared we have not received the identification results and the locations will be managed as positive for this species.

Traveling Sideband (Monadenia fidelis celeuthia)

The traveling sideband (snail) is designated as an ISSSSP sensitive species. Several subspecies of *Monadenia fidelis* may form a large species complex in Oregon and Washington. Although most of these taxa are assumed to be at least geographically separated, the range of variation in many of the morphologic characters used to distinguish between them overlap. This overlap makes individual species identification extremely difficult. In addition, there is evidence that subspecies or geographically separated populations can interbreed if brought into contact, and thus produce offspring with many intermediate characters. The taxonomic relationships among these taxa are actively being revised, based in part on new genetic information. Recent molecular DNA work which included specimens of *M.f. celeuthia* indicate that this species may be more closely related to another species group in southwestern Oregon and northern California, which includes *Monadenia chaceana* and *M. f. leonina* (Cordero and Lindberg, 2002).

Habitat attributes include dry basal talus and rock outcrops, with oak and maple overstory component. Also, they have been found along spring run-off in rocks and moist silty alluvial benches adjacent to creeks with moist vegetation and detritus in mixed conifer-hardwood forest. Current literature states that *celeuthia* is found east of the Rogue Valley. Although very difficult to identify, five specimens were recorded by contract mollusk surveyors in the planning area and the BLM will be managing these locations as positive for traveling sideband.

Great Gray Owl (Strix nebulosa)

Great gray owls in southwest Oregon nest in mature/late-seral mixed conifer and white fir forests, and forage primarily in the meadows/grassland or early-seral stand conditions of conifer forests. GGOs also forage in the forest stands in which their nests are located. The great gray owl was formerly protected as a Survey and Manage species under the Medford District RMP and Northwest Forest Plan. On July 25, 2007, the Under Secretary of the Department of Interior signed a new Survey and Manage Record of Decision that removed the survey and manage requirements from all of the BLM resource management plans (RMPs) within the range of the northern spotted owl. However, surveys for great gray owls were conducted 2003 and 2004 under prior direction. There are two known great gray owl nest sites in the planning area. Project Design Features are included to protect raptor sites during the nesting season.

Species Not Known To Occur But Reasonable Potential Exists

Bald Eagle (Haliaeetus leucocephalus)

On July 9, 2007, it was announced that the bald eagle has been removed from the list of threatened and endangered species (Federal Register 2007). It is protected under the Bald and Golden Eagle Protection Act of 1940. There are no known nest sites within the planning area and the nearest nest is 12 miles away. Bald eagles are associated with coasts, rivers, lakes, and marshes. Eagles require trees with old-growth characteristics in

order to support the weight of their stick platform nests. Nests are used perennially and can weigh as much as 1,800 pounds. They usually only defend a territory for a few hundred meters around the nest site and are typically spaced at least one mile apart. Bald eagles can be observed foraging north of the planning area along the Rouge River and southwest along the Applegate River.

Golden Eagle (Aquila chrysaetos)

While the golden eagle is not a Bureau Sensitive species, it is protected under the Bald and Golden Eagle Protection Act of 1940. There was one active nest discovered in 1992 during bald eagle helicopter surveys. Ground and helicopter surveys in 2003, 2004, and 2006 were not able to relocate this historic nest. It likely was destroyed by wind and not rebuilt. It was located in the western part of the Kane Creek drainage and is one half mile north of the planning area. There have been numerous sightings in the Applegate Valley, and there is the potential for undiscovered nests in the planning area. This species is associated with late-successional habitat in this part of its range; it builds large nests in dominant overstory trees. The nest trees often have significant defect, such as a blown out top or large branches, and are usually one of the largest diameter trees in mature and old-growth stands.

Lewis' Woodpecker (Melanerpes lewis)

The Lewis' woodpecker is designated as an ISSSSP sensitive species. These woodpeckers are rare and irregular breeders in the foothill areas of SW Oregon but tend to be common during the winter (Kemper 2002). Three principal habitats are open ponderosa pine forest, open riparian woodland dominated by larger cottonwood, and logged or burned pine forest (Saab and Dudley 1998). Important aspects of breeding habitat include an open canopy, a brushy understory offering ground cover, dead or downed woody material, available perches, and abundant insects (Bock 1970). They usually do not excavate nest cavities, but most often use cavities excavated by other woodpecker species. They overwinter in low elevation oak woodlands. There have been no confirmed nesting Lewis' woodpeckers or winter observations in the planning area.

Fisher (Martes pennanti)

The fisher is designated as an ISSSSP sensitive species and an ESA candidate species by the USFWS. The key aspects of fisher habitat are commonly described as widespread, continuous-canopy forest at relatively low elevations (Powell 1993). Fishers use habitat with high canopy closure, large trees and snags, large woody debris, large hardwoods, multiple canopy layers, and avoidance of areas lacking overhead canopy cover (USFWS 2007). The abundance and distribution of appropriate prey species and suitable den sites likely contribute to the ability of habitats to support fisher populations (Strickland and Douglas 1987). Fisher also occupy and reproduce in some managed forest landscapes and forest stands not classified as late successional that provide some of the habitat elements important to fisher, such as relatively large trees, high canopy closure, large legacy trees, and large woody debris, in second-growth forest stands.

Besides the extant native Klamath-Siskiyou population and reintroduced southern Cascades population, the fisher is thought to be extirpated from most of its historic range in Oregon and Washington (Aubry and Lewis 2003). There are no density or abundance estimates but it is likely extant fisher populations are small due to the relative reduction in the range of the fisher on the West Coast and the lack of detections or sightings over much of its historical distribution. The Medford BLM has conducted protocol surveys (Zielinski and Kucera 1995) on over 200,000 acres for fisher and has confirmed less than 15 locations. Many of these locations were in close proximity or within an average home range size for female fisher (Powell and Zielinski 1994) and could have resulted in double counting detections. Hair snares are now placed at all stations to obtain samples for genetic analysis. There have been no surveys conducted in the planning area. In 1997, a BLM employee reported seeing a fisher in the Forest Creek drainage. The nearest documented fisher location is eight miles from the planning area.

Siskiyou Mountain Salamander (Plethedon stormi)

Siskiyou mountain salamander is currently classified as an ISSSSP sensitive species. Siskiyou mountain salamanders are strongly associated with talus deposits and fissured rock outcrops. The salamanders utilize the depth of the rock deposits, especially on north facing slopes, as refugium from the arid conditions of the region (DeGross 2004). They are occasionally found under the bark of downed woody debris but only in the wettest of

weather (Nussbaum et. al. 1983). Extensive surveys have not documented any known sites north of the Applegate River and Poormans Creek. Two suspected locations in the planning area were documented by contract mollusk surveyors. The closest of these two locations are over six miles from the nearest documented site. Recent attempts to confirm the species presence in the planning area produced one suspected specimen and a tail sample was sent for genetic analysis to determine species.

Johnson's Hairstreak (Callophrys johnsoni)

The Johnson's hairstreak (butterfly) is designated as an ISSSSP sensitive species. This hairstreak is highly associated with old growth coniferous forests from sea level to 6,000 feet elevation that contain mistletoes of the genus *Arceuthobium*. It spends the majority of its life cycle in the top forest canopies (Scott 1986, Pyle 2002). Adults are reported to sip flower nectar from species including Oregon Grape, Rubus species, ceanothus, and Pacific Dogwood and to visit mud (USDA 2005). There are 52 records in Oregon; most are greater than 2,000 feet elevation with the majority around 3,500 feet elevation. This species has been documented on the Medford District BLM near Moon Prairie, about 15 to 20 miles east of Ashland, OR. The most recent sighting was in Multnomah County, Oregon (USDA 2005). No surveys have been conducted on the Medford District and relatively little is known about this species. Surveys for the species have been determined to be impractical as it spends the majority of its lifecycle high in the canopy of older conifers with mistletoe infection. There are no known hairstreak sites in the planning area.

Species Excluded from Further Analysis

The list of special status species in Table 3-38 were considered in the preparation of this document but were excluded from further analysis. These species were determined to have a very low likelihood occurring in the planning area or their presence would be considered accidental. Any effects from OHVs in the planning area are expected to be discountable or insignificant.

Table 3-38. Potentially Affected Special Status Species Considered.

Common Name	Scientific Name	Occurrence	Status
American Peregrine Falcon	Falco peregrinus	3,4	BS
Black Salamander	Aneides flavipunctatus	1,6	BS
Coronis Fritillary	Speyeria coronis coronis	1,8	BS
Evening Fieldslug	Deroceras hesperium	1,7	BS
Foothill Yellow-legged Frog	Rana boylii	1,6	BS
Franklin's Bumblebee	Bombus franklini	1,6	BS
Lewis' Woodpecker	Melanerpes lewis	1,4	BS
Mardon Skipper	Polites mardon	3,6	FC
Oregon Shoulderband (snail)	Helminthoglypta hertleini	1,7	BS
Oregon Spotted Frog	Rana pretiosa	3,6	FC
Purple Martin	Progne subis	2,5	BS
Siskiyou Hesperian	Vespericola sierranus	1,7	BS
Siskiyou Short-horned Grasshopper	Chloealtis aspasma	3,6	BS
Streaked-horned Lark	Eremophilia alpestris strigata	1,5	BS
Tricolored Blackbird	Agelaius tricolor	2,4	BS
White-headed Woodpecker	Picoides albolarvatus	1,6	BS
White-tailed Kite	Elanus leucurus	1,4	BS

***Status**
FT=Federally Threatened Species, FC=Federal Candidate Species, BS=Bureau Sensitive Species,
** **Occurrence.** Species were considered but excluded from analysis because of very low likelihood of occurrence or accidental occurrence.
1=Potentially suitable habitats may occur in the planning area. Species not suspected to occur or have a lower potential to occur in the planning area.
2=Potentially suitable habitats may occur in the planning area but are located on private lands.
3=Species known to occur in SW Oregon. However, potentially suitable habitats do not occur within the planning area or are extremely limited to support a population.
4=Species are very uncommon or rare migrants within the planning area.
5=Species thought to be extirpated or nearing extirpation from SW Oregon.
6=Species whose known range exceeds reasonable dispersal movements into planning area to have established a viable population.
7=Extensive surveys have not documented this species in the planning area.
8=Lack of information or surveys exists on these species to determine occurrence.

Environmental Consequences

Although there is a considerable body of research publications becoming available concerning recreation and wildlife interactions, significant gaps in our knowledge remains (Joslin and Youmans 1999). Unfortunately, the knowledge gained is disparate, anecdotal and seldom definitive (Knight and Cole 1995). Compounding the challenge is that there is significantly less research available investigating the effects of OHVs on wildlife and the majority of work was in arid environments or winter recreation activities.
OHV activities can possibly impact animals through several avenues: harvest (direct mortality), disturbance, habitat modification, and pollution (Knight and Cole 1995). Pollution is in reference to aquatic based activities and for the purpose of this assessment, most OHV impacts fall into disturbance, habitat modification, and to a lesser degree direct mortality. The impacts are not mutually exclusive of one another, meaning that several can have a cumulative effect. With the exception to non-native, predator, and opportunistic species, the responses to these impacts can have some negative effect to wildlife species. The effects can be direct, such as habitat loss and

fragmentation, or indirect, such as displacement or avoidance of areas near roads in relation to motorized traffic and associated human activities (Wisdom et al. 2000, Gaines et al. 2003).

Determining the effect of noise disturbance on wildlife is complicated because responses vary between species and between individuals of a single population. These variable responses are due to the characteristics of the noise (decibel levels/noise durations well above those of typical ambient noise) and its duration, the life history characteristics of the species, habitat type, season, activity at the time of exposure, sex and age of the individual, level of previous exposure, and whether other physical stresses such as drought are occurring around the time of exposure (Busnel 1978).

Habitats for wildlife are impacted by OHVs in several ways. A noticeable effect is habitat fragmentation and reduced habitat connectivity as OHV roads and trails multiply across the landscape. Reduced habitat connectivity may disrupt animal movement and dispersal, resulting in altered population dynamics and reduced potential for recolonization if a species is extirpated from a given habitat fragment (Gaines et al. 2003).

Table 3-39. Comparison of Effects of OHV Recreation on Wildlife

Road and trail associated factors[a]	Disturbance type[b]	Recreation activity[c]	Definition of associated factors
Collisions	Disturbance type 3	Harvest	Death or injury resulting from a motorized vehicle running over or hitting an animal
Movement barrier or filter	Disturbance type 2	Habitat modification	Interference with dispersal or other movements as posed by a road or trail itself or by human activities on or near roads, trails or networks
Displacement or avoidance	Disturbance type 1	Disturbance	Spatial shifts in populations or individual animals away from human activities on or near road, trails or networks
Habitat loss or fragmentation	Disturbance type 2	Habitat modification	Loss and resulting fragmentation of habitat owing to the establishment of roads, trails or networks, and associated human activities
Edge effects	Disturbance type 2	Habitat modification	Changes to habitat microclimates associated with the edge induced by roads or trails
Snag or downed wood reduction	Disturbance type 2	Habitat modification	Reduction in density of large snags and downed logs owing to their removal near roads as facilitated by road access
Route for competitors and predators	Disturbance type 2	Habitat modification	A physical human-induced change in the environment that provides access for competitors or predators that would not have existed otherwise
Disturbance at a specific site	Disturbance type 1	Disturbance	Displacement of individual animals from a specific location that is being used for reproduction and rearing of young
Physiological response	Disturbance type 1	Disturbance	Increase in heart rate or stress hormones when near a road or trail or network of roads or trails

In summary, the three main impacts of OHV use on wildlife are disturbance, habitat modification, and direct mortality. By implementing an action alternative for the Timber Mountain Recreation Plan the BLM would reduce the effects of these impacts. One way to mitigate for potential effects is through the implementation of the wildlife project design features. With the exception of Alternative 1 (No Action), the miles of existing trails are significantly reduced in each alternative and the resulting indirect effects to all special status species would be beneficial. While active decommissioning is not proposed on non-Federal land as part of this plan (Chapter 2); sufficient law enforcement presence would help to maintain OHV use on routes proposed for management.

Definitions of Effects Determinations

Several phrases will be used to make effects determinations to specific groups of species listed below (modified from Webb 2002).

Threatened or Endangered Species

1. May Effect – Likely to Adversely Affect (LAA):

   If the determination is that the alternative May Effect – Likely to Adversely Affect a listed species or critical habitat, formal consultation must be initiated (50 CFR 402.12). Formal consultation must be requested in writing to the appropriate USFWS office.

2. May Effect – Not Likely to Adversely Affect (NLAA):

   If it is determined that there are "effects" to a listed species or critical habitat, but that those effects are not likely to adversely affect listed species or critical habitat, then written concurrence by the USFWS is required to conclude informal consultation (50 CFR 402.13).

Special Status Species

1. No Effect (NE)

   A determination of "No Effect" for special status species occurs when an alternative will have no environmental effects on habitat, individuals, a population or a species.

2. Negligible Effect (NL)

   A determination of "Negligible Effect" for special status species occurs when an alternative may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or, cause a loss of viability to the population or species. The action would have effects that are immeasurable, minor and would not contribute to federal listing would receive this effects conclusion.

3. Negative Effect (NG)

   A determination of "Negative Effect" for a special status species occurs when an alternative will impact individuals or habitat with a consequence that the action may contribute to a trend towards federal listing or cause a loss of viability to the population or species.

4. Beneficial Effect (BE)

   Alternative or actions that are designed to benefit, or that measurably benefit a special status species should receive this determination.

Species Known or Suspected to Occur

An important reminder to the reader is that with the exception of Alternative 1-No Action Alternative, the miles of existing trails are substantially reduced in each action alternative. While individuals of a given species could still be negatively impacted the resulting overall indirect effects to all species would be beneficial from the selection of any action alternative.

Effects of Alternative 1 – No Action Alternative

Northern Spotted Owl (Strix occidentalis caurina)

Effects of OHVs on spotted owls would likely be limited to disturbance impacts. Under this alternative there is no proposed habitat modification from trail maintenance, trail decommission, or staging area construction. However, there is a higher potential for illegal habitat modification from user created trails. If this occurs, the loss of ground cover could reduce the owl's prey base, but at the same time, it could present foraging opportunities by reducing cover obstacles. Direct mortality from a collision with an OHV has never been reported and is very unlikely. Our understanding of the OHV noise disturbance on spotted owls is still remedial (Hayward 2008a). There is ongoing research studying the effects of OHVs on spotted owls by taking noninvasive hormonal (corticosterone) levels to determine physiological responses and comparing them to behavioral observations (Hayward 2008b). Although they are preliminary results and small sample sizes, results have shown an increase in stress levels in males while there was no effect on corticosterone levels in females. These results were similar to a study of owls living within a quarter mile of logging roads (Wasser et al. 1997). In another study, researchers analyzed noise disturbance from eleven years of forest management activities and determined that activities conducted during the breeding season did not have immediate effects on reproductive success (Damiani et al. 2007). The study did indicate that in high quality habitats, noise may have negative effects on reproductive success overtime but with long-term effects it is uncertain whether the results were caused by noise or changes in habitat quality.

Two years of protocol surveys were completed August 2004 on approximately 4,300 acres of suitable nesting, roosting and foraging habitat in the planning area. As a result one new owl site was located and surveyors documented presence at 9 of the 11 known owl nest sites with only one site confirmed nesting.

Under Alternative 1, two of the known owl nest sites are within 195 feet from a gated road used by OHVs, four sites are within 195 feet of an existing trails and one location is within this distance from both a gated road and trail. The distance of 195 feet is a chainsaw noise buffer that is required during the breeding season by the USFWS for management activities under our biological assessments for spotted owls. Chainsaws have a louder decibel level to that of state legal level for OHVs. Project design features are not included under Alternative 1, No-Action; however, the No-Action Alternative does not preclude the agency from implementing seasonal restrictions needed to mitigate impacts to the northern spotted owl.

Table 3-40. Miles of OHV use in spotted owl habitat on BLM administered lands

Trail Class	NRF Habitat[1]	Proposed Trails in NRF	Acres of NRF[2]
1	8.2	0.0	387.6
2	5.8	0.0	274.2
3	12.8	0.0	605.0
Use on Roads	25.0	0.0	1,177.2
Total	51.8	0.0	2,444.0

1. NRF= nesting, roosting and foraging habitat (also known as suitable habitat) for spotted owls. See Table 3-37 in the affected environment for habitat descriptions.
2. This represents the number of acres of suitable habitat that are currently affected by OHV noise based upon the 195 foot noise buffer distance.

Flammulated Owl (Otus flammeolus)

While suspected to occur, there are no known flammulated owl locations in the planning area. Classified as a migratory bird, flammulated owls are the most migratory owl in North America. There may be disturbance effects to some individuals in this alternative. The effects would be minimal because the species is nocturnal and the diurnal nature of OHV use, the impacts from disturbance are lessened. There would be negligible effects to

the species and its habitat quality because the timing of the disturbance and this alternative does not propose any habitat modifying actions.

Olive-sided Flycatcher (Nuttallornis borealis)
Rufus Hummingbird (Selaphorus rufus)
In this analysis, rufus hummingbirds and olive-sided flycatchers would be jointly assessed based upon similar habitat attributes and potential effects. Both species prefer open forests, or in particular, edge habitats. Flycatchers use perches along edge habitat to forage on insects while rufus hummingbirds are attracted to the early successional nectar producing plants. One impact of OHVs is the creation of habitat fragmentation and edge habitat. Neither of these species would suffer negative effects to this type of impact. The most recent research on OHV trail effects on songbirds resulted in opposite net effects (Barton and Holmes 2007). Barton and Holmes stated "results suggest a positive relationship of proximity to OHV trail on nest desertion and abandonment and a negative relationship of proximity to OHV trail on predation rates of nests built in shrubs". It's possible that predation was reduced by the presence of OHVs. It's uncertain whether either of these species is prone to nest abandonment or would not renest after failure; therefore it is difficult to determine the effects of noise disturbance to these species. Based upon the large range of these species and their use of edge habitat, this alternative would have negligible effects to the species.

Mourning Dove (Zenaida macroura)
Under this alternative, it's likely that some individuals would be impacted by disturbance but the effects would be negligible because, despite being hunted throughout most of its range, the mourning dove remains among the 10 most abundant birds in the United States. Plus, doves may offset disturbance during the nesting season by having up to five or six clutches in a single year (Blockstein and Westmoreland 1993).

Townsend's Big-eared Bat (Plecotus townsendii)
Fringed Myotis (Myotis thysanodes)
Pallid Bat (Antrozous pallidus)
In this analysis these species will be jointly assessed based upon similar habitat attributes and potential effects. Preferred roosting habitat is caves, crevices, attics, snags and abandoned mines. Snags are commonly used as summer roosts. This species is very sensitive to disturbance events and has been documented to abandon roost sites after human visitation (Pierson and Rainey 1994). Mining adits serve as important location for maternal colonies and as hibernation sites. Open roads present ongoing disturbance and if the bats are utilizing those adits, then acclimation can be assumed or habitat attribute conditions are sufficient to tolerate the disturbance. This alternative has a higher potential for user created trails to increase visitation and this disturbance would have negative effects to roosting bats utilizing these sites. Because bats forage at night, this alternate would not affect how the adjacent habitat is utilized outside of roosting.

Chase Sideband (Mondenia chaceana)
Traveling Sideband (Monadenia fidelis celeuthia)
In this analysis the Chace and traveling sidebands (snails) will be jointly assessed based upon similar habitat attributes and potential effects. These species are thought to occur in very low densities in the planning area. Large scale surveys for mollusks in the area only documented a combined 7 sites for these sidebands. Remote chances exist that direct mortality from collisions would occur but if such an event occurs, the effect would not be significant to the species as a whole. While this alternative does propose action that would affect levels of down woody material that serves as refugia for these species, it would not reduce the miles of trails that are currently contributing to habitat fragmentation. Because of reduced effectiveness of law enforcement strategies for this alternative, user created trails would likely continue to be an issue and could impact current levels of down woody material. The high density of trails contributes to habitat fragmentation and can hinder dispersal and recolonization movements. Although, because these species occur at very low numbers and the planning area is on the edge of their range, this alternative would have a negligible effect on either species population.

Effects of Alternatives 2 and 3

Northern Spotted Owl (Strix occidentalis caurina)

Under Alternatives 2 and 3, the potential effects would be substantially lessened by the reduction of trails. The closing and decommissioning of trails would decrease the chance of exposing owls to OHV disturbance. Alternatives 2 and 3 include project design features (see Chapter 2) to mitigate the effects of disturbance to known spotted owl nest sites. Both alternatives have two known spotted owl nest sites located within 195 feet of trails on gated roads and one nest site is within 195 feet of a trail on an open road. The construction of proposed trails and staging areas would not modify spotted owl habitat and are not located near any known owl nest sites. The proposed Staging Area 7 would be constructed and is located at the periphery of nesting (LSOG type 1) and potential only habitat (LSOG type 3). The effect from implementing either one of these alternatives may affect but would not likely adversely affect spotted owls.

Table 3-41. Miles of proposed OHV use in spotted owl habitat on BLM administered lands under Alternative 2.

Trail Class	NRF Habitat[1]	Proposed Trails in NRF	Acres of NRF[2]
1	8.3	1.1	444.3
2	2.2	0.0	104.0
3	5.5	1.3	321.4
Use on Roads	9.4	0.0	444.3
Total	25.4	2.4	1,314.0

1. NRF= nesting, roosting and foraging habitat (also known as suitable habitat) for spotted owls. See table 3-37 in the affected environment for habitat descriptions.
2. This represents the number of acres of suitable habitat that would be affected by OHV noise based upon the 195 foot noise buffer distance.

Table 3-42. Miles of proposed OHV use in spotted owl habitat on BLM administered lands under Alternative 3.

Trail Class	NRF Habitat[1]	Proposed Trails in NRF	Acres of NRF[2]
1	8.4	0.7	430.0
2	1.6	0.0	75.6
3	6.9	1.7	406.5
Use on Roads	8.4	0.0	397.0
Total	25.3	2.4	1309.1

1. NRF= nesting, roosting and foraging habitat (also known as suitable habitat) for spotted owls. See Table 3-37 in the affected environment for habitat descriptions.
2. This represents the number of acres of suitable habitat that would be affected by OHV noise based upon the 195 foot noise buffer distance.

Effects of Alternative 4

Northern Spotted Owl (Strix occidentalis caurina)

Under Alternative 4, the effects to spotted owl would be similar to Alternatives 2 and 3. The additional reduction of trails would further decrease the chances of a spotted owl's exposure to OHV disturbance. This alternative includes project design features (see Chapter 2) to mitigate disturbance effects to known spotted owl nest sites. There are two known spotted owl nest sites adjacent to trails on gated roads and one nest site within the 195 foot buffer distance from an existing trail. The disturbance effects from this alternative may affect but would not likely adversely affect spotted owls.

Table 3-43. Miles of proposed OHV use in spotted owl habitat on BLM administered lands under Alternative 4.

Trail Class	NRF Habitat[1]	Proposed Trails in NRF	Acres of NRF[2]
1	6.0	1.1	343.6
2	1.9	0.0	89.8
3	6.2	0.7	326.1
Use on Roads	3.1	0.0	146.5
Total	17.2	1.8	906.0

1. NRF= nesting, roosting and foraging habitat (also known as suitable habitat) for spotted owls. See table 3-37 in the affected environment for habitat descriptions.
2. This represents the number of acres of suitable habitat that would be affected by OHV noise based upon the 195 foot noise buffer distance.

Effects of Alternative 5

Northern Spotted Owl (Strix occidentalis caurina)

Alternative would provide the greatest protection for spotted owls. With only 8% of the existing trails allowed for use, the chance for disturbance would be significantly reduced. There would be no effects as a result of habitat modification because there are no new trails proposed, the single proposed staging area is existing, and would require only minor modifications, and is located in oak woodlands or LSOG habitat type 4, which does not meet known spotted owl needs. The disturbance effects from this alternative may affect but would not likely adversely affect spotted owls.

Table 3-44. Miles of Proposed OHV Use in Spotted Owl Habitat on BLM-administered Lands under Alternative 5.

Trail Class	NRF Habitat[1]	Proposed Trails in NRF	Acres of NRF[2]
1	1.8	0.0	85.0
2	0.0	0.0	0.0
3	0.5	0.0	23.6
Use on Roads	2.5	0.0	118.2
Total	4.8	0.0	226.8

1. NRF= nesting, roosting and foraging habitat (also known as suitable habitat) for spotted owls. See Table 3-37 in the affected environment for habitat descriptions.
2. This represents the number of acres of suitable habitat that would be affected by OHV noise based upon the 195 foot noise buffer distance.

Effects Common to All Action Alternatives

Flammulated Owl (Otus flammeolus)

Under the action alternatives, project design features for raptors and snag retention would be beneficial to the species. Along with the significant reduction in trails available for OHV use, the effects from these alternatives would be negligible to this species and habitat.

Olive-sided Flycatcher (Nuttallornis borealis)
Rufus Hummingbird (Selaphorus rufus)

The mechanism for disturbance is the same as Alternative 1, but the reduction of trails open for OHV use in the action alternatives decreases the likelihood of exposure to disturbance. There may be disturbance impacts to individuals but the effects to each species would be negligible.

Mourning Dove (Zenaida macroura)

The effects to this species under these alternatives would be further reduced, or effects would be beneficial compared to existing conditions. The effects of disturbance to species and habitat are the same as Alternative 1; however, these action alternatives substantially reduce the miles of trail and potential for impact to this species.

Northwestern Pond Turtle (Actinemys marmorata marmorata)
The selection of any action alternative would have a negligible effect because the reduction of trails further decreases the likelihood of mortality from collisions while the turtles are moving to overwintering sites. Additionally, trail decommissioning reduces OHV access to the limited pond turtle habitat on low elevation private lands. Further protection would be provided by the closing and decommissioning user created trails in proximity potential pond turtle habitat.

Townsend's Big-eared Bat (Plecotus townsendii)
Fringed Myotis (Myotis thysanodes)
Pallid Bat (Antrozous pallidus)
Under the action alternatives all trails that are within 250 feet of mining adits would be closed or relocated unless they are adjacent to an ungated open road. This would reduce disturbance of maternal colonies and adits used for hibernation. No snags would be felled unless they posed safety hazards for trail users or workers. Therefore the risks to summer roost sites would be low. Although, there may be individuals impacted from being flushed from roosts, these alternatives would have a negligible effect to these species.

Chase Sideband (Mondenia chaceana)
Traveling Sideband (Monadenia fidelis celeuthia)
In these alternatives, closing and decommissioning trails would reduce the effects of habitat fragmentation. Also, down woody debris moved for trail maintenance would remain as close to the original location as possible while still considering rider safety. Direct mortality during the wet season may impact individuals. Because these species occur in such low densities and with the reduction of trails, these alternatives may have impacts to some individuals or habitat but the effect is negligible.

Great Gray Owl (Strix nebulosa)
Great gray owls in southwest Oregon nest in mature/late-seral Mixed Conifer and White Fir Forests, and forage primarily in the meadows/grassland or early-seral stand conditions of conifer forests. GGOs also forage in the forest stands in which their nests are located. There are two known great gray owl nest sites in the planning area. The greatest potential for impacts to GGO is disturbance during the nesting season. Project Design Features are included to protect raptor sites from disturbance during the nesting season.

Species Not Known To Occur But Reasonable Potential Exists

Effects of Alternative 1-No-Action Alternative

Golden Eagle (Aquila chrysaetos)
There was one active golden eagle nest discovered in the planning area during bald eagle helicopter surveys in 1992. Ground and helicopter surveys in 2003, 2004, and 2006 were not able to relocate this historic nest and it is assumed to have blown down. In this alternative the historic nest was a quarter mile from an existing non-loop trail. There is limited nesting and foraging habitat in the planning area. A remote chance exists that golden eagles may use the planning area for nesting. The effects from exposure to OHV disturbance may impact individuals but the effect to the species would be negligible.

Fisher (*Martes pennanti*)
There have been no carnivore surveys conducted in the planning area. In 1997, there was an unconfirmed sighting of a fisher in the Forest Creek drainage by a BLM employee. If fishers are in the planning area, they likely occur in very low densities and are at the northern edge of their range. Dispersal north from the planning area is unlikely because of the Interstate 5 corridor and the human populated Rogue Valley. Based upon the existing fragmented habitat and the low likelihood of occurrence, this alternative would have negligible effects to the species and its persistence.

Effects Common to All Action Alternatives

Golden Eagle (Aquila chrysaetos)
An existing trail, described in Alternative 1, located within a quarter mile of a historic golden eagle nest, is proposed for decommissioning under all action alternatives removing any impacts to this historic nest location. Any new nest that is discovered would receive the raptor seasonal restriction described in the project design features. All action alternatives decrease the exposure of potential nesting habitat to OHV disturbance. There is still a slight potential for impacts to unreported nest sites but the effect to the species would be negligible because of the very low likelihood that golden eagles utilize the planning area.

Fisher (Martes pennanti)
All of the action alternatives would have beneficial effects to fisher by reducing trail density and protecting some habitat attributes. There is still the low likelihood of disturbance of dispersing animals in the action alternatives but the effects would be negligible to the species.

Effects Common to All Alternatives

Bald Eagle (Haliaeetus leucocephalus)
There are no known bald eagle nest sites within the planning area and the nearest nest is 12 miles away. They are associated with coasts, rivers, lakes, and marshes. There is limited suitable nesting habitat in the planning area near the Rogue River. Bald eagles nest successfully in proximity to motorized recreational boating, as been the case at several locations on this district. Insufficient research is available to determine if the disturbance produces physiological stress on the bird and ultimately affecting fitness. Unmanaged OHV use in this alternative could disturb undiscovered nest sites but the effects would be negligible to persistence of the species. Any new nest reported would receive seasonal protection buffers.

Lewis' Woodpecker (Melanerpes lewis)
These woodpeckers are rare and irregular breeders in the foothill areas of SW Oregon but tend to be common during the winter in the oak woodlands (Kemper 2002). Lewis' woodpeckers have been sighted in the Rogue Valley and most commonly "flycatching" from perches along roadsides. Conflicting studies show that Lewis' might become agitated and abandon a nest because of prolonged human presence (Bock 1970), while Siddle and Davidson (1991) have documented stable populations in proximity of park development and heavy tourist use. We have no evidence that Lewis' woodpeckers are nesting in the planning area and under this alternative there would be little if any negligible effects to individuals or this species since the potential for their occurrence is low.

Siskiyou Mountain Salamander (Plethedon stormi)
Siskiyou mountain salamanders are strongly associated with talus deposits and fissured rock outcrops. Recently, a suspected specimen was located in the planning area over six miles from the nearest known site. A genetic sample was sent for confirmation since it was a subadult and the dispersal distance was so large. At the time this document was prepared, the BLM has not received the results from the genetic analysis. There are no existing trails or proposed trails that dissect talus deposits or suitable habitat for this species. If this species does occur in the planning area then individuals could be impacted from direct mortality when dispersing across trails in non-habitat. Because there is a low likelihood of occurrence and no trails in suitable habitat, all alternatives would have negligible effects to the Siskiyou mountain salamander.

Johnson's Hairstreak (Callophrys johnsoni)
Although not known to occur, potential habitat exists in the planning area. This species spends the majority of its life cycle in the top forest canopies (Scott 1986, Pyle 2002) and there would be no modification of late-successional/old-growth habitat. Under Alternatives 2-5, trailside brushing and trail construction would trim or cut understory vegetation, which could include flowering species such as Oregon grape and ceanothus, known to be used by this species for nectar. However, because trail maintenance and construction would only affect vegetation along the edges of trails (or narrow corridors in the case of trail construction) these types of activities are not expected to affect *Callophrys johnsoni* even

if they were to occur in the area. This species is also known to visit mud. Under the action alternatives, project design features are included to minimize impacts riparian areas, including seeps and streambanks. Because of the low probability of affecting any aspects of this species habitat, the activities planned under all of the action alternatives are not expected to adversely impact *Callophrys johnsoni*. Under the No-Action Alternative, no trails would be decommissioned including those located in riparian areas; therefore, Alternative 1 could have a slight risk of impacts to individuals of this species utilizing riparian areas.

Fire & Fuels

Affected Environment

Fire Risk

Fire risk is the probability of when a fire will occur within a given area. Historical records show that lightning and human caused fires are common in the project area. Activities within this area such as debris burning, dispersed camp sites, recreational use, and major travel corridors add to the risk component for the possibility of a fire occurring from human causes. The time frame most conducive for fires to occur in the project area is from July through September.

Fire History and Trends

Information from the Oregon Department of Forestry database from 1962 to 2004 show a total of 265 fires occurred throughout the area (Table 3-45). Lightning accounted for 36 percent of the total fires and human caused fires accounted for 64%. Approximately 5 (1.9%) fires have been determined to be caused by vehicle exhaust manifold and/or carbon spark.

Based on observed trends, humans would probably continue to be responsible for nearly two-thirds of the wildfires within the planning area, and most (97%) of these human-caused fires will likely be associated within a quarter-mile of roads. Approximately one third (35%) of the 265 fires occurred on BLM managed lands within the planning area. Approximately 87 percent of all fires from 1962 through 2004 were less than one acre in size (Table 3-46). ODF regulated use closures generally occur from July 14th through October 8th within the planning area considering a ten year average.

Table 3-45. Number of Fires by Cause from 1962 to 2004

Fire Cause	Number of Fires	% by Cause
Lightning	96	36
Equipment/Logging/Chainsaw/Vehicle	36	14
Recreationist/Campfire	10	3
Smoking	20	7
Debris Burning	35	13
Arson	15	6
Juveniles	21	9
Misc.	32	12
Total	**265**	**100**

Table 3-46. Number of Fires by Size Class 1962 to 2004.

Total Number of Fires	Size Class
209	A (<.25ac)
53	B (.26-10ac)
3	C (10.1-100ac)
0	D (100.1-300ac)

Fire Hazard

Fire hazard assesses vegetation by type, arrangement, volume, condition and location. These characteristics combine to determine the threat of fire ignition, the spread of a fire and the difficulty of fire control. Fire hazard is a useful tool in the planning process because it helps in the identification of areas within a watershed in need of fuels management treatment. Hazard ratings were developed for the project area. In general, the existing fuel profile within the project area represents a moderate to high resistance to control under average climatic conditions. Table 3-47 summarizes the percent acres in each fire hazard rating category.

Table 3-47. Fire Hazard Ratings for the Timber Mountain Planning Area

Fire Hazard Rating	Percentage of Acres in each Category
Low hazard	2%
Moderate hazard	48%
High hazard	50%

Based on local knowledge of fire behavior of southwest Oregon, the factors listed in Table 3-48 are used to determine fire hazard ratings for an area: fuel model, presence of ladder fuels, slope, aspect, and elevation. A point system was assigned based on criteria for each of the factors:

Table 3-48. Fire Hazard Point System

Fuel Models	
Fuel Models 1,2,3,8	0 points
Fuel Models 5,6,9	+5 points
Fuel Models 11,10	+10 points
Fuel Models 4,12,13	+15 points
Slope	
Less than 20 percent	+5 points
20 to 45 percent	+ 10 points
Greater than 45 percent	+25
Aspect	
315-360 & 0-68 degrees	5 points
68-135 &293-315 degrees	10 points
135-293 degrees	15 points
Elevation	
Greater than 4,500 feet	- 10 points
Ladder Fuels	
Present	+10 points

Hazard ratings were based on the summation of total points assigned to these factors. Table3-49 displays the point system used to assign of fire hazard ratings.

Table 3-49. Hazard Rating Classes

Points	Hazard Rating
0-24	Low
25-50	Moderate
> 50	High

Field inventory and satellite data was used to establish fuel models and the presence of ladder fuels. This information was used to produce layers for fuel model and ladder fuels in GIS. These two layers along with layers on slope, aspect and elevation which already exited in GIS were used to give a hazard rating to all lands within the project area.

Fire hazard assesses vegetation by type, arrangement, volume, condition and location. These characteristics combine to determine the threat of fire ignition, the spread of a fire and the difficulty of fire control. Fire hazard is a useful tool in the planning process because it helps in prioritizing watersheds and areas within a watershed in need of fuels management treatment.

Fire Suppression

The Bureau of Land Management has a master cooperative fire protection agreement with the Oregon Department of Forestry (ODF). This agreement gives the responsibility of fire protection of all BLM lands within the Timber Mountain planning area to the Oregon Department of Forestry. This contract directs ODF to take immediate action to control and suppress all fires. Their primary objective is to minimize total acres burned while providing for fire fighter safety. The agreement requires ODF to control 94 percent of all fires before they exceed 10 acres in size.

Environmental Consequences

Effects of Alternative 1 (No-Action Alternative)

Under this alternative, OHV use would continue on about 375.8 miles of roads and trails. Past landscape level timber and fuels reduction projects have reduced hazardous fuels in the planning area (fig. 3-27). Ongoing and reasonably foreseeable fuels reduction activities associated with Jackson Creek, Galls Creek, and Foots Creek Fuels Reduction projects will continue to reduce the potential of large scale wildfires in or near the planning area. However, these activities have and will continue to open up the vegetative cover in some areas increasing the potential for OHV users to pioneer new trails. The number of human caused fires has only increased slightly over the last three decades within the project area and that trend is likely to continue. Evidence of OHV caused fire is almost non-existent in the recorded fire history within the project area. ODF regulated use of OHVs would continue to prohibit all motor vehicles from traveling off of developed roads during restricted periods due to high fire danger (from around mid July through early October).

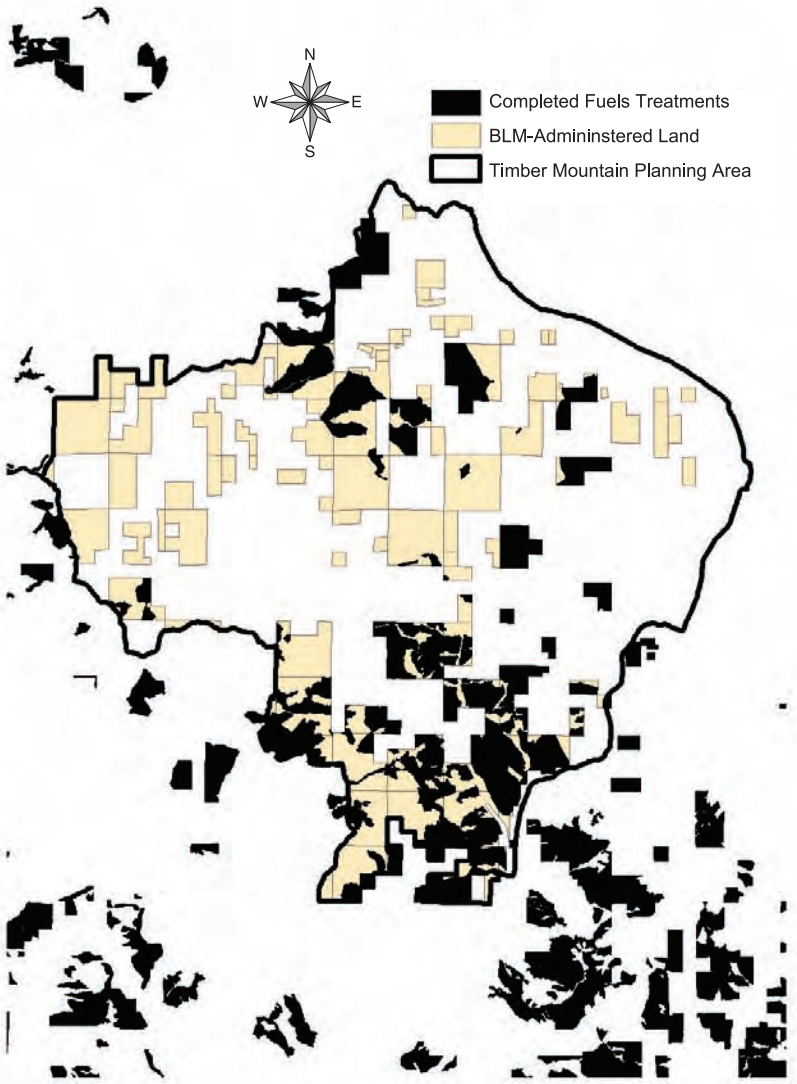


Figure 3-4. Completed fuels reduction treatments within and adjacent to the Timber Mountain Planning Area.

While trails with a mineral soil surface could act as a fuel break similar to that of a constructed fireline, limited management of extensive OHV use throughout the planning area would continue to contribute to a higher risk of human-caused fire ignitions in comparison to the action alternatives. The effectiveness of trails as suppression facilities would depend on the actual width of the trail itself, the condition of fuels along the trail, and the fire weather conditions at the time of a fire ignition. Roads and trail systems along ridgelines could also be used as fuel breaks to compartmentalize wildfires helping to reduce the overall fire spread and size. Trails and roads also improve fire suppression response times by providing access by foot and vehicle to fire starts. Response time of suppression resources is an important factor in containing wildfires early and reducing the potential for large-scale wildfire (size class C or D).

Effects of Alternatives 2 and 3

These alternatives would allow managed OHV use on approximately 139 miles of roads and trails. The risk of human-caused fires would be reduced, in comparison to Alternative 1, by reducing routes open to OHV use by an estimated 63 percent. Although evidence of OHV caused fire is almost non-existent in the recorded fire history within the project area, limiting OHV traffic to developed road systems during fire season would reduce the risk of a hot manifold or exhaust sparks igniting vegetation. State regulations requiring OHVs to be equipped with spark arresters also mitigates the potential for OHV related fire ignitions. Planned compliance patrols would be implemented to ensure riders are equipped with spark arresters and are staying on routes designated for OHV use. ODF regulated use of OHVs would continue to prohibit all motor vehicles from traveling off of developed roads during restricted periods due to high fire danger (from around mid July through early October). Existing BLM roads will still be accessible to BLM and ODF personnel during fire suppression activities.

Past landscape level timber and fuels reduction projects have reduced hazardous fuels in the planning area (fig. 3-27). Ongoing and reasonably foreseeable fuels reduction activities associated with Jackson Creek, Galls Creek, and Foots Creek Fuels Reduction projects will continue to reduce the potential of large scale wildfires in or near the planning area. However, these activities have and will continue to open up the vegetative cover in some areas increasing the potential for OHV users to pioneer new trails. As discussed above, planned compliance patrols under the action alternatives will ensure OHV users are staying on designated routes.

Access to areas along maintained trails and road systems could decrease the difficulty of wildfire containment by improving access and fire suppression response times. Trails with a mineral soil surface can act as a fuel break similar to that of a constructed fireline. The effectiveness of trails as suppression facilities would depend on the actual width of the trail itself, the condition of fuels along the trail, and the fire weather conditions at the time of a fire ignition. The miles of trails maintained for OHV use would be reduced in comparison to Alternative 1; however, would be greater than number of miles of trail maintained under Alternatives 4 and 5. Trail and road systems along ridgelines could be used to compartmentalize a wildfire occurring in the area. Compartmentalization of a wildfire can help reduce the fire size.

Effects of Alternative 4

This alternative would allow managed OHV use to occur on approximately 71.2 miles of roads and trails on BLM lands only. The risk of human caused fires would be reduced slightly for a large portion of the planning area by focusing OHV use in the southern portion of the planning area. Although, the risk of human-caused fires could increase slightly in the Forest Creek and China Gulch drainages, as more concentrated OHV recreation would occur in these drainages. State regulations requiring OHVs to be equipped with spark arresters, mitigates the potential for OHV related fire ignitions along routes and areas designated for OHV use. Planned compliance patrols would be implemented to ensure riders are equipped with spark arresters and are staying on routes designated for OHV. ODF regulated use of OHVs would continue to prohibit all motor vehicles from traveling off of developed roads during restricted periods due to high fire danger (from around mid July through early October). Existing BLM roads will still be accessible to BLM and ODF personnel during fire suppression activities. Because the evidence of OHV caused fire is almost non-existent in the recorded fire history within the planning area, and limiting OHV traffic to approved trails and road systems would reduce the risk of a hot manifold or exhaust sparks coming into contact with vegetation, the potential for fire starts from OHV use would still be low.

Access to areas along maintained trails and road systems could decrease the difficulty of wildfire containment by improving access and fire suppression response times. Trails with a mineral soil surface can act as a fuel break similar to that of a constructed fireline; however, the effectiveness of trails as suppression facilities would depend on the actual width of the trail itself, the condition of fuels along the trail and the fire weather conditions at the time of a fire ignition. The miles of trails maintained under Alternative 4 would be substantially reduced in comparison to Alternatives 1, 2, and 3. However, the miles of OHV routes maintained would be concentrated in the Forest Creek and China Gulch drainages where past landscape level timber and fuels reduction

projects have reduced hazardous fuels in the planning area (fig. 3-27). Additionally, the density of roads in the Forest Creek drainage provides excellent vehicle access ensuring timely fire suppression response times. Trail and road systems along ridgelines could be used to compartmentalize a wildfire occurring in the area. Compartmentalization of a wildfire can help reduce the fire size.

Effects of Alternative 5

This alternative would allow managed OHV use to occur on approximately 30.5 miles of roads and trails. The risk of human caused fires would be reduced slightly for a large portion of the planning area by focusing OHV use in the central portion of the planning area. The risk of human-caused fires could increase slightly along routes and areas designated for OHV use, as there would be increased recreational pressure in a smaller area. Again, evidence of OHV-caused fire is almost non-existent in the recorded fire history within the planning area. Limiting OHV traffic to approved trails and road systems will reduce the risk of a hot manifold or exhaust sparks igniting vegetation. Planned compliance patrols would be implemented to ensure riders are equipped with spark arresters and are staying on routes designated for OHV use. ODF regulated use of OHVs would continue to prohibit all vehicles from leaving main road systems from around mid July through early October. Existing BLM roads will still be accessible to BLM and ODF personnel during fire suppression activities.

Access to areas along maintained trails and road systems could decrease the difficulty of wildfire containment by improving access and fire suppression response times. Trails with a mineral soil surface can act as a fuel break similar to that of a constructed fireline; however, the effectiveness of trails as suppression facilities would depend on the actual width of the trail itself, the condition of fuels along the trail and the fire weather conditions at the time of a fire ignition. Trail and road systems along ridgelines could be used to compartmentalize a wildfire occurring in the area. Compartmentalization of a wildfire can help reduce the fire size. The miles of trails maintained under Alternative 5 would be substantially reduced in comparison to all other Alternatives and would therefore provide benefits as fire suppression facilities for only a small portion of the planning area. Past landscape level timber and fuels reduction projects have reduced hazardous fuels in the planning area (fig. 3-27); ongoing or reasonably foreseeable fuels reduction projects will continue to reduce hazardous fuels throughout the Birdseye, Galls, and Foots Creek drainages.

Recreation Resources

OHV Recreation - Trends in OHV Use

Affected Environment

Presently the State of Oregon has at least 42 OHV sites; of these sites 26 are under the jurisdiction of the U.S. Forest Service, BLM (8), Oregon Parks and Recreation (1), Oregon Department of Forestry (2), counties (3), and others (2); other small sites not included in the tally. Most of the larger sites are in rather remote areas, generally 15 to 50 miles from any sizable community. The proposed Timber Mountain OHV site is thus unusual in being in close proximity to several urban areas and rural residential areas making it easily accessible to OHV users.

OHV use has less public resistance in some other areas of the state, not only because of their remoteness but because they are designated areas with established trails and sufficient enforcement to manage the behavior of users. According to agency supervisors at the large East Fort Rock and Millican Valley OHV sites east of Bend and the Prospect site northwest of Medford, relative isolation and persistent enforcement of rules eventually reduces many of the problems that have been reported in the Timber Mountain OHV area.
The Timber Mountain area is a popular recreation area for off-highway vehicles (OHVs) and has been used by

OHV enthusiasts for about 40 years. Off-highway vehicle use has increased on BLM lands throughout southwest Oregon in recent years. Factors contributing to the increased popularity of OHV use include greater public interest in unconfined, outdoor recreational opportunities; rapid population growth across western cities; and rising disposable income for use on recreational pursuits.[2]

The Motorcycle Riders Association (MRA) has about 500 family memberships (usually with one to three participants from each family) plus additional individual members. The MRA sponsors three major permitted events in the planning area each year, the Hare Scrambles in April and the Poker Run in May and October. The Hare Scrambles are a timed event and have 85 to 135 entrants. Poker Runs have no time limit (thus no need to race) focuses on the "luck of the draw" as riders pass different stations and pick up a card. About 270 to 380 riders participate in the poker run events. The MRA also sponsors an event at the Prospect OHV Area and Diamond Lake site on Forest Service administered lands.

OHV users are drawn from a broad cross-section of Oregonians. According to Oregon State University's 1999 OHV user survey, Sixty percent of users were males, the majority between 35 and 54 with a mean age of 45. Two-thirds were high school graduates or had some college education and another 14 percent had a bachelor's degree. Over half grew up in a rural area or small town. The mean number of years of riding was 16 and riders spent about 6 hours annually as a volunteer for work parties and events. Only 5 percent had a family member that belonged to user clubs, even though mean annual dues were only $19. The duration of the last trip of each person sampled was as follows, in percentages: one day (41 percent), 2-3 days (35 percent) and longer yet (24 percent).

Under the current management situation (Alternative 1), OHV use will continue growing over time due to both the increasing population in the analysis area, as well as the growing popularity of OHV riding. The trend has been for OHV use to be increasing over time in the analysis area and there is no reason to believe that this will be curbed. Also, there is a current trend towards quad vehicles that are better for family use.

The Timber Mountain area has OHV riding opportunities that are unparalleled to others in the inland region of Oregon. There are six other ATV areas on public lands within 150 miles of the Medford area. These include: Cottage Grove, Diamond Lake, Elliot Ridge, Galice, Huckleberry, McGrew 4WD, and the North Umqua riding areas. However, none of these areas have the diversity of riding conditions and the high miles of trails that are present in the Timber Mountain OHV area.

The situation at the Timber Mountain area reflects a common theme on federally managed lands; rapid growth in OHV use in recent years. In Oregon the number of new OHV's sold (which include motorcycles and 4 wheel vehicles or quads) increased from approximately 10,000 to 20,000 from 1998 to 2003 (Motorcycle Industry Council, 2005). From 1999 to 2003, the number of Oregon households with OHV's increased from 80,000 to 145,000 (Johnson and Leahy, 1999; MIC, 2005). Additionally, participants in the statewide trails planning process ranked the need for new motorized trails and motorized riding areas as the top statewide issue (Oregon State Parks, 2005). The most popular OHV area in the state is the Oregon Dunes National Recreation Area (Blanchard, personal communication, 2005). In southern Oregon, OHV use on public land has increased rapidly in recent years. All terrain vehicle (ATV) permits are required to ride a motorcycle, 3-wheeler, or 4-wheeler (quad) on federal lands. As such, ATV permits are a good indicator of demand for recreational use of OHV's on public lands. Records for ATV permit sales at vendor locations in southern Oregon showed about a 24 percent increase in ATV permit sales from 2002-2004 (Oregon State Parks, 2005a). Additionally ATV use in southern and south central Oregon has grown 155 percent from 1987 to 2002, or about 10 percent per year (Oregon State Parks, 2005b).

These findings are consistent with long term trends in OHV participation noted by Mr. Cam Lockwood, a Forest Service OHV planning expert. Mr. Lockwood (personal communication, 2005) noticed that the long-term trend is that ATV use has been rapidly increasing. This observation is consistent with remarks made by Mr. Dick Dufourd, (personal communication, 2005) an OHV planning expert in Oregon, who has noticed that OHV use

2 US Department of the Interior, Bureau of Land Management. 2001. National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands. Washington, D.C.

has increased on public lands in Oregon. Continued growth in OHV use in the Timber Mountain OHV area will be driven by population growth in southern Oregon, and the increasing demand for recreation expected to accompany the retirement of the baby boomer generation. Another recent trend with respect to OHV use is more family-oriented and destination types of recreation. Mr. Dufourd indicated that for eastern Oregon, he has observed more ATV family-oriented use, and that more of the users are from outside the eastern Oregon area. According to Mr. Paul Amar, the east Ft. Rock area, which has 318 miles of trails, receives about 20,000 visits per year, and the season for this area is only about six months, due to fire danger in late summer and because some portions of the riding area are inaccessible in winter. In comparison, the Timber Mountain OHV area has 376 miles of trails (public and private land), is most popular during about 9 months per year, and is closer to major population centers than the east Fort Rock area.

In summary, trends in Oregon point to increased use, particularly for ATVs, and more destination-oriented OHV use. Areas that offer OHV riding will very likely see increases in use during the next one to two decades.

Environmental Consequences

Effects of Alternative 1 (No-Action)

As a result of these trends, a key part of the analysis of impacts needs to address how much OHV use will occur in the Timber Mountain area in the future under the No-Action Alternative. The following discussion provides an estimate of the expected future OHV use for the Timber Mountain area over 10 and 20 year planning horizons.

Forecasting Future Use – Approach

Projecting future OHV use involved five steps:

1. Determine the factors that influence use.
2. Determine the areas where users live.
3. Determine the population levels and growth rates for each area.
4. Determine the current level of use within the Timber Mountain area.
5. Determine the influence of special OHV riding events on future use.

Previous approaches to forecasting future recreation use have relied on a combination of social, economic, and demographic variables to estimate use (Cordell et al, 1999). Among these factors age and population levels in the area where recreation users live have been shown to be most highly associated with future participation. Projections for the Timber Mountain area incorporate annual county population growth rate estimates derived from U.S. Census Bureau statistics for the years 2000 to 2007. For areas outside of southern Oregon, population growth was assumed to be equal to the annual growth rate for the entire state. Age was not used to project use. Since age may exert both positive and negative influences on OHV use, its use as a predictor is not as straightforward as population growth.

Another factor often used to forecast recreation use is the supply of resources. In the current analysis, use is projected for a number of management alternatives which provide differing levels of access to riders. However, a key assumption of the current projection exercise for the Timber Mountain area is that the miles of OHV routes do not change after initial development. Another assumption is that the current annual OHV use period of about 34 weeks, stays the same. The projection does not analyze any management scenarios where the most popular OHV use season changes. Nor do the projections consider factors such as changes in population income, changes in gas prices, or other economic factors. Finally, projections are only focused on the supply of OHV routes in the Timber Mountain area. Possible substitute areas were not considered in the projections, and nor was a social/user experience carrying capacity limit considered. County population information was taken from the U.S. Census Bureau's population estimates for 2000 and 2007.

Forecasting Future Use – Assumptions and Results

Assumptions regarding the counties where OHV users live were based on professional judgment, and a survey conducted by Johnson and Leahy (1999) indicating that on the average OHV participants traveled 116 miles

to recreate. For this analysis, Jackson, Josephine, Lane, and Douglas counties were used. These counties were assumed to make up 85 percent of the visits to the Timber Mountain area. The remaining 15 percent of trips were assumed to be taken by users living in other areas of Oregon. The 15 percent figure is based on the 1999 OHV survey conducted by Johnson and Leahy.

Use for the No Action alternative was estimated based on the estimates of current use provided by BLM's recreation planner, Dennis Byrd. Mr. Byrd gave estimates of daily OHV use, seasonal trail accessibility, and OHV user attendance at special events in the Timber Mountain area. According to Mr. Byrd's estimates current use is likely between 10,000-16,000 riders (each rider represents one visit) per year. This range is based on professional best judgment based on numerous observations of OHV use since 2005 in the Timber Mountain area.

Specifically this estimate assumes the following use patterns:

The annual period of use, when riding conditions are considered optimal, is about 32 to 35 weeks. The area receives some use during the winter months, but use generally declines due to inclement weather conditions. Use also tends to decline substantially during fire season when OHV use is restricted to developed roads, and high temperatures and dust reduces the quality of the OHV experience. The area is restricted for approximately 120 days per year due to fire danger.

- There are 10 to 20 riders per day during weekdays (Monday through Friday)
- There are 100 to 150 riders per day during weekend days (Saturday and Sunday)
- There are one to two OHV races per year that on the average are attended by 85 to 135 riders per event
- There are two OHV "poker runs" per year that on average are attended by 270 to 380 riders per event.

It is assumed that attendance at special OHV riding events (e.g., Poker Runs, races) will grow at a rate proportional to the assumed growth in OHV use. Increases in OHV use at Timber Mountain could lead to additional numbers of requests for special OHV riding events in the future.

As a result of uncertainty associated with projecting OHV use, three scenarios were evaluated for each alternative; low, medium, and high scenarios. Projections were made for 10 and 20 year planning horizon. Beyond 20 years, projections are at best an "order of magnitude" estimate (Loomis and Walsh, 1997). This approach is commonly used in preparing regional and national trends on recreation participation on federal lands (Cordell et al., 1999). The three projection scenarios include the following assumptions.

Low growth scenario- This is the most conservative growth scenario. OHV use grows in the Timber Mountain area at the same rate as the populations of the counties where OHV users live. This growth figure varies from 0.5 percent to 1.3 percent per year. This is a conservative assumption, given that OHV use has been growing at a rate faster than the county populations where users live.

Medium growth scenario- OHV use for all areas grows in the Timber Mountain area at three percent per year. This growth figure is slightly higher than the low growth scenario.

High growth scenario-OHV use for all areas grows in the Timber Mountain area at six percent per year. This figure is still four percent less than the recent long-term growth rate in ATV use in southern and south central Oregon from 1987 until 2002. This growth rate allows use to increase by about a factor of 1.8 during a ten year planning horizon, and to more than triple over a 20 year period.

Results of the use estimates are reported in trips below (see Table 3-50). A trip is considered a visit, of any length of time, for one OHV rider. This unit of measurement is consistent with the current method of recreation use reporting by the USDA Forest Service and Oregon State Parks.

Based on the medium scenario, results indicate that within the next 10 years, the number of trips to the Timber Mountain area will increase approximately 34 percent, from 13,260 to 17,820 under the No Action alternative. Under the high growth scenario for 2017, the number of trips is expected to increase by just under 80 percent to 23,949. By 2027 under the high growth scenario, the number of trips is expected to more than triple to 51,531 trips. It should also be noted where the largest increases are expected to occur. The largest increase is from the county in which Timber Mountain area is located, Jackson County. According to the Census Bureau, this area has experienced recent annual population growth of 1.3 percent. In contrast, Douglas County only experienced annual population growth of 0.5 percent. However, based on interviews with OHV planning experts it was agreed that OHV use within the Timber Mountain area could double or triple during the next 20 to 30 years.

Table 3-50. Projected OHV use Trips for No-Action Alternative for the Timber Mountain Area

	Low	Medium	High
2007	10,453	13,260	16,068
2017	11,850	17,820	28,774
2027	13,437	23,949	51,531

The effects analysis for the action alternatives addresses the same topic areas that were identified in the No-action Alternative effects analysis. Each effect is reported in terms of how the expected impact compares with the other action alternatives, and how the impact compares with the No-action Alternative.

Effects of the Action Alternatives

Under Alternative 2, there will be many improvements to OHV use that will mitigate impacts to the analysis area. There will be improved access, signage, trail maintenance, and loading/unloading facilities that would make OHV trails more enjoyable for OHV enthusiasts (see section titled Quality of the OHV Experience). The Management Plan would also improve the effectiveness of the enforcement of rules and regulations, which would make riding more enjoyable for most OHV users, who want to ride in a safe and regulated area.

Alternative 3 will have very similar effects to that of Alternative 2. Alternative 4 will also have similar impacts, although with fewer miles of trails, which makes it less appealing to OHV users. Alternative 5 is also similar to these other alternatives, but with even fewer miles of trails maintained than in Alternative 4.

Forecasting Future Use

Using the assumptions established in the use estimates for the No Action Alternative OHV use was estimated for each management alternative proposed by the BLM. The alternatives differ by the miles of accessible riding trails and by the improvements proposed to the riding area. Following the economic theory of demand for any good or service, the number of visitors to a particular recreation area depends on the costs associated with visiting the area as well as the quality of the recreation experience the area affords. For example, fewer users would visit a remote OHV area with a small number of poorly maintained trails than would visit a nearby OHV area with numerous trails that are well maintained. For this reason, our analysis considers the quality of OHV recreation experience afforded by each management alternative when projecting future use.

Alternatives 2 and 3 reduce total miles of rideable trails compared to the No-Action alternative but also include numerous improvements to the area designed to enhance the experience for users. This analysis anticipates that OHV use under Alternatives 2 and 3 will be approximately 90 percent of the current level. On the other hand, Alternatives 4 and 5 reduce the number of trails to the point where congestion could occur and fewer OHV users are expected to visit Timber Mountain. Because of the decrease in total miles of trials and the potential for congestion, under these alternatives, the analysis assumes that OHV use under Alternatives 4 and 5 will decrease to 75 percent and 50 percent of current use respectively. Specific information about the characteristics of each alternative can be found in chapter 2. Projected use figures are given in the table below (see Table 3-51).

Due to the net loss in total miles of trails, Alternatives 2 and 3 are expected to result in a reduction in overall use compared to the No Action alternative, but not by much. While some users will be less inclined to visit due to loss of trails, others will be more inclined to come due to the greater degree of management, maintenance, and facility development. Under both Alternatives 2 and 3, the medium expected use is 16,038 for 2017, and 21,554 for 2027. The low and high estimates range between 12,097 and 46,378 for 2027. Alternative 4 is expected to produce a further reduction in the use compared to the No-action Alternative with 13,365 visits expected in 2017, and 17,962 in 2027. Alternative 5 is expected to result in even less use, with 8,910 expected in 2017, and 11,975 in 2027.

There are several factors that may constrain Timber Mountain OHV use in the future. Some of these factors include high gas prices, lack of parking or trailhead areas, or changes in social encounters while riding. Carrying capacity standards generally have not been set for OHV areas. However, Dick Dufourd indicated that for the east Fort Rock area a standard of one encounter with other rider(s) per ten miles of trail ridden was set to measure the quality of the riding experience for that area. According to Mr. Dufourd that standard is currently being met "on the average," but not during peak use periods. The supply of trails for ATV users that are highly suitable to this type of use (as opposed to motorcycle use) may constrain use. As the proportion of ATV continues to increase users may find the supply of suitable trails to be too limited or crowded. Finally changes in land ownership in the Timber Mountain area may fragment or disrupt the trail networks, which could in turn, decrease use.

Table 3-51. Projected OHV use trips by alternative for the Timber Mountain OHV area .

	Current and Projected OHV use at Timber Mountain (visits)								
	2007			2017			2027		
	Low	*Medium*	*High*	*Low*	*Medium*	*High*	*Low*	*Medium*	*High*
No Action	10,453	13,260	16,068	11,850	17,820	28,774	13,437	23,949	51,531
Alternative 2	N/A	N/A	N/A	10,665	16,038	25,897	12,093	21,554	46,378
Alternative 3	N/A	N/A	N/A	10,665	16,038	25,897	12,093	21,554	46,378
Alternative 4	N/A	N/A	N/A	8,887	13,365	21,581	10,078	17,962	38,648
Alternative 5	N/A	N/A	N/A	5,925	8,910	14,387	6,718	11,975	25,765

OHV Recreation - Quality of OHV Experience

Affected Environment

The quality of experience for an OHV user varies greatly depending on the values of the individual user. A wide range of expectations exist dependent on user skill level, amount of trail, trail conditions, type of trails, terrain, location, scenery, number of users, and held values. The quality of the OHV experience will also change at different places and times within the same management area. A user might enjoy a primitive, difficult trail on one occasion and then also value a social event such as a highly attended "poker run" held on easier roads and trails on another occasion.

User skill often determines the type of experience that is desirable to individual OHV users. Most users will travel longer distances and utilize increasingly difficult roads and trails as they become more experienced. Beginner or novice users tend to travel shorter distances and use easier roads and trails. Experienced users may travel over 100 miles in a single day (Wernex 1994).

Trail length and scenery are two criteria by which users measure the quality of an OHV experience. A study by the State of Washington found that the average off-highway motorcycle rider likes to ride 50 to 60 miles of trail per day (Wernex 1994). A survey completed by the state of Colorado indicates 60 miles of trail as the minimum for a good OHV system (Crimmins 1999). A lengthier system is desirable to satisfy multiple user visits to the same system and experienced users who may travel over 100 miles a day (Wernex 1994). The American Motorcyclist Association suggests a trail system of 200 miles or more to satisfy the user who visits the same system on multiple occasions. While traveling, users prefer scenery that is indicative of a semi-primitive or primitive experience. While users prefer amenities and easily accessible trailheads or staging areas, they enjoy trails and roads that convey a feeling of traveling through the natural landscape. In forested areas users take pleasure in roads and trails that have canopy cover and weave near trees. On ridge tops and at high elevations users like to have scenic views of the surrounding landscape.

Users prefer to travel across diverse terrain including changes in slope, direction, and elevation. The condition of trails is also important to users. Roads and trails that don't have deep ruts, which have not been degraded from excessive erosion, are not overgrown with trees and brush, and most importantly those that are passable are the types of roads and trails valued by OHV users.

OHV loop opportunities add to the quality of experience by allowing users to travel through different sections of trail and pass through different scenery for the entire loop. This is preferred to out-and-backs as most users like to avoid going over the same spot twice (Wernex 1994). Users like to feel that they have been somewhere and covered a large area. Loop opportunities capture this feeling better than out-and-back roads-and-trails. Roads and trails that are easily identified and signed in a manner that allows ease of use increase a user's quality of experience.

Hill climbs are a highly valued feature to OHV users, although they are a concern from a resource protection perspective. Another valued feature of OHV users is the preference to use areas that are not in close proximity to residential areas. Most users are willing to travel great distances seeking a backcountry experience.

Off-highway motorcycles and ATVs are normally hauled to the riding areas and locations are needed to park and unload. Staging areas that provide parking for individual users and for larger OHV event type uses are desired by users. Staging areas that provide easy and safe unloading and loading are beneficial to users. Facilities such as restrooms, informational/educational signs, and posted rules and regulations add to a quality experience. Federal and state agencies often have employees present throughout an OHV system to conduct trail maintenance, provide customer service, insure rules and regulations compliance, promote responsible OHV use, provide OHV education, and gather OHV data. This type of program adds to the quality of experience for

OHV users through improving trail conditions, collecting visitor use pattern data, and information on potential resource impacts that can then be managed.

OHV users prefer trails to roads for OHV recreation. Most intermediate and experienced users prefer trails that are just wide enough to accommodate their OHV. Class 1 trails, those designed for vehicles with three or four wheels and 50 inches wide or less, are preferred by ATV users. The tread width for class 1 trails varies from about 48 to 60 inches. Class 2 trails that are designed to accommodate vehicles wider then 50 inches. This generally includes 4-wheel drive SUVs, side-by-side utility vehicles, jeeps, and pickup trucks. Class 3 trails are designed to accommodate vehicles on two wheels (motorcycles). The tread width varies from 12 to 30 inches. Class 3 trails are the preferred type of trail for off-highway motorcycle users.

The acceptable level of use encountered while still maintaining a quality experience is highly variable. At different times and places an OHV user may enjoy the social experience of a crowded staging area, road, or trail and then at a different time and place enjoy the feeling of solitude. Use capacity on an OHV system is a value that is determined by trail users. Because of the highly variable nature in the amount of use that is acceptable before the quality of experience declines, a quality experience to OHV users is best provided by offering opportunities for both primitive and higher density use.

Individual OHV user values determine the quality of an OHV experience. The quality of the users experience increases with more trails, varied trail terrain, pleasant scenery, and good trail conditions. To satisfy a majority of OHV users, an OHV roads and trails system that offers the following is desirable; 1) good trail conditions, 2) diverse terrain, 3) a range of roads and trails that can satisfy different skill levels, 4) enough roads and trails so that a rider will not have to encounter the same road or trail over the course of a day 5) technically challenging trail features 6) appropriate use width trails 7) some amenities (i.e. signs, restrooms) and 8) opportunities for both a primitive type experience and a social experience within the same roads and trails system.

Environmental Consequences

Effects of Alternative 1 - No Action Alternative

Alternative 1, the no action alternative, describes the current management situation regarding OHV use and management in the Timber Mountain planning area. A system of designated trail routes would not be identified and no additional development or modification of facilities would be authorized. All existing trails on BLM administered lands would continue to be open to OHV use and no trail decommissioning would occur. Because no cooperative agreements between the BLM and adjacent private land owners would be pursued under the No-Action Alternative, there would be no mechanism in place for managing a trail system across ownership boundaries.

Currently, about 88.3 miles of trails and 97.3 miles of roads exist on BLM administered lands. OHV use is also occurring on adjacent private land. The BLM estimates that about 92.2 miles of trails and 98.1 miles of roads on private lands are used within the planning area used by OHVs. Combining both private and public land there is estimated to be approximately 375.9 miles of OHV routes (roads and trails) within the planning area (Table 2-1) (Map 2-1). The miles of roads and trails currently used on private lands may not continue without a management plan and cooperative agreements in place to guide OHV management across ownership boundaries. The discussion below assumes the current mileage of trails would remain. However, while there are no guarantees under any alternative that all current participants will continue to work cooperatively with the BLM, the likelihood for cooperative management of a multi-jurisdictional OHV area is substantially diminished under Alternative 1.

Alternative 1 does not allow for enhancement of the OHV recreational experience. Comparing the current range of OHV experiences at Timber Mountain OHV Area with an “ideal” range of experiences shows that there are gaps that could improve the overall quality of the recreational experience to OHV users. Under Alternative 1, no development of staging areas would occur. OHV use would continue to be limited to existing roads and trails,

which would likely be used in their current state. Improvements that would increase the quality of the experience to OHV users in the Timber Mountain OHV Area would not occur. While Alternative 1 does not preclude future trail maintenance, opportunities for funding would be limited under Alternative 1 (No-Action) without a management plan to in place to guide the areas management.

With 375.9 miles of OHV routes in the Timber Mountain OHV planning area, more routes exist than recommended as minimum route length for an OHV system by the American Motorcyclists Association (60 miles for OHV day use and 200 for multi-day OHV users) and more than the state of Colorado found that OHV users typically used in one day (60 miles) (Crimmins 1999). The current level of total OHV route length (375.9 miles) provides sufficient route lengths for both OHV day users and multi-day users.

With the route length at its current level (375.9 miles) it is likely that all OHV user skill levels are accommodated at a high level. OHV users seeking both backcountry and social experience are able to find their desired experience within the routes currently offered in the planning area. The current level of routes also offers significant loop opportunities that provide users the ability to travel through different areas while riding. While the amount of OHV routes and the associated length of these routes do not change on BLM administered lands, the opportunity for OHV use on adjacent private lands could decrease in the future. With the checkerboard pattern of BLM administered lands; this could potentially lower the quality of the experience for OHV users.

Diverse terrain and trail features are encountered on the roads and trails in the Timber Mountain planning area as it is currently managed. This includes climbing turns and changes in slope, direction, and elevation. With the low or non-existent level of maintenance and improvements under Alternative 1, there is a possibility that future closures for resource damage could reduce the amount of diverse terrain and trail features available to OHV users.

Alternative 1 does not provide the opportunity for trail improvements that would enhance the OHV recreation experience as stated in the Purpose and Need (Chapter 1). Without a plan in place to guide the management of the OHV area, funding opportunities would likely be more limited. Trail maintenance and signage, although not excluded by Alternative 1, would likely take place at substantially lower rates. Limited trail improvements and maintenance would reduce the quality of the OHV recreational experience.

The existing Bunny Meadows staging area would remain under Alternative 1. Facilities such as restrooms and eating areas that are often located in staging areas are not included in Alternative 1; these types of facilities are valued by OHV users. Staging areas provide safe places to park, load, and unload for users, as well as a place for socialization among the OHV community. Staging areas also provide places for dissemination of OHV rules, regulations, safety information, and educational material. By not improving the existing or providing additional staging areas, Alternative 1 does not enhance the OHV recreation experience.

Effects of Alternative 2

Alternative 2 provides for dispersed OHV use access to the Timber Mountain planning area, however, this alternative would reduce the overall trail density. The OHV system proposed for management is dispersed across BLM-administered, private, and City of Jacksonville land. This would require the development of cooperative agreements between the BLM and adjacent participating private land owners to manage a system of trails across private lands to provide connectivity from one BLM-administered parcel to the next.

Total length of roads and trails available for OHV use under Alternative 2 are 138.9 miles (Table 2-2) (Map 2-2). This is a decrease in use of 236.9 miles of roads and trails compared to Alternative 1, the No-action Alternative (Table 2-1). The miles of roads and trails to be managed for OHV use under Alternative 2 and 3 is similar, 138.9 miles and 138.1 miles respectively. Alternative 2 would manage a greater number of miles of trails and roads open to OHV use compared to Alternatives 4 (71.2 miles) and 5 (30.5 miles).

The decrease in available miles of roads and trails for OHV use in Alternative 2, from the current level, would likely result in a decrease in the quality of the experience for local OHV users who frequently use the area and prefer to travel over different trails on multiple visits. The impact of decreased total available roads and trails would have a minimal affect on the average day use visitor who travels a maximum of 50 – 60 miles a day. The quality of the experience offered in Alternative 2 would be similar to Alternatives 3, but greater than Alternatives 4 and 5, which substantially reduce the mile of OHV trails open for use, based on the total available miles of roads and trails for OHV use.

Under Alternative 2, it is likely that OHV user densities will increase over current levels as fewer roads and trails are available for OHV use. The use is expected to be more concentrated than use under Alternative 1. As use capacity is a value determined by individual riders it is unknown to what degree this will affect the OHV user experience. It is likely that this will have a negative impact on some user experiences. Comparing all action alternatives, Alternative 2 will likely have a similar impact on rider densities when compared to Alternative 3 and less impact than Alternative 4 and Alternative 5.

Seasonal restrictions during wet weather (usually Oct, 15 thru May 15) are proposed for some trails along lower slope positions under Alternative 2. These restrictions would generally close potential sediment producing roads and trails near aquatic streams. Less trail mileage available for use could lower quality of experience for OHV users because of the decreased amount of trail mileage and loss of trail connectivity. Seasonal restrictions during the wet season are not proposed under any other alternatives. State fire restrictions would apply to all alternatives equally.

Trails are preferred to roads for recreation by OHV users. Class 1 trails are those designed to accommodate 3 to 4 wheel machines that are 50 inches wide or less. This type of trail generally accommodates ATVs and can be used by off-road motorcycles. Alternative 2 provides for 12.2 miles of class 1 trails on BLM administered land and proposes 4.5 miles of trails for use on adjacent non-federal land for a total of 16.7 miles of class 1 trail (Table 2-2) (Map 2-2). This is significantly less than the amount of class 1 trail available in Alternative 1 (83.2 miles). Alternative 2 offers more class 1 trail opportunities then Alternative 3 (14.7 miles), Alternative 4 (9.1 miles), or Alternative 5 (3.3 miles). The quality of the experience for OHV users that prefer and use class 1 trails is likely to decrease in Alternative 2 when compared to Alternative 1 as a result in the decrease of available class 1 trails proposed for use. Alternative 2 offers a higher quality of experience based on class 1 trail mileage when compared to Alternatives 3, 4, and 5.

Class 2 trails are designed to accommodate vehicles that are greater than 50 inches wide; generally these are 4-wheel drive type SUVs, jeeps, side-by-side utility vehicles, and pickup trucks. Class 2 trails can also be used by 3 and 4 wheel ATVs and off-road motorcycles. Alternative 2 calls for 1.3 miles of class 2 trail (Table 2-2) (Map 2-2). This represents a decrease in class 2 trails compared to Alternative 1(52 miles). This decrease in miles of class 2 trails likely will result in the quality of OHV experience to decline by class 2 trail users in Alternative 2 when compared to Alternative 1. Alternative 2 has slightly lower trail miles (1.3 miles) for class 2 vehicles when compared with Alternative 3 (1.6 miles) and Alternative 4 (1.4 miles). Alternatives 3 and 4 are likely to offer OHV users who prefer and use class 2 trails, a higher quality experience when compared with Alternative 2. Alternative 2 offers a higher quality of experience in comparison with Alternative 5 which does not offer any trail for class 2 OHV use.

Class 3 trails are characterized by tread widths which vary from 12 to 30 inches and are designed to accommodate vehicles on two wheels (motorcycles). Alternative 2 provides for 26.3 miles of class 3 trails (Table 2-2) (Map 2-2) of which 23.9 exists on BLM administered lands and 2.4 miles are proposed for use on adjacent non-federal lands. Alternative 2 (26.3 miles) provides less class 3 trail compared to Alternative 1 (55.2 miles). A decrease in the quality of the OHV experience under Alternative 2 compared to Alternative 1, based on a decrease in total trail length of class 3 trails in Alternative 2 is expected. Alternative 2 provides for less class 3 trails than Alternative 3 (27 miles). Alternative 2 provides a slightly lower quality of OHV experience based on total trail length when compared with Alternative 3. Alternative 2 provides for more class 3 trails than Alternative 4 (18.2 miles) and

Alternative 5 (4.1 miles). Alternative 2 provides a higher quality of OHV experience than Alternatives 4 and 5 based on the higher amounts of class 3 trails.

Alternative 2 would continue to provide opportunities for all skill levels of OHV users. It is likely that within 138.9 miles of roads and trails, opportunities for beginners, intermediate and advanced OHV users exist. All levels of OHV users will be able to find trails that offer a quality OHV experience. OHV users seeking both backcountry and/or social experiences will be able to find the opportunities that they seek under Alternative 2.

Loop opportunities that provide OHV users the ability to travel through different areas are not available in the quantity that Alternative 1, the No Action Alternative provides for. Alternative 2 provides for more loop opportunities than Alternatives 3, 4, and 5. Alternative 2 is likely to impact riders who want to travel over new routes the majority of the time they recreate using OHVs. This is also likely to lower the quality of experience for club rides and special events such as "poker runs" when compared to the current opportunities.

Diverse terrain including climbing turns, changes in direction, slope, and elevation are all present in Alternative 2. The quantity of terrain and the amount of trail features is less than in Alternative 1. The quantity of terrain and amount of trail features is slightly greater in Alternative 2 than in Alternative 3, and much greater than Alternatives 4 and Alternative 5. Lowering the available mileage for use will lower the available amount of terrain and the amount of trail features. This will cause a lower quality experience than is currently offered (Alternative 1).

Alternative 2 provides the opportunity for trail improvements such as bridges, soil hardening, drainage improvements, and signage that will increase the quality of experience for OHV users. Trail maintenance (i.e. removing ruts, removing downed trees across trails, brushing of trails) will occur at a high frequency, providing better trail conditions that will improve the OHV experience.

Nine staging areas (Table 2-6) would be developed under Alternative 2. A detailed description of each staging area is included under the section titled Staging Area Development and Improvement. Nine staging areas would increase the quality of the OHV user experience through offering easily accessible information, safe parking, some facilities, dispersing use, offering areas for social experiences, and easy access to OHV routes. Alternative 2 offers more staging areas than all other alternatives (Alternative 1 (1 staging area), Alternative 3 (8 staging areas), Alternative 4 (4 staging areas), Alternative 5 (1 staging area).

Effects of Alternative 3

Alternative 3 calls for dispersed OHV use access across the Timber Mountain planning area. The OHV system proposed for management is dispersed across BLM-administered, private, and City of Jacksonville lands. This would require the development of cooperative agreements between the BLM and adjacent participating private land owners to manage a system of roads and trails across private lands to provide connectivity of trails from one BLM-administered parcel to the next.

The total length of roads and trails available for OHV use under Alternative 3 is 138.1 miles (Table 2-3) (Map 2-3). This represents a decrease of 237.7 miles of roads and trails when compared to Alternative 1, the No Action Alternative (Table 3-2). Alternative 3 has slightly lower total miles of roads and trails compared to Alternative 2 (138.9 miles). Alternative 3 has significantly greater total miles of roads and trails compared to Alternatives 4 (71.2 miles) and Alternative 5 (30.5 miles).

Alternative 3 would result in a lower quality of experience for OHV users in the Timber Mountain planning area when compared to that offered in the current level of available roads and trails. OHV users who make frequent or multiple day trips to the Timbered Mountain Planning Area for the purposes of OHV use will likely not be able to satisfy their desire to travel over different trails on multiple days. The impact of decreased total available roads and trails will have a minimal impact on the average day user who travels a maximum of 50-60 miles a day. The

quality of the experience offered to OHV users based on total miles of roads and trails offered under Alternative 3 is likely to be similar to Alternative 2 and greater than Alternatives 4 and 5.

The decrease in miles of roads and trails available for OHV use under Alternative 3, when compared to Alternative 1, would likely result in an increase of OHV user densities. This is a result of use being concentrated on fewer miles of roads and trails. As use capacity and acceptable user densities are determined by individual OHV users it unknown to what degree this will affect the OHV user experience. It is likely that it will have a negative effect on the quality of some user's experience. The quality of experience offered in Alternative 3 is likely similar to Alternative 2 and greater than Alternative 4 and Alternative 5.

Trails are generally preferred to roads by OHV users. Alternative 3 provides for 14.7 miles of class 1 trail (designed to accommodate 3 to 4 wheel machines that are 50 inches wide or less, i.e. ATVs, can be used by motorcycles). Approximately 10.6 miles of class 1 trail is on BLM administered lands and 4.1 miles is proposed for use on adjacent non-federal lands (Table 2-3) (Map 2-3). Alternative 3 proposes significantly less class 1 trail than is available under the current management situation, represented as Alternative 1 (83.2). Alternative 3 also offers less Class 1 trail than Alternative 2 (16.7 miles). Alternative 3 represents a lower quality of experience for OHV users who prefer to utilize class 1 trails as compared to Alternative 1 and Alternative 2. Alternative 3 offers more class 1 trail mileage than Alternatives 4 (9.1 miles) and Alternatives 5 (3.3 miles). This represents a higher quality of experience for OHV users who prefer and utilize class 1 trail under Alternative 3 in comparison to Alternatives 4 and 5.

Alternative 3 provides for 1.6 miles of class 2 trail (designed to accommodate vehicles that are greater than 50 inches wide; generally these are 4-wheel type SUVs, jeeps, side-by-side utility vehicles, and pickup trucks) (Table 2-3) Map (2-3). This represents a decrease in class 2 trails compared to Alternative 1 (52 miles). This decrease in miles of class 2 trails likely will result in the quality of OHV experience to decline for class 2 trail users under Alternative 3 when compared to Alternative 1. Alternative 3 offers more class 2 trail miles than Alternative 2 (1.3 miles), Alternative 4 (1.4 miles), and Alternative 5 (0 miles). For OHV users who prefer class 2 trails, Alternative 3 provides for a higher quality experience than all other action alternatives.

Alternative 3 provides for 27 miles of class 3 trails (tread width 12 to 30 inches and designed to accommodate vehicles on two wheels (motorcycles). Of this 27 miles, 24.8 is on BLM-administered lands and 2.4 miles are proposed for use on adjacent non-federal lands (Table 2-3) (Map 2-3). A decrease in the quality of the OHV experience is likely in Alternative 3 as compared to Alternative 1 (55.2 miles) based on total class 3 trail mileage proposed in Alternative 3. Alternative 3 provides for more total class 3 trail mileage when compared to all other action alternatives (Alternative 2 – 26.3 miles, Alternative 4 – 18.2 miles, Alternative 5 – 4.1 miles). Alternative 3 provides for a higher quality of experience to OHV users who prefer and utilize class 3 trails.

Alternative 3 would continue to provide opportunities for all skill levels of OHV users. It is likely that within 138.1 miles of roads and trails, OHV users of all skill levels would be able to find OHV opportunities. OHV riders who seek both a backcountry and/or a social experience will be able to find the opportunities they seek under Alternative 3.

Loop opportunities that provide OHV users the ability to travel over new routes the majority of the time during their visit to an OHV system are not available in the quantity that is currently available under Alternative 1. Alternative 3 provides for fewer loop opportunities than Alternative 2. Alternatives 4 and 5 provide significantly less opportunities for loops than Alternative 3. Alternative 3 is likely to lower the quality of the OHV experience for those who enjoy loop opportunities and for social events such as club rides and "poker runs" compared to the current opportunities.

Diverse terrain including climbing turns, changes in direction, slope, and elevation are all present in Alternative 3. The quantity of terrain and the amount of trail features is less than in Alternative 1. The quantity of terrain and amount of trail features is slightly greater in Alternative 2 than in Alternative 3, and much greater in Alternative 2 than Alternatives 4 and Alternative 5. Lowering the available mileage for use will lower the available amounts

of terrain and the amount of trail features. This will cause a lower quality of experience than is currently offered (Alternative 1).

Alternative 3 provides the opportunity for trail improvements such as bridges, soil hardening, drainage improvements, and signage that will increase the quality of experience for OHV users. Trail maintenance (i.e. removing ruts, removing downed trees across trails, brushing of trails) will occur at a high frequency, providing better trail conditions that will improve the OHV experience.

Eight staging areas (Table 2-6) would be developed under Alternative 3. A detailed description of each staging area is included under the section titled Staging Area Development and Improvement. Eight staging areas would provide for a high quality OHV user experience through offering easily accessible information, safe parking, some facilities, dispersing use, offering areas for social experiences, and easy access to OHV routes. Alternative 2 offers more staging areas than all other alternatives (Alternative 1 (1 staging area), Alternative 3 (8 staging areas), Alternative 4 (4 staging areas), Alternative 5 (1 staging area). The difference between Alternative 2 and Alternative 3 is that Alternative 3 would eliminate the Bunny Meadows staging area.

Effects of Alternative 4

Alternative 4 would manage an OHV trail system only on BLM-administered lands or those lands already under existing legal agreements (e.g., BLM controlled roads with public access rights). OHV use would be confined to the southern portion of the planning area primarily within the Forest Creek and China Gulch drainages. No cooperative agreements between the BLM and adjacent private landowners are needed under Alternative 4.

Total length of roads and trails available for OHV use under Alternative 4 is 71.2 miles. This represents a large decrease in the available roads and trails for OHV users compared to Alternative 1 (375.8 miles), as well as a decrease compared to Alternatives 2 (138.9 miles) and Alternative 3 (138.1 miles). Alternative 4 offers more miles of roads and trails available to OHV users than Alternative 5. Alternative 4 would decrease the miles of roads and trails available to OHV users by over 80 percent compared to Alternative 1. Alternative 4 would decrease the quality of experience significantly from current levels, as well as compared to proposed Alternatives 2 and 3. OHV users, who frequent the area and prefer to travel over different trails on their multiple visits, would likely experience a decline in the quality of their experience.

Under Alternative 4, it is likely that OHV user densities would increase significantly. The use is expected to be concentrated at higher levels than in Alternatives 1, Alternatives 2, and Alternatives 3. Although use capacity is a value determined by individuals, it is expected that a negative impact on the quality of the OHV experience will occur to a larger portion of OHV users when compared to Alternatives 1, 2, and 3.

Alternative 4 provides for 9.1 miles of class 1 trail (designed to accommodate 3 to 4 wheel machines that are 50 inches wide or less, i.e. ATVs, can be used by motorcycles) (Table 2-4) (Map 2-4). Alternative 4 proposes significantly less class 1 trail than is available under the current management situation, represented as Alternative 1 (83.2), Alternative 2 (16.7 miles), and Alternative 3 (14.7 miles). Alternative 4 will offer a lower quality of experience for OHV users who prefer to utilize class 1 trails when compared to Alternative 1, Alternative 2, and Alternative 3. Alternative 4 offers more class 1 trail mileage than Alternative 5 (3.3 miles). This represents a higher quality of experience for OHV users who prefer or can utilize class 1 trail under Alternative 4 than under Alternative 5.

Alternative 4 provides for 1.4 miles of class 2 trail (designed to accommodate vehicles that are greater than 50 inches wide; generally these are 4-wheel type SUVs, jeeps, side-by-side utility vehicles, and pickup trucks) (Table 2-4) Map (2-4). This represents a decrease in class 2 trails in comparison to Alternative 1 (52 miles). This decrease in miles of class 2 trails likely will result in decreasing the quality of OHV experience for class 2 trail users under Alternative 4 when compared to Alternative 1. Alternative 4 offers more class 2 trail miles than Alternative 2 (1.3 miles) and Alternative 5 (0 miles). Alternative 3 (1.6 miles) has more class 2 trail available to OHV users than

Alternative 4, providing a higher quality of OHV experience than Alternative 4. For OHV users who prefer class 2 trails, Alternative 4 provides for a higher quality experience than Alternative 2 and Alternative 5.

Alternative 4 would provide for 18.2 miles of class 3 trails (tread width 12 to 30 inches and designed to accommodate vehicles on two wheels (motorcycles) (Table 2-4) (Map 2-4). A significant decrease in the quality of the OHV experience is likely under Alternative 4 as compared to Alternative 1(55.2 miles) based on total class 3 trail mileage proposed in Alternative 4. Alternative 4 provides for less class 3 trail mileage when compared to Alternative 2 (26.3 miles) and Alternative 3 (27 miles) resulting in a lower quality OHV experience than Alternative 2 and Alternative 3. Alternative 4 has a higher mileage of class 3 trails when compared to Alternative 5, resulting in a higher quality of OHV experience under Alternative 4 than Alternative 5.

Opportunities for OHV users of varying skill (beginner, intermediate, and advanced) will likely be lacking in comparison with the amount of opportunities in Alternatives 1, 2, and 3 based on the lower availability of roads and trails. Experiences for OHV users who seek backcountry opportunities will be lacking under Alternative 4 due to both the limited availability of roads and trails for OHV use and higher rider densities compared to Alternatives 1, 2, and 3. Loop opportunities that provide riders the ability to travel over different routes will also be severely diminished in Alternative 4 compared to Alternatives 1,2,and 3. Alternative 4 would also provide a low quality experience for special events and club rides.

Diverse terrain and trail features are not available under Alternative 4 in the quantity and of the quality in comparison to Alternatives 1, 2, and 3. Diverse terrain with changes in direction, slope, and elevation are present in Alternative 4 but in smaller quantities than Alternatives 1, 2, and 3. This will cause a lower quality of experience than is currently offered (Alternative 1) and that which would occur in Alternative 2 and Alternative 3.

Alternative 4 provides the opportunity for trail improvements such as bridges, soil hardening, drainage improvements, and signage that will increase the quality of experience for OHV users. Trail maintenance (i.e. removing ruts, removing downed trees across trails, brushing of trails) will occur at a high frequency, providing better trail conditions that will improve the OHV experience. It is likely that with the lower amount of road and trail mileage available in Alternative 4 compared with Alternatives 1, 2, and 3, would require higher frequencies/ intensity of maintenance as use is more concentrated.

Four staging areas (Table 2-6) would be developed under Alternative 4. A detailed description of each staging area is included under the section titled Staging Area Development an Improvement. Four staging areas would increase the quality of the OHV user experience over current conditions (Alternative 1) by offering easily accessible information, safe parking, some facilities, offering areas for social experiences, and easy access to OHV routes. The four staging areas proposed in Alternative four are likely not to be enough to accomplish dispersing the use within the Timber Mountain Planning Area and to provide a high quality of experience for the majority of the OHV users. The proposed staging areas in Alternative 2 and Alternative 3 offer a higher quality of OHV experience. Alternative 5, with only 1 staging area offers the lowest quality of OHV experience to the user.

Effects of Alternative 5

Alternative 5 would provide for OHV use; however, with substantially reduced miles of trails. Alternative 5 reduces or eliminates OHV use in watersheds with Coho Critical Habitat, in some areas with granitic soils, and near residential areas. Implementation of Alternative 5 would be dependent upon the development of cooperative agreements between the BLM and adjacent participating private land owners to manage a system of roads and trails across private lands to provide connectivity from one BLM-administered parcel to the next.

Total length of roads and trails available for OHV use under Alternative 5 is 30.5 miles (Table 2-5) (Map 2-5). This is a significant decrease in total miles of roads and trails compared to all other alternatives (Alternative 1 – 375.8 miles, Alternative 2 – 138.9 miles, Alternative 3 – 138.1 miles, Alternative 4 – 71.2 miles). The decrease in total miles of roads and trails available in Alternative 5 would result in a low quality OHV experience when compared

to all other alternatives. Both multi-day OHV users and OHV day users would have a lower quality of experience based on the low number of roads and trail miles provided for OHV use.

Under Alternative 5 it is likely that OHV user densities would increase significantly. The use is expected to be concentrated at higher levels than in all other alternatives. Although use capacity is a value determined by individuals, it is expected that a significant negative impact on the quality of the OHV experience will occur to a larger portion of OHV users when compared to all other alternatives.

Trails are preferred to roads for recreation by OHV users. Under Alternative 5 class 1 (designed to accommodate 3 to 4 wheel machines that are 50 inches wide or less, i.e. ATVs, can be used by motorcycles), class 2 (designed to accommodate vehicles that are greater than 50 inches wide; generally these are 4-wheel type SUVs, jeeps, side-by-side utility vehicles, and pickup trucks), and class 3 (tread width 12 to 30 inches and designed to accommodate vehicles on two wheels (motorcycles) total trail length (Table 2-5) (Map 2-5) will decline compared to all alternatives. Users that prefer or can use any and all widths (class 1, class 2, and class 3) of trails will have a lower quality of OHV experience compared to all other alternatives.

Opportunities for OHV users of varying skill (beginner, intermediate, and advanced) would be lacking in comparison with all other alternatives based on the lower availability of roads and trails. There would be limited if any experiences for OHV users who seek backcountry opportunities due to limited availability of roads and trails for OHV use and higher user densities compared to all other alternatives. Loop opportunities that provide users the ability to travel over different routes would also be substantially diminished under Alternative 5 compared to all other alternatives. Alternative 5 will also provide a low quality experience for special events and club rides because of the low availability of routes and loop opportunities.

Diverse terrain and trail features are not available in the quantity and of the quality that they are available at under all other alternatives. Diverse terrain with changes in direction, slope, and elevation is present in Alternative 5 but in extremely small quantities. This will cause a lower quality of experience than is offered in all other alternatives.

Alternative 5 provides the opportunity for trail improvements such as bridges, soil hardening, drainage improvements, and signage that will increase the quality of experience for OHV users. Trail maintenance (i.e. removing ruts, removing downed trees across trails, brushing of trails) will occur at a high frequency, providing better trail conditions that will improve the OHV experience. It is likely that with the lower amount of road and trail mileage available in Alternative 5 in comparison with all other alternatives, Alternative 5 would require higher frequencies/intensity of maintenance as use is much more concentrated.

Alternative 5 proposes one staging area to be located at East Forest Creek Road. A detailed description of each staging area is included under the section titled Staging Area Development an Improvement. One staging area would not be able to enhance the quality of the OHV experience. One staging area would not accomplish dispersed use, be able to offer easy access to trails, or safe loading and un-loading.

Other Recreation Activities (Non-OHV Use)

Affected Environment

BLM lands are classified as either special or extensive recreation management areas. Special recreation management areas are those areas identified for providing specific recreational opportunities. Extensive recreation management areas include all BLM lands that are not identified as special recreation management areas. An estimated 763,915 acres provide for dispersed recreation use across the Medford District (PRMP/EIS p. 2-75). The Timber Mountain OHV Emphasis Area is also designated as a Special Recreation Management Area, with an OHV emphasis and accounts for an estimated 15,114 acres, or 1.7 percent of public land on the Medford District BLM. OHV Emphasis Areas account for about 8 percent of public land on the Medford District BLM. The dispersed recreation occurring within the management area includes hiking, horseback riding, mountain

biking, driving for pleasure, hunting, target shooting, dispersed camping, collection of special forest products (i.e. firewood and Christmas tree cutting, mushroom picking) and off-highway vehicle use (see OHV Recreation above). Residents living adjacent to the Timber Mountain area contribute to the majority of the horseback riding and hiking use. This use of public lands in the planning area, for outdoor recreation, is a matter of convenience due to the proximity of public land to their residence. Most dispersed camping occurs in association with hunting (primarily deer season) and OHV special events.

Equestrian Use

Equestrian use on roads and trails has a moderate to low level of occurrence within the planning area. The majority of current use is from local adjacent land owners who utilized existing dirt and gravel roads for riding. Because the area is not maintained for equestrian use, the existence of low hanging branches likely discourages equestrian users from using more of the area. Some trails can sustain tread slopes of greater than 20 percent as they reach ridge tops creating a strenuous climb for horses. A short duration 20 percent slope is considered a trail slope limit for an enjoyable and sustainable trail for equestrian and hiking use. Some equestrian users have reported hauling their animals to the Forest Creek area to utilize roads and existing trails. These equestrian users take part in endurance riding and exploit the rough terrain in the area for conditioning and training their horses for endurance riding events.

Mountain Biking

Visitation to the management area specifically to engage in mountain biking on existing roads and trails continues to be a popular activity. A local mountain biking group hosts rides on a weekly basis during the season of use starting in the City of Jacksonville and riding throughout the management area on roads and existing OHV trails. Twice annually the local OHV club holds a poker run event where a mountain bike course is flagged for riders. Downhill mountain biker enthusiasts generally prefer long downhill opportunities with the option to loopback to their vehicles via gently climbing roads. The next best option is to have roads where vehicle shuttles can easily access the trail junction to provide transport to riders.

Some users participate in a subset of mountain biking called Free-riding. Free-riding is a relatively new subset of mountain biking, combining different aspects of the sport such as downhill, trick riding, and jumping. A Free-ride trail is similar to a downhill mountain biking trail however they typically possess more technical and steep sections, and a mixture of elevated natural and man-made structures dirt jumps and landings. A number of these unauthorized user created trails and structures have been found in the Forest Creek and Jackson Creek drainages as well as outside the management area near the Wagner Creek drainage.

The MRA owns 225 acres of land within the planning area, which is open to the public for staging, camping, and trail riding. The MRA has granted local mountain bike clubs such as Southern Oregon Free Ride Association, authorization to construct and use trails and hold events on their lands. If sustainable, these trails can remain in place after the completion of the event to provide mountain bike riders with jumps and technical terrain in addition to the existing OHV trails open to their use.

Hunting

The management area supports several upland and big game species which have been popular to hunters in the region. Upland grouse, valley quail, mountain quail, grey squirrel, and mourning dove are the upland game that most hunters would likely encounter within the management area, while black-tailed deer, black bear, turkey, and cougar are popular big game species in the area. Parts of the management area are designated as a target area for cougar where hunting for this animal is open year round in an effort to reduce populations and increase human safety. The area's high number of roads and trails allows easy access for hunters using OHV's and or motor vehicles. Some areas are inaccessible by motorized vehicle and provide a more backcountry hunting experience for users who are willing to hike in or use livestock to access the area. OHV travel off existing roads and trails with the purpose of game extraction is currently prohibited and would continue to be under all alternatives.

Target Shooting

Target shooting is defined as the discharge of a firearm at a fixed or moving target for enjoyment and/or improvement of shooting skills. Target shooting is a popular activity on lands administered by the Medford BLM District, and across public and private lands throughout southwest Oregon. Target shooters who use the planning area typically set up fixed targets on or near banks. Some throw clay pigeons off steep hillsides to allow a large depth of field for the shooter. Clay pigeon shooting is the practice of shooting clay disks which are thrown across the shooters field of vision. Typically shooters venture to remote places away from civilization to shoot. Although no formal areas have been designated or established, tree damage from shooting, spent bullet casings and shotgun shells, clay pigeons, and target remnants are signs of this activity. Sites littered with objects from illegal dumping, e.g., household garbage, tires, appliances, and other items are often used as targets by shooters. Many responsible recreationists/target shooters practice good stewardship by packing out what they packed in, as well as removing existing trash and debris from the site upon their departure.

Other types of recreation taking place across the Medford District BLM include, berry picking, mushroom hunting, wildlife viewing, spelunking, recreational mining, and rock hounding. There are no settings within the Timber Mountain planning area that provide any different or special opportunities for these other types of activities. To the contrary there are likely other locations across the Medford District and throughout southwest Oregon that provide higher quality settings for bird watching, wildlife viewing, hiking, wildflower viewing, and berry picking than the Timber Mountain planning area. The following table (Table 3-52) displays some examples representing many other sites throughout southwest Oregon that provide quality recreation opportunities. The approximate travel time from the planning area to alternative recreation sites is estimated and would vary depending on direction of travel:

Table 3-52. Examples of Other Southwest Oregon Recreation Opportunities

Recreation Site	Approximate time travel from OHV planning area	Type of Opportunities and unique features
Table Rocks Trails	30-60 minutes	Hiking, unique geologic rock formations, wildflower viewing, historical interpretive site (guided hikes seasonally)
Jacksonville Woodland Trails	5-30 minutes	Hiking, cultural interpretive sites
Grizzly Peak Trail	45-60 minutes	Hiking, views of the Rogue Valley, wildflower viewing,
Denman wildlife refuge	30-45 minutes	Wildlife viewing and bird watching
Rogue River Trail	60 to 90 minutes	Hiking, wildlife viewing, wild & scenic river
Ashland Watershed Trails	30-45 minutes	Mountain biking and hiking
Hyatt-Howard special recreation Area & Lilly Glenn equestrian facilities	60 – 75 minutes	Equestrian use, hiking, wildlife viewing, wildflower viewing, & water recreation
Bear Creek Greenway	15 – 30 minutes	Equestrian use, hiking, bicycling, bird watching.

Environmental Consequences

Effects Common to All Alternatives

Trails under each alternative would continue to be open (although not promoted) to all trail recreation uses, unless those uses would cause resource damage or compromise user safety. Other recreation uses, primarily non-motorized recreation, are currently and would continue to be impacted by concentrated OHV use in the Timber Mountain planning area. It is difficult to predict or to quantify the degree of effect to each individual as people are affected differently depending on the values each person places on the various uses of public lands.

Equestrian use is impacted due to the concern for animals to spook from loud or sudden noises and the risk for collisions between OHVs and horses. Horses can also be spooked from mountain bikes. Recreationists, who go to remote settings for quiet and solitude to hike, hunt, or view wildlife would be impacted by the noise associated with OHV use. These effects will vary by alternative as the miles of OHV trails proposed for management under each alternative varies.

The Timber Mountain planning area represents less than 2% percent of lands administered by the Medford District BLM. Additionally, public lands within the planning area do not provide a unique or special recreation experience, other than OHV use, that cannot be provided on other lands throughout the Medford District. Hundreds of thousands of acres of public lands throughout southwest Oregon provide dispersed recreation opportunities. Many opportunities are within 15 minutes to 1 hour driving time of the planning area, while others may take 1 to 2 hours driving time to reach. Those who live near the planning area would not be prohibited from using the OHV area for other recreation activities if they choose to do so; however, other areas throughout southwest Oregon provide higher quality recreation opportunities for those that choose not to visit the OHV use area.

Effects of Alternative 1 (No-Action)

Of all the alternatives, Alternative 1 has the greatest potential for negative impacts to non-motorized recreation, because it is the Alternative with the most miles of OHV use. Without the adoption of a management plan, Alternative one would also have the lowest potential for effective regulation of OHV use. Impacts would only increase over time with increased OHV use anticipated over the next decade (see Trends in OHV use).

Effects of Alternatives 2 & 3

Alternatives 2 and 3 reduce the current road and trail mileage to be managed for OHV use from 376 miles to about 139 miles, leading to increased OHV densities on managed trails. While the increased OHV densities on the managed trails could inhibit other non-motorized recreation use on OHV trails, the reduction in managed OHV trails decreases the overall area impacted by OHVs in the planning area. The areas within the planning area not open to OHV use would be more amenable to non-motorized recreation experiences due to fewer encounters with OHVs.

On BLM administered land, trails not identified for OHV use under this alternative would be slated for decommissioning, thus, reducing existing trail opportunities for all recreation uses. However, since decommissioning focuses on blocking the trail to OHV use, roughing up the trail tread surface, revegetating the first 50 to 300 feet, and correcting water drainage and erosion problems, many trails may still facilitate hiking opportunities for the short-term until the natural re-growth of vegetation naturally decommissions the entire trail over the long-term. Because these trails would be decommissioned for watershed and habitat restoration under this alternative, other recreation that would inhibit restoration such as equestrian and mountain bike use would be discouraged on decommissioned trails.

Existing roads are not proposed for decommissioning under any of the alternatives. Therefore, roads that are currently closed to standard vehicle use and not slated as open for OHV use under this alternative would provide improved opportunities for equestrian, mountain biking use, or other non-motorized recreation uses. Alternative 3 would reduce open road miles to standard vehicles by about 13 miles, decreasing areas accessed by vehicles for hunting or other recreation in comparison to all other alternatives. All open system roads throughout the planning area would continue to be available to recreation uses except those roads identified as not open for OHV use. Areas available for target shooting may be reduced to eliminate safety hazards (see Health and Safety section).

Improvements designed to accommodate OHV use, such as the Forest Creek Road staging area, equipped with ample parking, restroom facilities, and picnic areas, would be available to all recreation users. While OHV noise would likely deter many from using the area for non-motorized access, other uses would not be prohibited.

Outside the season of OHV use, this facility may likely accommodate other recreation opportunities with reduced effects from motorized use (such as restricted periods during fire season, etc).

Effects of Alternative 4

Alternative 4 would manage an OHV trail system only on BLM-administered lands or those lands already under existing legal agreements (e.g., BLM controlled roads with public access rights). Under Alternative 4, OHV use would be confined to the southern portion of the planning area primarily within the Forest Creek and China Gulch drainages. The miles of OHV routes under Alternative 4 would be reduced substantially (>80% reduction) from the current condition and would provide only about half of the miles of OHV routes proposed under Alternatives 2 and 3. This would result in increased OHV densities in the Forest Creek and China Gulch drainages, likely inhibiting non-motorized recreation use in these drainages (trailed portions of the management area). With OHV use focused in the southern portion of the planning area, the remaining areas to the north would be more conducive to non-motorized recreation opportunities.

Trails not identified for OHV use on BLM-administered land would be slated for decommissioning under this alternative, reducing existing trail opportunities for all recreation uses. However, similar to Alternatives 2 and 3, decommissioning would focus on blocking the trail to OHV use, roughing up the trail tread surface, re-vegetating the first 50 to 300 feet, and correcting water drainage and erosion problems, many trails may still facilitate hiking opportunities for the short-term until the natural re-growth of vegetation naturally decommissions the entire trail over the long-term. Because these trails would be decommissioned for watershed and habitat restoration under this alternative, other recreation that would inhibit restoration objectives such as equestrian and mountain bike use would be discouraged on decommissioned trails.

Existing roads are not proposed for decommissioning under any of the alternatives. Therefore, roads located in the northern portion of the planning area that are currently closed to standard vehicle use, and not slated as open for OHV use under this alternative, would provide improved opportunities for equestrian, mountain biking use, or other non-motorized recreation uses. Roads currently open would continue to provide for equestrian use. Equestrian users who prefer using roads to trails would likely observe an increase in the quality of their recreation experience in the northern portion of the management area due to fewer conflicts with OHV's on the roads.

OHV access for hunting would decrease in the northern portion of the planning area; however, the opportunities for backcountry hunting would improve in the northern portion of the planning area. The hunting experience in the Forest Creek and China Gulch drainages would see little change in available access to areas for hunters who hike in or utilize OHV's for access.

Similar to Alternatives 2 and 3, the proposed Forest Creek Road staging area, and its user amenities, could provide for other recreation uses, especially outside of the primary season of use for OHVs.

Effects of Alternative 5

OHV recreation opportunities would be substantially reduced with the full implementation of Alternative 5. All trail opportunities would be limited to the East Forest Creek and Jackson Creek drainages. Under this alternative, OHV use would be further removed from rural residential areas; people accessing public land from their backyards would have fewer encounters with OHV recreation, improving non-motorized recreation opportunities within close proximity to rural residential areas in comparison to Alternatives 1 through 4.

Trails on BLM administered lands that are not identified for OHV use under this alternative would be slated for decommissioning, reducing existing trail opportunities for all recreation uses. However, similar to Alternatives 2, 3, and 4, decommissioning would focus on blocking the trail to OHV use, roughing up the trail tread surface, re-vegetating the first 50 to 300 feet, and correcting water drainage and erosion problems, many trails may still facilitate hiking opportunities for the short-term until the natural re-growth of vegetation naturally

decommissions the entire trail over the long-term. Because these trails would be decommissioned for watershed and habitat restoration under this alternative, other recreation that would inhibit restoration objectives such as equestrian and mountain bike use would be discouraged on decommissioned trails.

Existing roads are not proposed for decommissioning under any of the alternatives. Therefore, roads located throughout a large portion of the planning area, not slated as open for OHV use under this alternative, would provide improved opportunities for equestrian, mountain biking use, or other non-motorized recreation uses in comparison to Alternatives 1-4. Equestrian users who prefer using roads to trails would likely observe an increase in their recreation experience outside of areas shared by OHVs due to fewer conflicts with OHV's on the roads.

All open system roads throughout the planning area would continue to be available to recreation uses except those roads identified as not open for OHV use. OHV access for hunting would decrease substantially; however, the opportunities for off road backcountry hunting would improve in areas not shared by OHVs. Areas available for target shooting may be reduced to eliminate safety hazards (see Health and Safety section); however, there would be fewer areas where conflicts would occur between target shooting activities and OHV use in comparison to all other alternatives due to the decreased trail mileage open to OHVs.

Public Health & Safety

Affected Environment

With the rapid increase in OHV use nationwide, there is growing local concern about the dangers involved in their use and the rising accident rate. The Federal Consumer Product Safety Commission (CPSC) reported in 2003 that over 345,000 ATV-related injuries were treated in hospitals, clinics, and physicians' offices. These accidents resulted in an estimated $11.4 billion loss due to medical, legal, and lost work costs. Even more accidents may go unreported.

Many serious injuries result from tipped or overturned three- and four-wheeled vehicles when drivers are inexperienced or reckless, carry additional passengers, or their equipment fails to meet legal standards. Three-wheeled models are no longer produced but recorded accidents in the other OHV categories have steadily increased until leveling off in 2002.

Children are often injured, both as ATV drivers and as passengers. CPSC estimates that 30 to 40 percent of those killed and injured are children. But in instances where both the engine size and driver age are known, 86 percent of fatalities involved children on adult-sized vehicles. Since 1988, the federal government has required manufacturers to caution buyers that ATVs with engines larger than 70 cc should be used only by children 12 and older, and that the use of vehicles with 90 cc engines should be limited to those over 16. Despite this decree, of children who ride ATVs, 95 percent of 12-15 year-olds and 65 percent of those under 12 were subsequently riding adult-sized vehicles, indicating that more stringent requirements are needed. In 2005, the chairman of CPSC ordered a review of voluntary standards and safety proposals for ATVs, with special attention to protecting young people.

This action follows years of lobbying by public interest groups. Physicians, parents of victims, and concerned public officials for more effective safety regulations. In view of the severity of many accidents, the American Academy of Orthopedic Surgeons recommends that all ATV users should be over 16, licensed, trained, wear protective gear, ride solo only, stay off of public roads, and confine activities to daylight hours.

The State of Oregon requires permits and regulates use three classes of ATVs.

- A class I permit ($10) is required for vehicles 50 inches or less in width and weighing 800 pounds or less, having a seat or saddle, and traveling on three or four wheels. Operators must have a valid driver's

license; an ATV operator's permit, or be accompanied by someone 18 or older who meets the other requirements. Vehicles must meet ATV safety equipment standards.

- A class II permit ($10) is for vehicles over 50 inches wide or weighing 801 to 8000 pounds. Operators must have a valid driver's license, meet safety equipment standards, and check with local authorities for special requirements.

- A class III permit (also $10) is for vehicles riding on two tires and weighing less than 600 pounds. Drivers must be at least seven years old, have a valid driver's license or an ATV operator permit or be accompanied by someone 18 years or older who meets one of the above requirements. Riders under age twelve must have both an ATV operator's permit and be accompanied by someone over 18 that has a license or an ATV operator's permit. Operators must check with local police for special requirements and meet safety equipment standards for their vehicles.

The following state rule changes under the **Rider Fit Program** are in effect as of January 01, 2009:

- A Class I ATV operator under the age of 16, must meet all the following minimum physical size requirements in relationship to the vehicle.

  Brake Reach: With hands placed in the normal operating position and fingers straight out, the first joint (from the tip) of the middle finger will extend beyond the brake lever and clutch, and;

  Leg Length: While sitting and with their feet on the pegs, the knee must be bent at least 45 degrees, and;

  Grip Reach: While sitting upright on the ATV with hands on the handlebars and not leaning forward, there must be a distinct angle between the upper arm and the forearm, and the rider must be able to turn the handle bars from lock to lock while maintaining grip on the handle bars and maintaining throttle and brake control;

- Disabled riders are allowed to use prosthetic devices or modified or adaptive equipment to achieve rider fit.

Also starting January 1, 2009, all youth under age 16 must complete on-line safety training. In addition, all youth under age 16 operating a Class I or Class III ATV on public lands must be supervised by an adult who is at least 18 years old and holds a valid ATV Safety Education Card. Therefore, any adult supervising a youth under age 16 must also complete the on-line safety training course starting on January 1, 2009.

- Starting January 1, 2010 all persons under age 31 must complete on-line safety training.
- Starting January 1, 2011 all persons under age 41 must complete on-line safety training.
- Starting January 1, 2012 all persons under age 51 must complete on-line safety training.
- Starting January 1, 2013 all persons under age 61 must complete on-line safety training.
- Starting January 1, 2014 all persons must complete on-line safety training.

Environmental Consequences

Under all of the Action alternatives, the implementation of a management plan combined with strict enforcement of Oregon State license and safety regulations for OHV riders will reduce health and safety concerns. The new Rider Fit Program will lead to OHV users with increased safety awareness. Increased maintenance of trails, adequate signing, development of staging areas with sign boards to maintain information for OHV users will also improve condition for OHV users and will reduce health and safety concerns. Increased BLM Trail Ranger and

law enforcement patrols will improve public safety for all action alternatives by increasing the enforcement of State OHV regulations, including that affect user safety.

Air Quality

Affected Environment

The majority of the OHV use at Timber Mountain planning area takes place by class 1 (off-road vehicles less than 50" wide, ATVs operating on 3 or 4 wheels) and class 3 vehicles (off-road vehicles characterized by operating on two wheels and weighing less than 600 lbs., off-road motorcycles). Two types of OHV use at the Timber Mountain planning area occurs, casual use and event use. Casual use is typified by the use of the riding system by individuals or small groups of riders. Event riding involves large organized groups of riders and requires a Special Recreation Permit (SRP) when use occurs on BLM administered lands. Event riding has historically taken place three times annually, at Motorcycle Riders Association (MRA) events, permitted by the BLM. The events include two poker runs (October and May) and a hare scramble (April). The majority of the OHV use in the Timber Mountain planning area is casual use. Casual OHV use takes place in the Timber Mountain planning area primarily October thru May when the weather is cooler and damper. During fire season (usually June thru August) trail riding is prohibited and OHV use is limited to improved roads.

Most of the class 1 and class 3 vehicles that operate at Timber Mountain planning area do so with four-stroke engines which run cleaner than those which operate with two-stroke engines. Two-stroke vehicles do not burn fuels as completely as four-stroke engines, resulting in elevated emissions containing increased levels of nitrogen oxides (NO_X), sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), aldehydes, and polycyclic aromatic hydrocarbons (PAH) (Ouren, et al.. 2007). Industry standards in OHV manufacturing have been trending towards four-stroke engines for the last several years. A review of 2009 model class 1 and class 3 OHVs sold by the four largest OHV manufactures (Yamaha, Honda, Kawasaki, and Suzuki) revealed that a majority of the OHVs operated on four stroke engines including every class 1 ATV and a majority of the class 3 OHVs. Approximately 90% of class 1 and class 3 OHVs manufactured by the four major OHV manufactures in 2009, operate with a four-stroke engine. Two-stroke class 3 vehicles are used in low numbers in the Timber Mountain planning area.

Air pollutants common to OHV use include hydrocarbons (HC), carbon monoxide (CO), nitrogen oxides (NO_x), ozone (O_3), aldehydes, polycyclic aromatic hydrocarbons (PAH), and carcinogens such as methyltert-butyl ether (MTBE)(Benson et al 1986). In addition, OHV emissions contain a variety of heavy metals, including zinc, copper, nickel, chromium, and lead. OHVs in general produce higher levels of air pollution than do automobiles. A single four-stroke ATV operating for the same duration as a single automobile produces approximately 7.5 times more hydrocarbons, carbon monoxide, and nitrogen oxides combined than the automobile. A single four-stroke motorcycle operating for the same duration as an automobile produces approximately 12 times more hydrocarbons, carbon monoxide, and nitrogen oxides combined than does a single automobile (U.S. Environmental Protection Agency 2002). Although two-stroke OHVs emit higher levels of air pollution than four-stroke OHVs and on road vehicles, with the majority of OHV use at the Timber Mountain planning area being that of four-stroke vehicles, it is likely that levels of air pollution emitted by a typical OHV used at Timber Mountain are less than the pollution levels emitted by a two-stroke OHV. The levels of OHV use at Timber Mountain are low enough that air quality impacts are minimal.

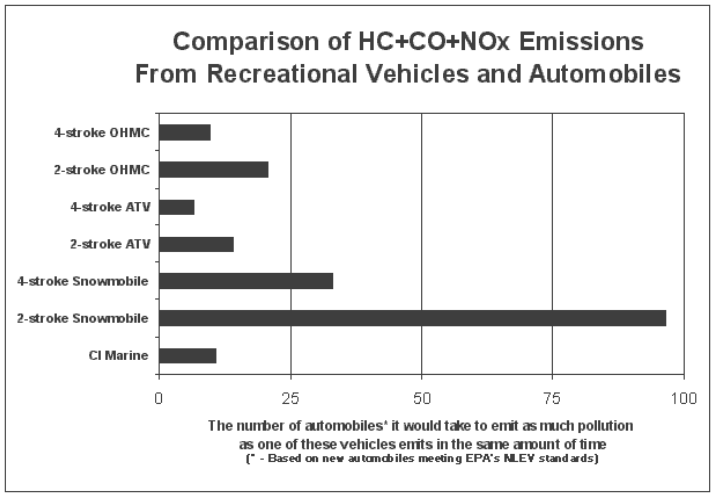
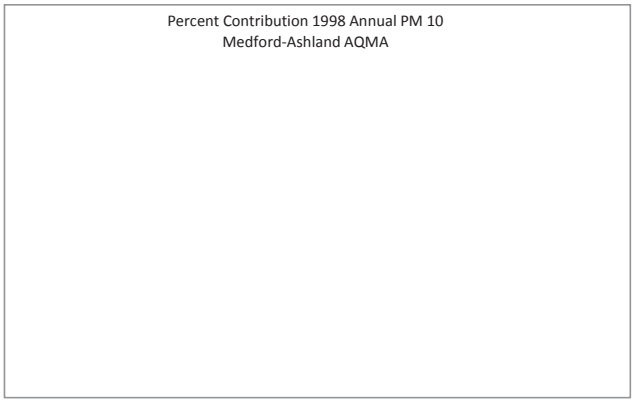


Figure 3-5. Comparison of Emissions from Recreational Vehicles and Automobiles

Studies of pollutants in soils near roads and highways have shown environmental impacts. Pollutants may alter composition and act as fertilizers to some plants which can change plant communities in disturbed areas. It may also create opportunity for colonization of nitrogen fixing plants and early successional species where they previously did not exist (Bazzaz and Garbutt 1988, Spencer and Port 1988, Quarles et al 1974). Additionally, pollutants can build-up along roadsides in soil dwelling organisms like earthworms and the potential exists for these chemicals to be lethal to animals consuming them (Gish and Christensen 1973, Agrawal et al 1981). These studies took place on well traveled roads and highways where the volume of vehicle traffic is significantly higher than on OHV routes in the Timber Mountain planning area. It is unlikely that current or increased OHV use in the Timber Mountain area would reach levels of highway vehicle use that has shown pollution levels to significantly impact soils, vegetation, or wildlife.

OHVs may have their greatest impacts to air quality through the dust they raise during use (Forman et al 2003). Dust is created and raised into the air as OHVs travel over soil crusts and disturb, abrade, and pulverize soil. Wind erosion then increases the amount of debris flow (Lovich and Bainbridge 1999). Accumulation of dust on plants may disrupt photosynthetic and respiration processes if it continues to build up over time or if initial build up is significant. Dust accumulation is especially harmful to low lying, small stature plants near the trail (Walker and Everett 1987). The creation and spread of dust in the Timber Mountain planning area is likely to be minimal as OHV use season off of improved roads, is typically during times of the year when soil moisture is high enough to prevent excessive dust creation. Most OHV use in the Timber Mountain planning area is of the casual type, where the potential for large numbers of OHVs to pass successively over a given area of soil creating dust and air currents to carry dust, is very low. During the event type OHV use that occurs on BLM administered lands soil moisture levels are monitored to ensure that soil moisture on routes used during the events are within an optimal range to prevent the creation of excessive dust and to limit soil erosion from excessively wet soils. If soil moistures are detected to be out of this optimal soil moisture range than events are postponed, cancelled, or use routes changed. During the fire season when dust creation would be at its highest rates OHV use is limited to improved roads where the potential of dust creation is minimal due to the improved nature of the roads.

According to the Oregon Department of Environmental Quality (2004) and discussion with Peterson, of Oregon Department of Environmental Quality (Medford Office) non-road emission sources including construction, industrial, lawn and garden, agricultural, logging, light commercial equipment, all terrain vehicles (ATVs), mini bikes, off-road motorcycles, golf carts, snowmobiles, and other specialty vehicle carts, account for 2% of total PM10 emissions in the Medford Ashland Air Quality Maintenance Area (AQMA) (Fig. 3-29).



In addition, of the 2% more than ½ the emissions (or >1%) is due to construction and approximately ¼ from aircraft. Lawn and garden as well as rail road emissions are also included in the remaining ½ - ¾%. Modeling showed negligible impact to air quality based on recreational use of OHV and ATV activities in the Medford-Ashland AQMA (Peterson pers. com. 2008).

Due to the type, quantity, and seasons of OHV use in the Timber Mountain planning area, air quality will not be significantly affected by OHV use. Peterson (Environmental Engineer- Oregon DEQ) said that, "OHV effects on air quality from the Timber Mountain OHV Area to the Medford-Ashland AQMA where de minimis (Pers. communication 2008)." With advancements in technology and the future direction of OHV manufacturing this is likely to continue.

Law Enforcement

Affected Environment

Currently, the BLM staffs four Law Enforcement Rangers contracts Deputy Sheriff's from Jackson and Josephine County Sheriff's Departments. These Rangers/Deputies are responsible for patrolling over 800,000 acres of BLM administered lands throughout Jackson and Josephine Counties. BLM Rangers are charged primarily with enforcement of Federal Laws/Rules/Regulations that pertain to the use, management, and development of public lands and their resources. Rangers can cite OHV users for various violations to include (but not limited to): littering, resource damage, exceeding allowable noise levels, careless and reckless driving, and failure to possess OHV registration. Rangers are also deputized by the respective counties and can therefore enforce all State and County Laws including those which apply to OHVs. The sheriff's deputies enforce all state and county laws and can cite for various violations including (but not limited to): riding without a helmet for those under 18 years of age, riding with a suspended driver's license, riding on a highway with an OHV that is not street legal and for expired vehicle tags. The authorization of a management plan will result in the designation of specific trail routes and use areas allowing officers to enforce the use of designated trails, by citing those found riding off of designated routes.

Environmental Consequences

Effects of Alternative 1 (No-Action)

Under the current management situation, as described above, BLM Rangers can cite OHV users for various violations to include (but not limited to): littering, resource damage, exceeding allowable noise levels, careless and reckless driving, and failure to possess OHV registration. Rangers are also deputized by the respective counties and can therefore enforce all State and County Laws as they apply to OHVs. The sheriff's deputies enforce all state and county laws. However, under the current situation, an estimated 376 miles of trails are used by OHVs across public and private lands; the extensive use and inadequate signage hampers the effectiveness of current

law enforcement patrols. Additionally, no cooperative agreements among landowners exist to facilitate the coordination of management and enforcement of proper OHV use across land ownerships.

With no final route designations and adequate signage to identify a managed system of OHV routes, the expansion of unauthorized user created trails may continue to be problematic. Once a trail track is in place it becomes an existing route that is assumed by OHV users to be open to OHV use. Therefore, this alternative is undesirable from a law enforcement perspective and for reducing unacceptable levels of resource impacts. Funding opportunities to enforce regulations across 376 miles of existing roads and trails currently used by OHVs would likely be more limited, due to the lack of a recreation management plan to guide long-term management of the area.

Effects of the Action Alternatives

BLM's strategy to keep off-highway vehicles on designated routes would be to increase law enforcement patrol by 4-wheel drive patrol vehicles, motorcycles, and quads. The BLM would increase its law enforcement capabilities by applying for funding with the State of Oregon ATV Grant Program. The goal of the ATV Grant Program is to provide opportunities for Off-Highway Vehicle recreation. The grant program is funded from ATV permit sales and the percentage of the gasoline tax attributed to ATV use. The State of Oregon OHV allocation committee provides grant funding opportunities quarterly; law enforcement grant opportunities are offered once a year. The total grant allocations for law enforcement and emergency services were $1,101,153 for 2007 and 1,341,556 for 2008, with individual grants ranging from $11,000 to $179,000.

The OHV grant process requires that the applicant provide 20 percent of the project cost as matching funds. The matching fund component can be met with in-kind services or materials. Appropriated annual BLM funding would be used to meet the 20 percent matching funding or in-kind services/materials for requests placed to the State of Oregon OHV Grant opportunities. The Medford District BLM receives an annual budget to fund four full time BLM law enforcement personnel (Rangers) and contract deputies through Jackson and Josephine County Sherriff's departments. The BLM would also request an annual budget through agency appropriations for the operation and management of the Timber Mountain OHV area.

Effects of Alternatives 2 & 3

Both Alternatives 2 and 3 would substantially reduce the miles of trail and roads open to OHV use across BLM and private lands; the miles of OHV routes would be reduced by over 60 percent when compared to the No-Action Alternative. These alternatives provide a network of trails generally covering the same geographic area and provide the most miles of trail opportunities of the action alternatives. The trail network proposed would extend across both BLM and adjacent private lands. Having a management plan in place, which clearly identifies trails and roads designated for OHV use, combined with adequate signing and trail maps, would facilitate enforcing OHV rider compliance. Because these alternatives provide more miles of trails, OHV use is dispersed across a broader area creating a more desirable riding experience in comparison to Alternatives 4 or 5 (see Quality of the OHV Experience). These alternatives would have a larger geographic area and more miles of trails that would require patrolling in comparison to Alternatives 4 and 5; however, there would be less area to maintain as closed to OHV use in comparison to Alternatives 4 and 5 (which also requires patrolling). With a good balance of trail opportunities dispersing OHV use across a diversity of terrain, most people are less apt to test the system by riding off of designated trails or reopening decommissioned trails. Because these alternatives provide more miles of OHV trail opportunities, funding opportunities (including Oregon State OHV Grant) for law enforcement would likely be greater to provide coverage across a broader area in comparison to Alternatives 4 and 5.

Effects of Alternatives 4 & 5

These alternatives provide a more limited opportunity for riding in comparison to Alternatives 2 and 3 and a reduced quality of OHV recreation experience. Alternative 4 provides about half the miles of OHV routes and Alternative 5 about one fifth of the miles of OHV routes in comparison with Alternatives 2 and 3. With a

management plan in place the BLM would likely be successful in receiving Oregon State OHV Grant funding to provide law enforcement; however, funding may be at a lower level based on providing fewer miles of OHV routes. The enforcement of proper use for fewer miles of trails in a smaller geographic area would require less effort from law enforcement and would likely cost less. However, the BLM would still have the need to enforce trail closures for the remainder of the planning area, which would still require efforts from law enforcement and possibly a higher level of BLM appropriated funding. With fewer miles of trail opportunity, OHV use will likely be displaced to other areas.

Social & Economic Conditions

This section provides a description of historical and existing social and economic conditions for the area potentially affected by all alternatives presented in the Timber Mountain Recreation Management Plan. The area analyzed for potential social and economic impacts will include two counties, Jackson and Josephine, and the major towns located near the proposed OHV management area: Grants Pass in Josephine County, and Gold Hill, Rogue River, Central Point, Jacksonville, and Medford in Jackson County. Rural residential communities along various roads and streams are also included.

Analysis Area Overview

Social and related socioeconomic effects of the proposed OHV management area are expected to be most evident in Jackson and Josephine Counties, Oregon. Effects of the alternatives are unlikely to extend to adjacent counties, unless there is a minor increase in activity for OHV-related businesses along the Interstate 5 corridor in south central Douglas County, when special events are scheduled at the OHV site. Rural and urban communities and scattered residential subdivisions in close proximity to the site have the greatest potential to experience effects. The specific locations most affected will vary somewhat under each of the proposed alternatives.

Jackson and Josephine Counties are located in southwest Oregon, bordering on California and adjacent to Curry County on the Pacific coast, Douglas County on the north, and Klamath County on the east. Jackson and Josephine Counties encompass 4,420 square miles. The geographic conditions are favorable for agriculture, including livestock raising, fruit orchards, vineyards, and field crops. Timber, mining, fisheries, manufacturing, construction, health care, and tourism are also important industries (see Figure 3-7).

Much of the land in these counties is federally owned and managed, principally by the United States Forest Service (USFS) and the Bureau of Land Management (BLM) with two forest headquarters and a BLM district office located in Medford. The Timber Mountain area is within what is called a “checkerboard” pattern of ownership, a much larger expanse with alternating sections of land publicly and privately owned. This mosaic of land ownership in the Timber Mountain OHV planning area poses a challenge for designating a system of trails that includes long loop trail opportunities over both public and private lands.

Scenically, southwest Oregon is a remarkable area, and tourism has been increasing sharply in recent years as both local people and outsiders seek to participate in the numerous outdoor activities and cultural events of southwest Oregon.

The majority of the two counties’ 279,000 inhabitants live along a 50 mile segment of the Interstate 5 (I-5) corridor extending through the Rogue River Valley from Grants Pass, through Medford to Ashland (US Census, Population estimates 2006). Grants Pass, located about 9 to 10 miles west of the study sited, is the county seat and easily the largest city of Josephine County. Medford is Jackson County’s seat and the major commercial center in the study area.

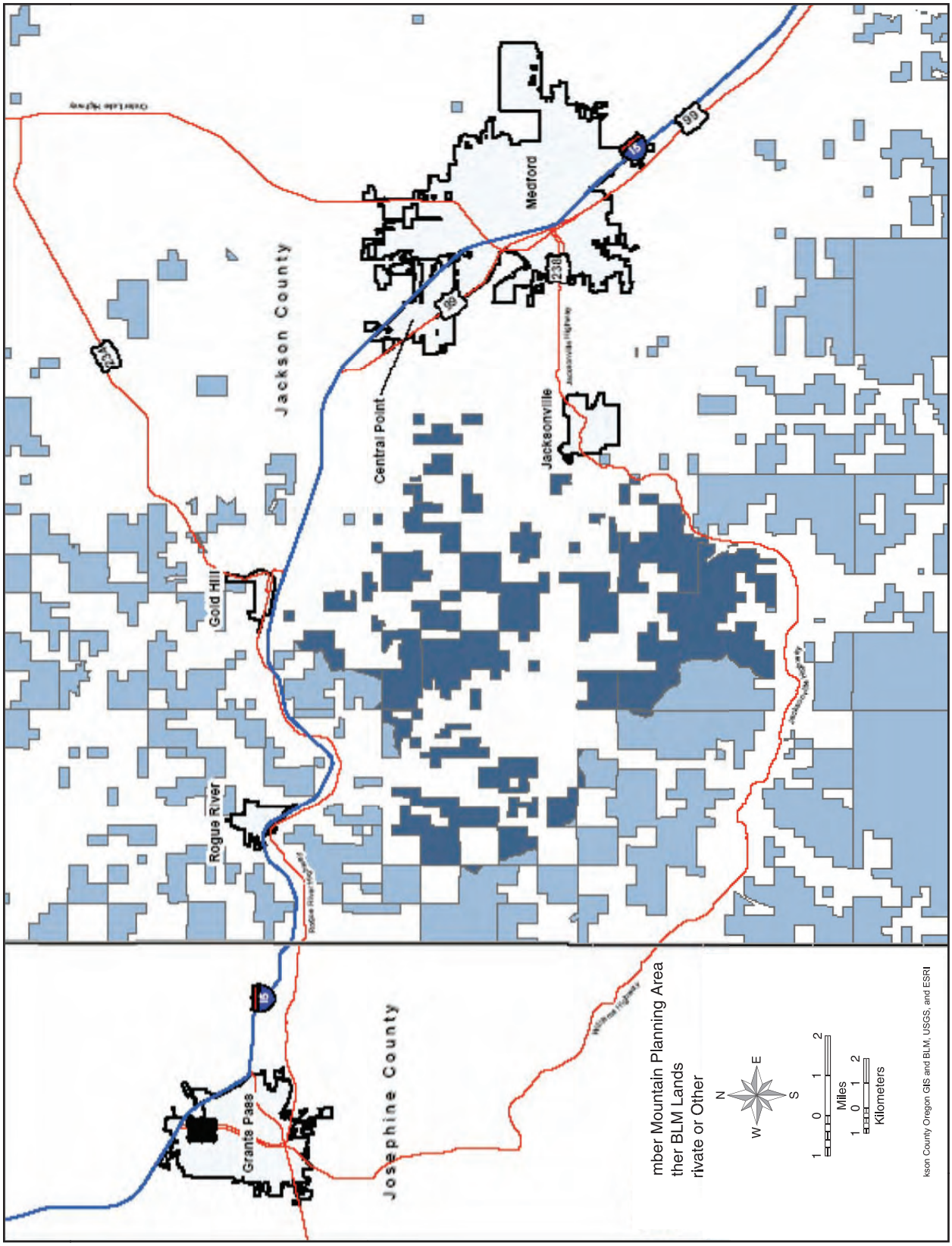


Figure 3-7. Social & Economic Analysis Area

Rogue Valley Area (Jackson and Josephine Counties)

A major social and cultural transition has been occurring in the study area, gaining momentum during the past three decades. This change may be attributed to factors such as a changing economy, enhanced electronic communication, expanding educational options, and increased in-migration from other regions. In addition to the area's exceptional scenic beauty, its timber and mineral wealth, its mild climate, and the abundant opportunities for outdoor activities, a wealth of cultural offerings has emerged.

Prior to a generation ago, the timber industry dominated most communities and their way of life. Almost every community had one or more mills that produced lumber or other wood products. Smoking conical trash burners dotted the landscape and log trucks were seen regularly, many with as few as three huge logs. Agriculture, including field crops, orchards, and livestock were also important sources of income. The majority of local residents had ties with these industries, as loggers, truckers, mill workers, and farm workers, or by providing goods and services for these industries and their employees. Unionized loggers and mill workers earned relatively good wages, and county and city receipts from local property taxes and state and federal sources provided much of the support for county and community schools and other public services.

By the late 1980s, the volume of timber harvesting was declining sharply and many mills closed. Timber sales on federal lands were reduced due to federal legislation and executive orders in response to mounting environmental concerns. In addition, modern logging and milling machines and procedures increasingly displaced manual workers. With the reduction in timber production, many communities experienced declining business activity, reduced tax revenues, and increased unemployment. Livestock ranching also declined in importance although viniculture prospered and 10 wineries have been established since the 1970s.

Gradually other industries and activities began to take up the slack. Many new jobs have opened in the service industries due to the rapid expansion of tourism and other trends. Dozens of motels and restaurants opened throughout the area and roads, trails, campsites, and visitor centers were upgraded. Though often safer and less physically demanding, service industry jobs usually paid much less than in the timber industry. As economic growth continued, better-paying positions opened in health care, higher education, finance and real estate, high-tech industries, construction, and various professional and technical services. Many of these new openings required specialized formal education and training and new community colleges helped to meet this need.

The recent in-migration of thousands of people to the area, a large portion of them retirees, has hastened social and cultural changes. According to the 2000 U.S. Census, Jackson County's population increased 91 percent since 1970 and Josephine's growth was 109 percent. Over 15 percent of Jackson and Josephine County residents lived in another state five years earlier. By 1990, the percentage of Jackson County residents over 65 had increased to 16.2 and to 20.5 in Josephine County, remaining at the same levels in 2000. Some newcomers have been drawn to the area by its beauty and tranquility; others by the numerous options for outdoor activities; and still others by new job opportunities resulting from population growth.

The more prosperous newcomers have tended to buy or build new homes in or near Ashland, Jacksonville, and along the Rogue River and its tributaries, rapidly escalating the price of real estate in these cities. Between 1980 and 2000, the median value of owner-occupied houses increased 245 percent in Jackson County and 228 percent in Josephine County. Farm acreage in Jackson County declined 17.5 percent between 1987 and 1997. Many other in-migrants have moved to homes and trailer parks in more affordable locations. Rents increased 236 percent and 211 percent in the two counties during the 1980-2000 period.

Concurrent with and in part due to these trends, the study area has experienced a rather dramatic expansion of both community interests and the types of commercial ventures that appeal to local people and visitors alike. This new enthusiasm is widely shared, as several joint community efforts illustrate. One example is the nearly-completed Bear Creek Greenway, 19 miles of trail for hikers and bicyclists. It follows the creek from Central Point through Medford, Phoenix, and Talent to Ashland and will connect a dozen local parks and other points of interest.

The cities that make up the analysis area contain a variety of important historic and cultural attributes:

Ashland

From its humble beginnings in 1935, the Oregon Shakespeare Festival in Ashland has become an internationally recognized event. From February to October, 2005, eleven productions, presented on three stages, feature the works of Shakespeare, Marlowe, Shaw, and other playwrights. Other cultural options include the Schneider Art Museum and the Oregon Cabaret Theater which offers dinner theater in a traditional setting. As of 2003, Ashland had 21 art and craft galleries, mostly concentrated in its historic and refurbished downtown district. Ashland is also the home of Southern Oregon University, century-old Lithia Park, and Scienceworks, a hands-on museum with over 80 interactive exhibits.

Medford

Medford is the Jackson County seat, major commercial center of the study area, and the gateway to Crater Lake National Park. In 1940, when Oregon had less than one-third of its present population, this city had only 11,000 residents. After World War II began, thousands of workers arrived to construct Camp White, an Army training center, and the demand for timber products increased sharply. A second spurt of growth occurred within the past 20 years as this area attracted new industries and numerous retirees. Besides its historic and still-thriving downtown, there are five neighborhood shopping centers. Medford is the home of Harry and David's fruit and gift chain, food processing and packing plants, and the Craterian Ginger Rogers Theater that offers plays, music, opera, and ballet. It has two historical museums, annual jazz and pear festivals, and has developed extensive tourist facilities.

Grants Pass/Central Point/Rogue River/Gold Hill

The Rogue Valley to the north of the study area was initially populated by gold seekers and an estimated $70 million of the mineral was extracted. Timber harvesting followed and remains important, but more recently the cities of Grants Pass, Rogue River, Gold Hill, and Central Point have increased their emphasis on tourist attractions and have expanded facilities to support them. In addition to Medford, Grants Pass and Central Point also provide bases for visitors to southwest Oregon because of their central location and their numerous motels and restaurants, but they have their own attractions as well. Grants Pass has a downtown historic district, the Josephine County fair, a museum of art, an annual antique fair, a river festival with jet boat racing, several other festivals, horse racing, a major craft and growers market, and two dozen antique shops. The spectacular lower Rogue River is among the first rivers to be designated as a National Wild and Scenic River; Grants Pass is the eastern portal to the Wild and Scenic River, where the river tumbles through the Coastal Range to Gold Beach. It offers beautiful scenery, and back country accommodations that serve rafters and passengers on drift boats and speedboats.

Central Point is the site of the Jackson County Expo, which sponsors the county fair, hot air balloon and harvest festivals, and other events. Here too is a family entertainment center and a cheese factory famous for its Oregon blue vein cheese, jacks, and cheddars. Between Grants Pass and Central Point, the city of Rogue River has a pioneer museum, an arboretum, and excellent camping facilities. Gold Hill has a pioneer and mining museum and is located at the beginning of the 172-mile Rogue-Umpqua National Scenic Byway.

City of Jacksonville

Just to the west of Medford and adjacent to the OHV management area is historic Jacksonville, a well-preserved city of brick buildings that is increasingly popular as a cultural center and retirement community. Since Jacksonville was designated as a National Historic Landmark in 1966, more than 80 buildings have been listed on the National Register of Historic Places. It has been billed as a "living time capsule" for future generations. The city's walking tour includes 101 buildings and other points of interest, including its historic cemetery. It has 17 motels and inns, 5 art galleries, several excellent restaurants, and over 25 specialty, food, and clothing shops. Cultural attractions include the annual Victorian Christmas Celebration in December, the Chinese New Year Celebration in February, Pioneer Day in June, the Jacksonville Museum of Southern Oregon History, the Children's Museum, and the Children's Festival in July in September, the city in cooperation with local wineries, hosts the Vintage Food and Wine Festival, to name a few. Most renowned is the Britt Outdoor Theater,

seating 2,200, and its adjacent park. In the 2004 season, from June to September, the theater featured over 50 performances ranging from classical to popular and western. Artists included several nationally prominent individuals and groups of singers, dancers, and instrumentalists.

Jacksonville looks to the future as a magnet not only for newcomers and visitors who enjoy turn of the century charm, but for nature lovers as well. The city has s 300-acre Jacksonville Woodlands Natural Park with seven miles of hiking and interpretive trails. Local boosters would like to see its 1800-acre forest lands (including a water reservoir area) converted to a general park for diverse recreational opportunities. Other outdoor attractions include the Rich Gulch Trail for those interested in early gold mining, a native plant arboretum, the Sarah Ziegler Interpretive Trail, and a rock museum.

The Applegate Valley, west of Jacksonville, is also changing in character. It has a climate and soil conditions favorable for viniculture and now has over 30 vineyards and several wineries that produce quality red wines. The Applegate Christian Fellowship has constructed a large complex of facilities near Ruch and offers religious services three days each week. They also sponsor the Mountain Top retreat and various recreational activities. The combined activities of Jacksonville and the Applegate Valley have substantially increased the traffic flow on Highway 238.

Adjacent Communities & Neighborhoods

As the study area of Jackson and Josephine Counties of the Rogue Valley area has rapidly gained in population during the past three decades, many families and individuals have moved to plots of land on country lanes that follow the numerous creeks that flow downward from Timber Mountain planning area. Areas that once supported scattered farms or natural vegetation are now rural residential neighborhoods. Thus, the Timber Mountain planning area is surrounded by homes of people, many of whom have intentionally left city life behind. Most of these residents value the qualities of rural life. They cite several reasons for locating in the country, including owning land, peace and quiet, personal security, and a good environment for children, easy access to the natural environment, and their love of outdoor activities, such as hiking, hunting, fishing, and horseback riding, small-scale farming, and gardening.

There is considerable residential development adjacent to and extending into the Timber Mountain planning area. The following groups of rural neighborhoods surround the planning area:

- To the north are the Birdseye, Foots, Galls, and Kane Creek neighborhoods, accessed from Rogue River and Gold Hill.
- To the east are Old Military, Johns Peak, and Old Stage Roads on the outskirts of Jacksonville and accessed from Medford and Central Point as well. Extensive residential development has occurred along these roads with many expensive homes now erected among the numerous older residences.
- Also to the east is the City of Jacksonville, designated as a National Historic Landmark in 1966 (discussed above).
- To the southeast is Forest Creek Road, surrounded by the study area and its existing and potential OHV trails.
- To the south are Highway 238, Applegate Road, the community of Ruch, and China Gulch neighborhood. To the southwest Highway 238 extends past Humbug Creek Road, to the community of Applegate, and Thompson Creek, and Slagle Creek Roads. Rural residential development extends in all four directions here, but only Humbug Creek projects as far as the Timber Mountain planning area.

Adjacent Communities & Neighborhoods - Noise

Affected Environment

Noise is defined as any loud, discordant, or disagreeable sound or sounds.[3] OHV use has the potential to produce sounds that may be perceived as noise. High noise levels can be physically harmful, and noise at lower levels can

3 New York State Department of Environmental Conservation, "Assessing and Mitigating Noise Impacts" Program Policy DEP-00-1, October 6, 2000 (revised February 2, 2001) p. 2

be annoying, even though physical damage to hearing is unlikely. The current Oregon State law allows OHVs to operate under a maximum decibel level of 99 dBA measured 20 inches from the end of a tailpipe. In the Oregon Dunes National Recreation area, the maximum sound level is 93 dBA. The following table shows approximate decibel levels for familiar sounds:

Table 3-53. Noise Levels for Common Sounds:

Sound	dBA
Whisper	30
Quiet Office	40
Average Office	50
Conversation	60
Restaurant	70
Garbage Disposal	80
Hearing Damage Possible	85
Lawn Mower	63 - 91
Headphones	110
Discomfort Threshold	115
Pain Threshold	135
Jet Plane	150

Source: Central Oregon Combined Off Highway Vehicle Operations, available athttp//www.fs.fed.us/r6/centraloregon/recreation/cohvops/sound/html

The characteristics of a sound such as pitch and duration influence whether it may be perceived as an agreeable sound or as noise. The characteristics of the environment at the location where the sound is produced also may affect how it is heard. The surrounding terrain, time of day, wind direction, temperature gradient, and relative humidity all may have an effect. The most important factor is the distance between the source and the receptor.

The ambient noise level at the receptor location, commonly called background noise, is also an important consideration in the perception of noise. The ambient noise level in a quiet rural area is about 50 dBA[4], with the ambient level increasing as one moves from suburban areas, to cities, and then to city centers. Generally, the lower the ambient level, the more likely a sound may be perceived as noise. What may be perceived as an annoying sound in a rural area may be masked by the ambient level in a more densely settled area. Sounds greater than 10 dBA above the ambient level in any location may be perceived as noise.[5] Sounds at the receptor at or greater than 60 dBA in the rural areas of the study area could be perceived as annoying sounds by this definition.

According to the New York State Department of Environmental Conservation manual "…sound changes in inverse proportion to the square of the distance from the sound source. At distances greater than 50 feet from a sound source, every doubling of the distance produces a 6 dB reduction in the sound".[6] This is known as the "inverse square rule" meaning that a sound measured at 90 dBA 50 feet from a source will measure 60 dBA at 1600 feet, 54 dBA at 3200 feet, and 48 dBA at 6400 feet. However, within the "near field," area of the source of a noise, sound may dissipate slower than it does with the inverse square rule, at a rate closer to 3 or 4 dBA per doubling of the distance. For example, a recent study of lawn mower noise demonstrated that a lawnmower registering 91 decibels at the operator's ear (assumed to be approximately 3-4 feet from the machine) decayed to 80 dBA at a distance of 25 feet.[7] This implies a loss of 11 dBA while the distance doubled slightly less than three times.

4 U.S. Department of Transportation, Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment, April 1995
5 Ibid.
6 New York State Department of Environmental Conservation, "Assessing and Mitigating Noise Impacts" Program Policy DEP-00-1, October 6, 2000 (revised February 2, 2001) p. 8
7 Noise Pollution Clearinghouse, *Quiet Zone,* Summer 2004, pg. 5.

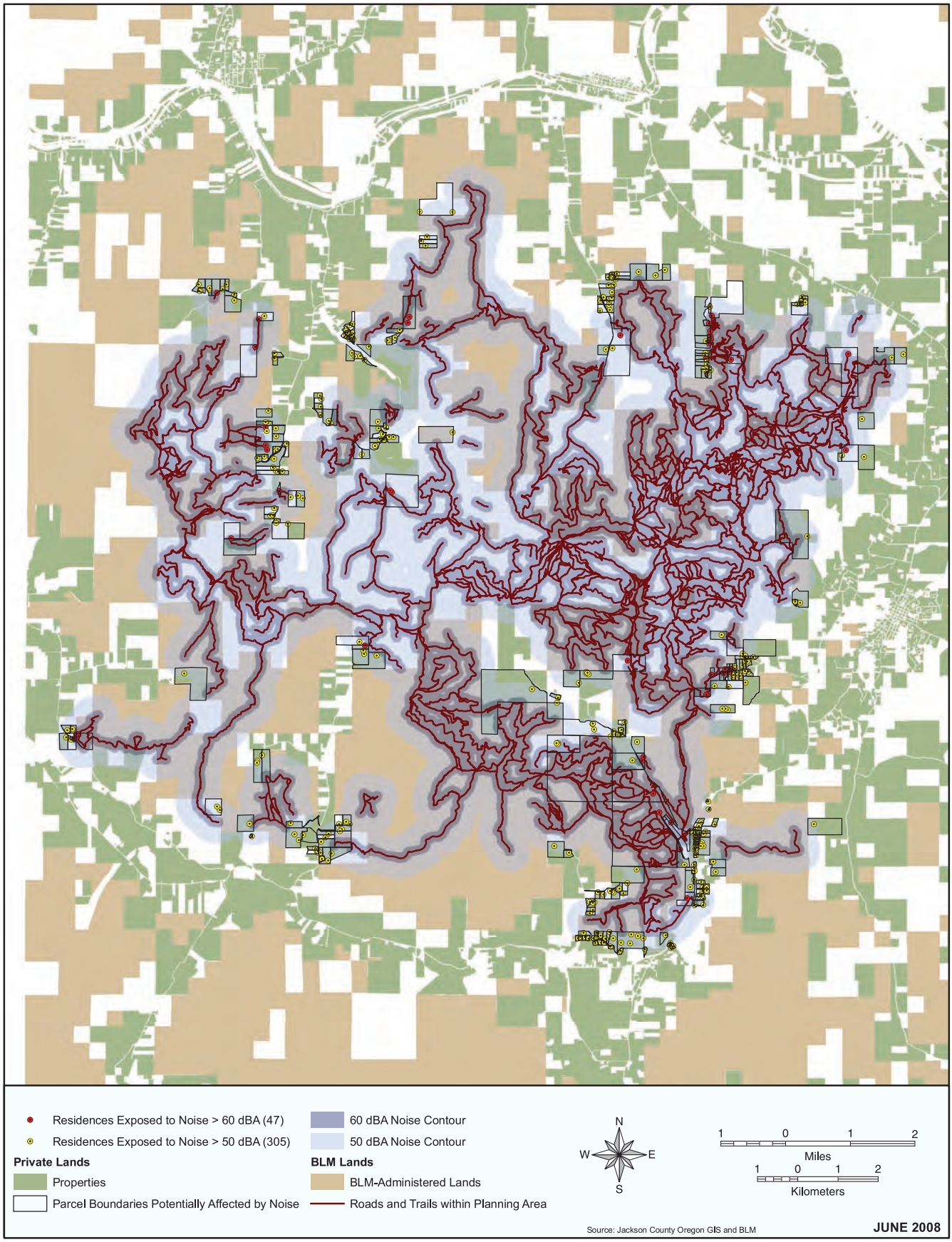
Based on the inverse square rule, and other information regarding sound dissipation within the near field, estimates were developed for the distance from existing trails within which OHV sound may be perceived as noise. Beyond 427 feet of an OHV producing the maximum of 99 dBA of sound, this sound is expected have been reduced to the 60 dBA threshold. Within 1,707 feet (about 1/3 of a mile) the sound from an OHV at maximum sound levels is expected to decay to a value of 50 dBA, so that people living more than 1/3 of a mile from a trail are not likely to hear OHV sound above the ambient noise of the neighborhood. The relationship between the distance from OHV sound, and the decrease in that sound, along with the assumptions used to estimate this is shown in Table 3-54. Although many things affect how sound travels, and whether it is perceived as noise, the analysis presented shows a general guideline for evaluating the current issue surrounding OHV noise within the project area.

Table 3-54. Estimated Decrease in OHV Sound and Distance from Source

Distance from Sound (ft.)	Distance from Sound (miles)	dBA Decrease per Doubling of Distance	Decibel Level
20 in.	0.00	3	99
3.3	0.00	3	96
6.7	0.00	3	93
13	0.00	3	90
27	0.01	6	84
53	0.01	6	78
107	0.02	6	72
213	0.04	6	66
427	0.08	6	60
853	0.16	6	54
1,707	0.32	6	48
3,413	0.65	6	42

The following figure shows the current situation in the Timber Mountain planning area. Tax assessor data from Jackson County was used to determine properties where people were likely to live, or spend a good deal of time out of doors. For simplicity, this analysis assumes that private properties with improvements (structures) worth over $15,000 are regularly inhabited or visited. These regularly inhabited properties are shown as red and yellow dots on the following figure. Yellow dots are used to illustrate those properties exposed to noise at a level greater than 50 dBA, while properties exposed to noise levels greater than 60 dBA are shown in red. The dark shaded buffer surrounding existing roads and trails used for OHV riding represents the areas potentially affected by OHV noise at a level of 60 dBA or greater. The lighter colored boundary represents the areas potentially affected by OHV noise measuring between 50 dBa and 60 dBa. Based on these estimations, the noise created by OHV operation on existing trails and roads could impact the occupants of some adjacent properties (fig. 3-31).

Figure 3-8. Estimated 50 to 60 dBA Noise Contour for OHV Use in Timber Mountain Planning Area, Noise Impacts for Alternative 1



The American Motorcyclist Association has maintained a position of strong opposition to excessive motorcycle noise throughout history.[8] Their current position is based on the notion that a minority of loud motorcycle riders create a negative impression of all motorcycle riders. The Motorcycle Industry Council (MIC) and the Specialty Vehicle Institute of America (SVIA), recommend 96 dBA as the maximum off-highway motorcycle/ATV sound limit for general off-highway use. The AMA, in its recent document titled Sound Advice recommends that OHV original equipment manufacturers should promote the adoption of a 96 dBA in-use standard in a number of pilot states where effective enforcement can be implemented.[9] This same document points out that modified exhaust systems increase sound on average by approximately 10 dBA, and that a 2003 survey reported that 32 percent of OHVs in use in fact had modified exhaust system.[10] The AMA supports the following list of recommendations:[11]

- All motorcycles should be sensitive to community standards and respect the rights of fellow citizens to enjoy a peaceful environment.
- Motorcyclists should not modify their exhaust systems in a way that will increase sound to an offensive level.
- Organizers of motorcycle events should take steps through advertising, peer pressure and enforcement to make excessively loud motorcycles unwelcome.
- Motorcycle retailers should discourage the installation and use of excessively loud replacement exhaust systems.
- The motorcycle industry, including aftermarket suppliers of replacement exhaust systems, should adopt responsible product decision and marketing policies aimed at limiting the cumulative impact of excessive motorcycle noise.
- Manufacturers producing motorcycles to appropriate federal standards should continue to educate their dealers and customers that louder exhaust systems do not necessarily improve the performance of a motorcycle.
- Law enforcement agencies should fairly and consistently enforce appropriate laws and ordinances against excessive vehicle noise.
- The motorcycle industry and the safety community should educate customers that excessive noise may be fatiguing to riders, making them less able to enjoy riding and less able to exercise good riding skills.

Environmental Consequences

Effects of the Alternative 1 (No-Action)

Noise is a concern under the No Action alternative. Statistics show that for the region, upwards of 10% of OHVs used on public lands are improperly fitted with a USDA Forest Service approved spark arrester or a muffler to reduce the vehicles sound emissions to a level at or below the Oregon State Statute of 99dbA's. With no management plan in place, nearby residents have complained that occasionally riders come too close to residences and disturb weekend outdoor activities. If no action is taken, the increased ridership over time will also suggest that the occasional noise disturbance could increase. Under the No Action alternative, there are 305 residences that are exposed to noise that is greater than 50 dBA, and 47 residences exposed to noise greater than 60dBA (fig. 3-31).

8 From "AMA Position on Excessive Motorcycle Noise," downloaded on June 10, 2005, at http://www.amadirectlink.com/legisltn/positions/noise.asp.
9 Sound Advice is a document produced by the Motorcycle Sound Working Group, sponsored by the AMA. The group spent two years developing the approach to better management of excessive sound covered in the document. The document is available at www.ama-cycle.org/legisltn/soundbook.pdf.
10 Ibid. p. 5 -6. The document cites research completed by the USFS in the Oregon Dunes National Recreation Area regarding how modified exhaust systems
11 Ibid.

Effects of the Action Alternatives

Through management and enforcement, the noise reduction from OHVs could be substantial. Managers can ensure that vehicles are properly fitted with mufflers that can reduce noise levels by as much as 10 dbA's per vehicle. According to the GIS analysis, Alternative 5 would lead to the least amount of residences exposed to noise. Alternative 4 results in more residences exposed than Alternative 5, while Alternatives 2 and 3 will both expose more residences to noise than the other Action alternatives; however, substantially fewer than the No-action Alternative. All the Action alternatives would lead to fewer residences affected by noise from OHV riding.

Under Alternatives 2 and 3, it is expected that 100 residences will be affected by noise that is of the level 50 dBA or greater, while 9 residences are expected to be affected by noise that is at a level of 60 dBA or greater. The reason that these alternatives affect more residences than the other action alternatives in terms of noise is that they call for many more miles of OHV trails (138 miles each) distributed across a broader area. Both alternatives would have a decrease of noise compared to the No-action alternative due to an overall reduction in miles of OHV routes, the increase in management, improved law enforcement effectiveness, and the decommissioning of over 60 miles of existing trails.

Alternative 4 would lead to 87 residences affected by noise greater than 50 dBA, and only 4 residences being affected by noise greater than 60 dBA. Alternative 4 would have fewer noise impacts than Alternatives 2 and 3 due to fewer miles of trails and roads designated for OHV use (71 miles). OHV routes would only be managed on BLM-administered lands under Alternative 4.

Alternative 5 would result in just 1 resident exposed to noise greater than 60 dBA and 2 residences exposed to noise greater than 50 dBA. This alternative relies on existing trails and roads on BLM and some adjacent private lands, and would manage only 30.5 total miles of routes for OHV use, the fewest of all of the alternatives. The substantial reduction in managed OHV routes and designing a system of trails located away from rural residential areas is the primary reason for the reduction of noise impacts to the analysis area.

Figure 3-9. Estimated 50 to 60 dBA Noise Contour for OHV Use in Timber Mountain Planning Area, Noise Impacts for Alternative 2

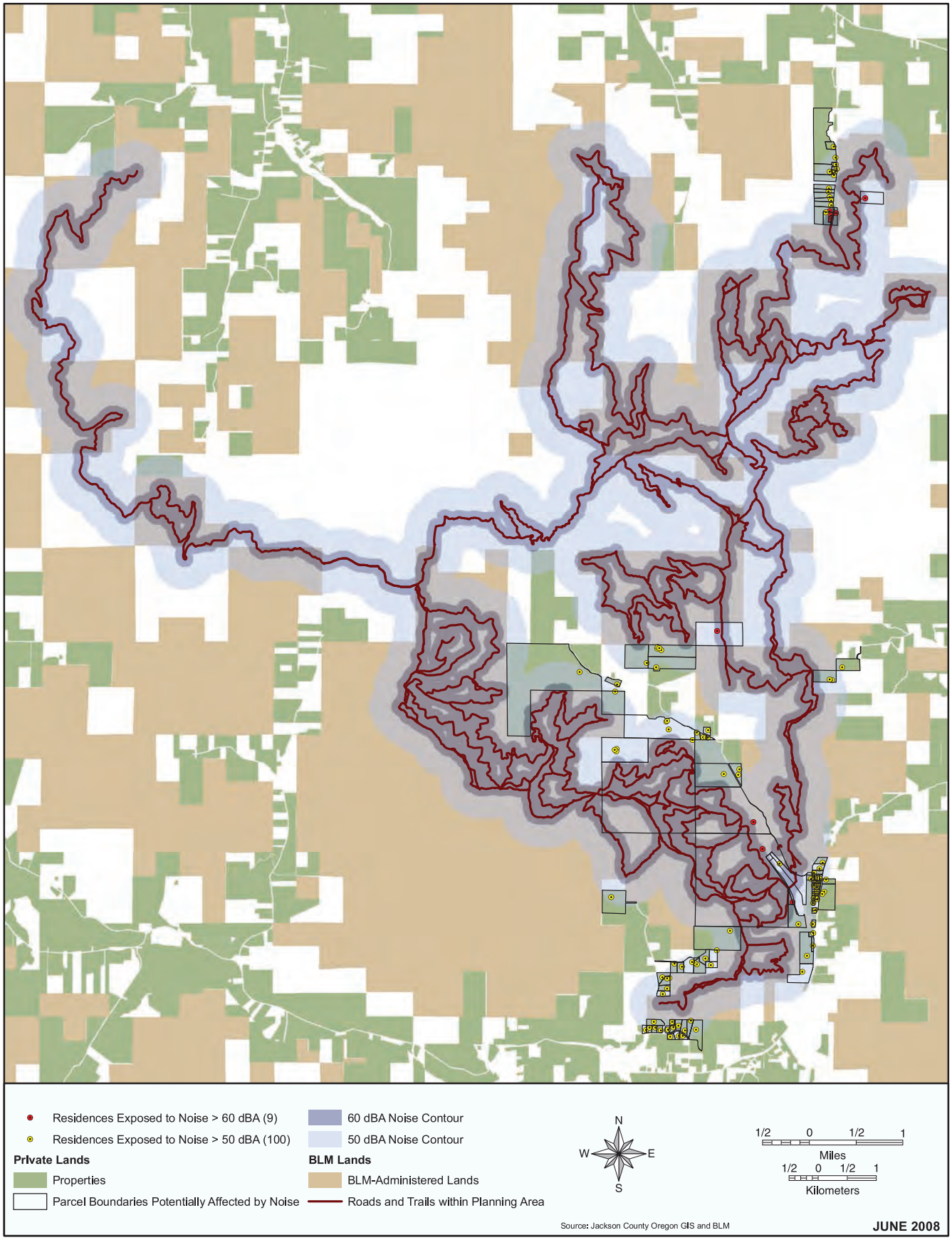


Figure 3-10. Estimated 50 to 60 dBA Noise Contour for OHV Use in Timber Mountain Planning Area, Noise Impacts for Alternative 3

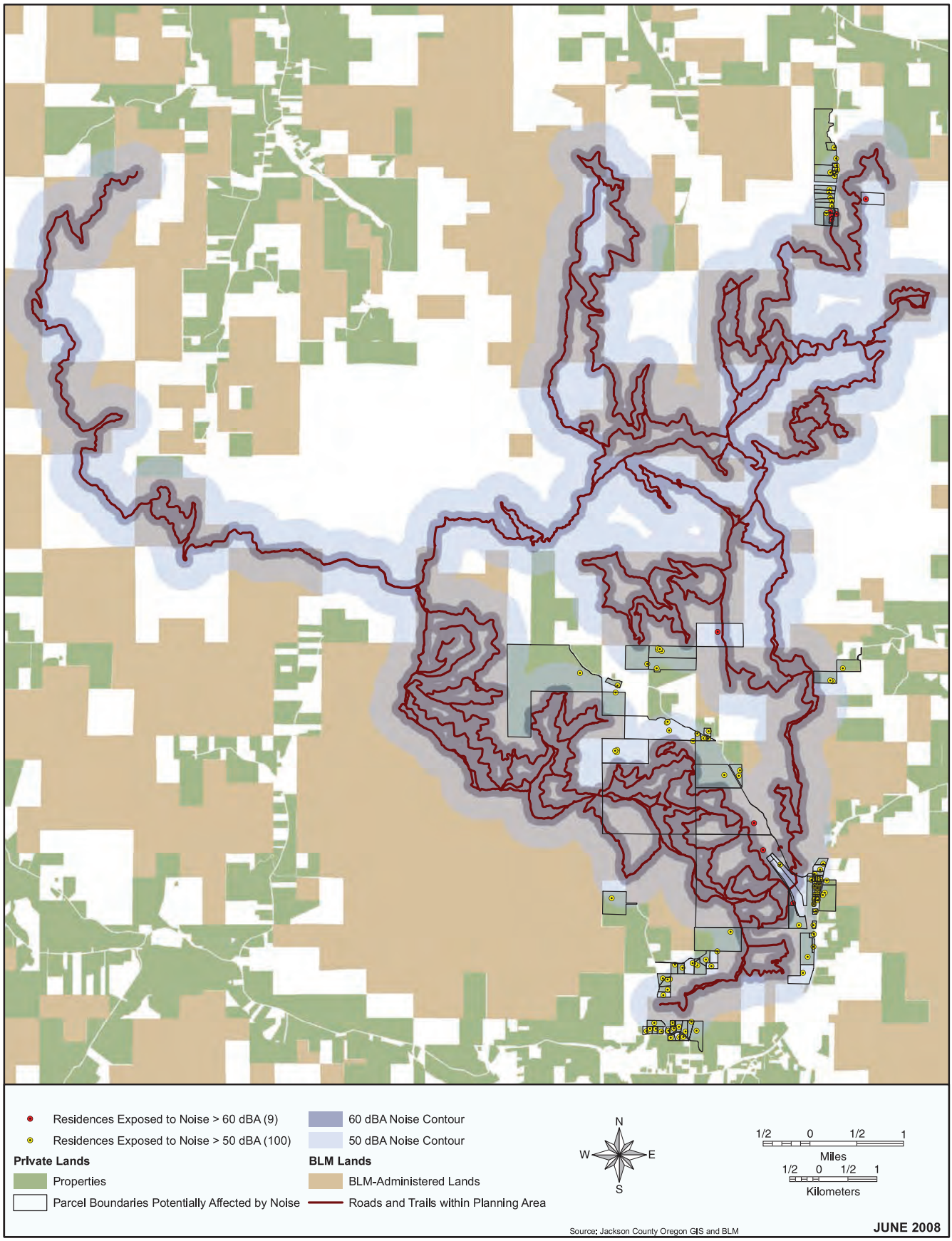


Figure 3-11. Estimated 50 to 60 dBA Noise Contour for OHV Use in Timber Mountain Planning Area, Noise Impacts for Alternative 4

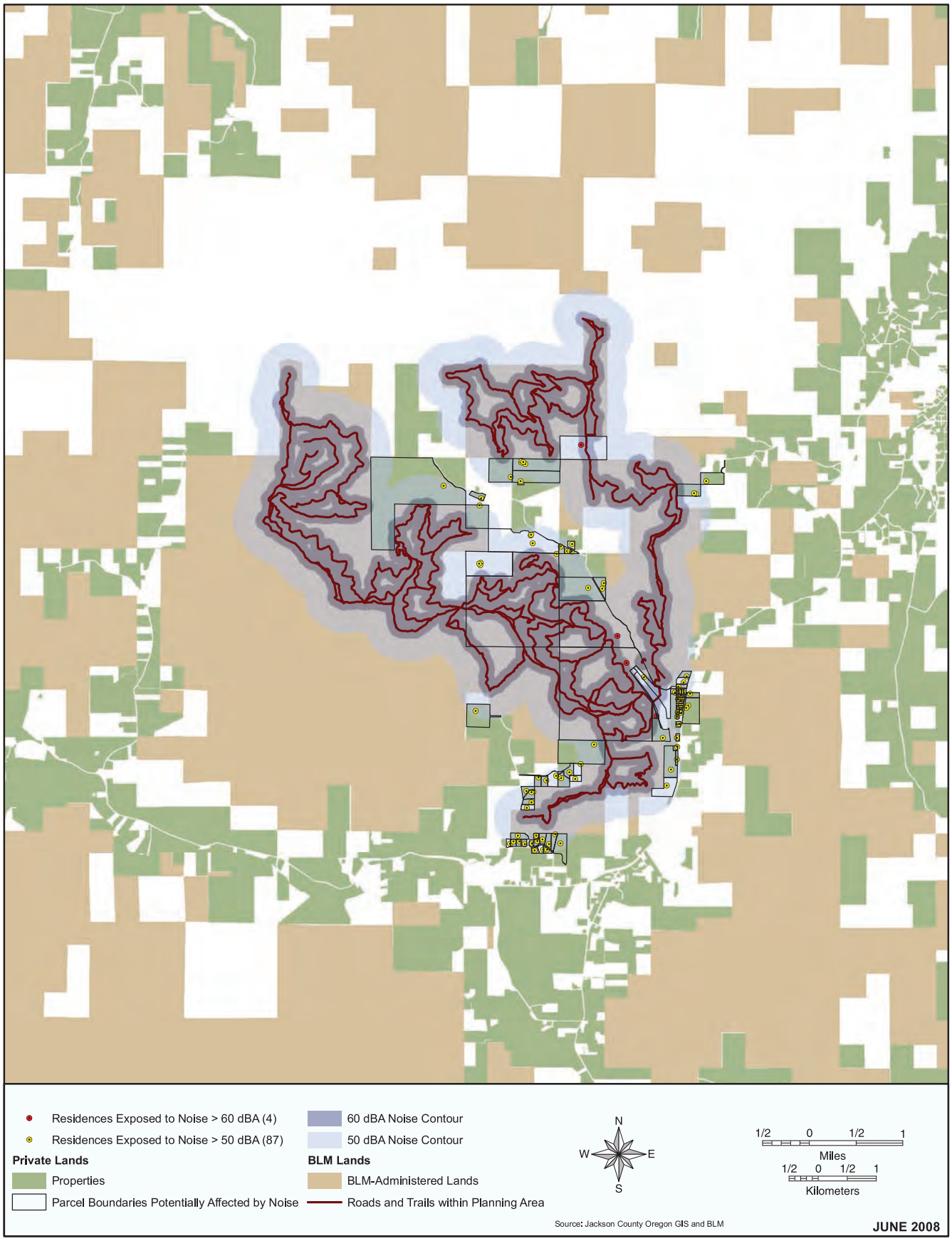
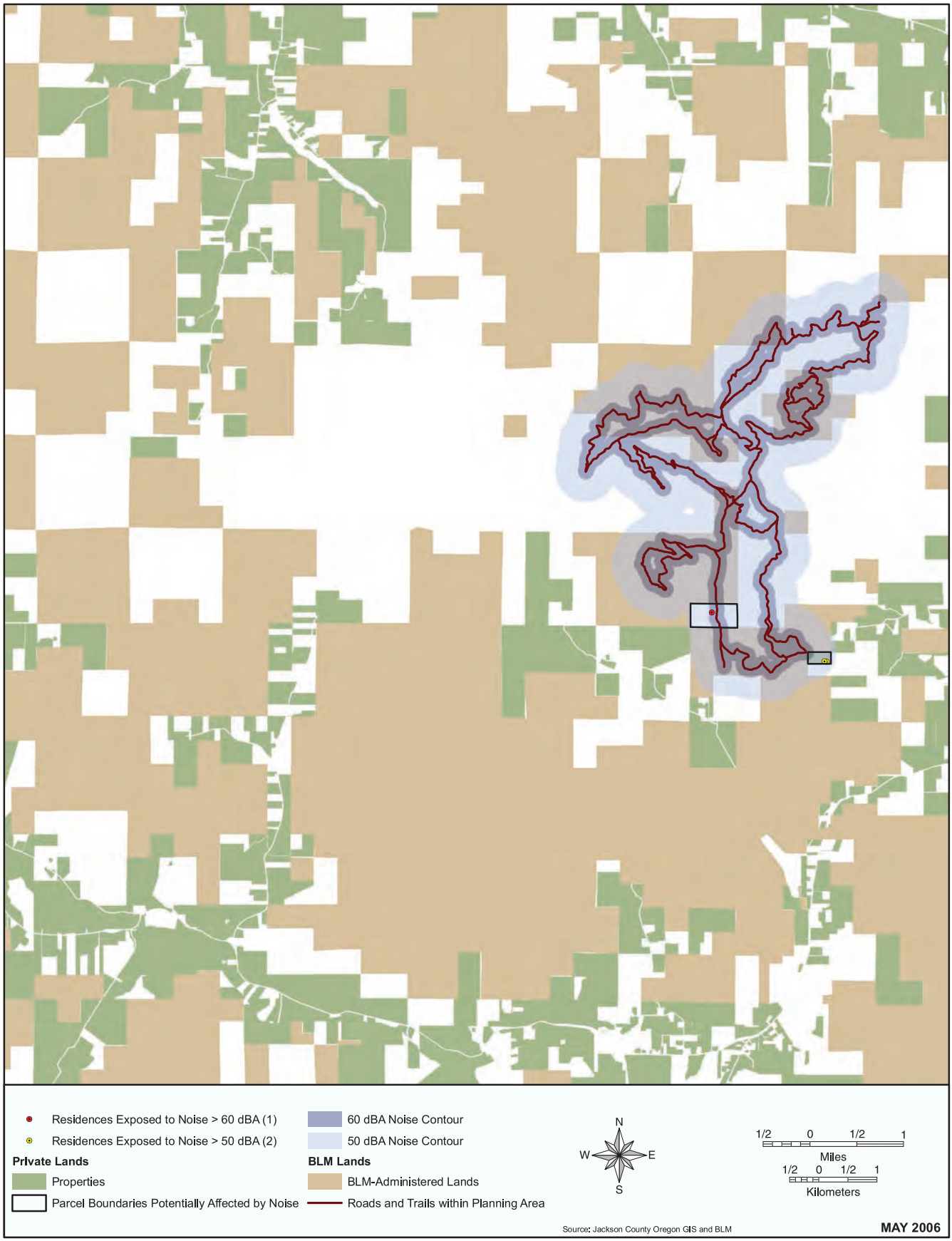


Figure 3-12. Estimated 50 to 60 dBA Noise Contour for OHV Use in Timber Mountain Planning Area, Noise Impacts for Alternative 5



Adjacent Communities & Neighborhoods - Traffic

Affected Environment

The average daily traffic counts reported by the Oregon Department of Transportation for highway 238 do not indicate that there has been a large increase overall during the past decade. Table 3-55 shows the counts for traffic counting stations in the vicinity of the project area.

Included in these counts is traffic for those accessing the planning area for OHV recreation. A limited amount of data on traffic counts on county roads is available from the Jackson County Highway Department. Table 3-56 shows counts for some county roads related to the planning area. It should be noted that on most of the days when traffic was counted the planning area was closed to OHV use as the dates are in the fire season.

Table3-55. Average Daily Traffic Counts Selected Location, Oregon Hwy 238

Milepost	Location	1995	1999	2004	Change 1995-2004
13.88	Williams Highway	1,600	1,800	1,700	100
18.02	West of Thompson Creek Road	2,000	2,200	2,600	600
24.11	Cameron Road	2,400	2,500	2,800	400
24.94	West of Ruch	3,500	3,300	3,100	-400
25.63	Upper Applegate Road	5,000	5,100	5,900	900
30.49	Cady Road	5,100	5,200	5,100	0
32.40	Mary Ann Drive	6,200	6,300	5,900	-300

Table 3-56. One Day Traffic Counts Selected Roads, Jackson County, Oregon

Road	Date	Count	Date	Count
Upper Applegate Road	8/05/02	2,652	7/13/04	3,117
Cady Road	10/29/02	584	7/13/04	672
Foots Creek Road	9/24/02	1,712	9/08/04	1,728
Humbug Creek Road	8/06/02	442	7/09/04	565
Old Stage Road	9/17/02	2,825	9/20/04	2,792

Environmental Consequences

Effects of the Alternatives

OHV related traffic is likely to increase with increasing OHV use, and so it is a concern under the No-Action Alternative. Although no significant traffic increases have been accounted for in the past decade, traffic could potentially become a problem in the future. As discussed above Motorcycle Riders Association's special events, currently attract 270 - 380 riders each, which increases traffic on event weekends. If we assumed that each of the riders drives to and from the site once, and on the same day, this could potentially increase traffic up to 760 trips on event days. However, it has been observed that most event participants carpool to the site, with at least two participants for most vehicles traveling to the event. Trailers capable of hauling multiple OHVs are also typically used. Many participants choose to camp out over the weekend which also disperses traffic over a period of two to three days.

Under current conditions, which should be maintained under the No Action Alternative, the locations with the highest trends of increasing traffic from 1995-2004 are west of Thompson Creek Road, Cameron Road, and Upper Applegate Road. Between 2002 and 2006, according to one-day traffic counts, Applegate Road has experienced an increase of around six percent.[12] The volumes along Applegate Road vary from just under 1,000 vehicles per

12 Six percent is an elaboration on traffic counts along Applegate Road between the years of 2002 and 2006 based on data provided by Jackson County. The data are available at http://www.co.jackson.or.us.

day to over 3,000 vehicles per day, and so it is not at all clear that the addition of event traffic would be noticeable above normal daily fluctuations in traffic. Furthermore, because events typically occur over the weekends, and not during peak commuting traffic times, the impact is not expected to be significant.

During OHV events, one possible traffic concern is that some roads do already experience heavy traffic on the weekends for church services. The Applegate Christian Fellowship has a congregation of approximately 1,300,[13] and has services on Saturday nights from 7:00 to 9:00 and on Sunday mornings from 9:00 to 12:30. During these hours, there may be as many as 1,000 to 1,300 visitors to the church who might also be traveling on highway 238 from Jacksonville and elsewhere to and from the church. Especially near the intersections of highway 238 and Upper Applegate Road, China Gulch Road, Forest Creek Road, and other access points, OHV event traffic may coincide with traffic from churchgoers.

The action alternatives collectively provide staging areas located off of Forest Creek Road on East Forest Creek Road, and also off of China Gulch Road. However, it is not clear that any additional traffic impacts are expected since these two roads also provide access to OHV riders under the No-action Alternative. Alternative 2 has one more staging areas in the vicinity of the Forest Creek Road, and might therefore attract more traffic on that road compared with the No-action Alternative, and compared with the other Action Alternatives. Because OHV use for Alternatives 2 and 3 is expected to be the same, it is expected that the traffic impacts will be similar between the two, and perhaps slightly less than under the No-action Alternative.

Because OHV use is expected to be less under Alternative 4 than Alternatives 2 and 3, the potential traffic impacts are also expected to be less. Similarly traffic associated with Alternative 5 is expected to be even less than Alternative 4 due to decreased use. The traffic under Alternative 5 may also be in different locations because Alternative 5 does not include a staging area off of China Gulch Road as the others do.

Housing Costs (Property Values) & Availability

Affected Environment

Table 3-57 depicts the median value increases for owner-occupied housing units in Jackson and Josephine Counties from 1990 to 2006. In 1990, the median value of specified[14] owner-occupied housing units averaged $74,400 in Josephine County and $74,800 in Jackson County. By 2006, housing in Jackson County had increased by 287 percent compared to 260 percent in Josephine County, resulting in an average housing unit value of $289,600 for Jackson County and $268,200 for Josephine County (Census, 2006).

Table 3-57. Median Value of Owner-Occupied Housing Units by County for 1990, 2000 and 2006

	Median value 1990	Median value 2000	Median value 2006	% Change in Value
Jackson County	$74,800	$140,000	$289,600	287 %
Josephine County	$74,400	$128,700	$268,200	260 %

Source: U.S. Census Bureau, 2006 American Community Survey, U.S. Census Bureau, 1990. SF3, Table H061A, Median Value (dollars) for specified owner-occupied housing units U.S. Census Bureau, 2000. SF3, Table H76, Median Value (dollars) for specified owner-occupied housing units

13 Personal communication with Jon Courson, Applegate Christian Fellowship, Oct. 10, 2008.
14 Total number of owner occupied housing units described as either a one family home detached from any other house or a one family house attached to one or more houses on less than 10 acres with no business on the property. (U.S. Census).

Table 3-58 shows the average median value of owner occupied housing units for the study area's six incorporated cities in 1990 and 2000. The individual cities display a wide range of values from a minimum of $99,500 in Gold Hill to a maximum of $194,700 in Jacksonville (Census, 2000). Jacksonville housing values increased 120 percent from 1990 to 2000, the largest increase in value in the area. In addition, the cities of Medford and Central Point also experienced large increases in value, 86 percent and 92 percent respectively. The smaller cities of Gold Hill, Grants Pass, and Rogue River show increased housing values from 1990 to 2000 in the range of 67 percent to 71 percent.

Table 3-58. Median Value of Owner-Occupied Housing Units for 1990 and 2000

	Median value 1990	Median value 2000	% Change in Value
Central Point	$65,100	$125,300	93%
Gold Hill	$58,300	$99,500	71%
Grants Pass	$66,500	$111,200	67%
Jacksonville	$88,600	$194,700	120%
Medford	$70,900	$132,400	87%
Rogue River	$64,900	$109,400	69%

Source: U.S. Census Bureau, 2006 American Community Survey, U.S. Census Bureau, 1990. SF3, Table H061A, Median Value (dollars) for specified owner-occupied housing units U.S. Census Bureau, 2000. SF3, Table H76, Median Value (dollars) for specified owner-occupied housing units

Figure 3-13 below compares the change in per capita income from 1990 to 2000 to the change in median housing values for the same time period. With the exception of Gold Hill and Rogue River, all areas experienced greater increases in housing values than per capita income. This may indicate an increased demand in these areas for homes. This is especially true in Jacksonville where a 120 percent increase in median housing value occurred between 1990 and 2000. On the other hand, two small cities, Gold Hill and Rogue River saw larger increases in per capita income than median housing values from 1990 to 2000.

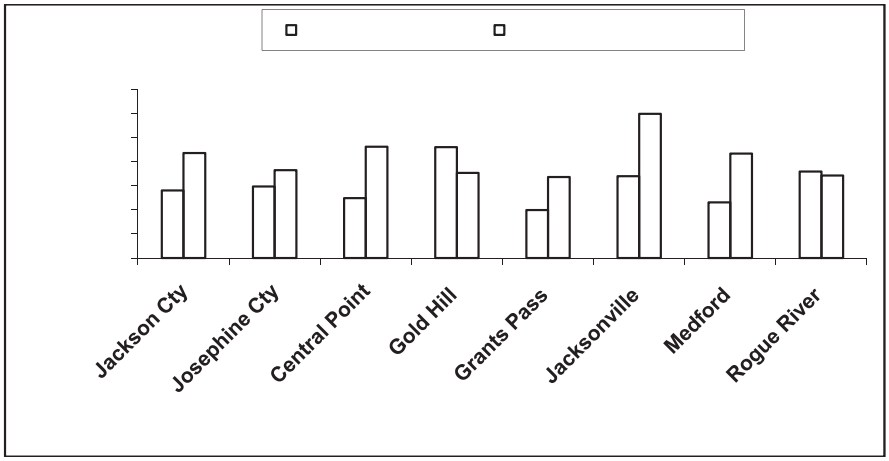
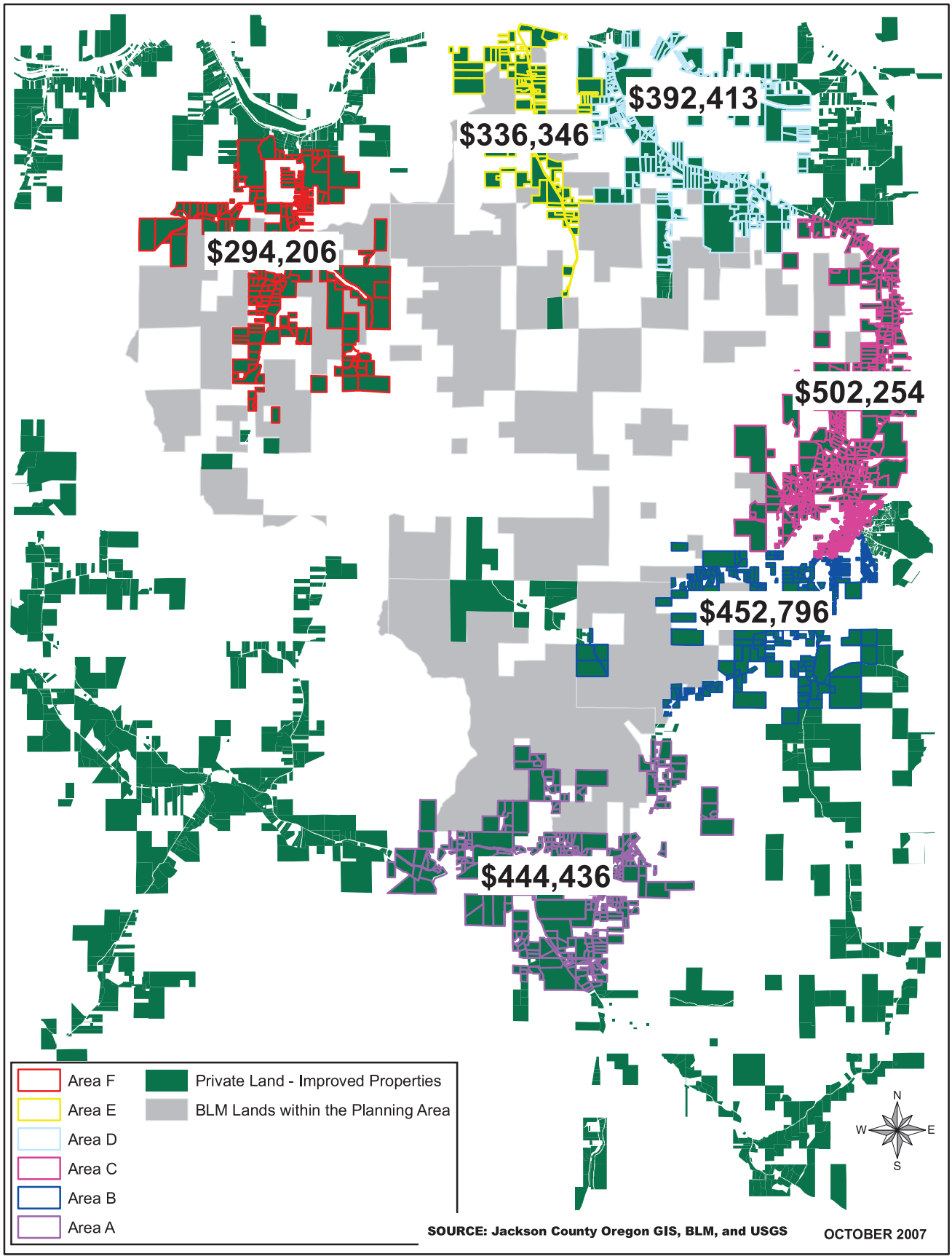


Figure 3-13. Comparison of Change in Per Capita Income to Change in Median Housing Value 1990 to 2000

Using Jackson County Tax Assessor data, differences in the average property values for areas near the proposed recreation area can be evaluated. Each of six areas was evaluated for an average property value, including both the value of the land and the value of the improvements. As shown in Figure 3-14, no one area is noticeably higher or lower in total average value. Beginning with the China Creek neighborhood at the bottom of the figure and moving northeast toward Jacksonville, the average neighborhood property values range from $444,436 to $502,254. The three neighborhoods along the top of the proposed area range in total property values from $294,206 to $392,413. From 2005 to 2007, the average improved property values increased fifty one percent from $305,362 to $461,347.

Figure 3-14. Average Property Value for Areas Bordering the Timber Mountain OHV Area



Environmental Consequences

Effects of the Alternatives

Until recently (past 12 to 18 months), rapid increases in home prices in the Rogue Valley area, including property near to the proposed OHV was a concern for those people looking to purchase homes. For example, until the recent slump in American housing markets, housing values in the analysis area had risen steadily since 1990. The change in median values of housing units in Jackson and Josephine Counties between 1990 and 2006 was an increase of 287 percent and 260 percent, respectively. Also, the median value in the two counties in 2006 is $289,600 and $268,200, respectively.[15]

Still, there are housing units available at all income levels in the analysis area. While the trends in housing costs may be a concern in the analysis area, it does not appear to be linked to OHV riding, and there is no evidence indicating that OHV activity, or the level of that activity, will have any impact on home values either upward or downward. Consequently, trends in home prices are expected to continue to be influenced by fluctuations in the regional and national economies and will remain unaffected by all of the alternatives, including the No Action alternative. Similarly, housing availability has been increasing in both counties. This growth is also expected to continue regardless of the outcome of this project.

As mentioned above, housing costs in the analysis area have been increasing, with the median value of houses increasing by more than 200 percent between 1990 and 2006 in both Josephine County and Jackson County. The action alternatives will lead to better management, but common to all alternatives is that there will be an increase in OHV riders in the future. Although some homeowners fear that OHV riding will have a negative effect on property values in the analysis area, there is no evidence to suggest that property values will be negatively affected by OHV use. Discussions with real estate brokers in the area confirmed that although some buyers might not want to be near OHV riding, others place a higher value on proximity to these recreational opportunities, and hence there is no systematic property devaluation that is associated with being adjacent to an OHV riding area. Neither the No-action alternative, nor any of the action alternatives, will create a change that will affect the concern about property values in the analysis area.

Economic Conditions

Affected Environment

Jackson County

Jackson County lies in the extreme southwestern area of Oregon with California sharing its southern border. Josephine, the other county in the analysis area, lies on its western border. The cities in Jackson County selected as part of the socioeconomic analysis include: Gold Hill, Rogue River, Central Point, Jacksonville, and Medford, the county seat.

According to 2006 estimates from the US Census Bureau, the county has a total area of 2,802 square miles and 86,164 housing units resulting in an average housing density of 30.7 housing units per square mile.

Josephine County

Josephine County is located adjacent to Jackson County on its western border and also shares its southern border with California. Grants Pass is the county seat and is the only town in the county located in the analysis area.

The county consists of 1,640 square miles with a total of 36,670 housing units, or 22.4 housing units per square mile (U.S. Census, 2006).

15 American Community Survey, U.S. Census Bureau, 2006.

Cities

Several cities are also located within the analysis area (see Figure 3-7). Grants Pass is a city of approximately 29,693 located in Josephine County to the of the Timber Mountain OHV area. Rogue River is a city of approximately 1,900 persons located on I-5/Highway 99 north of the Timber Mountain OHV area. The population of Gold Hill is approximately 1,050. It, too, is located north of the Timber Mountain OHV area on I-5/Highway just east of Rogue River. Central Point is a city just northwest of Medford of approximately 16,150 and lies east of the management area. Jacksonville is another city just to the west of Medford and east of the management area with a population of approximately 2,200. The population of Medford is approximately 71,168 (US Census, Population finder 2006). It is the largest city in the analysis area and lies east of the management area.

Employment by Economic Sector

Within the analysis area, the leading economic sector in terms of employment by industry is Education, Health, and Social Services. The Retail and Manufacturing sectors also employ large numbers of people. In Table 5, all sectors that employ at least 10 percent (double digit employment) of the labor force are highlighted. The highlighted areas focus on four sectors: 1) manufacturing, 2) retail trade, 3) educational, health and social services, and 4) arts, entertainment, recreation, accommodations, and food services.

Educational, Health, and Social Services
The highest percent of the labor force in cities in the analysis area are employed in the education, health, and social services sector. Employment ranges from 19 percent to 25 percent in this group with most of the jobs found in the health and social services. Table 3-59 shows the two subcategories in this employment group to illustrate the percent employed in the educational services, and the percentage employed in the health and social services. In all cities except Jacksonville, the number of people employed in health and social services is double the number of people employed in educational services. In Jacksonville, 14 percent of the population is employed in health and social services, and a slightly lower percentage, 11 percent, is employed in the educational services.

Manufacturing
With the exception of Jacksonville, 10 percent to 14 percent of the residents in the other cities work in the manufacturing sector. Although this sector has been decreasing in the area over the last three decades, it is still one of the top three employment sectors.

Retail Trade
Retail trade is one of the highest sectors in all listed cities. A range of 13 percent to 18 percent of the towns' population is employed in retail trade.

Arts, Entertainment, Recreation, Accommodations, and Food Services
Within the labor force of Grants Pass and Gold Hill, eleven percent is employed in the Arts, Entertainment, Recreation, Accommodations, and Food Services sectors; in the other six cities, less than 10 percent of their labor force work in this industry. This sector also shows the two subcategories within this sector and the percent employed in each subcategory. In Grants Pass and Gold Hill, 9 percent of the labor force is employed in the subcategory, Accommodations, and Food Services, and 4 percent to 7 percent in the other selected cities in the analysis area. This may be the result of tourism or their strategic location on Interstate 5 or a combination of both.

Jackson and Josephine counties reflect the same sectors with double digit (at least 10 percent) employment as the six cities listed above: manufacturing, retail trade, and educational, health, and social services. In addition, within the educational, health and social services industry, the health care and social services subcategory employs almost two thirds of the persons employed within the industry.

In Jackson County, the resource extraction sector including mining, oil and gas; lumber and wood products; paper and allied products; and forestry has declined from 15 percent of total personal income in 1970 to only four percent of total personal income in 2000 (BEA, 2005).

Josephine County also has decreased its reliance on the manufacture of logging and timber products over the last 20 years; instead, the county has worked hard to bring in new jobs including high technology, medical care, tourism, retirement services, and retail trade. Josephine County now leads the state in economic diversity among rural counties (City of Grants Pass Economic Development, 2003).

The top manufacturing firms in terms of number of employees are listed in Tables 3-61 and 3-62 for Jackson and Josephine counties.

Table 3-59. Employment by Sector (NAICS) by City (2000)

	Central Point		Gold City		Grants Pass		Jacksonville		Medford		Rogue River	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Ag, forestry, fishing, hunting & mining	143	3%	6	1%	212	2%	8	1%	568	2%	13	2%
Construction	500	9%	46	9%	600	7%	66	7%	1,801	6%	40	7%
Manufacturing	651	12%	74	14%	998	11%	69	7%	2,790	10%	61	11%
Wholesale trade	256	5%	22	4%	332	4%	31	3%	1,015	4%	9	2%
Retail trade	1,002	18%	68	13%	1,280	14%	135	13%	5,075	18%	75	13%
Trans. and warehousing, and utilities	211	4%	18	3%	248	3%	19	2%	1,083	4%	39	7%
Information	160	3%	8	2%	110	1%	23	2%	674	2%	23	4%
Finance, insurance. real estate & rental & leasing	249	4%	39	7%	463	5%	72	7%	1,622	6%	50	9%
Prof., scient., mgt, admin., waste mgt service	443	8%	29	6%	630	7%	81	8%	2,256	8%	26	5%
Ed., health and social services:	1,099	20%	101	19%	1,980	22%	255	25%	6,058	22%	137	24%
Educational services	372	7%	29	6%	561	6%	114	11%	1,960	7%	47	8%
Health care and social assistance	727	13%	72	14%	1,419	16%	141	14%	4,098	15%	90	16%
Arts, entertainment, rec., accommodation. & food service:	436	8%	57	11%	1,013	11%	87			9%	21	4%
Arts, entertainment, and recreation	86	2%	12	2%	235	3%	38	4%	458	2%	-	0%
Accommodation and food services	350	6%	45	9%	778	9%	49	5%	2,033	7%	21	4%
Other services (except pub. admin.)	288	5%	31	6%	523	6%	82	8%	1,610	6%	47	8%
Public administration	191	3%	23	4%	459	5%	79	8%	1,024	4%	29	5%
Total	5,629		522		8,848		1,007		28,067		570	

Universe: Employed civilian population 16 years and over
Source: U.S. Census 2000. SF3, Table P49, Sex by Industry for the Employed Population 16 Years and Over

Table 3-60. Employment by Sector (NAICS) by County (2006)

Name	Product	Employment
Bear Creek Corp.	Mail Order Gift Packs	3,000
Boise Cascade	Wood Products	1,000
Timber Products	Particle Board	350
Kodak	Imaging Media	335
Commercial Printing Co.	Printing	291
US Forest Industries	Wood Products	140
Alsthom	Industrial Transformers	120
Praegizer Industries	Circuit Boards	106
Micro Trains	Model Trains	90

Source: U.S. Census Bureau, 2006, American Community Survey by Industry for the Employed Population 16 Years & Over, *=data from Census, 2000. SF3, Table P49, Sex by Industry for the Employed Population 16 Years & Over

Table 3-61 Top Manufacturing Firms in Jackson County

Name	Product	Employment
Bear Creek Corp.	Mail Order Gift Packs	3,000
Boise Cascade	Wood Products	1,000
Timber Products	Particle Board	350
Kodak	Imaging Media	335
Commercial Printing Co.	Printing	291
US Forest Industries	Wood Products	140
Alsthom	Industrial Transformers	120
Praegizer Industries	Circuit Boards	106
Micro Trains	Model Trains	90

Source: SOREDI, 2000. Southern Oregon Regional Economic Development Community Profile, Jackson County. Website: http://www.soredi.org/profile/jackson.html. Accessed: 05/09/2005.

Table 3-62. Top Manufacturing Firms in Josephine County

	Per capita income in 1989	Per capita income in 1999	Percentage change
U.S	$14,420	$21,587	49.7%
Oregon	$13,418	$20,940	56.1%
Jackson County	$12,492	$19,498	56.1%
Josephine County	$10,809	$17,234	59.4%
Central Point	$11,351	$17,003	49.8%
Gold Hill	$8,778	$16,856	92.0%
Grants Pass	$11,607	$16,234	39.9%
Jacksonville	$16,757	$28,152	68.0%
Medford	$13,791	$20,170	46.3%
Rogue River	$9,769	$16,789	71.9%

Source: SOREDI, 2000. Southern Oregon Regional Economic Development Community Profile, Josephine County. Website: http://www.soredi.org/profile/josephine.html. Accessed: 05/09/2005.

Per Capita Income

The per capita income for the counties and cities shown in Table 3-63 represents the total income[16] of the specific area divided by the total population of that same area (U.S. Census, 2000). The per capita income in 1999 averaged $21,587 nationwide and $20,940 for the state of Oregon. In comparison, Jackson and Josephine counties per capita income ($19,498 and $17,234 respectively) are lower than the national and state average. Jacksonville has an average per capita income that is approximately $8,000 higher than the state and county averages.

The per capita income for Jackson County increases 56.1 percent and Josephine County increases 59.4 percent from 1989 to 1999. The percentage change in per capita income ranges from a low of 39.9 percent for Grants Pass to a high of 92.0 percent for Gold Hill for the same time frame. While local per capita incomes have increased relative to the U.S., they are still behind in absolute terms, except Jacksonville.

16 "Total income" is the sum of the amounts reported separately for wages, salary, commissions, bonuses, or tips; self-employment income from own nonfarm or farm businesses, including proprietorships and partnerships; interest, dividends, net rental income, royalty income, or income from estates and trusts; Social Security or Railroad Retirement income; Supplemental Security Income (SSI); any public assistance or welfare payments from the state or local welfare office; retirement, survivor, or disability pensions; and any other sources of income received regularly such as Veterans' (VA) payments, unemployment compensation, child support, or alimony.

Table 3-63. Per Capita Income for 1989 and 1999 (Counties and Cities)

	Per capita income in 1989	Per capita income in 1999	Percentage change
U.S	$14,420	$21,587	49.7%
Oregon	$13,418	$20,940	56.1%
Jackson County	$12,492	$19,498	56.1%
Josephine County	$10,809	$17,234	59.4%
Central Point	$11,351	$17,003	49.8%
Gold Hill	$8,778	$16,856	92.0%
Grants Pass	$11,607	$16,234	39.9%
Jacksonville	$16,757	$28,152	68.0%
Medford	$13,791	$20,170	46.3%
Rogue River	$9,769	$16,789	71.9%

Source: U.S. Census Bureau, 1990. STF3, Table P114A. Per Capita Income in 1989.
U.S. Census Bureau, 2000. STF3, Table P82. Per Capita Income in 1999.

Employment Data

The labor force includes all persons 16 years or older who are either employed or unemployed but actively seeking employment (Bureau of Labor Statistics 2005). The unemployment rate represents the number unemployed as a percentage of the labor force.

Table 3-64 presents data for the labor force for 1990 and 2000 for each county and selected city in the analysis area. Rogue River has the lowest percentage of the population age 16 and older that is in the labor force. In 1990 the percentage was 36.2 percent, and in 2000, there was only a slight increase to 40.8 percent. At the high end of the range, Gold Hill and Central Point show 68.0 percent and 65.2 percent of population aged 16 years and older in the labor Force. Gold Hill also represents the largest percentage change from 1990 with a rate of 55 percent to the year 2000 with a rate of 68 percent.

Table 3-65 compares the labor Force Rate for 1990 and 2006 for Jackson and Josephine counties. Both counties maintained similar rates for both years. In 1990, the Jackson County rate was 59.5 percent compared to 61.5 percent in 2006; in comparison, Josephine County shows a lower rate of 52.3 percent in 1990 and 51.3 percent in 2006. This lower percentage may indicate a lower number of unemployed persons actively seeking employment and therefore, no longer counted in the employment data.

Table 3-64. Labor Force by City for 1990 and 2000

		Labor Force	Unemployed	Unemployment
Central Point	1990	3,658	350	9.6%
	2000	5,952	323	5.4%
Gold Hill	1990	377	30	8.0%
	2000	569	47	8.3%
Grants Pass	1990	7,587	709	9.3%
	2000	9,748	900	9.2%
Jacksonville	1990	830	34	4.1%
	2000	1,044	37	3.5%
Medford	1990	22,502	1,580	7.0%
	2000	30,309	2,242	7.4%
Rogue River	1990	522	39	7.5%
	2000	606	36	5.9%

Source: U.S. Census Bureau, 1990. SF3, Table DP-3, Labor Force Status and Employment Characteristics
U.S. Census Bureau, 2000. SF3, Table QT-P24, Employment Status by Sex

Table 3-65. Labor Force for 1990 and 2006

		Persons 16 years & over	Civilian labor force	Percent in Civilian Labor Force
Jackson County	1990	113,834	67,733	59.5%
	2006	160,052	98,414	61.5%
Josephine County	1990	49,118	25,709	52.3%
	2006	67,500	34,648	51.3%

Source: U.S. Census Bureau, 1990. SF3, Table DP-3, Labor Force Status and Employment Characteristics
U.S. Census Bureau, 2006, American Community Survey.

Tables 3-66 and 3-67 focus on the unemployment rate by county and city in the analysis area. Grants Pass and Gold Hill show consistently higher unemployment rates at approximately 9 percent for Grants Pass and approximately 8 percent for Gold Hill. Jacksonville, conversely, shows the lowest unemployment rate, 4.1 percent for 1990 and 3.5 percent for 2000. Central Point presents a significant decrease in unemployment rates dropping from 9.6 percent in 1990 to 5.4 percent in 2000. Rogue River also shows a larger drop in unemployment rates from 7.5 percent to 5.90 percent.

Table 3-66. Unemployment Rate by City for 1990 and 2000

		Labor Force	Unemployed	Unemployment
Central Point	1990	3,658	350	9.6%
	2000	5,952	323	5.4%
Gold Hill	1990	377	30	8.0%
	2000	569	47	8.3%
Grants Pass	1990	7,587	709	9.3%
	2000	9,748	900	9.2%
Jacksonville	1990	830	34	4.1%
	2000	1,044	37	3.5%
Medford	1990	22,502	1,580	7.0%
	2000	30,309	2,242	7.4%
Rogue River	1990	522	39	7.5%
	2000	606	36	5.9%

Source: U.S. Census Bureau, 1990. SF3, Table DP-3, Labor Force Status and Employment Characteristics
U.S. Census Bureau, 2000. SF3, Table QT-P24, Employment Status by Sex

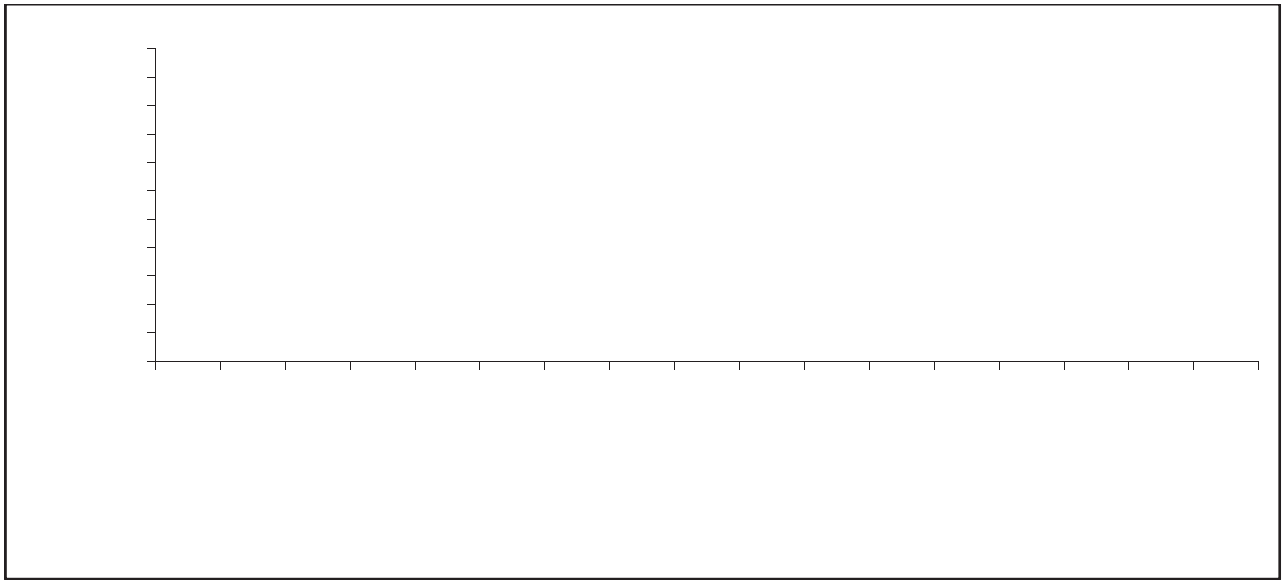
The unemployment rate is available annually by nation, state, and county from the Bureau of Labor Statistics. Table 3-67 and Figure 3-15 show the unemployment rates for Jackson and Josephine counties, state of Oregon, and the nation from 1990 to 2006. The graph reveals that the two counties share the same hills and valleys of unemployment, but Jackson County has a consistently lower level of unemployment. Jackson County's unemployment rate averages 7 percent while Josephine County averages a rate of 8.5 percent from 1990 to 2006. Since 1996 the national unemployment level has remained lower than the counties or the state.

Table 3-67. Unemployment Rate for Jackson and Josephine Counties, 1990 to 2006

Year	Jackson County	Josephine County	Oregon	United States
1990	6.5	7.0	5.4	5.6
1991	8.0	8.6	6.4	6.8
1992	8.2	9.8	7.3	7.5
1993	8.2	10.3	6.9	6.9
1994	6.8	9.2	5.5	6.1
1995	6.6	8.5	4.9	5.6
1996	7.9	9.5	5.6	5.4
1997	7.3	9.1	5.6	4.9
1998	7.2	9.2	5.7	4.5
1999	6.4	8.3	5.5	4.2
2000	5.6	7.0	5.1	4.0
2001	6.6	8.4	6.4	4.7
2002	7.5	8.8	7.6	5.8
2003	7.7	9.0	8.1	6.0
2004	7.1	8.3	7.3	5.5
2005	6.2	7.3	6.2	5.1
2006	5.8	6.7	5.4	4.6
Average 1990-2006	*7.0*	*8.5*	*6.2*	*5.5*

Source: Bureau of Labor Statistics, 2007. Unemployment Rate, Not Seasonally Adjusted.

Figure 3-14. Unemployement Rate for Jackson and Josephine Counties, 1990 to 2006



Summary of Cities in the Analysis Area

The geographical area of southwestern Oregon shared by the above cities creates common threads that link these cities together; however, noticeable differences, influenced by city size and the job market, also exist.

In terms of population, Medford exceeds 70,000, while Gold Hill, Jacksonville, and Rogue River all have populations under 2,500. The Central Point and Grants Pass populations lie at 16,000 to 26,000 respectively (US Census, Population finder 2006).

Age statistics reveal that two cities, Jacksonville and Rogue River, have a median age of approximately 50 years, while the other four cities have a median age between 34 to 37 years (Census, 2000). This reinforces the idea that these areas are attractive to older people and retirees who often migrate to areas offering scenic beauty and recreational opportunities.

Per capita income ranges from $16,000 to $28,000; Grants Pass, Gold Hill, and Rogue River have per capita incomes of $16,000, Central Point is slightly higher with $17,000 and Medford's per capita income is $20,000. Jacksonville's per capita income is $28,000. A slightly different pattern emerges for median household income compared to per capita income. Rogue River has the lowest median household income of $23,000, while in Jacksonville and Central Point the highest median income is $41,000. From lowest to highest, Grants Pass, Gold Hill, and Medford show median household incomes of $29,000, $32,500, and $36,000 respectively. In comparison, the median household income for Oregon, Jackson and Josephine counties is $40,916, $36,461, and $31,229 respectively.

It is interesting to note that Grants Pass, Gold Hill, and Rogue River all share the same per capita income ($16,000), but when their median household incomes are compared, Rogue River remains consistently at the low end of the range, but Grants Pass and Gold Hill have increasingly larger figures indicating the average amount a second income brings to the household varies greatly among the three towns. This may be partly explained by number of hours worked per week. Statistics show that approximately 60 percent of the residents of the five towns work 50 to 52 weeks per year but the percentage of residents that worked at least 35 hours a week varies from Rogue River's low figure of 34 percent to a considerable increase for Grants Pass residents (44 percent) to an even larger increase of 56 percent of Gold City residents working at least 35 hours per week. The differences

in the number of people that work at least 35 hours per week are similar to the differences in median household income in the three towns (Census, 2000).

Approximately 12 to 15 percent of the residents in Grants Pass, Gold Hill, Medford, and Rogue River have incomes below the poverty level. Jacksonville is the exception with only 7 percent of its residents having incomes below the poverty level (Census, 2000).

All six cities have housing occupancy rates exceeding 90 percent, but the percent of housing that is owner-occupied or for sale varies. Jacksonville's rate of 74 percent owner-occupied/ for sale housing is 20 percentage points higher than Grants Pass, Medford, and Rogue River (50 to 55 percent), whereas Gold Hill and Central Point lie between the two extremes with 68 percent to 70 percent owner-occupied/for sale housing (Census, 2000). Jacksonville's high rate of home ownership may echo the higher incomes reported in this city.

The ratio of residents with at least a college degree to those who have less than a high school degree shows differences in the collective education level of each city. In Jacksonville 38 percent of the residents have at least a college degree and only 8 percent have less than a high school degree. Medford, like Jacksonville, has a higher number of residents with college degrees (21 percent) than less than a high school degree (17 percent). Central Point has an almost equal number of those with less than a high school degree (13 percent) and those with at least a college degree (15 percent). Conversely, Grants Pass, Gold Hill, and Rogue River house a larger percentage of residents with less than a high school degree (16 to 18 percent) than those with at least a college education (12 to 14 percent) (Census, 2000).

Medford and Grants Pass, the cities with the larger populations, also have the largest percentage of residents that work in the city where they reside (65 percent and 72 percent respectively). The four cities with very small populations have only a range of 13 to 22 percent of the workers not commuting. Commuting times reveal a similar pattern. Approximately 75 percent of the residents of Grants Pass, Medford, and Central Point experience a commuting time of less than 20 minutes. In Jacksonville, which is located only a short distance from Medford, 54 percent of the residents commute to work in less than 20 minutes. Gold City and Rogue River, which are located a greater distance from one of the larger towns, respectively have 37 percent and 47 percent of their residents with a commute time less than 20 minutes (Census, 2000).

In summary, Jacksonville is demographically different from the other five cities. Jacksonville has a slightly older population with distinctively higher per capita and median household incomes and education levels than the other five cities. In contrast, Rogue River's population is slightly older, but has low income and education levels.

Environmental Consequences

Effects of the Alternatives

The service sector (led by an increase in tourism) has grown in the analysis area and should continue to do so under both the No Action alternative and all the Action alternatives. Increased tourism in the analysis area due to OHV use is beneficial to the local economy because additional visitors stimulate demand for local businesses. Under both the No Action alternative and the Action alternatives, visitors who are attracted to the analysis area for OHV use will provide a stimulus to businesses providing food, fuel, lodging, entertainment, OHV equipment and gear, and other tourist amenities.

It should be noted that some in the area, specifically within the City of Jacksonville and immediate area, feel that OHV tourism is not desirable due to noise (see Adjacent Communities, Noise), or that OHV tourists might bother other tourists or residents. However, there is no evidence to suggest that OHV tourists are any more, or less bothersome than any other group of tourists. Furthermore, the proposed OHV management area is not located in close proximity to the other major attractions in the area. Therefore no detrimental business-related impacts are anticipated. Instead while all alternatives are expected to be associated with benefits to local businesses as a result of OHV related tourism.

Retail Sales and Service Sector

Affected Environment

Information obtained from the Oregon Parks and Recreation Department indicates that OHV use is rapidly gaining in popularity. In 1997, there were 3.9 million all-terrain vehicles (ATVs) nationally and two million off-highway motorcycles (OHMs). In 2002, there were 800,000 ATV sales and 300,000 OHM sales, almost 2,200 ATVs per day. During this period sales increased 171 percent in the western states. Designated OHV sites have been established in many parts of Oregon and in neighboring California.

OHV-user studies conducted by researchers from Oregon State University found that in 1999, $46.4 million was spent on OHV trips. This created 831 jobs and $14.6 million in personal income. It demonstrates that considerable time and money is spent by users in pursuit of their sport. Average trip expenditures in southern Oregon were $56 per household per day for Oregonians and $86 daily for out-of state participants. Thus, a segment of local businesses, including OHV dealers, repair and accessory shops, service stations, and motels and restaurants benefits from their events. Apparel and other shops also benefit in some degree from increased business volume.

New OHVs, the so-called two-wheel dirt bikes, small versions of motorcycles, and quads, the four-wheeled vehicles that have displaced the more dangerous three-wheelers, are expensive. One dealer quoted a range of $2,500 to $7,500, depending on size and amenities. Deluxe full-sized motorcycles, used mainly on highways, cost much more. Many riders accessorize their OHVs at additional cost. Cities in the site area have many dealers, repair shops, and suppliers of accessories. The MRA Club's information officer reports that during the 2001 Timber Mountain Hare Scrambles event weekend, the average participant spent $150 in the Rogue Valley.

Effects of the No-Action Alternative

The growing popularity of OHV use that will continue under the No-action Alternative and action alternatives is good for retail sales and the service sector. The growing popularity means more possible consumers in the analysis area that need a variety of services, from food to vehicle repair. Retail sales will also benefit greatly as expenditures grow from expanded OHV use, especially from the sales of these vehicles. The prices range from $2,500 to $7,500 for the two-wheel dirt bikes, small versions of motorcycles, and quads.

The total economic impact of OHV use in the area can by explored by reviewing typical expenditures and impacts generated by OHV use in other areas. Several such studies have recently been conducted. For example, a recent study of OHV activity in Wisconsin[17] found that average daily expenditures for OHV visitors totaled $163. Another study from Michigan found that average spending per trip (perhaps spread out over several days) was $264.[18] Another study from Tennessee found that average expenditures were about $93/day, and a study from Arizona found expenditures to be $69 per day.[19],[20]

When such expenditures take place, there are also additional impacts to the economy that occur when the expenditures caused by one impact (in this case participation in OHV recreation) causes a ripple effect throughout the economy by stimulating a number of other sectors. When this happens, the total effect of the expenditure can be estimated through the calculation of an expenditure multiplier. For the studies mentioned above,

multipliers ranged between 1.4 and 1.9, with the most common value around 1.6. This means that for every additional dollar spent in the economy on OHV use, $1.60 of additional revenue ripples through the local and

17 Wisconsin Department of Tourism, "Economic and Demographic Profile of Wisconsin's ATV Users: Results of an economic survey conducted between June-October 2003." March 2004.
18 Stynes, Daniel J. "Economic Impacts of Spending on Michigan ORV Trail Riding trips." October, 2000.
19 English, Burton C., Jamey Menard, and Kim Jensen, "Estimated Statewide Economic Impacts of Off Highway Vehicles: A $3.4 billion Industry," Industry Brief, Agri-Industry Modeling and Analysis Group, Department of Agricultural Economics, University of Tennessee, 2001.
20 Silberman, Jonathan, "The Economic Importance of Off-Highway Vehicle Recreation," Arizona State University School of Management, 2003.

statewide economies. These impacts also represent additional income to proprietors in the area, and additional employment opportunities. For example, an Oregon State University study in 1999 found that OHV-use created 831 jobs and $14.6 million in personal income in the State.[21]

Assuming average daily OHV expenditures range from $70 to $120 per day, and a 1.6 percent expenditure multiplier, then current OHV use in Timber Mountain OHV area generates between $1.49 and $2.55 million per year in the local economy under the "medium" current use estimate. Under the same assumptions, the regional impact of OHV expenditures for ten and twenty year time horizons is expected to range from $2.00 to $3.42 and $2.68 to $4.60 million dollars per year respectively.

Effects of the Action Alternatives

The impact of OHV trip expenditures on the local retail economy depends on the ridership and daily user expenditures realized under each management alternative. As discussed previously, these "expenditure impacts" are the additional economic benefits that ripple through the economy as a result of OHV expenditures. This analysis assumes that average per trip expenditures and expenditure multipliers remain constant aside from inflation. Based on the aforementioned studies, the OHV expenditure multiplier is assumed to be 1.6 and OHV users in the Timber Mountain area are assumed to spend between $70 and $120 per day of riding. The annual indirect economic impact of OHV retail expenditures (i.e. impacts beyond direct expenditures) under each management alternative can be inferred from the above assumptions and projections of future OHV use.

Because equal use is projected for alternatives 2 and 3, the impact of OHV expenditures on the local economy is also expected to be equal across those alternatives. Current regional expenditure impacts for alternatives 2 and 3 are estimated to range from $1.3 to $2.3 million per year. For Alternatives 2 and 3, future regional impacts are expected to range from $1.80 to $3.08 and $2.41 to $4.14 million per year in years 2017 and 2027 respectively. Compared to the no action alternative, 2007 expenditure impacts under alternatives 2 and 3 would increase by $0.15 to $0.26 million per year.

Currently, the OHV expenditure impacts under Alternative 4 are expected to range from $1.11 to $1.91 million per year. In the future, expenditures under alternative 4 are expected to generate regional economic impacts that range from $1.50 to $2.57 and $2.01to $3.45 million per year respectively for ten and twenty year time horizons. Alternative 4 expenditure impacts decrease by between $0.38 and $0.64 million per year compared to the no action alternative under current use assumptions.

Finally, under management alternative 5, which provides the fewest miles of riding trails, current OHV expenditure impacts are estimated to be between $0.74 and $1.27 million per year. In the future, economic impacts associated with OHV expenditures are expected to range from $1.00 to $1.71 for 2017 $1.34 to $2.30 million for 2027. Under current use assumptions, alternative 5 OHV expenditure impacts decrease by $0.75 to $1.28 million per year. Table 3-68 provides a summary of the regional economic impacts associated with OHV expenditures under each alternative.

21 Johnson R., Leahy J. "The 1999 Oregon Off-Highway Vehicle User Survey," Department of Forest Resources, Oregon State University.

Table 3-68. Annual regional Expenditure Impacts by Year and Alternative (millions)

	2007		2017		2027	
expenditure per trip	***$70***	***$120***	***$70***	***$120***	***$70***	***$120***
No action	$ 1.49	$ 2.55	$ 2.00	$ 3.42	$ 2.68	$ 4.60
Alternative 2	$ 1.34	$ 2.29	$ 1.80	$ 3.08	$ 2.41	$ 4.14
Alternative 3	$ 1.34	$ 2.29	$ 1.80	$ 3.08	$ 2.41	$ 4.14
Alternative 4	$ 1.11	$ 1.91	$ 1.50	$ 2.57	$ 2.01	$ 3.45
Alternative 5	$ 0.74	$ 1.27	$ 1.00	$ 1.71	$ 1.34	$ 2.30

Demographics

Affected Environment

This section describes the demographics occurring in the social analysis area of Jackson and Josephine Counties. Table 3-69 shows population trends for the selected cities in the analysis area. Central Point shows a 66 percent increase in population from 1990 to 2000, the largest increase among the cities in the analysis area. Medford's population increased by 34.5 percent and Grants Pass increased by 31.5 percent in the same time period. Rogue River's population increased by only 5 percent from 1990 to 2000. Those figures compare with a 20.4 percent population increase in Oregon, and a 23.8 percent and a 20.9 percent increase in Jackson and Josephine Counties respectively for the same time frame.

Growth in the area has continued since 2000 with Central Point showing a 29 percent increase in population from 2000 to 2006. The cities of Grants Pass and Medford also experienced significant population increases of 29.1 and 12.7 percent respectively. However the other cities have experienced single digit or negative population growth, suggesting a slowing of population increase in the current decade.

Table 3-69. City Population Trends from 1990 to 2006

City	1990 Population	2000 Population	% Change	2006 Population	% Change
Central Point	7,509	12,493	66.4%	16,150	29.3%
Gold Hill	964	1,073	11.3%	1,053	-1.9%
Grants Pass	17,488	23,003	31.5%	29,693	29.1%
Jacksonville	1,896	2,235	17.9%	2,195	-1.8%
Medford	46,951	63,154	34.5%	71,168	12.7%
Rogue River	1,759	1,847	5.0%	1,933	4.7%

Source: U.S. Census, 1990. SF1, Table DP-1: General Population and Housing Characteristics: 1990
U.S. Census, 2000. SF1, Table P1. Total Population
U.S. Census Bureau, 2006 Population Estimates.

Population trends for Jackson and Josephine Counties show moderate increases from 1990 to 2000 (See Table 3-70). Jackson County's population increased 23.8 percent from 1990 to 2000, and Josephine County's population increased 20.9 percent in the same time period. Population estimates for 2006 show an 8.7 percent increase for Jackson County a 7.9 percent increase for Josephine County and a, 8.2 percent increase for the State of Oregon from 2000-2006. These figures suggest that growth is slowing down compared to the 1990-2000 time period.

Table 3-70. County Population Trends from 1990 to 2006

Place	1990 Population	2000 Population	% Change	2006 Population Est.	% Change
Jackson County	146,389	181,269	23.8%	197,071	8.7%
Josephine County	62,649	75,726	20.9%	81,688	7.9%
Oregon	2,842,321	3,421,399	20.4%	3,700,758	8.2%

Source: U.S. Census, 1990. SF1, Table DP-1: General Population and Housing Characteristics: 1990
U.S. Census, 2000. SF1, Table P1. Total Population
U.S. Census Community Surveys, 2006

Table 3-71 shows the percentage of each race to the total population of the two counties and the six cities in the analysis area. The white population is at least 90 percent in all geographical locations for both the 2006 county data and the 2000 city data. Table 3-72 displays the percent of Hispanic or Latinos in the total population within Jackson and Josephine Counties adn teh six cities. For each geographic location, the Hispanic or Latino population totals less than 10 percent of the total population.

Table 3-71. Total Population by Race for Counties and Cities

	Jackson County*	Josephine County*	Central Point	Gold Hill	Grants Pass	Jacksonville	Medford	Rogue River
Total:	197,071	81,688	12,493	1,073	23,003	2,235	63,154	1,847
White alone	182,992	76,390	11,743	1,031	21,386	2,148	56,834	1,731
% of Total	**92.9%**	**93.5%**	**94.0%**	**96.1%**	**93.0%**	**96.1%**	**90.0%**	**93.7%**
African American alone	1,423	25	31	1	76	7	313	4
% of Total	**0.7%**	**0.03%**	**0.2%**	**0.1%**	**0.3%**	**0.3%**	**0.5%**	**0.2%**
AIAN alone	1,412	695	110	21	251	16	677	26
% of Total	**0.7%**	**0.9%**	**0.9%**	**2.0%**	**1.1%**	**0.7%**	**1.1%**	**1.4%**
Asian alone	2,584	565	91	1	226	8	720	5
% of Total	**1.3%**	**0.7%**	**0.7%**	**0.1%**	**1.0%**	**0.4%**	**1.1%**	**0.3%**
NHPI alone	180	165	24	1	27	0	163	5
% of Total	**0.1%**	**0.2%**	**0.2%**	**0.1%**	**0.1%**	**0.0%**	**0.3%**	**0.3%**
Other alone	2,542	1,061	158	3	375	9	2,442	30
% of Total	**1.3%**	**1.3%**	**1.3%**	**0.3%**	**1.6%**	**0.4%**	**3.9%**	**1.6%**
Two or more	5,938	2,787	336	15	662	47	2,005	46
% of Total	**3.0%**	**3.4%**	**2.7%**	**1.4%**	**2.9%**	**2.1%**	**3.2%**	**2.5%**

Source: U.S. Census, 2000. SF1, Table P7 Race, *=US Census 2006, American Community Survey
U.S. Census, 2000. SF1, Table P8 Hispanic or Latino by Race, *=US Census 2006, American Community Survey

Table 3-72. Hispanic of Latino Population for Counties and Cities in the Analysis Area

	Jackson County*	Josephine County*	Central Point	Gold Hill	Grants Pass	Jacksonville	Medford	Rogue River
Total	197,071	81,688	12,493	1,073	23,003	2,235	63,154	1,847
Not Hispanic or Latino	170,716	73,436	11,966	1,037	21,767	2,180	57,313	1,753
Hispanic or Latino	16,422	4,360	527	36	1,236	55	5,841	94
% of Total	8.3%	5.3%	4.2%	3.4%	5.4%	2.5%	9.2%	5.1%

Environmental Consequences

Effects of the Alternatives

The demographic trends occurring in the affected are not expected to be influenced by the selection of an alternative. Although Jackson and Josephine Counties are in the midst of transitions in each of these subject areas, the transitions are underway already and are independent of the project outcomes. Each trend is briefly summarized below.

Under all the action alternatives, including the No-Action Alternative, the population will likely continue to grow in the analysis area. Growth has slowed in the area since peaking in the 1990's, but substantial population growth still continues. The population of Jackson County grew 23.8 percent between 1990 and 2000 and then 8.7 percent between 2000 and 2006, while the population of Josephine County population grew 20.9 percent and 7.9 percent, respectively, in the same time period. The area is popular with retirees and this should add to the population increase with the retirement of the baby boom generation. None of the alternatives analyzed in detail under this DEIS expected to affect population change or composition in the analysis area in any way.

Environmental Justice

Executive Order 12898, "*Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*," requires each federal agency to incorporate environmental justice into its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects, including social or economic effects, of its programs, policies, and activities on minority populations and low-income populations of the United States (Council on Environmental Quality 1997). As such, environmental justice is an important consideration in the NEPA process.

This section is intended to assess whether the potential negative impacts of the proposed management alternatives disproportionately affect minority or disadvantaged populations within Jackson and Josephine Counties. The key socioeconomic parameters addressed here are local demographics related to minority populations, including race/ethnicity; and measures of social and economic well-being. This section is closely related to the description of the analysis area where related socioeconomic data and analysis are presented.

According to the US census bureau, Jackson and Josephine counties contain very little racial diversity with over 93 percent of residents reporting themselves as white. (See Table 3-71). Without significant concentrations of racial minorities in the analysis area, it is unlikely that such populations are disproportionately affected by the management impacts. Ethnically, the county populations are slightly more diverse with Hispanic populations currently making up 8 percent and 5 percent of the population in Jackson and Josephine counties respectively. (See Table 3-72). However, detailed ethnic (as well as racial) data at the neighborhood level are only available from the 2000 census and since then the Hispanic population in the county has grown substantially. Nonetheless,

neither the 2000 data nor direct observations indicate that ethnic minorities are concentrated in particular neighborhoods within the analysis area. Therefore the impacts related to OHV management in the Timber Mountain planning area are not expected to disproportionately affect any racial or ethnic minority.

Low income groups are also considered when assessing environmental justice. Again, detailed neighborhood level income data is unavailable for recent years. However, current average housing prices can provide a more accurate measure of wealth distribution in the analysis area compared to 2000 census data. Figure 3-37 shows average home prices in the neighborhoods surrounding Timber Mountain planning area. The highest home prices are in Jacksonville to the east and in the Applegate Valley to the south of the OHV riding trails. Given that the majority of negative noise, traffic and pollution impacts are expected to occur near these relatively higher priced homes, the impacts are not anticipated to disproportionately affect low income groups.

Cultural Resources

Areas proposed for action under one or more alternatives in the Timber Mountain planning area were surveyed to SHPO protocol standards. All cultural sites that were discovered on BLM lands will be avoided or protected during project activities. As all known cultural sites will be avoided or protected; there are no negative impacts to cultural resources anticipated from this project. Coordination with a cultural resource technician and/or District archaeologist will occur as needed prior to and during ground disturbing activities in close proximity to cultural sites to ensure adequate protection for cultural resources. If any other cultural resources are discovered during the project activities, all work in the discovery area will be stopped until the District archaeologist can be consulted and appropriate measures are implemented.

Visual Resource Management

The planning area is located predominantly on lands designated in the Medford District RMP as Visual Resource Management (VRM) Category IV with less than 189 acres designated as VRM category III. VRM Category IV allows for extensive modifications to the landscape. Management of the existing and proposed trails will have no effect on the character of the landscape from all key observation points within the viewshed of the planning area.

Chapter 4
Consultation and Coordination

Chapter 4. Consultation and Coordination

This chapter provides a summary of the public involvement process, to whom the Draft Environmental Impact Statement (DEIS) was distributed, and a list of persons involved in preparing this DEIS. The Bureau of Land Management (BLM) is committed to providing opportunities for meaningful participation in resource management planning processes. The public involvement and interagency or intergovernmental coordination and consultation are an integral part of the EIS process. Effective planning processes provide opportunities for interested public, organizations, agencies, and tribes to become involved early. Extensive public outreach occurred for this Draft EIS process; a summary follows.

Scoping

Scoping is a process used to promote public involvement and is the process used to determine the extent of the environmental analysis to be conducted. It is used early in the NEPA process to identify (1) the issues to be addressed, (2) the depth of the analysis required, (3) alternatives, and (4) potential environmental effects of the agency's proposal. The formal scoping period began with the publication of a Notice of Intent to prepare an Environmental Impact Statement for the development of a management plan to guide OHV use in the Timber Mountain area, which appeared in the Federal Register February 10, 2003 (Volume 68, No. 27, p. 6762-6763). The following public outreach efforts were made to encourage public involvement throughout the planning process:

- A letter proving information and inviting public input on the Timber Mountain EIS process was sent on January 9, 2003 to over 2000 people including adjacent landowners, interested individuals, organizations, tribes, and agencies.
- A letter requesting input and providing notification of planned public meetings was sent on February 11, 2003 to interested citizens, adjacent landowners, agencies, tribes, and organizations.
- A news release was sent out on February 14, 2003 to local media announcing the initiation of the EIS planning process and the planned public meetings.
- Public Information meetings were held on March 3 and 6, 2003 to provide the public with an overview of the EIS planning process and information about the project area.
- On April 12, 2005, a letter was sent out to interested citizens, adjacent landowners, agencies, tribes, and organizations to update them on the status of the planning process and invite them to an open house scheduled for April 30, 2005.
- An open house was held April 30, 2005, providing attendees with an update on the progress of the EIS planning process and seek input on five draft alternatives that had been developed by the interdisciplinary team for managing OHV use in the Timber Mountain planning area.
- A letter was sent out on November 17, 2005 encouraging the public to submit any additional input concerning the draft alternatives for BLM's consideration.
- Throughout the public involvement process, the Medford District BLM has continued to maintain an open dialogue with local government, adjacent landowners and neighborhood groups, watershed councils, and organizations.

Distribution List and Document Availability

This Draft Environmental Impact Statement is being made available to the following elected officials, agencies, organizations, libraries, and Tribes. In addition, the Draft EIS will be available at the Medford District Office during regular business hours and on BLM's Website <http://www.blm.gov/or/districts/medford>

Elected Officials

U.S. Senator Ron Wyden
U.S. Senator Jeff Merkley
U.S. Representative Greg Walden
Representative Alan Bates
Representative Peter Buckley

Federal Government

Bureau of Reclamation
Department of Interior Bureau of Land Management
- Grants Pass Interagency Office
- Medford Interagency Office
- Oregon State Office
- Washington Office

Environmental Protection Agency
Federal Energy Regulatory Commission
NOAA – Fisheries
- Northwest Regional Office
- Roseburg Field Office

Rogue River – Siskiyou National Forest
- Supervisors Office

U.S. Fish and Wildlife Service
- Oregon State Office
- Roseburg Field Office

Oregon State Government

Department of Agriculture
Department of Environmental Quality
- Portland Office
- Medford Office

Department of Fish & Wildlife
- Portland Office
- Rogue District Office

Department of Forestry
- Medford Office

Division of State Lands
Dept. of Land Conservation & Development
Oregon Dept. of Economic Development
Oregon Parks & Recreation Department
Oregon Department of Transportation
Oregon State Police
Oregon Watershed Enhancement Board

County & Local Government

Association of O&C Counties
City of Jacksonville
Jackson County Board of Commissioners
Rogue River Fire District

Organizations

Audubon Society
Applegate River Watershed Council
Bear Creek Watershed Council
Friends of Living Oregon Waters
Jackson County Stockmen's Association
Jackson Co. Soil and Water Cons. District
Klamath Siskiyou Wildlands Center
Medford Irrigation District
Motor cycle Riders Association
National Center for Cons. Science & Policy
Natural Trails and Waters Coalition
Northwest Environmental Defense Center
Oregon Hunters Association
Oregon Wild
Pacific Legal Foundation
Pacific Northwest 4-Wheel Drive Assoc.
Pacific Rivers Council
Rogue River Valley Irrigation Co.
Seven Basins Watershed Council
Siskiyou Project
Southern Oregon Timber Industries

Federally Recognized Tribes

Cow Creek Band of Umpqua Indians
Confederated Tribes of Grand Ronde
Confederated Tribes of Siletz
Klamath Tribe
Quartz Valley Indian Reservation (Shasta Tribe)
Shasta Nation

Other Tribes

Confederated Bands [Shasta], Shasta Upper Klamath Indians
Confederated Tribes of the Rogue-table Rock and Associated Tribes

Libraries

Department of Interior, Bureau of Land Management
Rogue River Library
Southern Oregon University Library
Jackson County Library

Businesses

Carlson Motorsports
Forest Capital Partners
Indian Hill, LLC
Jacksonville Gallery
Kawasaki & Honda of Medford
Pacific Corp
Spalding & Sons
Swanson Group, Inc.
Willow Creek Aggregate

List of Preparers

George Arnold, Wildlife Biologist: B.S. Forestry/Wildlife Management Emphasis, West Virginia University; Postgraduate Study, Wildlife Management, West Virginia University; 34 years BLM.

Dr. John Baas, Environmental Planner: Ph.D. Forest Resource Management, Oregon State University; M.S. Recreation Resources, Colorado State University; B.S. Wildlife Biology, Colorado State University; 2 years Michael Brandman Associates.

Dennis Byrd, Outdoor Recreation Planner/OHV Specialist:B.S. Forest Recreation Resources, Oregon State University; 8 years BLM.

Dr. Gretchen Greene, Economist: Ph.D. Food and Resource Economics, University of Florida; M.S. Food and Resource Economics, University of Florida; B.A. Religious Studies, Wellesley College; 13 years ENTRIX.

Ted Hass, Soil Scientist: B.S. Soil Science, California Polytechnical University, Pomona; 2 years SCS; 28 years BLM.

Alan P. Mason, Fuels Management Specialist: M.S. Forestry, University of Wisconsin-Madison; 10 years BLM.

Kristi Mastrofini, Environmental Coordinator/NEPA Compliance: Environmental Studies (4th year), Southern Oregon University; 21 years USDA Forest Service; 7 years USDI BLM.

Kathy Minor, Hydrologist: M.F. Forest Engineering with Minor in Hydrology, Oregon State University; B.S. Forest Management, Humboldt State University; 17 years USDA Forest Service, 6 years BLM.

John Samuelson, Forest Engineer: B.S. Forest Management, University of Minnesota; Graduate Study, Oregon State University and Southern Oregon University; 30 years USDI BLM.

Nick Schade, OHV Park Ranger: B.S. Environmental Studies, Southern Vermont College; Graduate Study, Prescott College; 2 years USDI BLM.

Jeffrey Stephens, Biological Science Technician: Wildlife Management, Ohio State University; 11 years USDI BLM.

Brad Tong, Botanist: BS Forest Management, Humboldt State University; 31 years BLM.

Chris Volpe, Fish Biologist: B.S. Fisheries Science, Oregon State University; 6 years fish biologist for private and state agencies; 7 years with the USDI BLM.

Dr. Bert Wenner, Consulting Sociologist: Ph.D. Interdisciplinary Social Science (sociology-anthropology emphasis), Syracuse University; M.S. Social Science, St. Cloud State University; B.S. Industrial Education, St. Cloud State University; 19 years self-employed consulting sociologist.

Appendix A
Water Resources

Appendix W1

Non-BLM Water Diversions/Developments on BLM Administered Lands for the Timber Mountain OHV Management Area EIS

Water Right Data Source: Oregon Water Resources Department (WRD) Database
BLM Rights-of-Way (ROW) Data Source: BLM, Medford District Office

Analysis Area Number	Analysis Area Name	Non-BLM Water Diversions/Developments on BLM-Administered Land											
		Legal Description				User	WRD Application #	WRD Permit #	WRD Certificate #	BLM ROW #	Use	Amount cfs/af	Priority Date
		T	R	S	1/4 1/4								
BR1206	Jackson Cr (Bear Cr) above Walker Cr	38S	03W	2	NENW	Private	S 15206	S 11126	12237		IR, DO, MI	0.1cfs	11/25/1933
BR1206	Jackson Cr (Bear Cr) above Walker Cr	38S	03W	2	NW	Private	P 77533				LV	0.0372af	1/3/1995
RH0409	Kane Cr	37S	03W	11	NWSW	Private				OR 022815	IR		11/20/1943
RH0409	Kane Cr	37S	03W	11	NESW	Private	S 12530	S 8879	8923		DO	0.05cfs	1/29/1929
RH0415	Galls Cr	37S	03W	9	SENE	Private			60664		DO	0.005cfs	
RH0606	Foots Cr Left Fork, above Foots Cr Middle Fork Confluence	37S	03W	7	SE	Private			16193		MI		
RH0609	Foots Cr below Foots Cr Middle/Left Fork Confluence, above Foots Cr Right Fork	37S	04W	1	SESE	Private			9748	Yes	IR, DO, MI		
RH0609	Foots Cr below Foots Cr Middle/Left Fork Confluence, above Foots Cr Right Fork	37S	04W	1	SESE	Private			41314	Yes	DO, IR		
RH0609	Foots Cr below Foots Cr Middle/Left Fork Confluence, above Foots Cr Right Fork	37S	03W	6	NWSW	Private			13814		MI		
RH0609	Foots Cr below Foots Cr Middle/Left Fork Confluence, above Foots Cr Right Fork	37S	03W	7		Private			16193				

Appendix W1

Non-BLM Water Diversions/Developments on BLM Administered Lands for the Timber Mountain OHV Management Area EIS

Water Right Data Source: Oregon Water Resources Department (WRD) Database
BLM Rights-of-Way (ROW) Data Source: BLM, Medford District Office

Analysis Area Number	Analysis Area Name	Non-BLM Water Diversions/Developments on BLM-Administered Land											
		Legal Description				User	WRD Application #	WRD Permit #	WRD Certificate #	BLM ROW #	Use	Amount cfs/af	Priority Date
		T	R	S	1/4 1/4								
RH0612	Foots Cr Right Fork	37S	04W	22	SWSE	Private			16183		MI		
RH0615	Foots Cr below Foots Cr Right Fork, above Rogue River	37S	04W	2	NENE	Private			2465		DO	0.1cfs	
RH0706	Birdseye Cr	36S	04W	34	NWSW, NESW	Private			51196		DO	2gal./min.	
RH0706	Birdseye Cr	37S	04W	5	NESE	Private	17416	13112	14427		DN	0.02cfs	
RH0706	Birdseye Cr	37S	04W	4	SENE	Private	15221	11138	12018		MI, DO	0.5cfs	
AM0203	Forest Creek above Forest Creek Right Fork	38S	03W	6	NESW	Private	S 566	S 252	437		MI	0.6cfs	3/17/1910
AM0203	Forest Creek above Forest Creek Right Fork	38S	03W	9	NWNE	Private	P 79943				LV	2.43af	1/3/1995
AM0206	Forest Cr Right Fork	37S	03W	27	NESW, SESW	Hydraulic Mining Company			16376		MI IR	5cfs 0.1cfs	12/31/1896
AM0206	Forest Cr Right Fork	38S	03W	3	SWNW	Private	S 19977	S 15543	15490		MI	1cfs	7/14/1943
AM0209	Forest Cr below Right Fork Confluence, above Poorman Cr	38S	03W	9	NESE	Private	S 12252	S 8630	9718		DO	0.02cfs	8/8/1928

Appendix W1

Non-BLM Water Diversions/Developments on BLM Administered Lands for the Timber Mountain OHV Management Area EIS

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BLM Rights-of-Way (ROW) Data Source: BLM, Medford District Office

Analysis Area Number	Analysis Area Name	Non-BLM Water Diversions/Developments on BLM-Administered Land											
		Legal Description				User	WRD Application #	WRD Permit #	WRD Certificate #	BLM ROW #	Use	Amount cfs/af	Priority Date
		T	R	S	1/4 1/4								
AM0209	Forest Cr below Right Fork Confluence, above Poorman Cr	38S	03W	10		Vance Anderson Company			16381		MI	25cfs	12/31/1880
AM0212	Poorman Cr (Applegate)	38S	03W	11	SWNE	Private	S 17279	S 12989	14173	OR 55027	DO MI IM	0.99cfs 0.99cfs 0.99cfs	3/30/1938
AM0212	Poorman Cr (Applegate)	38S	03W	11	NWSE	Private			16388		MI IR	2.5cfs 0.04cfs	12/31/1880
AM0212	Poorman Cr (Applegate)	38S	03W	12		Private			16386		IR	0.1cfs	12/31/1883
AM0215	Forest Cr below Poorman Cr, above Bishop Cr	38S	03W	14	SWSW	Alaska of Oregon Mines Company	S 14561	S 10821	11381		MI	2.5cfs	3/16/1933
AM0221	Forest Cr below Bishop Cr, above Applegate River Confluence	38S	03W	35	NENW	Private	S 49284	S 36936	55232	OR 13945	IR	0.02cfs	5/25/1972
AM0306	China Gulch	38S	03W	16	SWNW	BLM	S 83932	S 53563				0.65af	9/10/1998
AM0309	Applegate River below China Gulch, above Long Gulch	38S	03W	19	W2NE NENW NESW	Private				OR 18062	DN		
AM0309	Applegate River below China Gulch, above Long Gulch	38S	03W	19	NESE	Private				OR 55337	DO		

Appendix W1

Non-BLM Water Diversions/Developments on BLM Administered Lands for the Timber Mountain OHV Management Area EIS

Water Right Data Source: Oregon Water Resources Department (WRD) Database
BLM Rights-of-Way (ROW) Data Source: BLM, Medford District Office

Analysis Area Number	Analysis Area Name	Non-BLM Water Diversions/Developments on BLM-Administered Land											
		Legal Description				User	WRD Application #	WRD Permit #	WRD Certificate #	BLM ROW #	Use	Amount cfs/af	Priority Date
		T	R	S	1/4 1/4								
AM0309	Applegate River below China Gulch, above Long Gulch	38S	03W	19	E2SESE	Private				OR 36898	DO		
AM0309	Applegate River below China Gulch, above Long Gulch	38S	03W	19	SESE	Private	S 21539	S 17516	15688			0.02cfs	4/4/1946

Appendix W2

Summary of Water Sampling Results by Neilson Research Corporation.

Sample Location	Collection Date	Northwest TPH Dx in Water by NWTPH-DX								
		TPH as Diesel			TPH as Lube Oil			Surr: o-Terphenyl		
		Result	MRL	Units	Result	MRL	Units	Result	MRL	Units
Galls Creek #1	8/27/2003	ND	0.25	mg/L	ND	0.5	mg/L	62.4	50-150	%REC
Kane Creek #1	8/27/2003	ND	0.25	mg/L	ND	0.5	mg/L	65.3	50-150	%REC
Walker Creek Spring	8/27/2003	ND	0.25	mg/L	ND	0.5	mg/L	65.7	50-150	%REC
Right Fork Forest Creek	8/27/2003	ND	0.25	mg/L	ND	0.5	mg/L	72.5	50-150	%REC
Oregon Belle Spring	8/27/2003	ND	0.25	mg/L	ND	0.5	mg/L	74.8	50-150	%REC

Sample Location	Collection Date	Volatile Organics by EPA 8260B								
		Benzene			Ethylbenzene			Methyl tert-butly ether		
		Result	MRL	Units	Result	MRL	Units	Result	MRL	Units
Galls Creek	8/28/2003	ND	0.5	µg/L	ND	0.5	µg/L	ND	0.5	µg/L
Kane Creek	8/28/2003	ND	0.5	µg/L	ND	0.5	µg/L	ND	0.5	µg/L
Walker Creek Spring	8/28/2003	ND	0.5	µg/L	ND	0.5	µg/L	ND	0.5	µg/L
Right Fork Forest Creek	8/28/2003	ND	0.5	µg/L	ND	0.5	µg/L	ND	0.5	µg/L
Oregon Belle Spring	8/28/2003	ND	0.5	µg/L	ND	0.5	µg/L	ND	0.5	µg/L
		Toluene			Xylenes, Total			Surr: 4-Bromofluorobenzene		
		Result	MRL	Units	Result	MRL	Units	Result	MRL	Units
Galls Creek	8/28/2003	ND	1	µg/L	ND	1.5	µg/L	92.6	80-120	%REC
Kane Creek	8/28/2003	ND	1	µg/L	ND	1.5	µg/L	92.9	80-120	%REC
Walker Creek Spring	8/28/2003	ND	1	µg/L	ND	1.5	µg/L	95.9	80-120	%REC
Right Fork Forest Creek	8/28/2003	ND	1	µg/L	ND	1.5	µg/L	93	80-120	%REC
Oregon Belle Spring	8/28/2003	ND	1	µg/L	ND	1.5	µg/L	92.6	80-120	%REC
		Surr: Dibromofluoromethane			Surr: Toluene-d8					
		Result	MRL	Units	Result	MRL	Units			
Galls Creek	8/28/2003	88.8	74-120	%REC	101	81-117	%REC			
Kane Creek	8/28/2003	91.7	74-120	%REC	95.6	81-117	%REC			
Walker Creek Spring	8/28/2003	82.9	74-120	%REC	94.1	81-117	%REC			
Right Fork Forest Creek	8/28/2003	89.7	74-120	%REC	93	81-117	%REC			
Oregon Belle Spring	8/28/2003	92.2	74-120	%REC	94.8	81-117	%REC			

MRL-Minimum Reporting Level

ND-Not Detected at the Reporting Limit

%REC-% Recorded

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