United States Department of Agriculture
Forest Service

Mount Avery Spur Road Special Use Permit Request

Environmental Assessment

Powers Ranger District, Rogue River-Siskiyou National Forest, Curry County, Oregon
Responsible Official: Rob MacWhorter, Forest Supervisor

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Site of proposed road construction.

For More Information Contact:

Jessie Berner, District Ranger
Powers Ranger District
42861 Highway 242
Powers, OR 97466
Phone: (541) 439-6200
Email: jberner@fs.fed.us
Fax: (541) 439-7704

OR

Donald Kay
Phone: (541) 439-6223
Email:dkay@fs.fed.us

Project website: http://www.fs.fed.us/nepa/fs-usda-pop.php/?project=36342

Prepared by Zion Natural Resources Consulting for the USDA Forest Service.

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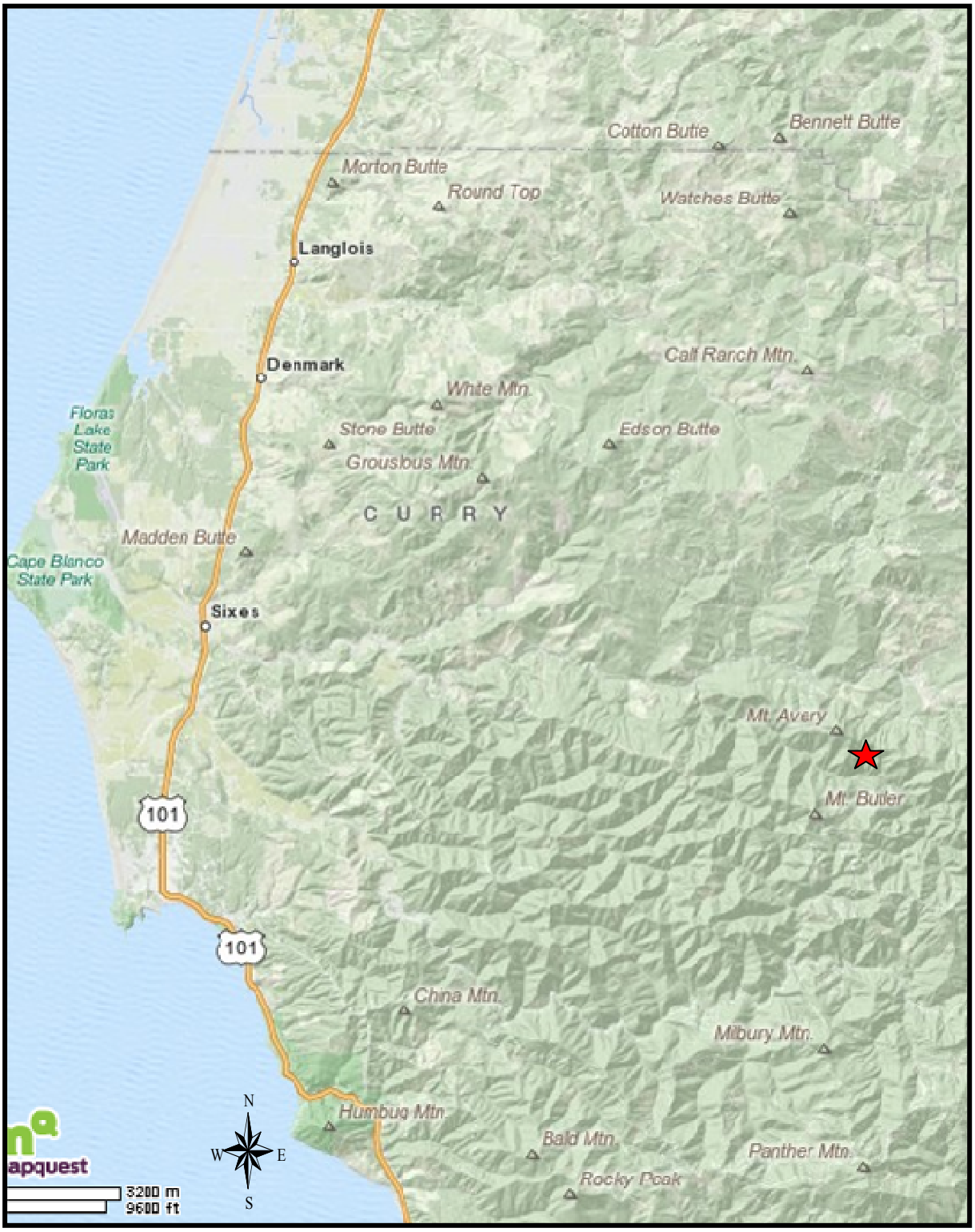

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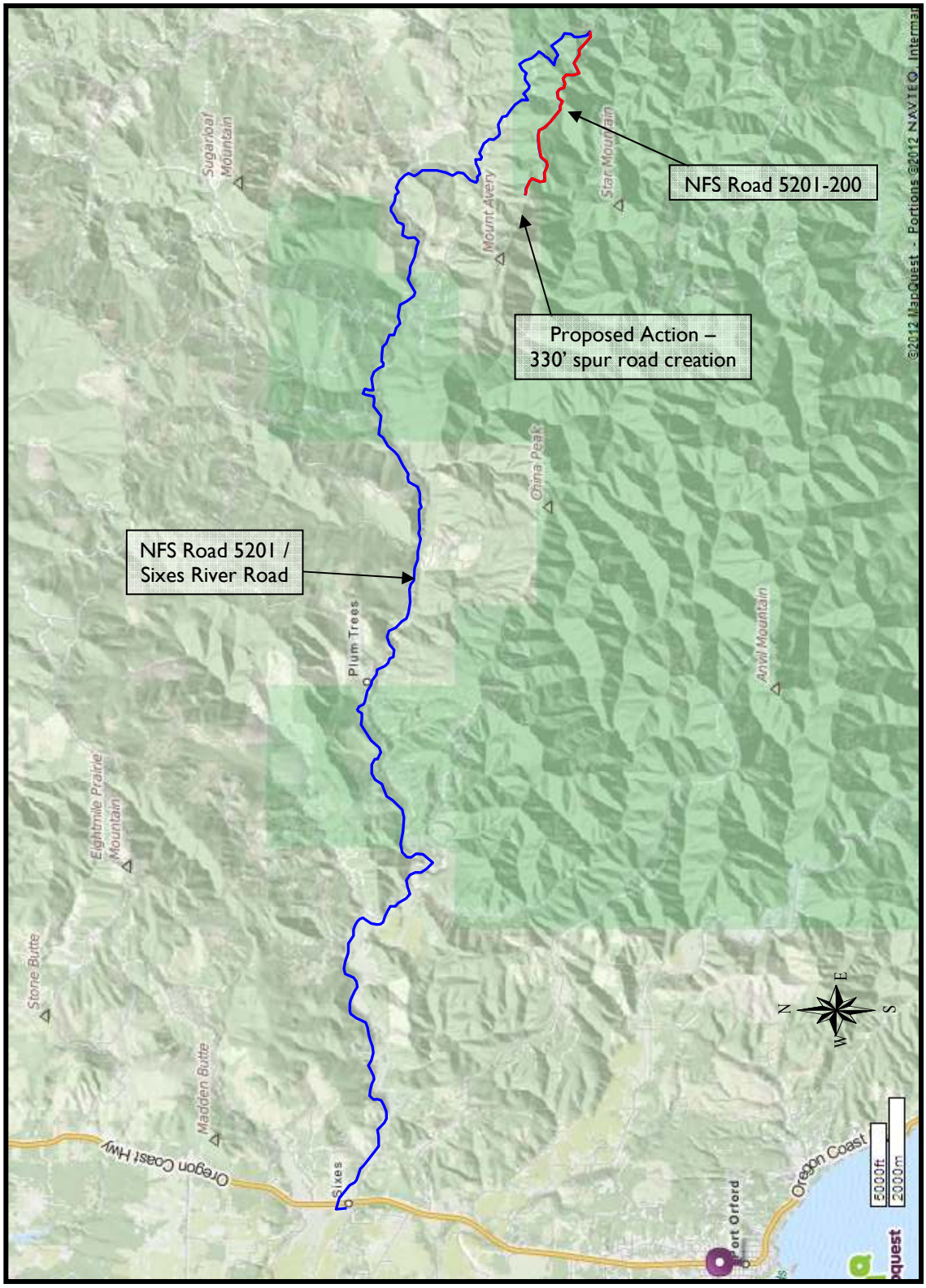

Acronyms and Abbreviations

Table 1. Acronyms and Abbreviations

ACHP	Advisory Council of Historic Preservation
ACS	Aquatic Conservation Strategy
APE	Activities' Areas of Potential Effects
BE	Biological Evaluation
BMP	Best Management Practice(s)
CCH	Coho Critical Habitat
CDM	Course Woody Material
CEQ	Council of Environmental Quality
CFI	Christian Futures Incorporated
CFR	Code of Federal Regulations
CWD	Course Woody Debris
DBH	Diameter at breast height
DPS	Distinct Population Segment
EA	Environmental Assessment
ESA	Endangered Species Act
(F)EIS	(Final) Environmental Impact Statement
FEMAT	Forest Ecosystem Management Assessment Team
FONSI	Finding of No Significant Impact
FS	Forest Service
FSM	Forest Service Manual
LSR	Late-successional reserves
LWM	Large Woody Material
MBF	Thousand board feet
MIS	Management Indicator Species
National Forest or RRSNF	Rogue River Siskiyou National Forest
NEPA	National Environmental Policy Act
NFS	National Forest System
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NRF	Nesting, Roosting, Foraging
NWFP	Northwest Forest Plan
OAR	Oregon Administrative Rule
OSHA	Occupational Safety and Health Administration
PAG	Plant Association Group
PDC/F	Project Design Criteria/Features
PETS or TES	Proposed, Endangered, Threatened, and Sensitive Species
POC	Port-Orford-cedar
ROD	Record of Decision
S&G	Standards and Guidelines
SHPO	State Historic Preservation Offices
Siskiyou LRMP	Siskiyou Land and Resource Management Plan of 1989
SONCC	Southern Oregon and Northern California Coast (coho)
SOPA	Schedule of Proposed Actions
SUP	Special Use Permit
USFWS	United States Fish and Wildlife Service
WRT	Wildlife Reserve Tree

Executive Summary

The Powers Ranger District of the Rogue River-Siskiyou National Forest is proposing issuance of a special use permit to allow Christian Futures Inc. (CFI) to construct a 330 foot road at the end of National Forest System Road 5201-200 to gain access to their private property. Because there are alternate routes into CFI's lands through private lands, the Forest Service has discretion on whether to issue this permit.

The Mount Avery Spur Road project is located within the Sixes River Watershed at 1,900 feet elevation approximately 12 miles east of Port Orford in Curry County, Oregon (T32S, R13W Section 22) (See Figure 1. Vicinity Map Overview and Figure 6. Tax Lot Map). Access from the town of Sixes, Oregon is via Sixes River road which turns into NFS Road 5201 and NFS Road 5201-200. The area of the proposed action is located at the end of NFS Road 5201-200 and encompasses a 330 foot long stretch of area approximately 14 feet wide located on U.S. Forest Service property. The project is located in a remote area and the surrounding land is primarily utilized for timber production and management. The site has varied topography which slopes to the northeast.

The lands within the project site are designated as Late-Successional Reserves (LSR) within Management Area 14 – General Forest as described in the Siskiyou National Forest Land and Resource Management Plan (Siskiyou LRMP) (USDA 1989).

According to the Forest Service personnel, the last harvest date within the analysis area was 1979 and replanted in 1980 making the forest within the project area 33 years old. The harvest unit was 13.5 acres and currently the stand has typical young plantation characteristics with a dense shrub/scrub layer and a single layer open canopy with 40 trees of dbh of 14" to 16" within the project area (See Figure 8. Photo of Project Area).

Two alternatives are outlined in the proposed action for the Mount Avery Spur Road project and are described as follows:

Alternative 1 – No Action
A denial for a special use permit that would create a spur road off of NFS Road 5201-200. This denial would prevent the landowner access to private lands through this Forest Service road.

Alternative 2 – Proposed Action
Issue a special use permit to allow the creation of a 330 foot spur road off of the end of NFS Road 5201-200 (T32S, R13W Section 22). Forty trees with dbh of 14" to 16" would be removed.

The complete administrative record for the Mount Avery Spur Road project is located at the Powers Ranger District in Powers, Oregon. This EA and supporting documents are also available from the Rogue River-Siskiyou National Forest website.

Chapter 1 - Purpose and Need

1.1 Introduction

The U.S. Forest Service is proposing issuance of a special use permit to allow Christian Futures Inc. (CFI) to construct a 330 foot road at the end of NFS Road 5201-200 to gain access to their private property.

This Environmental Assessment (EA) for the Mount Avery Spur Road SUP complies with the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190) and its implementing regulations (40 Code of Federal Regulations 1500-1508) as well as those requirements established by allied Federal laws and regulations. This EA discloses the direct, indirect, and cumulative environmental impacts that would result from implementation of the proposed action.

This document is organized into five parts.

- **Introduction**: This section is comprised of information regarding the project proposal, the purpose of and need for the permit, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- **Comparison of Alternatives, Including the Proposed Action**: This section provides a more detailed description of the agency's proposed action, alternatives to the proposed action and possible mitigation measures.
- **Affected Environment and Environmental Consequences**: This section describes the environmental effects of implementing the proposed action and other alternatives. Within each section, the affected environment is described first, followed by the effects of the no action alternative that provides a baseline for evaluation and comparison of the alternative that follows.
- **Agencies and Persons Consulted**: This section provides a list of preparers and agencies consulted during the development of the environmental assessment.
- **Appendices**: The appendices provide more detailed information to support the analyses presented in the environmental assessment.

This EA tiers to the Final Environmental Impact Statement for the Siskiyou National Forest Land and Resource Management Plan (Siskiyou LRMP) (USDA 1989), as amended. Amendments include: 1) Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (the Northwest Forest Plan)(USDA AND USDI 1994b); 2) Record of Decision Amending Resource Management Plans for Seven Bureau of Land Management Districts and Land and Resource Management Plans for Nineteen National Forests Within the Range of the Northern Spotted Owl, Clarifying Provisions Relating to the Aquatic Conservation Strategy (USDA & USDI 2004); 3) Record of Decision and Land and Resource Management Plan Amendment for Management of Port-Orford-cedar in Southwest Oregon, Siskiyou National Forest (USDA 2004); and 4) the

Pacific Northwest Region Invasive Plant Program Preventing and Managing Invasive Plants Record of Decision (USDA 2005).

The administrative record for the Mount Avery Spur Road EA is located at the Powers Ranger District in Powers, Oregon. This EA and supporting documents are also available from the Rogue River-Siskiyou National Forest website at: http://www.fs.fed.us/nepa/fs-usda-pop.php/?project=36342

1.2 Background, Landscape Setting, and Land Use

Location: The Mount Avery Spur Road project is located in the Powers Ranger District at 1,900 feet elevation approximately 12 miles east of Port Orford in Curry County, OR (T32S, R13W Section 22). The area of the proposed action is located at the end of National Forest Service (NFS) Road 5201-200 and encompasses a 330 foot long stretch of area approximately 14 feet wide located on U.S. Forest Service property. The project is located in a remote area and the surrounding land is primarily utilized for timber production and management. The site has varied topography which slopes to the northeast (see Figure 5, Topography Map). The project area of the proposed action can be accessed from NFS Road 5201 / Sixes River Road via Highway 101 by the town of Sixes to NFS Road 5201-200.

Project Area: The project area is the road prism for the proposed spur road and is 330 feet long by 14 feet wide creating a total project area of 4,620 feet squared or approximately 0.11 acres.

Analysis Area: The analysis area encompasses the 330 by 14 foot proposed spur road (project area) and also includes a 200 foot buffer area on either side of the proposed road extension to capture all the immediate effects creating a total analysis area of 136,620 feet squared or approximately 3.14 acres.

Management Area: The lands within the project site are designated as Late-Successional Reserves (LSR) within Management Area 14 – General Forest as described in the Siskiyou Land Resource Management Plan (USDA, 1989).

Local Forest: According to the Forest Service personnel, the last harvest date within the analysis area was 1979 and replanted in 1980 making the forest within the project area 33 years old. The harvest unit was 13.5 acres and currently the stand has typical young plantation characteristics with a dense shrub/scrub layer and a single layer open canopy with 40 trees of dbh of 14" to 16" within the project area (See Figure 8. Photo of Project Area).

Recreation: There are no recreational uses within the 3.14 acre analysis area and no perennial streams, rivers, creeks, or wetlands are known to occur within the proposed road expansion area.

Watershed: The Sixes River watershed drains approximately 85,645 acres or 134 square miles of land. The Sixes River is situated almost entirely within Curry County except for a small area of the Upper Sixes Mainstem subwatershed that extends into Coos County. This basin is among the larger watersheds on the southern Oregon coast. Flowing in a westerly direction Sixes River

crosses Highway 101 and drains into the Pacific Ocean just north of Cape Blanco. Major tributaries include the North Fork, Middle Fork, South Fork, Dry Creek, Edson Creek, and Crystal Creek. Dry Creek is located within the Dry Creek subwatershed and is classified as a key watershed. The upper portion of the basin is characterized by steeply sloped forested areas with narrow valleys and tributary streams that have moderately steep to very steep gradient. Grazing, rural residential development and other agricultural uses are dominant in the lower portion of the basin. Approximately 69 percent of the watershed is in private ownership. Elevations in the watershed range from sea level to approximately 3,315 feet (Maguire, 2001).

Soils in Watershed: The Sixes River watershed can be very steep with slopes of 75 percent common and the soils can be variable. Within the project site two soil types are identified. The first is Digger-Umpcoos-Dystrochrepts complex, warm, with 30% to 60% south slopes (91F) which is a well drained soil with paralithic bedrock within its layers. The second is Milbury-Umpcoos-Dystrochrepts complex, with 30% to 60% north slopes (175F) which is also a well drained soil with lithic bedrock within its layers (USDA, 1997).

Subwatershed: The project is within the South Fork Sixes subwatershed of the Sixes River watershed and contains 9,639 acres of land. The South Fork of the Sixes subwatershed is not classified as a key watershed (USDA, 2008a and http://www.reo.gov/gis/data/gisdata/index.htm).

Threatened and Endangered Species: According to the Region 6 Forest Service Species List (December, 1, 2011; http://www.fs.fed.us/r6/sfpnw/issssp/), threatened and endangered species within the project area may marbled murrelet (*Brachyramphus marmoratus*) and northern spotted owl (*Strix occidentalis caurina*).

1.3 Purpose and Need for Action

The purpose of this project is to process a special use permit submitted by CFI to create a 330 foot spur road at the end of NFS Road 5201-200. This spur road would allow CFI access to private timberlands for logging, pre-commercial thinning, reforestation, and general timber management. The need is to accommodate uses of NFS lands that are compatible with NFS laws, regulations, and policies.

1.4 Proposed Action

The Forest Service would issue a special use permit for the construction, maintenance and use of a private spur road extending off from NFS Road 5201-200 an additional 330 feet to the west (T32S, R13W Section 22). The construction of the gravel road would take three days to complete and forty trees with dbh of 14" to 16" would be removed. This proposed action is detailed in Section 2.2.2.

1.5 Decision Framework

The National Environmental Policy Act (NEPA) of 1969 requires the Responsible Official to evaluate the effects of the potential alternatives of a proposed action on the human and natural

environments. The decision would be based on the analysis contained in this document and the comments submitted during the public review and comment period for this Environmental Assessment.

The Forest Supervisor for the Rogue River-Siskiyou National Forest is the Responsible Official who will decide whether or not to:

- Select alternative 1 and take no action at this time.

- Select alternative 2 (proposed action) and issue a special use permit to allow the construction of a 330 foot spur road off of the NFS Road 5201-200 and would include all associated project design criteria and associated actions.

- Select a modified alternative that would provide adequate protection to NFS lands and resources.

In choosing the alternative that best meets the purpose and need, consideration would be given to the extent to which each alternative would:

- Consider private access while providing adequate protections to NFS lands and resources.

- Comply with applicable laws and policies.

An additional element of the decision to be made is whether this proposal represents a "major Federal action *significantly* affecting the quality of the human environment [NEPA Section 102(2) (C)]." Should the Forest Supervisor find that the proposed action is a "major Federal action…," then a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) is required.

Should the Forest Supervisor determine that the environmental impacts reported here are not sufficient to *significantly* affect the human environment, and therefore that an EIS is not needed (40 CFR §1501.4(b) and (c)), then a "finding of no significant impact [FONSI, 40 CFR §1501.4(e) and 1508.13]" would be issued and the project could be implemented.

1.6 Management Direction

Special Use Permit: According to the LRMP 9-4 (IV-52) "*The objective of Special Use Management is to provide for the use and occupancy of the National Forest land when such use is consistent with Forest Management area goals and objectives. This use must be in the public interest and such that it cannot be served by reasonable development on private land. Special use application should be evaluated through environmental analysis before the permit is issued, and appropriate site-specific requirements and mitigation measures developed for inclusion in the permit*."

Management Area: The lands within the project site are designated as Late-Successional Reserves (LSR) within Management Area 14 – General Forest as described in the Northwest Forest Plan.

The land management direction for the Rogue River-Siskiyou National Forest is contained in two Land and Resource Management Plans: one for the Siskiyou National Forest (1989) and the other for the Rogue River National Forest (1990) as amended by *The Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl*, and now commonly known as the Northwest Forest Plan (NWFP). This ROD amended the Rogue River and Siskiyou National Forest Land and Resource Management Plans and other existing plans within the range of the northern spotted owl. This amendment, which became effective on May 20, 1994, provided additional goals, objectives, standards, and guidelines for resource management. It added several new land allocations, each with its own set of standards and guidelines. These land allocations overlay and merge with the allocations from the 1989/1990 Forest Plans.

The direction in the Northwest Forest Plan supersedes the Forest Plan land allocations where it is more restrictive or provides greater benefits to late-successional ecosystems. Direction from the Forest Plan is retained where it is more restrictive or is unaffected by the Northwest Forest Plan. The proposed action would occur within one Northwest Forest Plan management allocation, Late-Successional Reserves.

Late-Successional Reserves
"Description" – The objective of Late-Successional Reserves is to protect and enhance conditions of late-successional and old-growth forest ecosystems, which serve as habitat for late-successional and old-growth related species including the northern spotted owl." (pg. C-9)

"**Introduction** – As a general guideline, nonsilvicultural activities located inside Late-Successional Reserves that are neutral or beneficial to the creation and maintenance of late-successional habitat are allowed." (pg. C-16)

"**Road Construction and Maintenance** – Road construction in Late-Successional Reserves for silvicultural, salvage, and other activities generally is not recommended unless potential benefits exceed the costs of habitat impairment. If new roads are necessary to implement a practice that is otherwise in accordance with these guidelines, they will be kept to a minimum, be routed through non-late-successional habitat where possible, and be designed to minimize adverse impacts. Alternative access methods, such as aerial logging, should be considered to provide access for activities in reserves." (pg. C-16)

"**Rights-of-Way, Contracted Rights, Easements, and Special Use Permits** – Access to nonfederal lands through Late-Successional Reserves will be considered and existing right-of-way agreements, contracted rights, easements, and special use permits in Late-Successional Reserves will be recognized as valid uses. New access proposals may require mitigation measures to reduce adverse effects on Late-Successional Reserves. In these cases, alternate routes that avoid late successional habitat should be considered. If roads must be routed through

a reserve, they will be designed and located to have the least impact on late successional habitat. Review all special use permits and when objectives of Late- Successional Reserves are not being met, reduce impacts through either modification of existing permits or education." (pg. C-19)

Port-Orford-cedar
Port-Orford-cedar FSEIS: Management direction for the risk assessment and spread prevention of *Phytophthora lateralis* (PL) comes from the Final Supplemental Environmental Impact Statement (POC FSEIS) (USDA & USDI 2004a) and the Record of Decision for Management of Port-Orford-cedar in Southwest Oregon, Siskiyou National Forest (USDA 2004a). These documents describe the method of determining risk of spreading the disease and identifying mitigation measures to reduce the risk.

Standards and guidelines include: maintain Port-Orford-cedar on sites where the risk for infection is low; reduce the spread and severity of root disease in high-risk areas to retain its ecological function to the extent practicable; reestablish POC in plant communities where its numbers or ecosystem function have been greatly reduced; and, reduce the likelihood of root disease becoming established in disease-free 7th field watersheds.

Fuels and Fire Management
Siskiyou LRMP - Standards for fire management require activity fuels to be reduced to appropriate levels by considering the site specific risk, while utilizing economically efficient methods. Treatments must meet fuel management objectives which integrate consideration of all resource values (such as large dead and down wood) (p. IV-59, USDA 1989).

The road extension would be closed and blocked by an earthen mound when not in use. The trees to be removed would be pulled up along with the root wad and placed down the hill side which would minimally add to existing fuel loads. There would not be any slash and burn piles. According to Forest Service personnel this negates any fire and fuel issues.

Air Quality
Siskiyou LRMP - Forest-wide Standards and guidelines for air quality resources (p. IV-48 through 50, USDA 1989) would be applied to this project. Activities would be planned to maintain air quality at a level adequate for the protection and use of the National Forest resources, coordinate with the appropriate air quality regulatory agencies, reduce total suspended particulate emissions, and minimize the impact of prescribed burning on smoke sensitive areas. There would not be any slash and burn piles which would negate any air quality issues according to Forest Service personnel.

Soil and Water
Siskiyou LRMP - The LRMP states a standard for detrimental soil impacts of no more than 15 percent of an activity area (p. IV-44, USDA 1989). In addition, within 100 feet of a stream course, activities would not result in a loss of more than 10 percent of the soil infiltration capacity.

Siskiyou LRMP - The LRMP also considers "Mass Movement" (pIV-45, 7-7, USDA 1989). This section states "*The scheduling of timber harvest and road building shall consider the increased potential for mass movement. When management activities would increase potential for mass movements, an alternative prescription should be developed and evaluated considering the environmental impacts and management costs over the life cycle of the project. Qualitative landslide hazard maps and risk assessment should be used for planning timber harvest activities."* This EA analyzes the potential for, prevention of, and minimization of mass movement in relation to soils.

Fish, Wildlife, and Sensitive Plants

Northwest Forest Plan - Improvement of ecosystem diversity and productivity (sustainability) relates to restoring and maintaining biological and physical processes within their natural range of variability (USDA and USDI 1994b).

Siskiyou LRMP – Standards and guidelines 4-1 states that at the Forest level, fish and wildlife habitat shall be managed to maintain viable populations of all existing native and desired non-native plant and animal species. Distribution of habitat shall provide for species viability and maintenance of populations throughout their existing range on the Forest (p. IV-26, USDA 1989).

Forest Service Manual 2670.3 directs the protection of the habitat of federally listed threatened, endangered, proposed, and sensitive species from adverse modification or destruction and the protection of individual organisms from harm or harassment, as appropriate (USDA 1995). Consistent with this policy, Biological Evaluations (BE) were prepared for fish, wildlife, and plant species. The BE analyzes the potential for, prevention of, and minimization of adverse effects from authorized activities to species:

- Listed as threatened or endangered,
- Identified in the Northwest Forest Plan as Survey and Manage or Protection Buffer species,
- Identified by the Regional Forester in Region 6 as Sensitive,
- Identified in the Siskiyou Land and Resource Management Plan as Management Indicator Species, and
- Identified as neo-tropical migratory birds/land birds.

The Mount Avery Spur Road project is consistent with the Siskiyou National Forest Land and Resource Management Plan as amended by the 2001 *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (USDA & USDI 2001), as modified by the 2011 Settlement Agreement.

Invasive Plants

Management direction for invasive plants is provided in the Siskiyou LRMP (USDA 1989) and in the Record of Decision for Preventing and Managing Invasive Plants (USDA 2005). These

documents call for preventing the spread of invasive plants, controlling them when practicable, and monitoring their populations.

Cultural/Heritage Resources
Siskiyou LRMP – The LRMP (p. IV-24) requires compliance with Section 106 of the National Historic Preservation Act for areas where the commercial removal of timber is proposed. *Section 106 of the National Historic Preservation Act (NHPA)* requires federal agencies, such as the Forest Service, to take into account the effects of their actions, or undertakings, on historic or archaeological properties. This act also establishes the Advisory Council of Historic Preservation (ACHP) as the oversight agency which consults with federal agencies to review undertakings which have the potential to affect important historic properties. However, this consultation and review capacity is generally delegated to State Historic Preservation Offices (SHPO)**.** The *NHPA* also provides for Native American groups to be included in consultations where prehistoric sites are involved.

1.7 Public Involvement (Scoping)

A 30-day scooping period was provided pursuant to 36 CFR 215.6. A legal notice was published in The World newspaper with a comment period that opened on November 21st, 2011 and closed on December 21st, 2011. Letters were sent out on November 4th, 2011 to interested groups and citizens explaining the project purpose, need, and proposed action and requesting any specific comments, concerns or issues they may have regarding the proposed road management activities. The project appeared in the Rogue River-Siskiyou National Forest Schedule of Proposed Actions (SOPA), beginning in the fall of 2011.

One comment was received via a public citizen who was in favor of the 330 foot spur road construction off of NFS Road 5201-200. This citizen did not have any concerns or issues with the project. All scoping documents and responses are in the administrative record at the Powers Ranger District.

1.8 Issues

The following issues were developed by the interdisciplinary team based on their analysis of the project, public comments received during scoping, and any additional concerns which were raised.

Issue #1: Construction of the road and its effect on soils
The principal issue is the permanent loss of soil productivity for the spur road construction. This is summarized in the Soils Section 3.3 of this EA.

Issue #2: Construction of the road and its effect to sensitive wildlife species and their habitats is analyzed in the Wildlife Report and summarized in 3.6 to 3.10 of this EA.

Chapter 2 - Alternatives

2.1 Introduction

This section describes and compares the alternatives considered for the Mount Avery Spur Road project. It includes a description of each of the alternatives considered in detail. The no action alternative (alternative 1) provides a basic description of baseline conditions from which the other alternatives were analyzed. The proposed action (alternative 2) would involve the 330 feet construction of the spur road off of NFS Road 5201-200.

In Section 2.2 we describe the no action and action alternative in detail.

In Section 2.3 we describe two alternatives which were considered but eliminated from further analysis, and the reasons they were eliminated.

In Section 2.4 we summarize mitigation measures for the action alternative (including project design features, best management practices, standards and guidelines, and project design criteria. For further detail, Appendix A describes all mitigation measures, their objectives, and where they apply.

2.2 Alternatives Considered in Detail

As part of this environmental assessment, consideration was given to whether there might be one or more reasonable alternative courses of action that would achieve the need described in Chapter 1. There are three possible access points to tax lot 413 (private property of CFI) including access via NFS Road 5201-200 which is the proposed action. The action alternatives would involve further road construction of different roads. Deliberations regarding alternative actions and approaches are briefly discussed in Section 2.3 below. The no action alternative (alternative 1) is designed to provide a benchmark against which to evaluate the other alternatives (see Figure 4, Alternative Routes Map).

2.2.1Alternative 1 (No Action)

As suggested by NEPA, a no action alternative (alternative 1) is included to describe current conditions and is established as a benchmark against which action alternatives can be compared. Under the no action alternative, a permit would not be issued to allow the construction of a 330 foot spur road off NFS Road 5201-200. The applicant would be required to gain access to the parcel via private lands to the northwest.

2.2.2Alternative 2 (Proposed Action)

Under alternative 2, the Forest Service would issue a special use permit for the construction, maintenance and use of a private spur road extending off from NFS Road 5201-200 an additional 330 feet to the west (T32S, R13W Section 22).

The construction of the gravel road would take three days to complete and would be 14 feet wide and 330 feet long. The road extension would be primarily on a ridge top of 7% to 10% grades and gentle side slopes of 25% to 35%. The first sixty feet of the road would be built from the end of the NFS Road 5201-200 and has steeper side slopes of approximately 65%, but it can be full bench constructed. Excavators would be employed during construction and a rock base would be applied. The road would be constructed in the summer time and utilized when snow allows access.

Trees: Forty trees with dbh of 14" to 16" would be removed. These trees are approximately 33 years old. These trees would be removed, including the root wad, and placed on the down hill side of the road and positioned so they do not roll down slope to create down wood. No legacy trees would be cut or removed as none are present.

Rock Base: A local rock source of 4" to 6" rock or pit run located on at the Star Quarry on Forest Service property would be utilized (T32S, R13W Section 23). This rock source would only be utilized for the construction of the road on FS property. The Star Quarry is located one half of a mile up NFS 5201-200 (T32S, R13W Section 23 – Management Area 14, General Forest) and is currently blocked by an earthen mound to restrict access to the remainder of NFS 5201-200 (system road level I maintenance). This earthen mound would be set aside during usage of the spur road while accessing the property and returned to its original location when not in use. The quarry contains rock that is currently available. No blasting, expansion, or habitat removal would occur with usage of the quarry.

CFI requests one year to build the spur road and permission to use and maintain it for timber management. All costs for construction, operation, and maintenance would be provided by CFI, and completed to Forest Services specifications. Reasonable and appropriate mitigation measures would be employed to eliminate or reduce impacts to resources and are detailed in Appendix A.

2.3 Alternatives Not Considered in Detail

NEPA requires that Federal agencies explore all reasonable alternatives and briefly discuss the reasons for eliminating any alternatives that were explored but not developed in detail (40 CFR 1502.14 (a)). The following alternatives have been eliminated from detailed study for the reasons stated and/or because they would not meet the Purpose and Need for this project:

2.3.1Re-build Existing Roads

Two alternate access spur roads lead to the property owned by CFI. The first alternate road is approximately 3.5 miles and the second alternate road is approximately 2.0 miles. These alternate roads are located on private property and CFI would need to obtain an easement from multiple private landowners. Both of these roads are overgrown with brush and trees, with much of the road surface containing dirt and rocks that have slid from above. There are multiple slides, washouts, and blowouts along these currently unused roads. Much of these road grades are approximately 22-30% and are a safety concern for drivers who are transporting timber from the area. The Occupational Safety and Health Administration (OSHA) does not allow drivers to drive on road with grades steeper than 20%. (OAR 437-002-0223 6g states "*Road grades shall not be too steep for sage operation of vehicles which operate over them and shall not excel 20 percent in any case unless an auxiliary means of lowering vehicles is provided or unless vehicles are specifically designed and approved for operation on grades on excess of 20 percent*"). In addition, these alternatives are not located on Forest Service lands and therefore cannot be considered and are dropped from further consideration.

2.4 Mitigation Measures

This section discusses mitigation measures that apply to the proposed action. Mitigation, as defined in the CEQ Regulations (40 CFR 1508.20) includes: 1) Avoiding the impact altogether by not taking a certain action or parts of an action, 2) Minimizing impacts by limiting the degree or magnitude of the action and its implementation, 3) Rectifying or eliminating the impact over time by preservation and maintenance operations during the life of the action, 4) Compensating for the impact by replacing or providing substitute resources or environments, and 5) Rectifying the impact by repairing, rehabilitating or restoring the affected environment.

The Standards and guidelines of the 1989 Siskiyou National Forest Land and Resource Management Plan, as amended by the Northwest Forest Plan, are incorporated by reference as required mitigation measures. In response to known concerns for projects in general, and to insure compliance with standards, guidelines, laws, etc., mitigation measures were developed to ease the potential adverse effects the alternative may cause. All of the listed mitigation measures include project design features, design criteria, best management practices, and standards and guidelines. The Forest Service National Core BMPs (USDA Forest Service 2012) and the Region 6 General Water Quality Best Management Practices (USDA Forest Service 1988), particularly in relation to road management BMPs, are incorporated by reference and also have been incorporated into the development of site specific mitigation measures for the Mount Avery project.

In addition, any other methodology for implementation of the proposed action would comply with all requirements and standards for protection of threatened and endangered species, in compliance with the Endangered Species Act.

The following is a list of sources describing where the mitigation measures are located.

Table 2. Sources of Relevant Mitigation Measures

Siskiyou Forest Plan Standards and Guidelines	Forest-wide Standards and Guidelines (all may not apply): pgs IV-20 to 64. General Forest Standards and Guidelines (all may not apply): IV-138 to IV-143 Project specific Standards and Guidelines: 4-1, 4-2, 4-3, 4-4, 4-6, 4-13b, 7-2, 7-5, 7-7, 7-14, 9-4, 11-2, 12-8, 13-1
Northwest Forest Plan Standards and Guidelines	LSR Standards and Guidelines: C-9 to C-26 2001 Amendment Standards and Guidelines: pgs 1 to 51.
Other Forest Amendments and Guidance	Forest Service Handbook (FSH) 7709.58,10,12.3 Port-Orford-cedar FSEIS ROD (March 2004): pgs 35 to 37. Informal Consultation on Miscellaneous Forest Management Activities Proposed by the Rogue River-Siskiyou National Forest for Fiscal Years 2009-2014 TAILS #13420-2010-I-0034.
National BMP Guides	National Best Management Practices for Water Quality Management on National Forest System Lands, Volume 1: National Core BMP Technical Guide. Particularly BMPs for Road Management Activities and Mechanical Vegetation Management Activities.
Regional BMP Guides	Pacific Northwest Region General Water Quality Best Management Practices. Particularly General BMPs for Road Systems and for Timber Management.

Mitigation Measures for Soil Resources

The following mitigation measures are designed to protect soil productivity, retain organic matter, avert erosion, curtail mass wasting and mitigate soil compaction potentially created by project implementation. These elements are to be employed during on-the ground project designation/implementation and are designed to address overall resource objectives to manage consequences (and obtain compliance with standards and guidelines). During construction activities that involve the use of vehicles and heavy equipment, if vehicles/equipment need to operate outside the footprint of the designed site improvements, soil moistures must be taken into account to minimize detrimental soil impacts outside the permanent improvements.

- Complete maintenance and erosion control on disturbed soil areas must be completed prior to the onset of extended periods of wet weather and following the completion of project operations.
- The use of vehicles and equipment shall be limited to dry soil conditions to minimize compaction, prevent caking, smearing, or rutting over 4 to 6 inches, and/or operate over an adequate slash mat to distribute the weight of the equipment.
- Measures to restore soil productivity and infiltration include: ensuring roads/landings within 100' of a stream would not result in a loss of more than 10 percent of the soil infiltration capacity; and, reseeding and/or planting of native vegetation on exposed areas.

Mitigation Measures for Botanical Resources and Non-Native Plants

The following mitigation measures would be followed to prevent the spread of invasive plants:

- Weed free material would be used (such as hay, rock, and/or soil).

- All equipment moved onto National Forest land would be washed and be free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds. Any equipment used should be cleaned when leaving the site of the infestation. Most invasive plant species sites are known and most occur along roads or in very disturbed areas such as rock pits or landings.
- If project activities impact an existing noxious weed infestation, eradication efforts should be conducted prior to project implementations if plants are producing seed or may be spread by plant parts.
- Where applicable, approved Forest Service noxious weed clauses would be included in the road permit.
- Site-specific prevention measures would be developed if noxious weed occurrences are discovered prior to, or during implementation, and project activities have potential to increase the abundance, spread, or risk of off-site transport of plants.

Mitigation Measures for Port-Orford-cedar

The following mitigation measures would be followed to prevent the spread of Port-Orford-cedar:

- The prevention practices outlined in *Best Management Practices for Noxious Weed Prevention and Management, Port-Orford-cedar Root Disease Prevention and Management, Sudden Oak Death Prevention and Management--Interim Direction for the ROR/SIS National Forests--February 15, 2002* would be followed. This includes:
    - Equipment would be washed with bleach solution before initially entering Forest Service lands and whenever they've been in infested lands.
    - Utilizing un-infested or Clorox treated water for planned activities such as, equipment washing, road watering, or other water-distribution needs.

Mitigation Measures for Terrestrial Wildlife Species and Habitat

The Project Design Criteria (PDC) from the Informal Consultation on Miscellaneous Forest Management Activities Proposed by the Rogue-River-Siskiyou National Forest for Fiscal Years 2009-2014 that affect ESA-listed fish, wildlife, and plant species will be enforced (TAILS #13420-2010-I-0034).

- Northern spotted owl - Road construction that will produce loud noises above ambient levels, will not occur within specified distances of any spotted owl nest site or activity center of known pairs and resident singles between March 1 and June 30 (or until two weeks after the fledging period) - unless protocol surveys have determined the activity center to be not occupied, non-nesting, or failed in their nesting attempt. If an active spotted owl nest or activity center is located within or *adjacent* to the project site, delay the project activity until after September 30th, or until the action agency biologist determines that young are not present.
- Marbled murrelet - Measures to minimize impacts to marbled murrelets activities would occur outside the breeding period of April 1 through September 15th.

Mitigation Measures for Road Maintenance

The proposed private spur road will be maintained at a road management level 1 as defined in the FSH 7709.58,10,12.3:

3.1 Provide the basic maintenance required to protect the road investment and to ensure that damage to adjacent land and resources is prevented. This level of maintenance often requires an annual inspection to determine what work, if any, is needed to keep drainage functional and the road stable. This level is the normal prescription for roads that are closed to traffic. Higher levels of maintenance may be chosen to reflect greater use or resource protection. Additional maintenance measures could include resurfacing, out-sloping, clearing debris from dips, armoring of ditches and spot rocking.

Chapter 3 - Affected Environment and Environmental Consequences

3.1 Introduction

This chapter describes the affected environment that provides a baseline for evaluation and comparison and summarizes the potential changes or effects to the physical, biological, and human/social environments that are relevant to the proposed action. The following assessment of effects for alternative 2 (proposed action) assumes the application of the mitigation measures described in Chapter 2.4.

Within each section, the direct, indirect and cumulative effects of the alternatives are presented by resource topic area. This chapter is arranged by resource topic area. It provides the decision maker with information needed to compare alternatives and select an appropriate course of action. The following terms are used to describe relevant spatial and temporal effects (40 Code of Federal Regulations 1508.7 and 8):

Short-term effects address environmental, social or economic consequences, which could occur during operations, and/or that arise within two-year post operations.

Long-term effects address environmental, social or economic consequences, which are delayed, periodic, and/or arise two-years after operations are completed.

Direct effects refer to consequences caused by the activities themselves, occurring concurrently and in the same location.

Indirect effects include consequences, occurring later in time or are farther removed in distance from the point of contact, but are still reasonably foreseeable.

Cumulative effects address incremental environmental consequences resultant of multiple, past, present, and reasonably foreseeable future actions, regardless of land ownership, or which agency, or person initiated the action (40 CFR 1508.7).

The following discussions relate directly to the objectives (attainment of Purpose and Need) and identified Relevant Issues documented in the previous sections.

3.2 Hydrology

This section describes the current condition of hydrological resources and water quality within the affected watershed and the effects of project activities on those resources. Effects on aquatic species can be found in the Fish Section 3.5 and the Aquatic Conservation Strategy can be found in Appendix B.

Affected Environment

The Sixes River Watershed is a 5th field watershed located in the Sixes Sub-Basin within the South Coast Basin of the Southwest Oregon Province. The Sixes River watershed is approximately 28 miles long and drains approximately 85,800 acres. Elevations in the Sixes River Watershed range from sea level to just over 3,280 feet on the ridge north of Barklow Mountain (See Figure 3, Sixes River Watershed Map). The project site is located on the northern side of the South Fork Sixes sub-watershed (6th field) which is not considered a Tier 1 Key Watershed.

Watershed Analyses have been completed for the watershed associated with the proposed action and are incorporated by reference into this environmental assessment. The following three documents were utilized to derive the information discussed in the remainder of this section.

• Sixes River Watershed Analysis, 1997

• Sixes River Watershed Assessment, 2001

• Watershed Analysis of the Sixes and New River Area, 2008

Unnamed Tributary

The proposed project site is not located adjacent to any creeks or rivers. The closest hydrological feature is an unnamed tributary that begins 500 feet to the northeast of the project site and connects to a second unnamed tributary which eventually joins the main stem of the Sixes River to the north. This unnamed tributary is seasonal at the head waters and is not fish bearing. The second closest hydrological feature is the South Fork of the Sixes River which is approximately half of a mile to the south of the project site (see Figure 5, Topography Map).

Main Stem of the Sixes River

The main stem of the Sixes River flows through the middle of the watershed. Floras Creek lies immediately north of the main stem and the Elk River lies immediately to the south. The river flows in a westward direction to its mouth just north of Cape Blanco on the Pacific Ocean.

Channel morphology - The channel types, or channel morphology, found in the Sixes River range from low gradient alluvial valley to steep colluvial and bedrock canyons. The steep channels found in the hillslopes are confined by the boulder and bedrock walls. The channel types are typically step-pool morphology with coarse bed materials and areas of bedrock. There is little sediment storage as most of the material delivered to the channel is transported downstream. These channels are stable and quickly recover from disturbance.

Temperature - Stream temperature data has been collected on Sixes River at Highway 101 from 1965 to the present. Stream side vegetation lost from a major storm event in 1964 and timber harvest has since grown back along most of the tributaries, and stream temperatures have been decreasing over the last two decades. The river channel is down cutting in the valley sections, becoming narrower and deeper. Temperature data collected by the DEQ over the last decade has

shown a cooling trend where temperatures are 3 to 5 degrees F cooler than those collected in the late 1960's. The temperature range is between 72 degree and 81 degrees Fahrenheit.

Turbidity - The Sixes River has naturally high levels of turbidity (loss of water clarity) following storms when compared to other coastal watersheds such as Elk River. This is attributed to larger amounts of silts and clay in the watershed that enter the water through landslides and surface erosion. Road construction and timber harvest can cause landslides and surface erosion which can add to the natural rate, further reducing water clarity. The amount of clay content in the soil can affect the potential for producing higher levels of turbidity in a stream. The higher the clay content the greater the potential for producing turbidity. Long time residents have accounted that the Sixes River is always dirtier than the Elk River and that they haven't noticed any worsening of water clarity as the result of road construction or timber harvest.

The water quality has been improving in the Sixes River since 1980. That trend is expected to continue into the future. Modification of the State Forestry Practices Act and Northwest Forest Plan has increased protection of streams which will continue to improve and protect water quality on private and federal land. With the continued trend, the watershed will continue to move toward a new level of optimum attainable water quality.

South Fork Sixes River

The South Fork Sixes River enters the mainstem at river mile 18.5, with a drainage area of 15 square miles. The channel is primarily boulder, bedrock, cobbles, and gravels and is confined by bedrock and colluvial canyon walls. Sediment delivery of landslides in the South Fork has been somewhat evenly distributed over time, and not triggered by any particular storm. However, the sediment load is concentrated in some parts of the watershed in the lower reaches and where extremely steep slopes are present (see Figure 3, Sixes River Watershed Map).

The South Fork has the greatest abundance of late successional riparian vegetation in the watershed. Pioneer and early successional stage vegetation are the result of timber harvest as well as streamside slides and debris flows (both natural and road-related). The riparian vegetation mostly consists of maple, alder and myrtle with some conifers. Stream surveyors found abundant wood in the stream, and noted that input of debris from logging and blowdown of riparian buffer strips increased large wood to levels judged to be above the range of historical variability. The stream survey report also observed that most of the wood is concentrated in jams which store large volumes of sediment. The presence of sediment deposits in pools was interpreted as evidence that the South Fork is transporting large quantities of sediment.

The South Fork Sixes River supports populations of coho, chinook, steelhead, sea run cutthroat and resident rainbow and cutthroat trout. Only the lower 0.2 miles of the South Fork is suitable for coho and chinook salmon. A series of five-foot falls, in a narrow chute, limits upstream distribution for fall Chinook. Stream surveys indicate no coho have been observed in the South Fork since 1990.

According to the Sixes River Watershed Analysis, temperatures within the South Fork are among the lowest in the upper river having a 7 day maximum range at the mouth from 61.1 to 65.1 degrees F.

Impaired waters - In the vicinity of the proposed project, the South Fork Sixes River and the unnamed tributary are not included on the State's list of impaired waters and meets all state water quality standards. The management goals are to ensure the tributary and the river's high water quality are not degraded by any management activities.

Mechanisms of Effects and Indicators

Peak flow and Road Densities - Recent literature from Grant et al. addresses the effects of forest practices on peak flows and the consequent channel response in western Oregon (Grant et al. 2008). Grant et al. synthesizes the findings of an extensive array of existing literature linking forest practices in the Pacific Northwest with changes to peak flow.

For basins within the transitional zone, Grant et al. found that the detection threshold for the mean change in peak flows occurs at 19 percent of watershed area harvested. The detection threshold for the maximum reported change in peak flow occurs when 15 percent of the basin is harvested. Thus, changes in peak flows cannot be detected at harvest levels of less than 15 percent to 19 percent (Grant et al. 2008).

It's generally thought that road density greater than 4.0 miles/sq. mile can influence peak flows; however, studies have not separated the effects from roads from the effects from harvest because those activities usually occur together. As a result, there is a data gap in the relationship between road densities and peak flows.

According to the Watershed Analysis of the Sixes and New River Area (USDA 2008a), the South Fork Sixes sub-watershed has a road density of 2.5 mi^2 with a total area of 26.1 square miles. The analysis states that the probability of the effects on peak flows is considered low.

Channel morphology - To detect changes in channel morphology from sediment delivery following riparian thinning and burning, photo points were established on a stream prior to activities for the 1995 Waters Thin Project. Monitoring sites on the stream included areas sensitive to increases in sediment delivery and flow from the project activities. This included a pool, a vertical stream bank on a bend, and a vegetated low gradient section. In January 1997, two years after the project activities, there was a 50-year storm event. Comparison of the 1995 and 2005 photo points showed no change in the stream channel. There were no sediment deposits in the pool or low gradient stream section. The stream bank was unchanged. No evidence of sediment movement was present in the 25-foot no treatment area or in the riparian area where thinning and burning occurred (Park and Jubas 2005).

Stream temperature - Stream temperature is protected under the "Clean Water Act" and State Water Quality Standards. On March 1, 2004, new water temperature standards were adopted by

the State of Oregon. Water Temperature Standards are found in ORS, Chapter 340, Division 041-Water Quality Standards: Beneficial Uses, Policies, and Criteria for Oregon, 340-041-0028, Temperature. The purpose of the temperature policy is to protect aquatic warming and cooling caused by anthropogenic activities.

Factors that can contribute to increased summer stream temperature are storm events that cause landslides, bank scour, removal of riparian vegetation and wider, shallower channels. Human activities that can increase stream temperature are harvest of riparian shade vegetation; river terraces developed for livestock and increased sediment delivery from roads and harvest units that can aggrade channels.

Alternative 1 (No Action) Effects

Direct and Indirect

Under the no action alternative there would be no direct or indirect effect to hydrologic resources because there would be no change to the existing footprint of the project site.

Alternative 2 (Proposed Action) Effects

Direct and Indirect

Under the proposed action there is no measurable environmental effect to hydrologic resources from the proposed 300 foot spur road creation off of NFS Road 5201-200.

Hydrology issues considered for the Mount Avery Spur Road project are listed below which outlines the effects related to each issue.

Peak Flow; Level of Effect - None

The proposed action would only affect up to 0.11 acres at the site. This is too small an area to have any detectable effect on the stream flow of the unnamed tributary as it is 500 feet away or the South Fork of the Sixes River as it is 0.5 miles away.

Sediment Generation and Erosion; Level of Effect – None to Very Low

It is unlikely that sediment from the proposed road extension would reach a stream and affect the stream channel or reduce water clarity as the nearest hydrological feature is 500 feet from the project site. This distance is outside the Riparian Reserve and protection zones and would leave little opportunity for project related sediment to reach perennial streams. Possible runoff from the Mount Avery Spur Road project is easily absorbed by surrounding undisturbed areas without visible erosion or sedimentation. The road would be full-bench constructed which also limits erosion. The proposed project is not large enough to generate an increase in runoff capable of saturating adjacent areas.

Water Quality; Level of Effect - None
The proposed project is too small an area to have any detectable effect on the stream flow of the unnamed tributary as it is 500 feet away or the South Fork of the Sixes River as it is 0.5 miles away.

Water Temperature; Level of Effect - None
The proposed action would not measurably increase stream temperature as the project area is outside of Riparian Reserve and would not affect canopy cover or stream shade.

Cumulative
Effects from this project would not reach any thresholds for significance because the effects from the project would either not be measurable or would be indistinguishable from background levels. Any small amount of sediment that could potentially be delivered to stream would increase existing levels of turbidity, but the difference could not be meaningfully measured.

The Sixes River Watershed is 85,800 acres in comparison to the proposed action project area of 3.14 acres which includes a 200 foot buffer on either side of the proposed road extension. The project area for the proposed action is comprised of 0.0037% of the watershed.

3.3 Soils

This section describes the current condition of soil resources within the Mount Avery Spur Road project area and the effects of project activities on those resources. Vegetation removal and other connected actions have the potential to affect soils and site productivity through detrimental soil disturbance and effects to organic matter.

Affected Environment

Watershed Geology - The following geologic information was gathered utilizing the Sixes River Watershed Assessment (Maguire, 2001), the Siskiyou National Forest Land and Resource Management Plan (USDA, 1989), and the Web Soil Survey through the Natural Resources Conservation Service (NRCS). The Mount Avery Spur Road project is located in the northern edge of the Klamath Mountains Geologic Province, but includes younger rocks of the cretaceous age, rocks from the California Coast Ranges Geologic Province and rocks from the Oregon Coast Range Geologic Province. Rocks from these provinces have been juxtaposed by a history of plate tectonics, faulting and deposition. East-west trending faults divide the watershed into two halves. The south half consists of the older Klamath Mountain rocks and Cretaceous Formations. The Klamath Mountains rocks include the metamorphosed sedimentary and volcanic rocks of the Galice Formation that have been intruded by diorites. This intrusion is the source of the gold mineralization in the watershed. These rocks underlie some of the steepest slopes in the headwaters of the South and Middle Forks. The south half of the watershed is predominantly Cretaceous age Rocky Point Formation sandstones and siltstones, with Humbug Mountain Formation conglomerates and sandstones. The terrain in the south half is similar in character to much of the Elk River, with steep slopes, deeply incised channels, and shallower, rockier soils.

Recent and on-going uplift (Kelsey, 1998) has created high relief and rugged, steep terrain where rocks are resistant to weathering. Landslides and surface erosion are long-term processes which have formed the landscape.

Soil Characteristics - Soils in the project site are dominated by varying gravelly, sandy and stony loams with the first two inches of duff (decomposed plant material). Table 3 shows the soil characteristics of land-type complexes and units that are found within the general project site. Evaluation of climate, slope gradient and length, soil characteristics, hydrologic characteristics of the soil, and bedrock materials are considered in making the ratings below.

Table 3. Soils Identified Within the Project Area

Map Symbol and Soil Name	**91F - Digger-Umcoos-Dystrochrepts complex, warm**	**175G - Milbury-Umcoos-Dystrochrepts complex**
Slope	30-60% south slopes	60-90% north slopes
Texture	Very gravelly loam, very gravelly sandy loam, extremely stony loam	Very gravelly loam, very gravelly sandy loam, extremely stony loam
Parent Material	Colluvium and residuum derived from sedimentary, metasedimentary, metavolcanic rock; igneous and sedimentary rock	Colluvium and residuum derived from sedimentary, metasedimentary, metavolcanic rock; igneous and sedimentary rock
Permeability	Well drained	Well drained
Sheet and Rill Erosion	Severe	Severe
Cut and Fill Limitation	Severe	Severe
Equipment Limitation	Severe	Severe
Soil Compaction	Severe	Severe
Soil Displacement	Moderate	Moderate

Mitigation measures common to all action alternatives which would prevent or minimize effects on soils are itemized in Appendix A. They include best management practices and standards and guidelines (S&Gs) from the Siskiyou LRMP, and incorporate by reference the National Core BMPs (USDA Forest Service 2012) and the Region 6 General Water Quality BMPs (USDA Forest Service 1988). There would be no operation of ground-based equipment or the construction of new roads within Riparian Reserves. All activities in the action alternative would avoid unstable soils and slopes susceptible to mass failures, landslides, or slumping.

Siskiyou LRMP S&G 7-2 limits detrimental soil conditions (compaction, displacement, puddling, and severe burning) to no more than 15 percent of the total acreage within the activity area. Soils within 100 feet of Riparian Reserves contain a 10 percent limitation in infiltration capacity of the disturbed soil. S&G 7-4 requires that mineral soil exposure (loss of duff and litter) not exceed 40 percent on low-to-moderate soil erosion hazard areas, 30 percent on high erosion hazard areas, and 15 percent on very high erosion hazard soils.

Siskiyou LRMP S&G 7-7 considers the increased potential for mass movement for road construction. When management activities would increase potential for mass movements, an alternative prescription should be developed and evaluated considering the environmental impacts and management costs over the life cycle of the project. The mitigation measures described in Appendix A are prescribed to avoid, prevent, and/or minimize potential mass movement of soils. Based on the full bench construction, the absence of erosion issues within the

project area, and the overall size of the project, mass movement is considered to be minimal or non-existent.

Soil management risk ratings are moderate or severe for the various soil designations within the project area. This indicates the need for modified road construction, and alternative site preparation techniques. The mitigation measures described in Appendix A are prescribed to avoid, prevent, or minimize potential impacts to these soils.

Detrimental soil impacts - *Soil compaction* risk ratings are severe for the project area. *Soil displacement* ratings are moderate for all of the soil designations present. Most of the project area is on or near ridgelines, and soils near ridgelines or near rocky outcrops tend to be less prone to compaction because the larger amount of rock present in these areas provides better structure and drainage; however, most of the soil types within the project area are prone to severe compaction when wet or moist (USDA, 1997).

Erosion risks - The project is in a sub-watershed where the erosion potential is severe, due to the slopes; however, it should be noted that the permeability of all the soils are well drained and the spur road construction would be full bench constructed with a gravel road base reducing the erosion risks.

Field review and current conditions - Soil productivity within the project area is steady, supporting a high level of vegetation and established slope stability. During a field review conducted September 2010 by Zion Natural Resources Consulting, very little evidence of erosion issues were noted off of the current end of NFS Road 5201-200 onto adjacent forest soils, indicating that it is not an imperative issue with the current site design, and also reflects the nature of the soil's very slight erosion potential and well drained infiltration rate in the project site.

Mechanisms of Effects and Indicators

Soil infiltration and productivity is reduced by the detrimental effects of compaction and displacement (explained below).

Soil types and management risk ratings are described below and give the soil designation, soil names, and the erosion hazard rating (sheet-and-rill, cut-and-fill, equipment limitations, compaction, and displacement). The following soils information was gathered utilizing the Sixes River Watershed Assessment (Maguire, 2001), the Siskiyou National Forest Land and Resource Management Plan (USDA, 1989), and the Soil Survey of Curry County, USDA Soil Conservation Service at http://websoilsurvey.nrcs.usda.gov (USDA-NRCS, 1995) (See Figure 7. Curry County Soils Survey Map).

Sheet-and-rill erosion hazard refers to the probability of excessive erosion occurring as a result of operations that expose the soil.

Cut-and-fill slope erosion hazard refers to the probability that damage may occur as a result of erosion from road cuts and fills.

Equipment limitation describes the restrictions on the use of equipment as a result of soil characteristics.

Soil compaction refers to the probability that damage to the soil structure would occur as a result of repeated equipment use during periods when the soil is wet or moist.

Soil displacement refers to the risk of soil being gouged, scraped, or pushed from its natural position by mechanical means. For this rating, it is most often associated with mechanical slash disposal and site preparation. Thickness of the layer of duff, thickness of the surface layer, content of coarse fragments, and texture are all considered in soil displacement ratings.

Alternative 1 (No Action) Effects

Direct and Indirect

Under the no action alternative there would be no direct or indirect effects to geologic or soil resources because there would be no change to the existing footprint of the project area.

Alternative 2 (Proposed Action) Effects

Direct and Indirect

Under the proposed action there would be a direct effect to the 0.11 acres of land (330 feet long by 14 feet wide) being withdrawn from soil productivity through the creation of the spur road. This would result in a loss of soil productivity by dedicating the area's purpose to a graveled road space as an alternative to supporting forest vegetation. As soil risk ratings are moderate to severe, equipment and wet weather restriction would be prescribed as needed. The proposed action would be within Siskiyou LRMP standards and guidelines (<15 percent) for the detrimental soil conditions. Soil exposure would not exceed the 15 percent limit described above. The mitigation measures prescribed would be very effective in preventing and minimizing soil compaction, displacement, mass movement, and erosion risk. As soil compaction occurs primarily on wet and moist soils, the measures limiting equipment and haul during wet conditions are especially important for reducing impacts and allowing for faster recovery from disturbance outside of the foot print of the spur road creation. The construction of the spur road off of the NFS Road 5201-200 would result in the long term commitment of that area (0.11 acres) to a use other than site productivity, through the clearing of the area of soil and vegetation and reestablished with gravel.

Cumulative

There is no recorded or physical evidence of past detrimental soil disturbance within the project area. There is also no foreseeable future actions proposed within the planning area outside of the spur road construction (footprint of 0.11 acres). The acres of estimated current detrimental soil disturbance from past actions (zero) were combined with the estimated acres of detrimental disturbance expected from proposed activities to determine if the cumulative effect would meet

the Siskiyou National Forest Standard and Guidelines for detrimental soil disturbance (the total area of detrimental soil conditions should not exceed 15 percent of the total acreage within the activity area).

Table 4. Estimated Deleterious Soil Impacts – Alternative 2

Acres in analysis area	Acres existing unclassified roads, impacted areas	Acres of detrimental soil disturbance	Percent detrimental disturbance
3.14	0	0.11	3.5%

3.4 Snags and Down Wood

This section describes the current condition of snags and down wood within the project area and the effects of the road expansion and connected actions on its quantity and quality. Wildlife use of snags and down wood is covered in Sections 3.6 to 3.10.

Terminology – In this document, snags and down wood refers to all snags and down logs in the forest. Unless noted otherwise, the term" large" is utilized to refer to snags that are a minimum of 15-inches in diameter at breast height and at least 10-feet tall and down logs that are a minimum of 20-inches in diameter on the large end and at least 20-feet long. Please note that there's a confusing array of terms used to discuss these forest components. These terms often refer to a specific size and decay class of wood, and come from land management documents, guides, and research articles. Terms include: large woody material (LWM), course woody debris (CWD), Wildlife Reserve Tree (WRT), and down woody debris (DWD).

Existing Condition of Snags and Down Wood

There are no large snags or down wood within the footprint of the proposed road creation when the field visit was conducted in July 2011. According to Forest Service personnel, the South Fork of the Sixes River subwatershed is deficient in down wood and snags and the project area does not currently meet the standards for quantity or quality of snags or down wood. If snags or down wood are identified within the 3.14 acres analysis area, but outside of the 0.11 acres of road prism, mitigation measures would protect them during construction.

The proposed action would remove forty trees from within the footprint of the spur road creation. These trees would be removed with the root wad intact, and placed on the down hill side of the road and positioned so they do not roll down slope to create additional down wood.

Desired Future Condition of Snags and Down Wood

Mitigation measures would retain and protect to the extent possible existing snags and down wood within the analysis area of 3.14 acres, but outside of the spur road prism of 0.11 acres.

The Siskiyou Supplement Guidelines for Harvest Prescriptions – Large Woody Material, Green Tree, Retention, and Wildlife Reserve (Snag) Tree Retention (White, 2001) is the current guide for retention of large snags and down wood. The LWM mean values are specified by Plant Series (see Table 5) and the minimum number of WRT is 2.5 dead trees per acre [because the acorn woodpecker may be present].

Table 5. LWM and WRT Guidelines[1]

Plant Series[2]	LWM (Pieces)[3]	LWM (Cubic Feet)	WRT Retention (Snags)[4]
PSME - Douglas-fir	5	790	2.5 snags/acre

[1]Guidelines from The Siskiyou Supplement Guidelines for Harvest Prescriptions – Large Woody Material, Green Tree, Retention, and Wildlife Reserve (Snag) Tree Retention at Final Harvest (USDA, rev. 2001)
[2]The mean values of LWM and minimum number of WRT are determined by the Plant Series.
[3]Pieces are minimum 20" diameter on the large end, and 20' long.
[4]Snags should be at least 15" DBH and 10' high. Snags should be "hard" snags, and not decadent or in advanced stages of decomposition.

Alternative 1 (No Action) Effects

Direct and Indirect

Under the no action alternative, small diameter (< 15-inch) snags and down wood would possibly accrue through suppression for several decades. The recruitment of large snags and down wood would be delayed until natural events decrease competition in the stand, and trees are able to grow large enough to contribute large snags and down wood to the ecosystem.

Alternative 2 (Proposed Action) Effects

Direct and Indirect

The proposed action would increase down wood along the constructed road by forty trees. These trees, with root wads would be moved down slope of the spur road. This would be a localized benefit to the area, but not a measurable benefit to the watershed.

No snags would be removed from the road prism as no snags are currently identified within the project area. There would be a connected decrease in the future recruitment of smaller snags and down wood from the permanent withdrawal of 0.11 acres from forest production. This would be a localized deficit to the area, but no a measurable decrease at the watershed scale.

Cumulative

On private and public lands, regeneration harvest has produced many stands which are overstocked and in the stem-exclusion stage. These stands are currently contributing small snags and down wood through suppression, but minimal large wood.

3.5 Fish

This section describes the current condition of fisheries within the watershed of the project area and the effects of project activities on those resources. Effects to hydrological resources are discussed in the Hydrology Section 3.2 and the Aquatic Conservation Strategy is addressed in Appendix B. Appendix A lists the mitigation measures and criteria designed to eliminate or minimize impacts to fish.

Affected Environment

Project Location – See Section 1.2

Aquatic Conservation Strategy – See Appendix B

Mitigation Measures - Appendix A lists the measures which would be implemented to eliminate or minimize effects to fish. They include stream protection buffers, wet-weather restrictions, gravel on haul route, and various other activity restrictions.

Existing Condition of Fisheries

Resident and anadromous fish have a wide distribution in the Sixes River watershed and have access to almost the entire watershed. Natural barriers limit distribution for salmonids on the South Fork Sixes River; however it does support self-sustaining populations of resident rainbow trout (*Oncorhynchus mykiss*), cutthroat trout (*Oncorhynchus clarki*), and brook trout (*Salvelinus fontinalis*). Due to the naturally cold water, most individual fish tend to be small and slow growing (Maguire, 2001).

In compliance with Section 7 of the Endangered Species Act (ESA) and the Forest Service biological evaluation process for threatened, endangered, and sensitive fish species (TES) fish species and invertebrate species, the list of species potentially occurring within the project site was reviewed. Lists for the Rogue River-Siskiyou National Forest (RRSNF) and the Pacific Northwest Region (R-6) were reviewed in regard to potential effects on any of these species by actions associated with the Mount Avery Spur Road project.

The following sensitive fish species were identified as potentially being affected by land management activities on the Rogue River-Siskiyou National Forest (Table 6). The project site is not located within, adjacent to, or near any tributary, creek, or river, thus no anadromous fish habitat exists within or adjacent to the project site. The closest hydrological feature with critical habitat for fish is the South Fork of the Sixes River approximately three quarters of a mile away from the proposed project area. The seasonal unnamed tributary that is 500 feet away does not support fish habitat as it is outside the range of anadromous fish.

Table 6. List of Aquatic Species

Species	Key Habitat Features	Habitat Present	Species Present	Impacts Evaluation Needed?
FISH				
Coho salmon *Oncorhynchus kisutch*	Anadromous	No	No	No
North American green sturgeon *Acipenser medirostris*	Anadromous	No	No	No
Chinook salmon *Oncorhynchus tshawytscha*	Anadromous	No	No	No
Steelhead *Oncorhynchus mykiss*	Resident Anadromous	No	No	No
Chum salmon *Onchorynchus keta*	Anadromous	No	No	No
Pacific Eulachon *Thaleichthys pacificus*	Anadromous	No	No	No

Mechanisms of Effects and Indicators

Studies have shown that forest roads built for timber harvest and access to other natural resources can be considerable sources of sediment to aquatic systems, both through increased surface erosion, landslide risk, and drainage density (Reid, 1984; Furniss, 1991). Specifically, increased sediment production in stream systems has been shown to adversely affect Pacific Northwest salmonid species through reduction in gravel permeability and reduced egg to fry survival (Furniss, 1991). However, sediment models in geology, hydrology, geography, and land management have been developed for tributaries and rivers throughout the watersheds within the Rogue River-Siskiyou National Forest. Through field testing and validation, it was determined that surface erosion from Forest Service roads account for less than one percent of the sediment produced in the watershed, regardless of road treatments (USACE 1998).

Alternative 1 (No Action) Effects

Direct and Indirect

Under the no action alternative there would be no direct or indirect effects to fish populations or habitat because there would be no change to the existing footprint of the project site.

Alternative 2 (Proposed Action) Effects

Direct and Indirect

The creation of the spur road would not measurably affect fish species because of the 0.75 mile distance to fish habitat, implementation of stream protection buffers when applicable, construction outside of Riparian Reserves, and mitigation measures listed in Appendix A. These measures would be highly effective in preventing or minimizing the mechanisms which can cause adverse affects to fish; such as increase in stream temperature, sediment delivery, recruitment of wood into streams, or changes in stream channels.

Road construction would not create measurable detrimental effects to fish species because activities would not occur during excessively wet conditions and would employ erosion control measures needed to prevent sediment from reaching streams.

Cumulative

The cumulative effects discussion in the Hydrology Section 3.2 covers the mechanisms which can impact fish species (such as sediment and stream temperature).

Private lands within the area are primarily forested lands which are regeneration harvested for timber harvest on 30 to 50 year rotations. Under the Oregon Forest Practices Act, timber harvest is allowed to occur within riparian areas; however, to reduce impacts to fish a 100-foot Riparian Management Area is located along most streams and water bodies where fish occur. Some sedimentation may occur from areas where there are intermittent stream channels or where perennial non-fish bearing streams are found. This increase in sedimentation can impact fish habitat by filling in pool habitat and reducing spawning habitat.

The District's ongoing and planned fuels reduction and meadow restoration projects in the affected watersheds would not measurably impact fish because: activities generally would not occur in riparian areas, stream protection buffers would be employed along with mitigation measures. National Marine Fisheries Service concurred that activities from these projects may affect coho, their critical habitat, or essential fish habitat but that cumulative effects would be insignificant.

In summary, the proposed action would have **no effect** for fish species and habitat. Due to the no effect determination, no consultation with NOAA Fisheries Service is required. No impacts were determined for effects on any of the fish species listed in Table 7. There would likely be no indirect or cumulative effects resulting from the proposed action because analysis determined that there would not likely be any direct effects as a result of the project, which would cause indirect or cumulative effects.

3.6 ESA Listed Wildlife Species

The Wildlife Biological Evaluation is incorporated by reference and available by contacting the Powers Ranger District or at http://www.fs.fed.us/nepa/fs-usda-pop.php/?project=36342.

Analysis Area - The Mount Avery project area is buffered by 200 feet to create an analysis area of 3.14 acres.

ESA Listed Species and Consultation

This section covers species listed under the Federal Endangered Species Act of 1973. Two threatened species occur within the project watershed; the northern spotted owl (*Strix occidentalis caurina*) and the marbled murrelet (*Brachyramphus marmoratus*).

Northern spotted owls were listed as threatened on June 26, 1990, due to widespread loss and adverse modification of suitable habitat across the owl's entire range and the inadequacy of existing regulatory mechanisms to conserve the owl (USDI FWS 1990). The Revised Recovery Plan for the Northern Spotted Owl (USDI FWS 2011b) identified the primary threats to the species as: 1) limited and declining habitat, 2) disease, 3) inadequacy of regulatory mechanisms, 4) barred owls (*Strix varia)*, and 5) loss of genetic variation. A designation of revised critical habitat for the northern spotted owl was published in the Federal Register on December 4, 2012 (77 FR 71876).

Marbled murrelets were federally listed as a threatened species in Washington, Oregon and northern California on September 28, 1992 (USDI FWS 1992b). The species' decline is largely due to the removal of late-successional and old-growth coastal forests which provide nesting habitat to murrelets. The murrelet recovery plan (USDI FWS 1997) identified the primary threats to the species as: 1) predation, 2) loss of nesting habitat, 3) by-catch in gill-nets, and 4) oil pollution due to both chronic and major spills. The final rule designating critical habitat for the murrelet (USDI FWS 1996) became effective on June 24, 1996. The Service revised the critical habitat designation for murrelets effective November 4, 2011 (USDI FWS 2011a).

Consultation - Section 7(a) (2) of the Endangered Species Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its designated critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with Fish and Wildlife Service. No consultation with USFWS was necessary because there would be no effects from project activities that would impact ESA listed species.

Existing Condition of Threatened Species

Northern Spotted Owl (*Strix occidentalis caurina)*

Spotted Owl Critical Habitat

The project area is not within northern owl critical habitat as designated in the Federal Register on December 4, 2012 (77 FR 71876). Spotted owl critical habitat would not be impacted because the project site is not located in critical habitat.

Spotted Owl Surveys

The FAUNA database contains a spotted owl activity center within Section 22 which is the same section as the spur road creation. The last survey was conducted in 1993 and the last response from the spotted owl was twenty years ago in 1992. This is the closest activity center to the project; however the Mount Avery Spur Road project site is outside the 300 meter radius from the activity center. The next nearest activity centers on Forest Service land are over two miles away for the project site in Sections 18 and 30. The project area was surveyed in 2010 and no spotted owls were detected. The nature of the proposed action would retain the largest overstory trees in the analysis area (See Appendix A; PDC for wildlife).

Spotted Owl Habitat
The project area contains no dispersal or nesting, roosting and foraging (NRF) habitat for spotted owls, so there would be no removal of owl habitat. According to the Forest Service personnel, the last harvest date within the analysis area was 1979 and replanted in 1980 making the forest within the project area 33 years old. The harvest unit was 13.5 acres and currently the stand has typical young plantation characteristics with a dense shrub/scrub layer and a single layer open canopy with 40 trees of dbh of 14" to 16" within the project area (See Figure 8. Photo of Project Area).

Habitat features associated with forests used by spotted owls include multi-layered canopies, relatively high canopy closure, large diameter trees, and numerous snags and logs (Forsman 1982, Thomas et al. 1990). These stand features are related to requirements for feeding, nesting, and roosting (NRF) (Forsman 1982). Thomas et al. (1990) disclosed northern spotted owls' use of old-growth forests almost exclusively and rarely use clear cuts or young forest plantations. When young stands are used, they typically contain remnant large trees (Thomas et al. 1990). Where timber harvest has occurred, spotted owls are usually found in the remaining patches of old-growth and mature forest (Forsman 1982).

The Rogue River/South Coast Biological Assessment defines Nesting/Roosting/Foraging (NRF) habitat as >21" average diameter and >60% closed canopy (CC) (USDI FWS 2009c). Dispersal habitat is forested habitat with >11" average diameter trees and canopy closure >40%.

The proposed project is not within dispersal habitat for the northern spotted owl. The proposed action would maintain the canopy closure above 40 percent for analysis area of 3.14 acres while removing forty trees from the road prism of 0.11 acres.

Primary prey species of spotted owls are small mammals that include northern flying squirrels (*Glaucomys sabrinus*), dusky-footed woodrats (*Neotoma fuscipes*), and bushy-tailed woodrats (*N. cinerea*). They also prey on tree voles (*Arborimus* and *Clethrionomys*), mice (*Peromyscus* spp.), and other small mammals (USDI FWS 2011b).

Marbled Murrelet (*Brachyramphus marmoratus*)

Murrelet Critical Habitat
The project area is within designated marbled murrelet critical habitat**.**

Critical habitat for marbled murrelets was designated in May 1996 (61 FR 102:26256-26320). The FS has designated approximately 3.9 million acres of land as critical habitat, of which 78 percent (3.0 million acres) is located on Federal lands within the area covered by the NWFP. Critical habitat for marbled murrelets corresponds primarily to areas designated as Late-Successional Reserve in the Northwest Forest Plan (USDA and USDI 1994b).

The FS considers two components of murrelet habitat to be biologically essential: (1) terrestrial nesting habitat and associated forest stands and (2) marine foraging habitat used during the breeding season. Within areas essential for successful murrelet nesting, the FS has focused on the following primary constituent elements: (1) individual trees with potential nesting platforms and (2) forested areas within 0.5 miles of individual trees with potential nesting platforms, and with a canopy height of at least one-half the site potential tree height. Within the boundaries of designated critical habitat, only those areas that contain one or more primary constituent element are, by definition, critical habitat.

Murrelet Surveys
The nearest murrelet suitable nesting habitat is 50 yards from the project site. The stand has not been surveyed to protocol recently, so it's unknown whether murrelets are currently using it for nesting. The stand was surveyed in 1990; at that time no behaviors were seen which indicated nesting was occurring within the stand (occupied). The nearest known occupied murrelet site is about two miles north near the Sixes River. The current murrelet survey protocol (2003) is available at: http://pacificseabirdgroup.org/publications/PSG_TechPub2_MAMU_ISP.pdf or by contacting the Powers Ranger District.

Murrelet Habitat
As described above, the last harvest date within the analysis area was 1979 and replanted in 1980 according to FS personnel, making the forest within the project area 33 years old. The harvest unit was 13.5 acres and currently the stand has typical young plantation characteristics with a dense shrub/scrub layer and a single layer open canopy with 40 trees of dbh of 14" to 16" within the project area (See Figure 8. Photo of Project Area). The stand contains no trees with platforms which could serve as nesting platforms.

The marbled murrelet is a small seabird found from Alaska to California. The marbled murrelet spends most of its life at sea but typically nests in trees (Ralph et al. 1995, Csuti et al. 1997, USDI FWS 1997, Marshall 1988). The breeding season (egg laying, incubation, and fledging) for marbled murrelets in Oregon begins in late April and extends through the end of September (Hamer and Nelson 1995b).

Suitable habitat is generally 80 years old or more with trees averaging 32 inches DBH or more, with at least one platform > 5.9 inches in diameter containing nesting substrate (e.g., moss, epiphytes, duff) on that platform which has overhead protective cover (tree branch or foliage), and has an access route through the canopy that a murrelet could use to approach and land on the platform (USDI FWS 1997).

Range - The Mount Avery Spur Road project is about 12 miles from the ocean. In the Pacific Northwest, murrelets have been found as far inland as 53 miles (USDI FWS 1997).

Predation via corvids (crows, ravens, jays, etc.) and rodents is also considered a threat to reproductive success (Ralph et al 1995).

Management - Current management direction for the marbled murrelet comes from the Northwest Forest Plan ROD and the Marbled Murrelet Recovery Plan (USDA and USDI BLM 1994b, USDI FWS 1997). If surveys determine a stand is occupied, a Late-Successional Reserve is set up to protect all contiguous existing and recruitment habitat (stands that are capable of becoming marbled murrelet habitat within 25 years) within one-half mile of the occupied site.

Alternative 1 (No Action) Effects

Direct and Indirect

The no action alternative would not result in any change in levels of disturbance to spotted owl nest sites. No spotted owl pairs would be affected by disturbance to habitat. In the absence of large-scale disturbance (wildfire, insects, and disease) the densities of northern spotted owls would likely remain stable, notwithstanding other threats identified by the Sustainable Ecosystems Institute report (Courtney et al. 2004) which include barred owls and West Nile Virus. In addition, a no action alternative would not result in any change in levels of disturbance to the marbled murrelet habitat.

Alternative 2 (Proposed Action) Effects

Direct and Indirect – Northern Spotted Owl

This project would create **no effects** that could potentially impact northern spotted owls. There would be no habitat removal and project activites would not occur during the owl breeding period of March 1st to September 30th. Critical habitat would not be affected because the project is not within a critical habitat unit (CHU).

No suitable owl nesting, roosting, foraging habitat would be modified or removed. The site is not within dispersal habitat and the function of future habitat within the analysis area would be maintained.

No snags or down logs are proposed for removal. The removal of 0.11 acres of forest which could provide future snags and nesting habitat would not be a measurable effect on spotted owl.

Additional down wood (forty trees) would be created within the project area; however this would be an immeasurable beneficial effect to the listed species. Placement of the down wood may improve foraging habitat conditions for prey (USDI FWS, 2009d). Lemkuhl et al. (2006) confirmed the importance of maintaining snags, down wood and mistletoe.

The project area is within the 0.5 mile core area of one historical owl pair, but outside the 300 meter (70 acre) nest patch. Both the home range and core areas are above the minimum thresholds for NRF (40% and 50% respectively). There is the potential for disturbance to any dispersing spotted owls that may be moving through the project area searching for suitable habitat, or to any potential foraging spotted owls, within the disturbance limits identified in the mitigation measures (PDCs). If any spotted owls are discovered in the project area, the PDCs are

required, unless it is determined through protocol surveys that they are not nesting. Project Design Criteria would assure that no NRF habitat would be removed.

Noise and activity would not disturb any nesting owls as construction will take place outside of the breeding and nesting period.

Mitigation measures include all the project design criteria (PDC) from Section 7 consultation for fish and wildlife under the Endangered Species Act. PDC are designed to minimize potential detrimental effects to threatened species. Theses measures decrease the likelihood of activities impairing reproduction or substantially altering species behavior.

Direct and Indirect – Marbled Murrelet

The proposed project would create **no effects** that could potentially harm murrelets. Road construction and activities with noise above ambient levels would take place outside of the murrelet breeding and nesting period of April 1st to September 15th. No suitable nesting habitat would be removed or altered.

The project area is within a Critical Habitat Unit (CHU) and 0.11 acres of habitat would be modified; however, no primary constituent elements of murrelet nesting habitat would be impacted. The suitable murrelet habitat fifty yards from the proposed road would not be impacted. The 40 trees to be removes are lest than one-half of a site potential tree in height. Because of their low height and distance from the suitable habitat, no impacts from exposure or desiccation of trees are likely to occur.

The proposed construction would take place outside of the breeding and nesting period therefore there would be no potential for disturbing, via noise, undetected murrelets within the analysis area.

Cumulative Effects

Because the proposed action would have no effects on owls or murrelets, there would be no additional incremental impacts to either species.

3.7 R-6 Sensitive Wildlife Species

The Wildlife Biological Evaluation is incorporated by reference and available by contacting the Powers Ranger District or at http://www.fs.fed.us/nepa/fs-usda-pop.php/?project=36342.

Affected Environment

In compliance with the Forest Service biological evaluation process for proposed, threatened, endangered, and sensitive (PETS) wildlife species, the list of species potentially occurring within

the RRSNF was reviewed. The December 2011 Pacific Northwest Region (R6) listing of species applicable to the RRSNF was reviewed in regard to potential effects on any of these species by actions associated with the Mount Avery Spur Road project. The following determinations are made:

Table 7. R-6 Sensitive Species Known or Suspected to Occur on the RRSNF

R6 Sensitive Species	Habitat Presence?	Within Species Range?	Species Presence	Determination of Effects with mitigation
American peregrine falcon	No	Yes	Not present	NI
Bald eagle	No	Yes	Not present	NI
Harlequin duck	No	Yes	Not present	NI
Lewis' woodpecker	No	Yes	Not present	NI
White-headed woodpecker	Yes	No	Not present	NI
Northern waterthrush	Yes	No	Not present	NI
North American wolverine	Yes	No	Not present	NI
Pacific fisher	Yes	Yes	Suspected	NI
Pacific pallid bat	Yes	No	Not present	NI
Townsend's big-eared bat	Yes	Yes	Suspected	NI
Pacific fringed-tailed myotis	Yes	Yes	Suspected	NI
Northwestern pond turtle	No	Yes	Not present	NI
Oregon spotted frog	Yes	No	Not present	NI
Foothill yellow-legged frog	No	Yes	Not present	NI
Siskiyou mountain salamander	Yes	No	Not present	NI
California slender salamander	Yes	No	Not present	NI
Black salamander	Yes	No	Not present	NI
Siskiyou short-horned grasshopper	Yes	No	Not present	NI
Johnson's hairstreak	No	Yes	Not present	NI
Mardon skipper	No	Yes	Not present	NI
Coronis fritillary	Yes	No	Not present	NI
Insular blue butterfly	Yes	No	Not present	NI
Hoary elfin	Yes	No	Not present	NI
Franklin's bumblebee	Yes	No	Not present	NI
Siskiyou Hesperian	Yes	No	Not present	NI
Crater lake tightcoil	Yes	No	Not present	NI
Green sideband	No	Yes	Not present	NI
Traveling sideband	Yes	No	Not present	NI
Chace sideband	Yes	No	Not present	NI
Pacific walker	Yes	No	Not present	NI
Robust walker	No	Yes	Not present	NI
Scale lanx	Yes	No	Not present	NI
Highcap lanx	Yes	No	Not present	NI
Oregon shoulderband snail	Yes	No	Not present	NI
Evening fieldslug	Yes	No	Not present	NI
Western ridged mussel	No	Yes	Not present	NI
Tri-colored blackbird	Yes	No	Not present	NI
Purple martin	Yes	No	Not present	NI
California shield-backed bug	Yes	No	Not present	NI
Western bumblebee	Yes	No	Not present	NI
Gray-blue butterfly	Yes	No	Not present	NI
Caddisfly	No	Yes	Not present	NI

Haddock's rhyacophilan caddisfly	No	Yes	Not present	NI

NI = No impact
BI = Beneficial Impact
MIIH = 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
WIFV = 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.

The project area is outside the known range for the following species and they will not be discussed in this document further: **white-headed woodpecker, northern waterthrush, California wolverine, Pacific pallid bat, Oregon spotted frog, Siskiyou mountains salamander, California slender salamander, black salamander, Siskiyou short-horned grasshopper, insular blue butterfly, hoary elfin, Franklin's bumblebee, Siskiyou hesperian, Crater Lake tightcoil, Chace sideband, traveling sideband, Pacific walker, scale lanx, highcap lanx, Oregon shoulderband, evening field slug, tri-colored blackbird, purple martin, California shield-backed bug, Western bumblebee, and gray-blue butterfly.**

Description of Species Habitat and Management Requirements

American Peregrine Falcon (*Falco peregrinus anatum*)
The American peregrine falcon was federally listed as an endangered species in the 1970s and then delisted in 1999. Peregrine falcons are typically associated with cliffs, which serve as nesting and perching sites. Nest site criteria include ledges, potholes, and small caves that are near water, inaccessible to mammalian predators, and offer protection from rain and snow, and heat and cold. Peregrine falcons feed almost exclusively on birds.

Cliffs with suitable ledges provide nesting habitat for peregrine falcons. Peregrine habitat on the Siskiyou portion of the Forest is managed in accordance with the standard and guideline 4-5 of the Land and Resource Management Plan for the Siskiyou National Forest (1989). According to FS personnel, six active nests are known on the Siskiyou portion of the Forest. On 25 August 1999, the USDI (1999a) Fish and Wildlife Service removed (delisted) the American peregrine falcon throughout its range as a threatened species from the Federal List of Endangered and Threatened Wildlife, thereby removing all protections provided by the Act. A strategy for the 5-year monitoring plan that follows the delisting has been developed and is being implemented (FWS 2003). Evaluation of impacts of proposed actions on the peregrine falcon should follow the process described in FSM 2673.4 and be documented in the biological evaluation. If a proposed project may potentially impact the species or its habitat, surveys using the regional protocol should be conducted.

Present and foreseeable future actions that may affect terrestrial wildlife species or habitats on the Forest include: wildland fire, fuels treatments, developed and dispersed recreation, timber harvest and vegetation treatments, reforestation, restoration, road management, and special uses. All of these activities would be designed to meet the direction provided within the Northwest Forest Plan and the local land and resource management plans (i.e., Forest Plans), and in accord with Aquatic Conservation Strategy objectives (NWFP 1994, Siskiyou NF LRMP 1989).

Road access to the project area is not available to the general public; however, it is likely that if peregrine falcons are discovered on site that they are habituated to vehicular traffic due to the nearly constant truck activity on the private timber lands.

The Mount Avery Spur Road project is considered a **no impact** for the **peregrine falcon** because there are no known peregrine falcon sites within the project area and no suitable cliffs or habitat occur within the project area

Bald Eagle *(Haliaeetus leucocephalus)*
Bald eagles were listed as Endangered in Oregon and elsewhere by the FWS in 1967 (USDI FWS 1967). The bald eagle was removed from the federal list of endangered and threatened plants and wildlife by a ruling published in the Federal Register on July 9, 2007 and effective August 8, 2007 (72 FR37345). Bald eagles continue to be protected under the Bald and Golden Eagle Protection Act of 1940. The Act prohibits disturbance, recently defined by FWS as: *"to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior"* (50 CFR 22.3).

The Final Environmental Assessment Proposal to Permit Take Provided Under the Bald and Golden Eagle Protection Act (USDI 2009b) and Eagle Permits; Take Necessary to Protect Interests in Particular Localities; Final Rule (50 CFR Parts 13 and 22) finalizes permit regulations to authorize limited take of bald eagles and golden eagles under the Bald and Gold Eagle Protection Act.

Bald eagle habitat on the Rogue River-Siskiyou NF is protected and managed in accordance with the Pacific Bald Eagle Recovery Plan (USDI FWS 1986), and Standards and guidelines 4-3 and 4-4 of the Siskiyou National Forest Land and Resource Management Plan (USDA 1989). As part of the recovery plan, key nesting habitat areas have been identified on the Rogue River-Siskiyou NF along the Rogue, Illinois, and Sixes Rivers (USDI FWS 1986).

Most bald eagles nest within 0.6 to 1.2 miles of aquatic foraging areas, which is typically a lake, reservoir, large river, or coastal estuary (Anthony et al. 1982, Stalmaster 1987, Anthony and Isaacs 1989, Johnsgard 1990, Garrett et al. 1993). Nest trees are usually the dominant trees in the stand, often much larger than the surrounding trees (Anthony et al. 1982, Stalmaster 1987). The nest trees provide adequate support for the large nests, an open flight path to the nest, and a view of the surrounding terrain (Stalmaster 1987). Although bald eagles usually nest near water, they will search areas away from water to find suitable structure for their nest (Anthony et al. 1982, Stalmaster 1987). Young stands are avoided, but eagles do desire large openings in the canopy provided by lakes, rivers, and meadows (Stalmaster 1987).

Roosting and perching habitat is also important. Roost trees are often the largest trees in the stand (Anthony et al. 1982). When selecting roost trees, eagles choose trees providing greater shelter versus trees close to food. On the other hand, trees used for perching are usually near

water and food. Perches are used for resting, hunting, and eating. The species of tree is less important than the location and form of the tree (Stalmaster 1987).

Bald eagles require an abundant supply of food because of their large size. Bald eagles feed on fish, waterfowl, small mammals, and carrion (Stalmaster 1987, Johnsgard 1990). The specific diet may vary by season and location (Stalmaster 1987).

On the Rogue River-Siskiyou NF, major rivers provide the best habitat for bald eagles. The South Fork of the Sixes River is the nearest large river, approximately 0.75 miles SW of the project area. There are no known nests within the Powers Ranger District.

The Mount Avery Spur Road project is considered a **no impact** for the **bald eagle** because there are no known nests within the project area or the Powers Ranger District, and the project area has no trees large enough to support bald eagles.

Harlequin Duck *(Histrionicus histrionicus)*

The harlequin duck is a short-distance east-west migrant that moves to breeding streams from Pacific coastal areas (Cooper and Wright, 1998). Harlequin ducks migrate northward and inland in spring, arriving at their breeding areas in the intermountain western U.S. late-April through mid-May, with males departing for west coast molting areas soon after females begin incubating (Spahr et al. 1991). Breeding females move to the coast later depending on breeding success and whether or not females abandon young. Non-breeding females also remain on rivers through the incubation period. Successful females and juveniles arrive on the coast in mid to late September. Some coastal breeding populations are probably non-migratory (Cooper and Wright, 1998).

Breeding occurs primarily on the rivers in northern Oregon, with occasional records from the Umpqua drainage. Pairs are seen on breeding streams in greatest numbers between the second week of April and the end of May, though a few records of pairs can be found through June. Some of these late observations appear to represent late-nesting or non-nesting pairs (Dowlan 1996). In September 2007 a female with young was photographed on the Powers RD (J. Lowe 2012, pers. com.).

Inland, the harlequin duck dives for food in strong currents or fast-flowing streams, looking for prey on or near the bottom. Their diet is almost exclusively aquatic invertebrates, but also insects and a few small fish (Bellrose 1976).

Harlequin ducks typically nest on the ground in well-concealed locations, usually on mid-stream islands (Wiggins 2005). Occasionally harlequin ducks may nest up to 45m away from a stream, but nests are typically located close (within 10m) to water and have some degree of vertical cover close to the nest (Bruner 1997; Robertson and Goudie 1999). Nests may also be situated at the base of trees, on piles of woody debris, under fallen logs, or on sheltered banks (Robertson and Goudie 1999). They will sometimes nest beside mountain lakes and lake outlets. They tend to breed in the same area in successive years.

Suitable habitat for the species is not present in the Mount Avery Spur Road project area; however, suitable habitat does exist within the watershed outside of the project area. The Mount Avery Spur Road project is a **no impact** determination for the **harlequin duck** because suitable habitat for the harlequin duck does not exist in the project area.

Lewis' Woodpecker *(Menalerpes lewis)*
Lewis' woodpeckers are migratory in southwestern Oregon, with sporadically large populations in the winter and scattered breeding pairs in the summer reported. Gilligan et al. (1994) reports that they are common breeders in summer in Jackson and Josephine Counties but in the last 10 years they have not been documented and there are few recent breeding records (Janes et al. 2002). This species is closely tied to the ponderosa pine/oak savannah habitats of eastern and southwest Oregon.

Nests are often in large ponderosa pine snags or mature oaks while the birds forage on insects and acorn meat. In winter they store acorn meat in crevices in trees and power poles. Because this woodpecker does not usually excavate its own cavity, they have a close tie to older snags within the forest that are likely to contain cavities and have crevices for food storage.

The population of Lewis' woodpeckers has fallen dramatically across Oregon as pine – oak woodlands are lost (Gilligan et al. 1994). A contributing factor in the decline has been the spread of the European starling, which aggressively out-competes this species for available cavities. Habitat loss is due to a wide variety of concerns that include urbanization of valley floors, fire suppression and encroachment of conifer forests, timber harvest of pine components in the oak forests, etc.

Suitable habitat for the species is not present in the Mount Avery Spur Road project area; therefore, a **no impact** determination for **Lewis' woodpecker** has been made for this project.

Pacific Fisher (*Martes pennanti*)
Pacific fisher was petitioned for listing by the Center for Biological Diversity and several other environmental organizations in November 2000. After a 12 month review, the U.S. Fish and Wildlife Service found Pacific fisher to be a distinct population segment (DPS) and gave a "warranted but precluded" decision to the petition, designating the West Coast DPS a Federal Candidate species (USDA USDI 2004b). The fisher is one of the most habitat-specialized mammals in western North America (Buskirk and Powell 1994). Specialization appears to be tied primarily to denning and resting habitats. The varied diet of fishers suggests they may forage in a variety of habitats.

Cavities in both conifers and hardwoods are used by fishers for resting. However, to create suitable rest cavities, trees must be old enough to have suffered the type of stresses that create infection courts for heart rot fungi, and large enough to form cavities large enough to be used by fishers (Zielinski et al. 2004). Large trees also provide platform-type resting structures such as mistletoe brooms, clumped branches that support rodent nests, or rust brooms that can support the weight of fishers. Once these large trees die and fall, they become the type of log that fishers have been known to use as rest sites. Removal of understory and mid-story canopies around large

structures may also reduce the effectiveness of the structure as a secure rest site because they contribute to the microclimate of the site.

While fishers require structures provided by older aged or residual stands for denning and resting, they appear to use a wider variety of stands for foraging. Jones and Garton (1994) found that fishers did not use non-forested sites while resting or hunting, but they did use pole-sapling forests for hunting more than for resting. The inclusion of berries in the diet of fishers suggests that they do forage, at least occasionally or seasonally, in more open stands where many fruit-bearing shrubs and forbs are found. Fishers have not been detected in the project area and there are only 4 records of fisher observations for the Powers Ranger District.

Field reviews of the proposed action area identified a few large Douglas' firs with limb clusters outside of the project site which could potentially serve as rest sites for fisher during the winter period. Cavities which could serve as den sites were not detected in these trees. The project site did not have large, hollow down wood which could serve as maternal dens. Removing individual trees and conducting road maintenance is not likely to reduce denning/resting habitat effectiveness for fishers unless an active den tree is removed. (Aubry and Raley, 2006)

Given that the potential rest sites are outside of the project area and removing individual trees is not likely to reduce the effectiveness for fishers, a **no impact** determination for **Pacific fisher** has been made for this project.

Townsend's Big-eared Bat (*Corynorhinus townsendii*)
Townsend's big-eared bats can be distinguished by their enormous ears, up to 40 millimeters in length and by the glandular masses on their muzzles. They are medium sized and have dull, soft hair. Their backs vary from brown, grayish brown, to black, with paler undersides. Their ears are by far the largest ears of any bat along the Oregon coast. Their flight membranes are dark brown and very thin.

They occur in a wide variety of habitats, its distribution tends to be geomorphically determined and is strongly correlated with the availability of caves or cave-like roosting habitat (e.g., old mines) (Pierson et al. 1999). Saul and others (1977) found Townsend's big-eared bats roosting in a variety of structures in southwest Oregon: caves, bridges, abandoned mines, barns and houses. Suitable roosts sites and hibernacula fall within a specific range of temperature and moisture conditions. The species may also use tree cavities for night roosting.

Moths make up the majority of the diet for C. *townsendii*, but they will also ingest beetles, true bugs, and flies. Their flight is slow, and they are able to hover at a point that interests them. In addition to foraging on the wing, it will take insects from foliage.

The proposed project does not affect caves, mines, wooden bridges, or buildings. The Mount Avery Spur Road project would have **no impact** on the **Townsend's big-eared bat** because suitable habitat for this species would not be impacted.

Fringed Myotis (*Myotis thysanodes*)
Csuti et al. (1997) considered this species a cave-dwelling bat, even though most of the specimens they examined were from buildings. It appears to be adapted to living in areas with diverse vegetative substrates. In SW Oregon, *M. thysanodes* appears to be a snag obligate and they are known to roost within and under the bark of snags.

Current management direction is the Northwest Forest Plan ROD page C-43. This standard and guideline provides additional protection for caves, mines and abandoned wooded bridges and buildings that are used as roost sites for bats. There are no documented sightings for the area, however, they are known to occur in the coast range.

The proposed project does not affect caves, mines, wooden bridges, or buildings. By design, the project maintains and promotes the development of large trees, large snags and decadent trees which could serve as roosting habitat. The Mount Avery Spur Road project would have **no impact** on the **fringed myotis** because suitable habitat for this species would not be impacted.

Northwestern Pond Turtle (*Emmys marmorata marmorata*)
Northwestern pond turtles are capable of living in a wide variety of aquatic habitats. The northwestern pond turtle inhabits marshes, ponds, lakes, reservoirs, sloughs, and slow moving portions of creeks and rivers (Nussbaum et al. 1983, Stebbins 1985, Brown et al. 1995). Pond turtles may also be found in abandoned gravel pits, stock ponds, and sewage treatment plants (Holland 1994). In the Rogue River drainage, records of pond turtle sightings are almost equally divided amongst rivers, larger-order streams, and small ponds (Holland 1994).

The size of habitats used by northwestern pond turtles is quite variable from place to place. Turtles have been observed using small ephemeral ponds only a few square meters in size (Holland 1994). On the other hand, turtles are also known to live in Upper Klamath Lake which covers an area of several dozen square kilometers. In areas where water is present only part of the year, turtles aestivate in the mud in the watercourse or in upland areas during late summer or early spring (Holland 1994). Pond turtles seem to prefer areas that possess some type of refugia such as undercut banks, submerged vegetation, rocks, logs, or mud (Nussbaum et al. 1983, Stebbins 1985, Holland 1994, Brown et al. 1995). Areas containing basking sites for thermoregulation such as rocks, logs, or emergent vegetation are also preferred (Nussbaum et al. 1983, Stebbins 1985, Holland 1994, Brown et al. 1995). Partially submerged logs, vegetation mats, mud banks, rocks, and tree branches provide areas for sunning (Nussbaum et al. 1983, Stebbins 1985).

There is no habitat for northwestern pond turtles within the project area; therefore, a **no impact** determination for **northwestern pond turtle** has been made for the project.

Foothill Yellow-legged Frog (*Rana boylii*)
Foothill yellow-legged frogs live in sections of low-gradient streams with exposed bedrock or rock and gravel substrates. They lay their eggs in late spring or early summer, and they attach them to the bottom of quiet scour-pools or riffles in gentle-gradient streams, often where there is only slight flow from the main river. Hatchlings cling to the egg mass initially, and then to rocks.

Tadpoles live in pools that often have a connection to the main river flow, but little or no silt. Froglets live in pools with gravel and cobbles.

Adults live in pool edges (often in a deep pool with sedge clumps around the edge), in bedrock at the edge of the main channel or under cobbles at the bottom of the pool (Corkran and Thoms, 1996). This is mainly a frog of rocky or gravelly streams in southwestern Oregon and is seldom seen far from water. Habitat is confined to the immediate vicinity of permanent streams below 1800 feet, including those that may be reduced to waterholes connected by trickles during the dry season (Nussbaum et al. 1983). The FAUNA database contains no records of sightings of foothill yellow-legged frog in the Mount Avery Spur Road project area.

The Mount Avery Spur Road project would have **no impact** on the **foothill yellow-legged frog** because no suitable habitat for this species is within the project area.

Johnson's Hairstreak *(Callophrys johnsoni)*
This small brown butterfly occurs in isolated pockets in the western mountains of California up into British Columbia. At lower elevations on the west slope of the Cascade Mountains and in the Coast Range, *M. johnsoni* feeds on *Arceuthobium tsugense* growing on large mature western hemlock in old growth forests. Butterflies fly in the forest canopy most of the time, but may nectar on flowers in open areas along roadsides. At higher elevations in the Cascade Mountains, this species feeds on *A. abietinum* growing on true firs in subalpine forests. Southward, *M. johnsoni* is particularly associated with an *Arceuthobium* growing on Brewer spruce at high elevations in the Siskiyou Mountains of southwestern Oregon and northwestern California (Miller and Hammond 2007). On the RRSNF, range maps indicate a population in the coastal mountains of Coos, Curry and Josephine counties.

This butterfly is an old growth obligate and spends much of its time in the tops of mature conifer forests, making survey efforts extremely difficult. They do nectar on some plants, like Oregon grape and males come into damp earth sites, such as seeps and springs. Caterpillars feed on pine dwarf mistletoe (*Arceuthobium campylopodum*) which grows on pines and others conifers. It is also known to use coastal hemlock mistletoe. Timber harvest of mature forests may be a potential threat to this species (NatureServe 2010).

Mistletoe was not identified within the forty trees that would be removed from the project area; therefore, the Mount Avery Spur Road project would have **no impact** on the **Johnson's hairstreak** because no suitable habitat for this species is within the project area.

Mardon Skipper (*Polites mardon*)
Mardon skippers are univoltine, completing one life cycle annually. Adults typically emerge between May and July, but possibly later at higher elevations. A unique feature of this species is that it is reported as spending its entire life cycle in one location, without migration. Its dispersal distance is unknown. Eggs are laid into tufts of *Festuca* spp. bunchgrass upon which the larvae feed for approximately 3 months (USDA and USDI BLM 2007).

Adult skippers feed on nectar from a variety of herbaceous plants though they also make use of other grass/forbs including such species as common camas (*Camassia quamash*), western buttercup (*Ranunculus occidentalis*), and Idaho blue-eyed-grass (*Sisyrinchium idahoense*). The southern Oregon populations are reported as occupying small (0.5 – 10 ac.) high-elevation (4,500 – 5,100 ft.) grassy meadows with mixed conifer forests.

Surveys into areas neighboring known populations has expanded knowledge considerably from 37 known in 1999 to over 60 sites in 2004. Additional surveys in 2005 located approximately 11 additional sites in Oregon, and one additional site on the Cowlitz Valley Ranger District, Gifford Pinchot National Forest. In 2005, four new Mardon skipper sites were located on Rogue River National Forest lands 6.5 km north of Medford District BLM sites in the southern Oregon Cascades. The 2007 total of approximately 73 sites is almost double the number of sites known in 1999. However, this increase is likely not due to increased habitat or expanding populations, but instead due to increased survey effort in areas not previously surveyed (Kerwin and Huff 2007). Occupied sites in Curry County have all been in wet serpentine meadow with adjacent dry meadow habitat. These habitat characteristics do not occur in the project area. No records currently exist for the Powers Ranger District.

There are no meadows in the project area and the action alternative is not expected to impact Mardon skipper habitat and is very unlikely to affect individuals; therefore, the Mount Avery Spur Road project is considered **no impact** for **Mardon skipper**.

Green Sideband (*Monadenia fidelis beryllica*)
All known sites of this terrestrial snail currently occur in Curry County, Oregon. The type locality is in a patch of trees and brush near the mouth of the Pistol River, Curry Co., OR. Other areas with reported locations for this species include Port Orford, and "between the Sixes River and Winchuck River, mostly in sites near the Coast or west side of southern Oregon Coast Range. This is the dominant Monadenia on the west side of the Coast Range from Pistol River to the Winchuck River. It does not appear in adjacent California" (USDI BLM 2008), where *Monadenia fidelis pronotis* and *Monadenia fidelis smithiana* replace this taxon. Specimens which may be M. f. beryllica have also been collected in the Roseburg District BLM, in the Middle Fork Coquille River watershed (USDI BLM 2008).

Habitat generally occurs in stands with deciduous trees (including alder) and brush in wet, relatively undisturbed forest; at low elevations; and also in low coastal scrub. Habits include seasonal climbing of trees in riparian areas and shelter in deep forest floor litter (USDI BLM 2008).

The Mount Avery Spur Road project would have **no impact** on the **green sideband** because no suitable habitat for this species is within the project area.

Robust Walker (*Pomatiopsis binneyi)*
The robust walker is a small semi aquatic snail found in high flow protection areas of perennial seeps, rivulets, mud banks and marsh seepages. It is a southwest Oregon and northwest California coastal endemic with very limited potential range. In Frest and Johannes (2000),

collection of this (or a similar taxon) in Curry County, Oregon as far as twelve miles from the coast is noted. In 1998, specimens resembling this taxon were noted by Frest from several sites in Curry County, notably from the Winchuck River drainage. There is a possibility of more widespread occurrence; but searches in more interior drainages, specifically in its narrow habitat, as well as the limited nature of that habitat, suggest that the taxon will continue to be very rare and confined to the coast proper and the west side of the Coast range at low elevations (USDI BLM 2008). In southwest Oregon, sites for this species have been documented in southern Curry and Jackson Counties on federal land in the Chetco and Winchuck River basins on the Chetco Ranger District. Sites have also been documented in the Josephine Creek watershed of the Illinois River basin in the Illinois Valley Ranger District of the Siskiyou National Forest. There is one location in Coos County (USDI BLM 2011b).

Robust walkers are not likely to occur in the project area because their primary habitats are perennial seeps, rivulets, mud banks and marsh seepages which are not found within the project area. Therefore, the Mount Avery Spur Road project is considered **no impact** for the **robust walker**.

Western Ridged Mussel (*Gonidea angulata*)
The western ridged mussel occurs in all sizes of streams within mid to low elevation watersheds, inhabiting mud, sand, gravel, and cobble substrates. They can tolerate moderate amounts of sedimentation, but are usually absent from habitats with highly unstable or very soft substrates (USDI BLM 2008).Western ridged mussels have been found in the Rogue, Umpqua and Willamette rivers of Oregon, however, it most abundant in the large tributaries of the Snake River and Columbia River in Washington, Idaho, and Oregon. Western ridged mussels are not known from the Elk and Sixes Rivers, but there are sites in the Rogue River.

The Mount Avery Spur Road project would have **no impact** on the **western ridged mussel** because no suitable habitat for this species is within the project area.

Caddisfly (*Namamyia plutonis*)
This caddisfly is a small, dull-colored moth-like insect. The habitat of this species is small, cool, densely forested streams in old-growth or mature forest watersheds (Wiggins 1996). Odontocerid larvae generally burrow under gravel, sand, or silt (Wiggins 1996); this species has been found in core samples taken from areas of coarse gravel intermixed with silt and organic sediments (Anderson 1976).

This species is restricted to the Coastal and Cascade Ranges of Oregon and California, occurring as far south as Kern Co., CA. In Oregon it is known from Benton, Curry, Jackson, Josephine, Lane, and Marion counties. Populations appear to be patchily distributed and exceedingly localized. Fewer than 30 total locations are currently known and it is not abundant at any location (Wisseman 1991). Forest Service and BLM have documented occurrences from the Rogue River, Siskiyou, Siuslaw, and Willamette National Forests (Anderson 1976), including a recent occurrence in Siskiyou National Forest (Borgias and Wisseman 1999).

The Mount Avery Spur Road project would have **no impact** on the ***N. plutonis*** **caddisfly** because the project area does not have a water or riparian component and no suitable habitat for this species.

Haddock's Rhyacophilan Caddisfly (*Rhyacophila haddocki)*
Rhyacophila is a large genus of primitive caddisflies that resemble small moths and are usually associated with small cool or cold mountain streams where their diversity is greatest. Fifty species of *Rhyacophila* have been recorded from Oregon, 28 from Marys Peak in Benton County (Wisseman 1991).

Larvae of this genus are free-living and largely carnivorous. The larvae and pupae require cool, well aerated microsites which are free of excessive accumulations of fine sediments to develop. Pupae occur on the underside of cobbles found at the base of riffles, cascades, or bedrock chutes (Wisseman 1991). The non-feeding adults typically perch on riparian vegetation near the larval habitats. Regardless of habitat, caddisfly adults tend to remain near the emergence site (Hermann, 1990) where oviposition occurs.

Rhyacophila haddocki has been collected from a large, wet seep on the Siskiyou National Forest in Curry County, Oregon (Giersch 2002). The Elk River site in Curry County is within the boundaries of the Siskiyou National Forest (~ 200 to 400 feet elevation). The adult specimens were collected near a large seep that joins the Elk River, about 1.5 miles above the Elk River Fish Hatchery. The area consists of very steep, rugged terrain and dense vegetation (USDA FS 1998b).

The Mount Avery Spur Road project would have **no impact** on the **Haddock's rhyacophilan caddisfly** because the project area does not have water or riparian components and no suitable habitat for this species.

3.8 Management Indicator Species

The wildlife biological evaluation is incorporated by reference and available by contacting the Powers Ranger District or at http://www.fs.fed.us/nepa/fs-usda-pop.php/?project=36342.

Management Indicator Species (MIS) associated with the Siskiyou NF LRMP (USDA 1989) represent the issues, concerns, and opportunities to support recovery of Federally-listed species, provide continued viability of sensitive species, and enhance management of wildlife and fish for commercial, recreational, scientific, subsistence, or aesthetic values or uses. A complete Wildlife Report (incorporated by reference) contains more detail on MIS.

Affected Environment

Management indicators representing overall objectives for wildlife, fish, and plants may include species, groups of species with similar habitat relationships, or habitats that are of high concern (FSM 2621.1). An indicator species represents all other wildlife species which utilize a similar habitat type. Indicator species act as a barometer for the health of various habitats and will be

monitored to quantify habitat changes predicted by implementation of the Forest Plan (1989 pages IV-10 and 11, FEIS page III-102).

The Forest has developed the Siskiyou National Forest MIS Forest-Wide Environmental Baseline and Species Account (Draft: USDA Forest Service) to which this document incorporates by reference. Please refer to this document for background information that includes a more exhaustive review of habitat use and ecology, distribution of the species, Forest-level habitat evaluations, and viability assessments.

Table 8. Management Indicator Species and Determination Effects

Species	Determination of Effects
Osprey	No Impact
Pileated Woodpecker	No Impact
Woodpeckers (others)	No Impact
American Marten	No Impact
Black-tailed deer	No Impact
Roosevelt elk	No Impact
Bald Eagle	No Impact
Northern Spotted Owl	No Impact

MIS and habitats include bald eagle (habitat along major rivers), osprey (habitat along large rivers), spotted owl (late-successional forest), pileated woodpecker and American marten (mature/interior forest), black-tailed deer and Roosevelt elk (early successional forest stages), and woodpeckers/cavity nesters (wildlife trees [snags]). Bald eagle and spotted owl are discussed in an earlier section.

Osprey *(Pandion haliaetus)*
Osprey are closely associated with open water (lakes, rivers, and streams). Ospreys historically have required large live trees (usually with broken tops) or large snags for nesting. However, by the mid-1970s they had begun to use artificial nest platforms, poles and other man-made structures (Marshall et al. 2003). Ospreys arrive during early spring (March), nest, and then leave for wintering grounds by October. Their primary diet includes fish and lamprey, which they hunt while in flight. Nests in Oregon are usually located within 2 miles of water and accessible fish populations (Marshall et al. 2003).

Road construction and activities are not likely to occur near any undiscovered nests, because the locations are not close to bodies of water where osprey are likely to nest. Removal of mature trees, unless determined a hazard, is not expected to occur during the project operations. Therefore it is unlikely that a potential nest tree would be removed or impacted. Therefore, a **no impact** determination to osprey has been made for the action alternative.

Pileated Woodpecker *(Dryocopus pileatus)*
Pileated woodpeckers are generally associated (feeds and breeds) with the Mixed forest habitat type, and is present in the Oak habitat type. Pileated woodpeckers use mature and older, closed canopy stands for nesting and roosting, but may use younger (40-70 years), closed-canopy stands for foraging if large snags are available; large snags and decadent trees are critical habitat

components for pileated woodpeckers; down logs do not appear to be an important foraging substrate for pileated woodpeckers on the west side of Oregon and Washington (Hartwig et al. 2004, Mellen et al. 1992, Raley and Aubry 2006).

In the Coast Range of western Oregon, pileated woodpeckers preferred deciduous riparian habitats and forest stands > 40 years of age for foraging, however, nests and roosts were located only in forest stands > 70 years of age (Mellen et al. 1992). Nests were predominantly in broken topped snags; Douglas-fir was the primary species used, with a few nests in red alder. Roosts were in snags and live trees and vastly larger in dbh than nest trees; Douglas-fir was the predominant species used, but also red alder, big-leaf maple, and western red cedar (Mellen 1987).

The selected alternative for the Northwest Forest Plan was determined to meet the NFMA requirement to provide for a diversity of plant and animal communities (USDA and USDI 1994a). The pileated woodpecker was one of 36 birds determined to be closely associated with late-successional and old-growth forests, with occurrence of large snags necessary for optimal habitat (USDA and USDI 1994b; 3&4-177). A viability assessment was completed by the Forest Ecosystem Management Assessment Team (FEMAT) (1993). The viability outcome for the pileated woodpecker was 100 percent likelihood of Outcome A – "Habitat is of sufficient quality, distribution, and abundance to allow the species population to stabilize, well distributed across federal lands" (USDA and USDI 1994b; 3&4-179). This outcome determination was based on provisions of: 1) a large system of late-successional reserves, 2) standards and guidelines for Riparian Reserves, and 3) retention of green trees, snags, and coarse woody debris within the matrix.

The Forest Service has been implementing the NWFP and monitoring late-successional habitat trends since 1994. The 10-year monitoring report (Haynes et al. 2006) states "…it appears that the status and trends in abundance, diversity, and ecological functions of older forests are generally consistent with expectations of the Plan. The total area of late-successional and old-growth forest (older forests) has increased at a rate that is somewhat higher than expected, and losses from wildfires are in line with what was anticipated." As a result, projects consistent with the NWFP should be expected to maintain viability of late-successional associated species such as the pileated woodpecker.

The action alternative calls for forty trees to be removed for the creation of the 330 foot spur road. There are no identifiable snags within the project area and no cavities within the trees that would be removed. The forty trees would be removed by the root wad and strategically placed down the slope in the project area that would have woodpecker value as down wood foraging habitat. This project is expected to have **no impact** to the **pileated woodpecker**, but there is the slight potential that an occasional existing snag or tree with cavities that was overlooked or recently created may be impacted.

Woodpecker Group

The **woodpecker group** includes acorn, black-backed, downy, hairy, Lewis', and white-headed woodpeckers, as well as northern flickers and red-breasted sapsuckers. These species are

generally associated (feeds and breeds) with oak woodland, mixed forest, and/or grassland habitat types. Woodpeckers excavate nests in snags and trees. They also forage in decayed wood.

Acorn Woodpecker *(Melanerpes formicivorus)***:** This species is common in the Rogue Valley and adjacent hills and was thought to be likely extirpated in Coos Co, although a likely wandering or vagrant individual was observed for a period of 4 days in Powers during the spring of 2011 (Lowe pers. Obs. 2011). Typically restricted to oaks, mixed conifer/oak, and tanoak, but uses adjacent stands (Marshall et al. 2003).

Black-backed Woodpecker *(Picoides arcticus)***:** This species is rare to locally common near the summit and on the west side of the Cascades. The westernmost extent of its range is in the Siskiyou Mountains. It has been found in most types of conifer forests but observations increase dramatically if the forest contains a high proportion of dead trees. It is most abundant in recently burned or beetle killed forests.

Downy Woodpecker (*Picoides pubeseus*): This species is found mostly at low to moderate elevation in deciduous and mixed deciduous-coniferous forests, and less often in coniferous forests (Marshall et al. 2003). All but one of several nest reports from Oregon were in dead trees. A preference is shown for decayed wood for nesting, though sound wood is also utilized (Marshall et al. 2003).

Hairy Woodpecker (*Picoides villosus*): This species is resident in forests throughout Oregon with the exception of juniper. It is common throughout most of range, but uncommon to fairly common along the coast and in western interior valleys. Found primarily in mixed-conifer and ponderosa pine forests, as well as adjacent deciduous stands, especially during the breeding season (Marshall et al. 2003).

Lewis' Woodpecker *(Melanerpes lewis)***:** This species is associated with open woodland habitat near water. Primarily breeds in Oregon white oak, ponderosa pine, and riparian cottonwood communities and important components of this breeding habitat include open woodland canopy and large-diameter dead or dying trees. Formerly widespread, it is currently common year-round only in the white oak-ponderosa pine belt east of Mt. Hood (Marshall et al. 2003).

White-headed Woodpecker *(Picoides albolarvatus)***:** This species occurs mainly in open ponderosa pine or mixed-conifer forests dominated by ponderosa pine. A small population exists in true firs in the Siskiyou Mountains southwest of Ashland. In addition to uncut old-growth, they commonly use areas which have undergone various silvicultural treatments if large-diameter ponderosa pine and other old-growth components remain (Marshall et al. 2003).

Red-breasted Sapsucker *(Sphyrapicus ruber)***:** This species is found in moist coniferous coastal forest and mixed deciduous-coniferous forest west of the Cascade crest. Studies in the Oregon Cascades, Coast Range, and S. Washington Cascades showed increasing abundance with stand age and a close association with old-growth forest. Nest cavities are typically in large snags or live trees with decayed interiors (Marshall et al. 2003).

Northern Flicker (*Colaptes auratus*): Northern flickers are a common resident throughout Oregon (Marshall et al. 2003). Northern flickers may be encountered in almost any terrestrial habitat, but are generally most abundant in open forests and forest edges adjacent to open country. They typically avoid dense forest (Marshall et al. 2003). Most nests in forested areas are in older open forests, along older forest edges, and in larger-diameter remnant snags (Marshall et al. 2003).

The action alternative calls for forty trees to be removed for the creation of the 330 foot spur road. There are no identifiable snags within the project area and no cavities within the trees that would be removed. The forty trees would be removed by the root wad and strategically placed down the slope in the project area that would have woodpecker value as down wood foraging habitat. This project is expected to have **no impact** to these species, but there is the slight potential that an occasional existing snag or tree with cavities that was overlooked or recently created may be impacted.

American Marten *(Martes americana)*
Hargis et al. (1999) stated that in North America, American martens are closely associated with mature conifer stands with complete canopy closure, and small (<100m), limited, and interspersed openings that are used as forage areas. Thomas et al. (1993) and Forest Ecosystem Management Assessment Team (FEMAT 1993) list marten as "closely associated" with late-successional and old-growth forests and the old-growth elements of large snags and down logs.

The reports also indicate a strong relationship of marten with riparian areas. Buskirk (1992) reported that knowledge is almost completely lacking regarding behavioral or population responses of martens to such landscape attributes as stand size, stand shape, area of stand interiors, amount of edge, stand insularity, use of corridors, and connectivity.

Marten use a variety of structures for rest and den sites. Resting and denning sites offer protection from predation and thermal stress; thus, availability of quality denning sites likely increases the rates of survival and fecundity in marten (Raphael and Jones 1997).

In northwestern California, Slauson and Zielinski (2009) found marten rest sites primarily in old-growth stands, which were used disproportionate to their availability. In serpentine habitats, rock piles and shrub clumps made up 42% of rest sites.

The diet of American marten is highly diverse. In the western United States in winter, most prey are captured beneath the snow surface, but squirrels may be caught in trees (Buskirk and Ruggiero 1994). Snags, downfall, and large woody material provide cover, denning sites, and access points to forage areas below the snow (subnivean habitat).

Zielinski and Duncan (2004) found that in the southern Sierra Nevada, diets of both marten and fisher were more diverse than previously reported for North America. Of the major taxonomic groups, mammals were most common followed by insects and plants (mostly fruits).

The FAUNA database contains no observations of marten within the project area and only 16 for the entire Powers Ranger District between 1979 and 1997, and none since.

The removal of forty trees may reduce existing canopy closure minimally, but would not result in a reduction of denning, resting and foraging habitat. The forty trees will be removed by the root wad and placed strategically down slope within the project area providing additional habitat for the marten per PDC on wildlife in Appendix A. The Mount Avery Spur Road project is considered **no impact** for **marten.**

Black-tailed Deer *(Odocoileus hemionus columbianus)*
Black-tailed deer are an edge adapted species using dense hiding cover during the day, emerging in the morning and evening to feed in more open areas (Maser et al. 1981). Throughout much of western Oregon, black-tailed deer reside year-round in relatively flat areas at mid to low elevations, on south facing slopes dominated by vine maple (*Acer circinatum*), huckleberry (Vaccinium spp), and salal (*Gaultheria shallon*) plant communities (Oregon Department of Fish and Wildlife, 2008).

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

Quality deer ranges provide both forested conditions for thermal regulation and hiding/escape cover interspersed with open areas for optimal foraging conditions. Decreased canopy closure in young stands should provide increased light and resources for forage plants.

The effects of all alternatives on black-tailed deer habitat would be inconsequential at the scale of the Forest. Therefore, all action alternatives for the Mount Avery Spur Road project are consistent with the Forest Plan, and thus continued viability of black-tailed deer is expected on the Siskiyou portion of the Rogue River-Siskiyou National Forest. The Mount Avery Spur Road project is considered **no impact** for **black-tailed deer.**

Roosevelt Elk (*Cervus elaphus roosevelti*)
Summer Roosevelt elk forage consists of a combination of lush forbs, grasses, and shrubs high in nutrients and easily digestible. Generally, higher elevation wet meadows, springs, and riparian areas in close proximity to forested stands offer these conditions for the longest period. Such areas provide nutritious forage and moist, cool places for bedding and escaping summer heat and insects (Oregon Department of Fish and Wildlife, 2003).

Elk achieve peak body condition during late summer and fall. Winter survival depends on fat reserves animals are able to store, thus, quality forage during summer and fall is crucial. Additionally, this forage is needed to meet the rigors of breeding and migration for those animals moving to winter ranges. The late summer/fall period can be critical on many elk ranges during drought years (Oregon Department of Fish and Wildlife, 2003).

Winter is when elk survival is severely tested. Day length shortens, temperatures drop, and rain and snow increase. Forage becomes less abundant and accessible, and nutritional quality declines. Elk energy requirements can be high, and during this time they are dependent on stores of body fat. At this time they increasingly seek out an environment that helps minimize energy consumption. Such areas typically provide protection against weather and offer security for minimizing harassment or disturbance. During a typical winter, elk may lose 20 to 25 percent of their body weight. Elk losing more than 30 percent body weight likely will not survive (Oregon Department of Fish and Wildlife, 2003).

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

The effects from the proposed action on elk habitat would be inconsequential at the scale of the Forest. Activities would maintain viability of elk habitat. The Mount Avery Spur Road project is considered **no impact** for **Roosevelt elk.**

3.9 Northwest Forest Plan Wildlife Species

The Wildlife Biological Evaluation is incorporated by reference and available by contacting the Powers Ranger District or at http://www.fs.fed.us/nepa/fs-usda-pop.php/?project=36342.

The Mount Avery Spur Road project is consistent with the January 2001 *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (2001 ROD).

A. Northwest Forest Plan Survey and Manage Species

This project utilized the December 2003 species list. This list incorporates species changes and removals made as a result of the 2001, 2002, and 2003 Annual Species Reviews with the exception of the red tree vole, *Arborimus longicaudus*. For the red tree vole, the Ninth Circuit Court of Appeals in *KSWC et al. v. Boody et al*., 468 F3d 549 (9th Cir. 2006) vacated the category change and removal of the red tree vole in a portion of its range, and returned the red tree vole to its status as existed in the January 2001 Record of Decision and Standards and Guidelines, which makes the species category C throughout its range.

In addition, there are no species receiving special consideration as directed in the May 13, 2014 Regional Forester letter. We reviewed all species and determined there are no known sites or suitable habitat that would be impacted by project activities.

Table 9. NWFP Survey and Manage Species Determination Effects

Survey and Manage Species	Action (2)	Comments
Great gray owl	NI	No suitable habitat impacted
Del Norte salamander	NI	No suitable habitat impacted
Red tree vole	NI	No suitable habitat impacted
Legend NI = No impact M = May affect some individuals or some habitat but effect is minimal to these species.		

Great Gray Owl (*Strix nebulosa*)
Within the range of the northern spotted owl, the great gray owl is most common in lodgepole pine forests adjacent to meadows. However, it is also found in other coniferous forest types. In some locations, such as on the Willamette National Forest west of the crest of the Cascade Range, at least some harvesting seems to be beneficial for the species by opening up otherwise closed canopy cover for foraging. In doing so, consequences to species such as northern goshawk and American marten must be evaluated. Specific mitigation measures for the great gray owl, within the range of the northern spotted owl, include the following: provide a no-harvest buffer of 300 feet around meadows and natural openings and establish 1/4-mile protection zones around known nest sites. Within one year of the signing of the [NWFP 1994] Record of Decision for these standards and guidelines, develop and implement a standardized protocol for surveys; survey for nest locations using the protocol. Protect all future discovered nest sites as previously described.

The FAUNA database contains one incidental sighting of a great gray owl within the Siskiyou portion of the Rogue River-Siskiyou National Forest but outside of the boundary for Powers Ranger District. The Mount Avery project is outside the known range of the great gray owl and therefore will have **no impact** to the species.

Del Norte Salamander *(Plethodon elongates)*
This species occurs in talus slopes protected by overstory canopy that maintains cool, moist conditions on the ground. The species is a slope-valley inhabitant, and sometimes occurs in high numbers near riparian areas. Riparian Reserves, in combination with Late-Successional Reserves and other reserves, will offer some protection to the species but substantial numbers also occur in upland areas.

The project area contains no talus slopes or suitable habitat for this species; therefore there would be **no impact** to the Del Norte salamander.

Oregon Red Tree Vole (*Arborimus longicaudus*)
The Oregon red tree vole is a nocturnal, arboreal mammal specialized in feeding on needles of Douglas-fir and other coniferous trees (Maser 1998). The species is endemic to western Oregon (Verts 1998) primarily in coniferous forests of western Oregon (Csuti et al. 1997, Maser 1998).

Red tree voles are most commonly found in Douglas-fir but may also be found inhabiting Sitka spruce and western hemlock in coastal areas. Red tree voles are usually associated with old-growth forests; however, they may occur in younger stands and may not be dependent on old growth for survival (Corn et al. 1988, Aubry et al. 1991, Corn and Bury 1991, Gilbert and Allwine 1991). Nests are constructed of twigs and discarded resin ducts in the canopy of larger trees (Csuti et al. 1997, Maser 1998). Larger trees, at least 25 to 30 years old, are selected because they can provide the structural support for nests as well as adequate protection from inclement weather.

In southwestern Oregon, the largest available trees are selected for nesting, even in old growth (Carey 1991). Abandoned nests of birds and other small mammals are also used (Maser 1998). The home range of the red tree vole is one or more trees (Brown 1985) and they can spend their entire lives in the forest canopy (Carey 1991).

Based upon direction in the *Survey Protocol for the Red Tree Vole* (Huff et al, 2012), surveys are not required because the stand does not meet the requirements for suitable habitat. Suitable habitat within the project area is within the mesic zone and requires tree arithmetic mean diameter ≥16" which is larger than the stand within the project area (Huff et al, 2012). There would be **no impact** on Oregon red tree voles because no suitable habitat would be removed. Road development would preclude an inconsequential amount (0.11 acres) of future habitat from developing.

B. Protection Buffer Species

Under the 2001 ROD, Standard and Guidelines for certain cavity nesting birds and some bat roosts (protection buffer species) were identified as in the NWFP, 1994. Species potentially in the project area include bats that use caves, mines, and abandoned wooden bridges and buildings and the black-backed woodpecker (*Picoides arcticus*). Other protection buffer species: Canada lynx (*Lynx canadensis*), flammulated owl (*Otus flammeolus)*, and pygmy nuthatch (*Sitta pygmaea)* were not considered because the Mount Avery Spur Road project is outside the known range for their species.

Table 10. Protection Buffer Species Determination Effects

Protection Buffer Species	Action (2)	Comments
Bats (fringed, long-eared, and long-legged myotis, silver-haired, pallid, and Townsend's big-eared bats)	NI	No snags or trees with cavities will be removed.
Black-backed woodpecker	NI	No snags or trees with cavities will be removed.
Legend NI = No impact		

Bat spp.

This section is regarding bats that use caves, mines and abandoned wooden bridges and buildings. By design, the project maintains and promotes the development of large trees, large snags and decadent trees which could serve as roosting habitat within the analysis area, but outside of the footprint of the proposed spur road. No snags will be felled with this project and

the project does not affect caves, mines, wooden bridges, or buildings, therefore the project is considered **no impact** to bats.

Black-backed woodpecker (*Picoides arcticus*).
This species is moderately associated with the major mixed conifer-hardwood forest habitat and is closely associated with the grass/forb-open structural condition within a recently burned forest with numerous standing trees and/or snags. No snags will be removed from the project area and the project area is not considered suitable habitat for this species therefore the project is considered **no impact** to the black-backed woodpecker.

3.10Neo-Tropical Migratory Birds/Landbirds (NTMB)

The Wildlife Biological Evaluation is incorporated by reference and available by contacting the Powers Ranger District or at http://www.fs.fed.us/nepa/fs-usda-pop.php/?project=36342.

Background and Analysis Framework

In 1918 the Migratory Bird Treaty Act (MBTA) was passed to enforce a treaty between the United States, Mexico, and Canada. This law addressed the issue of poaching migratory birds - Under the M33TA, except as permitted by regulation, it is unlawful at anytime, by any means or in any manner, to pursue, export, import, transport, or carry any migratory bird. It is the position of the Federal Government that the prohibitions of the MBTA do not apply to land management activities of Federal agencies or their employees acting in their official capacities.

In September, 2000, the USDA Forest Service Land Bird Strategic Plan was distributed. This plan set forth goals and actions to assist meeting the Forest Service commitment to provide habitat for sustainable resident and migrant landbird populations and monitor their populations through time. An Executive Order (EO) 13186) was signed in 2001. Provisions within this document directed agencies to integrated bird conservation principles, measures, and practices into agency planning process, restore and enhance habitat of migratory birds as practicable, and ensure that analysis evaluates the effects of actions on migratory birds, especially species of concern.

In December, 2008, the USDA Forest Service and USDI Fish and Wildlife Service signed a Memorandum of Understanding (MOU) to promote the conservation of migratory birds (USDA, USDI 2008). The purpose of this MOU is to strengthen migratory bird conservation by identifying and implementing strategies that promote conservation and avoid or minimize adverse impacts on migratory birds. Focus first on species of management concern along with their priority habitats and key risk factors. Within the National Forest system, conservation of migratory birds focuses on providing a diversity of habitat conditions at multiple spatial scales. The Rogue River-Siskiyou NF is within Bird Conservation Region 5 (Northern Pacific Forest).

Description of Species, Habitat, and Management Requirements

This analysis is based on neo-tropical migratory birds/land bird focal species identified by Partners in Flight (PIF): Conservation Strategy for Landbirds in Coniferous Forest of Western Oregon and Washington. As per the Partners In Flight Bird Conservation Plan "… if you provide all of the habitats to some degree over some landscape, then you will probably be taking care of most if not all of the landbirds in that habitat. The conservation emphasis is on ecosystems, habitats, and habitat conditions, not species."

Table 11. Focal Migrant Bird Species and Associated Habitat

Habitat	Condition	Habitat Attribute	Bird Species
Coniferous forest	Old-growth / Mature	Large snags	Vaux's swift, pileated woodpecker
Coniferous forest	Old-growth / Mature	Large trees; conifer cones; mid-story tree layers	Brown creeper; red crossbill; varied thrush
Coniferous forest	Mature / Young	Varied canopy closure; deciduous canopy & understory; complex forest floor	Hermit warbler, Hammond's flycatcher; Pacific-slope flycatcher; Wilson's warbler; winter wren, Northern goshawk, purple finch
Coniferous forest	Young / Pole	Deciduous canopy	Black-throated gray warbler
Coniferous forest	Pole	Deciduous subcanopy / understory	Hutton's vireo
Coniferous forest	Early-seral	Residual canopy trees, snags, deciduous vegetation; nectar-producing plants	Olive-sided flycatcher; western bluebird; orange-crowned warbler; rufous hummingbird
Coniferous forest	Unique	Mineral springs	Band-tailed pigeon
Coastal scrub	Early-seral	Coastal fog belt, dense riparian shrub.	Allen's hummingbird
Oak woodlands (including non-forested prairie)	Unique		California quail, western screech-owl, Nutall's woodpecker, oak titmouse, wrentit, California thrasher, black-chinned sparrow, Oregon vesper sparrow, horned lark
Cliffs, waterfalls & forest	Unique	Cliffs near waterfalls within forested habitat.	Black swift
Riparian	Riparian	Large trees adjacent to major rivers. Dense shrub habitat.	Bald eagle, willow flycatcher
Large cliffs	Unique		Peregrine falcon

Alternative 2 (Proposed Action) Effects

Direct and Indirect

Vaux's swift and pileated woodpecker are associated with large snags; there will be no effects to these species as no snags will be removed. The brown creeper; red crossbill and varied thrush are

identified as old-growth/mature obligate species. The project will remove forty trees having minimal effect to this species grouping. The hermit warbler is closely associated with a densely closed Douglas-fir canopy.

Some species such as olive-sided flycatcher; western bluebird; orange-crowned warbler; rufus hummingbird will not be affected as seed/sap/pole habitat will not be removed. Effects to the peregrine falcon and bald eagle are addressed in the sensitive species section of this report.

Because of the limited acres of dry land grass sites, the biggest concern with NTMB on Forest Service lands may lie in degradation of riparian habitat, and subsequent loss of brush cover favored by many species (Bock et al. 1992). There is no riparian habitat within the project area and therefore would not be impacted by the proposed activities. Since the majority of the species occupy or require a riparian habitat component; the proposed project would not be impacting this habitat type.

A benefit is the creation of additional down wood caused by the removal of forty trees by the root wad and strategically placed down slope thus creating some foraging and nesting habitat for some species.

The action alternative would cause minimal changes to landbird habitats by opening up the canopy with the 330 foot spur road creation. Recent studies are leading research scientists to conclude that commercial thinning in dense, young Douglas-fir plantations can increase diversity of breeding songbirds (Hayes et al. 2003; Hagar et al. 2009).

Disturbance from operations during the nesting period is also a concern for NTMBs. Efforts should be made to reduce impacts to nesting birds that may be present in the project area that may be directly impacted by project activities. Timing of operations should occur outside of the spring breeding/nesting season as much as possible (May 15 to July 15). This time frame generally coincides with the marbled murrelet critical breeding season restriction (April 1 to August 5).

Effects to NTMBs from the action alternatives are variable depending on the habitat associations of the individual species. Impacts to habitat for some species may occur from removal of trees and road construction. However, due to the limited amount of area affected by this project, relative to the availability of habitats within the watersheds and forest, effects to NTMBs are expected to be (**M**) minimal.

Cumulative

Cumulative Effects include the effects of past, present and foreseeable future State, local, or private activities that may occur within the wildlife project area. Cumulative effects compound the effects of loss of habitat and harassment potential associated with timber harvest operations and other activities on both private and public lands. Historically, non-federal landowners practiced even-aged management (clear cutting) of timber over extensive acreages. It is assumed that these past management practices would continue and potentially reduce the amount of habitat used by some red tree voles on non-federal lands over time.

Present and foreseeable future actions that may affect terrestrial wildlife species or habitats on the Forest include: wildland fire, fuels treatments, developed and dispersed recreation, timber harvest and vegetation treatments, reforestation, restoration, road management, and special uses. All of these activities would be designed to meet the direction provided within the Northwest Forest Plan and the local Land and Resource Management Plans (i.e., Forest Plans), and in accord with Aquatic Conservation Strategy objectives (NWFP 1994, Siskiyou NF LRMP 1989).

Density management effects of this project also combine with those of district-wide pre-commercial, commercial thinning, meadow restoration, and danger tree felling. The Powers Ranger District manages approximately 139,128 acres. Currently there are approximately 6,516 acres being thinned and treated under the Eden Ridge Timber Sales within the District and 9 miles of existing roads being decommissioned under the Copper Salmon Wilderness Legacy Roads project.

To the north of the project area are private timber lands which are on an approximate 40 year regeneration harvest rotation. There is little habitat on private land for these species surrounding the project area.

3.11 Botanical Species of Concern

The Botanical Biological Evaluation is incorporated by reference and available by contacting the Powers Ranger District or at http://www.fs.fed.us/nepa/fs-usda-pop.php/?project=36342. The evaluation contains a complete list of species considered in this section. Additional information about sensitive species can be found at: http://www.fs.fed.us/r6/sfpnw/issssp/.

This section describes the current condition of special status plant species within the project area and the effects of road construction and connected actions on those resources. Special status plant species include Federally-listed, Forest Service Region 6 Sensitive, and Northwest Forest Plan Survey and Manage species.

Invasive botanical species are discussed separately in Section 3.12.

Northwest Forest Plan – The proposed action complies with the Northwest Forest Plan as amended by the *2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines.*

Surveys – In compliance with Section 7 of the Endangered Species Act (ESA) (1973 *et seq*) and Forest Service regulations, lists were reviewed for regionally sensitive species that might occur in the area. Where suitable habitat was present, vascular plant, bryophyte, and lichen surveys were conducted within the proposed project area (and within 200 feet of those boundaries) for all federally listed, survey and manage, and FS Region 6sensitive plant species.

Fungi surveys were not conducted because they are not needed under the requirement for "equivalent effort" pre-disturbance surveys for projects in old growth forests (available at http://www.blm.gov/or/plans/surveyandmanage/IM-IB/im-or-2006-038.pdf) because the project would not take place in old growth forest as stated and defined in the 2001 ROD.

The Powers Ranger District has six species of plants that are designated by the Forest Service Pacific Northwest Region 6 as sensitive: hairy manzanita *(Arctostaphvlos hispidula),* California globe-mallow *(Iliamna latibracteata),* Siskiyou checkerbloom (*Sidalcea malviflora ssp. Patula),* Umpqua green gentian *(Frasera umpquaensis),* and Bensonia *(Bensoniella oregana).* Out of all six of the species, only hairy manzanita is found within the Sixes watershed. It is located in small numbers on the summit of Mount Butler at the headwaters of the South Fork of the Sixes River and is outside of the proposed action area

Existing Conditions

There are no known sites within the project area of any federally-listed or Northwest Forest Plan (2001 list) vascular plant, lichen, bryophyte or fungi species which require protection or special management under the Federal Endangered Species Act or the Northwest Forest Plan.

Vascular plant sensitive species (S&M and/or FS R6 Sensitive) were not located during surveys. For a complete list of sensitive and S&M species see Table C-3 in the Botanical Report (Appendix C).

Non-vascular plant sensitive species. There are **no known sites** in the project area, and no new sites were found during surveys. No fungi specific surveys were conducted for the reasons discussed above. For a complete list of sensitive non-vascular plant species see Table C-3 in the Botanical Report (Appendix C).

Alternative A (No Action) Effects

Direct and Indirect

Under the no action alternative there would be no direct or indirect effects to sensitive botanical resources within the project site. There would be no detrimental effects to sensitive plant species because no activities would be implemented. Current levels of canopy closure, dead and down wood, and soil disturbance would remain unchanged.

Alternative B (Proposed Action) Effects

Direct and Indirect

Vascular Plant - There would be no effects from the proposed action to botanical species of concern as all species are outside of the range of the project area.

Bryophyte and lichens - There would be no effects from the proposed action to bryophyte or lichen sensitive species because none were found during the field survey. Habitats within and adjacent to units do not offer the type of micro-climatic or structural conditions needed for the lichen or bryophyte species of concern. Conditions are somewhat dry and homogenous with little to no diversity of topography or geology.

Fungi - There would be minimal effects on sensitive fungi species from the proposed action to fungi sensitive species as soils disturbed would not exceed 15 percent of the 3.14 analysis area, average canopy closure would not fall below 40 percent, and the forty trees harvested would remain on-site as down wood.

Potential effects from road extension activities include removal of host mycorrhizal trees or shrubs, and/or trampling and destruction of mycelia mats in the humus and soil layers, and increased solar radiation which can cause changes in microclimate. Mitigation measures (Appendix A) would be effective in reducing or preventing these effects, if sensitive fungi are present. Impacts from increased solar radiation would be nominal because the road extension would leave a high percent canopy closure. Design features which retain dead and down wood would be beneficial for both mycorrhizal and wood/litter saprobe fungi species (Smith et al. 2002; Lemkuhl et al. 2006; Kranabetter et al. 2001). Measures which minimize and limit soil disturbance would also decrease the potential for impacts to root growth and root tip availability for fungi.

For the reasons described above, implementing the action alternative may minimally impact individuals or the habitat for sensitive fungi, but would not contribute to a trend toward federal listing, or cause a loss of viability to the species or population.

Cumulative

It is likely that any harvest that occurred on public or private lands prior to the 1980s affected some populations of sensitive plant species within the area. From the 1980s to the present, TES plant surveys have been conducted prior to implementation of projects and mitigation measures have been successful in protecting known sites. None of these activities has led to extinction or the need to federally list a plant species to date, and would not be expected to contribute to listing in the future.

When the minimal effects to sensitive fungi species from this project are added to the above activities, those cumulative effects would not cause a loss of viability to any fungi species or population. Because this project would have no effects on sensitive vascular plants, bryophytes, or lichens, there would be no added cumulative effects to those species.

All future activities on Federal lands would utilize existing standards and guidelines to protect and prevent disturbance to known populations of sensitive species. All ground-disturbing activities would survey for and protect all sites discovered, and for this reason there would be no cumulative effects to any Federally-listed or R6 sensitive species.

3.12 Invasive Botanical Species

The Botanical Biological Evaluation is incorporated by reference and available by contacting the Powers Ranger District or at http://www.fs.fed.us/nepa/fs-usda-pop.php/?project=36342.

There are **no known** invasive plant populations that affect Port-Orford-cedar, within the project area and no new sites were found during a field survey.

Disturbance mechanisms - The removal of canopy in an area adjacent to an existing invasive plant site can lead to spread by allowing light to reach suitable habitat. Road building, road maintenance, thinning, and other activities can spread seeds and introduce new species.

Mitigation measures would be implemented (see Appendix A) and are highly effective at preventing the spread of invasive plants. They include identifying and treating known sites prior to initiation of the project, avoiding road grading and parking equipment on known invasive plant sites, washing equipment prior to entering National Forest System lands, and conduct post-project treatment on high-priority sites (See Figure 2. Proposed Action and Haul Route). In addition, native plants and grass would be used to revegetate disturbed areas, where needed.

Alternative A (No Action) Effects

Direct and Indirect

Under the no action alternative there would be no direct or indirect effects to invasive botanical species. The proposed action would not add additional risk to the introduction or spread of invasive plants within the project area, because no project activities would occur. The spread of invasive plants caused by road use, road maintenance, recreational uses, etc. within the forest would continue at current rates.

Alternative B (Proposed Action) Effects

Direct and Indirect

Road construction and canopy removal all have the potential to open up new areas where invasive plants can colonize. Removing forty trees for the road extension may allow enough light in for invasive plants to establish along the roadside, particularly gorse and Scotch broom.

The proposed action would implement the mitigation measures described above and in Appendix A. These measures are highly implementable and effective in reducing the risk of spread of invasive plant species. In past cases, eradication of the invasive plant site has occurred.

Because mitigation measures would be implemented and are highly effective, there would be no appreciable increase in the risk of spread of invasive plants caused by activities from either action alternative.

Cumulative
All future ground disturbing activities on Federal lands would utilize mitigation measures which identify, control, or treat invasive plant sites in accordance with the Invasive Plant Program FEIS (USDA 2005). Those mitigation measures (see Appendix A) would prevent any appreciable additional risk of spreading invasive plants for ongoing or future activities. Therefore, because there would be no appreciable increase in the risk of spread of invasive plants, there would be no increase in cumulative effects for activities across all ownerships.

3.13 Recreation

The Powers Ranger District has a history of dispersed and developed recreational camping, hunting, hiking, off-highway vehicle (OHV) use, and sightseeing. The major recreational usage is day use sight-seeing to big-game dispersed hunting and camping, in addition to use at developed and dispersed campgrounds. The project site is remote and public recreation usages are light. The current portion of NFS Road 5201-200 is overgrown and is rarely utilized. An earthen mound closes the last 0.5 miles of NFS 5201-200 to vehicles. The west of the road's end is privately owned.

Alternative 1 (No Action) Effects

Direct and Indirect
Under the no action alternative, no permit would be issued to CFI to construct the spur road. There would be no change in current affects to recreation or public safety. The current conditions would continue and the last third of a mile of NFS Road 5201-200 that is currently overgrown and not in use would continue to deteriorate over time.

Alternative 2 (Proposed Action) Effects

Direct and Indirect
The direct effect to creating the spur road would be an inconsequential increase in roads available for travel (330 feet). The proposed action would not cause any disturbance or disruption to recreational activities and the proposed activity would not directly affect developed recreational sites as active developed sites are not within the project activity area. A strategically placed earthen mound would effectively keep the last 0.5 miles of NFS 5201-200 closed to the public.

Any scheduled activities on public or private land would be additional road traffic; however, signing and public notification would mitigate any additional risk to the public.

The primary effect to recreationists in the long-term after the project is implemented would involve possible noise (chain saws, heavy equipment, and helicopters) and increased vehicle traffic during harvesting of the private lands being accessed. This effect would degrade the recreation experience for some users who have come to expect a quiet experience with full

access to authorized roads. There are no developed recreational sites within the project vicinity. Overall the effects to recreational usage would be minimal or of short duration.

Cumulative

Any future public and Forest Service projects would add temporary roads and skid trails in addition to those being added with this project. While mitigation measures are effective at dissuading OHV use, they are not absolute, so some additional opportunities could be created. Areas with numerous and varied opportunities are more likely to attract more use and more users, especially in an area with current high use.

Private land owners in the area would be harvesting and hauling timber at rates similar to past rates. Where harvest occurs near recreation sites or areas with current OHV use, roads and skid trails associated with that harvest could entice OHV users across ownership lines.

3.14 Cultural Resources

Effects of road extension and reconstruction and other connected actions on Cultural (heritage) resources.

The Heritage Report is incorporated by reference and available by contacting the Powers Ranger District or at http://www.fs.fed.us/nepa/fs-usda-pop.php/?project=36342. The Heritage Report is a part of the project record and contains more detail on the history of the Mount Avery Spur Road project area.

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies, such as the Forest Service, to take into account the effects of their actions, or undertakings, on historic or archaeological properties. This act also establishes the Advisory Council of Historic Preservation (ACHP) as the oversight agency which consults with federal agencies to review undertakings which have the potential to affect important historic properties, although generally, this consultation and review capacity is delegated to State Historic Preservation Offices (SHPO)**.** The NHPA also provides for Native American groups to be included in consultations where prehistoric sites are involved.

The Confederated Tribes of Siletz and the Coquille Indian Tribe were contacted and neither tribe responded with any concerns regarding the project.

Background and Analysis Framework

Project area inventories and consultation under Section 106 of the NHPA must be completed prior to project implementation. In some cases the consultation process has been streamlined or by-passed by agreement to facilitate project completion when certain conditions are met. Generally, these conditions include adequate inventories where no sites are located in a project's area of potential effect (APE), or particular site and project types which have recurring similar impacts which have allowed predetermined mitigation measures to be developed by agreement

with SHPO, or projects with a low likelihood to impact historic properties. Documentation under these agreements is submitted to the SHPO in an annual report, and may or may not be submitted prior to project implementation. Section VII below includes a list of such agreements which affect the consultation process for projects on the Powers Ranger District.

Both NHPA and the Archaeological Resources Protection Act (ARPA) prohibit the disclosure of the nature and location of cultural resource sites where a likelihood of harm to the sites could occur through disclosure. The intent of this prohibition is to protect sites from vandalism and looting, and to retain confidentiality of sites culturally important to American Indian Tribes. ARPA also establishes civil and criminal penalties for individuals removing or damaging archaeological resources on federal lands.

Analysis Methods

The analysis methods used for cultural resources consist of a review and synthesis of all pertinent literature, records, and documentation available on the history and prehistory of the project and surrounding areas, and generally bounded by the project area. Field inventories are then conducted within the area of proposed activities of potential effect (APE) and adjacent areas of high site probability.

Once field inventory is complete, identified cultural resources within the project's APE are analyzed to determine their eligibility to the National Register of Historic Places as historic properties. For those considered eligible, the potential effects of the project on that historic property is analyzed. Where adverse effects may occur to a historic property, measures are designed to mitigate these effects.

When no cultural resources are located within the project's APE, the project may proceed under the terms of the Programmatic Agreement among the United States Department of Agriculture Forest Service Pacific Northwest Region (Region 6), the Advisory Council on Historic Preservation, and the Oregon State Historical Preservation Officer Regarding Cultural Resource Management in the State of Oregon by the USDA Forest Service (R6 PA), 2004**.**

Cultural Resource Surveys and Sites

Past cultural work within the Mount Avery area have recorded mining related features, including a sawmill, cabins, along with scattered mining debris. Also noted in the area is the site of a former fire lookout on Mt. Butler, a historic trail segment, and a historic cemetery. No past surveys for the project area were identified.

A survey of the project area was conducted in September 2012 by a private consultant (see Appendix E). The survey results showed no prehistoric or historic sites or isolated finds within the project area. According to the Heritage Report, the lack of cultural resources in the APE is likely due to the extremely rugged terrain in the area and the lack of a nearby water source. Most of the area's recorded sites, both historic and prehistoric, tend to be near waterways and in more accessible flatlands.

Effects Mechanisms

The measurement indicators for cultural resources are the effects to historic properties. These effects may be beneficial or adverse. This planning process allows adverse impacts to be avoided altogether through project redesign, or mitigated through project modification or scientific investigation and/or removal of the site so that there are no adverse impacts to historic properties.

Where avoidance of an important cultural resource site is not possible, measures are developed to mitigate or limit the effects of the project. Where the loss of the site or a portion of the site will occur, the loss can be mitigated by data recovery or interpretation of the history of the site. Limiting the extent of disturbance to a site could include modifying the operating season of a project so that soil disturbance is kept to a minimum, directional felling of trees, using certain techniques or technology, or limiting the area where operations can take place to only a portion of the site.

Alternative 1 (No Action) Effects

Direct and Indirect

Under this alternative, no activities would occur and any previously recorded, or as yet undiscovered sites, would remain undisturbed. There are no identified on-going impacts to historic properties that would continue because of no action.

Alternative 2 (Proposed Action) Effects

Direct and Indirect

There would be no effects to historic properties under the action alternative. A cultural resource inventory report has been completed and has been submitted to the Oregon State Historic Preservation Office under the Programmatic Agreement among the United States Department of Agriculture Forest Service Pacific Northwest Region (Region 6), the Advisory Council on Historic Preservation, and the Oregon State Historical Preservation Officer Regarding Cultural Resource Management in the State of Oregon by the USDA Forest Service (R6). The proposed action meets the criteria for a **No Historic Properties Affected** determination.

If a historic site is encountered in the course of project implementation, Forest specialists would consult with the State Historic Preservation Office, as required by law, to determine the significance of the discovery and the effects of the project upon them. Mitigation would be accomplished and may include avoidance of the sites, or scientific investigation.

Cumulative

Before the National Historic Preservation Act (NHPA) of 1966 was implemented, project planning did not include consideration of impacts to historic properties. Any projects such as timber harvest, road building, fire suppression activities etc that occurred prior to this, had the

potential to adversely impact historic properties, and many of these projects occurred in areas considered high probability for cultural resources.

Wildfire and suppression activities may impact cultural resources. Public actions on Forest Service lands have the potential to impact heritage resources. Generally these impacts are minimal because they are dispersed. However, when actions begin to concentrate impacts to known heritage resources, management actions can be taken to mitigate those impacts.

Cumulatively, when considering past, proposed, and ongoing and foreseeable actions, this project would not exacerbate effects to historic properties. The post-project condition and trend would continue the current condition and trend which protects historic properties through inventory and project design so no historic properties are impacted by project implementation.

3.15 Other Effects

The following is a summary of effects that were considered during the analysis process, not necessarily as issues, and not always totally quantifiable. All effects were determined to be consistent within the standards and guidelines identified in the Siskiyou National Forest Land and Resource Management Plan.

Mining
The nearest active mining claim to the project area is about 1-1/2 miles away southeast along the Russian Mike Trail to the South Fork of the Sixes River. This project would not disturb mining claims as the project is relatively small in size (0.11 acres) and will take approximately three days to complete. In summary, there would be no effects on mining from project activities.

Prime Farmland and Rangeland
The project site does not include prime farm and rangelands. The proposed action and its alternatives would not produce indirect or cumulative effects adverse to prime farm or range lands.

Wetlands and Floodplains
There are no inland or coastal floodplains, as described in Executive Order 11988, within the project site. The proposed action would constitute a "no effect" undertaking in relation to the Wetlands Executive Order 11990 because no wetlands are involved. The proposed action would be in compliance with Riparian Reserve Standards and guidelines and would allow attainment of the Northwest Forest Plan Aquatic Conservation Strategy.

Social/Economic Effects
The availability of natural resources contributes to the quality of life for many residents within the area. Many communities are closely tied to the forest in work and recreation. These communities are directly influenced by changes in the supply of resources produced from the forest, and by the forest production of firewood, game, scenic resources, and recreational opportunities.

Energy Requirements
There would be no unusual energy requirements associated with implementing the alternative.

Adverse Environmental Effects which cannot be avoided
Implementation of the action alternative would result in some adverse environmental effects that cannot be avoided. Affected areas include:

1. Late-Successional Reserves
2. Soil productivity loss
3. Habitat loss

The magnitude of these effects relative to the extent of the proposed project, however, is minor and within prescribed Standards and guidelines. The degree of adverse effects is substantially reduced by following Forest Plan Standards and guidelines and by including the Project Design Criteria and Mitigation Measures outlined in Chapter 2.

3.16 Other Required Disclosures

Northwest Forest Plan Consistency
This proposed action/alternative complies with the Northwest Forest Plan as amended by the *2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines.* Pre-disturbance surveys were conducted (where required) and site management applied consistent with the January 2001 species list.

Compliance with the Aquatic Conservation Strategy Objectives provided by the NWFP
There are nine Aquatic Conservation Strategy objectives outlined on Page B-11 of the Northwest Forest Plan. The action alternative meets all the objectives as described in detail in Appendix B.

The Clean Water Act, 1987
This act establishes a non-degradation policy for all federally proposed projects. Compliance with the Clean Water Act would be accomplished through planning, application, and monitoring best management practices (BMPs) (see Hydrology section).

USDA Civil Rights Policy
The Civil Rights Policy for the USDA, Departmental Regulation 4300-4 dated May 30, 2003, states that the following are among the civil rights strategic goals: (1) managers, supervisors, and other employees are held accountable for ensuring that USDA customers are treated fairly and equitably, with dignity and respect; and (2) equal access is assured and equal treatment is provided in the delivery of USDA programs and services for all customers. This is the standard for service to all customers regardless of race, sex, national origin, age, or disabilities.

Disparate impact, a theory of discrimination, has been applied to the Mount Avery project‘s planning process in order to reveal any such adverse effects that may unfairly and inequitably impact beneficiaries regarding program development, administration, and delivery. The objectives of this review and analysis are to prevent disparate treatment and minimize

discrimination against minorities, women and persons with disabilities and to ensure compliance with all civil rights statutes, Federal regulations, and USDA policies and procedures.

Environmental Justice
Environmental Justice means that, to the greatest extent practicable and permitted by law, all populations are provided the opportunity to comment before decisions are rendered on, are allowed to share in the benefits of, are not excluded from, and are not affected in a disproportionately high and adverse manner, by government programs and activities affecting human health or the environment.

This proposed action does not appear to have a disproportionately high or adverse effect on minority or low income populations, or Indian Tribes. The proposed action does not have a disproportionately high and adverse human health effects, high or adverse environmental effects, substantial environmental hazard, or affects to differential patterns of consumption of natural resources.

Extensive scoping did not reveal any issues or concerns associated with the principles of Environmental Justice. No mitigation measures to offset or ameliorate adverse affects to these populations have been identified. All interested and affected parties will continue to be informed throughout the decision making process.

3.17 Finding of No Significant Impact

As the responsible official, I am responsible for evaluating the effects of the project relative to the definition of significance established by the CEQ Regulations (40 CFR 1508.13). I have reviewed and considered the EA and documentation included in the project record, and I have determined that the proposed action will not have a significant effect on the quality of the human environment. As a result, no environmental impact statement will be prepared. My rationale for this finding is as follows, organized by sub-section of the CEQ definition of significance cited above.

Context

For the proposed action and alternatives the context of the environmental effects is based on the environmental analysis in this EA.

This project is limited in scope and is designed to minimize adverse environmental effects. The decision made here applies only to the Mount Avery Spur Road project analysis area within the Powers Ranger District. The analysis area encompasses the 330 by 14 foot proposed spur road (project area) and also includes a 200 foot buffer area on either side of the proposed road extension to capture all the immediate effects creating a total analysis area of 136,620 feet squared or approximately 3.14 acres. The project area is limited in size and the activities are limited in duration. The resources affected by the proposal are described in the EA chapter III. Effects are local in nature and not likely to significantly affect regional or national resources.

Based on these factors, I believe the effects of this project will be localized, and will not contribute to significant environmental effects within or beyond the project area.

Intensity

Intensity is a measure of the severity, extent, or quantity of effects, and is based on information from the effects analysis of this EA and the references in the project record. The effects of this project have been appropriately and thoroughly considered with an analysis that is responsive to concerns and issues raised. The agency has taken a hard look at the environmental effects using relevant scientific information and knowledge of site-specific conditions gained from field visits. My finding of no significant impact is based on the context of the project and intensity of effects using the ten factors identified in 40 CFR 1508.27(b).

1. **Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.**

   Adverse and beneficial impacts have been assessed and found to be not significant. The analysis considered not only the direct and indirect effects of the project but also their contribution to cumulative effects (EA chapter III). Adverse effects from the selected alternative will be minimized or eliminated through application of PDCs and mitigation measures (EA, Appendix A). My finding of no significant environmental effects is not biased by the beneficial effects of the action.

   Soil resources – The Mount Avery project would be within Siskiyou LRMP standards and guidelines (<15 percent) for the detrimental soil conditions. Soil exposure would not exceed the 15 percent limit described above. The mitigation measures prescribed would be very effective in preventing and minimizing soil compaction, displacement, mass movement, and erosion risk. As soil compaction occurs primarily on wet and moist soils, the measures limiting equipment and haul during wet conditions are especially important for reducing impacts and allowing for faster recovery from disturbance outside of the foot print of the spur road creation. The construction of the spur road off of the NFS Road 5201-200 would result in the long term commitment of that area (0.11 acres) to a use other than site productivity, through the clearing of the area of soil and vegetation and reestablished with gravel.

   Large tree removal and its impacts to wildlife – The proposed action would increase down wood along the constructed road by forty trees. These trees, with root wads would be moved down slope of the spur road. This would be a localized benefit to the area, but not a measurable benefit to the watershed. No snags will be removed from the road prism as no snags are currently identified within the project area. There would be a connected decrease in the future recruitment of smaller snags and down wood from the permanent withdrawal of 0.11 acres from forest production. This would be a localized deficit to the area, but not a measurable deficit to the watershed.

The effects analysis documented throughout Mount Avery Spur Road EA chapter 3 (and summarized above) demonstrates that none of the project impacts would be significant, either individually or cumulatively.

2. **The degree to which the proposed action affects public health or safety.**

   I find that there will be no significant effects to public health and safety. I believe all public health and safety issues are addressed by this decision. (EA, page 71).

3. **Unique characteristics of the geographic area such as the proximity to historical or cultural resources, parklands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.**

   There will be no significant effects on unique characteristics of the area, and there are no parklands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas within the Mount Avery project planning area. The project has been designed to exclude all known cultural sites that were identified around the project planning area, and if cultural resources are encountered during implementation, earth-disturbing activities in the vicinity of the find must be suspended and the Forest Archaeologist or Archaeological Technician notified to evaluate the discovery and recommend the subsequent course of action.

4. **The degree to which the effects on the quality of the human environment are likely to be highly controversial.**

   There will be no significant effects on the quality of the human environment. Consideration was given to effects of the project on recreation values, the economy, and environmental justice issues. Recreational uses of the Forest in the vicinity of project implementation will not be disrupted (EA, pages 67-68).

5. **The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.**

   The Forest Service has considerable local experience implementing road construction projects on the Forest. The effects analysis documented in the EA shows effects are not highly uncertain and do not involve unique or unknown risk (see EA chapter III). The selected alternative is similar to many past projects; both in this analysis area and adjacent areas, and its predicted effects are not uncertain, unique, or unknown.

   This project involves road construction practices and will use PDCs and mitigation measures that have been used over many years and that are consistent with the Siskiyou LRMP, as amended (EA, Appendix A – Mitigation Measures).

   Wildlife – The U.S. Fish and Wildlife Service concurred with the Forest that implementation of the proposed alternative will have **no effect** to any listed ESA species (EA, pages 34-39; EA Wildlife Biological Evaluation).

Botanical resources – No threatened or endangered, or Survey and Manage plant species are expected to occur in the Mount Avery project planning area therefore there will be no effects to these species (EA, pages 63-66; EA – Botanical Report and Biological Evaluation).

The selected alternative was developed using design criteria based on the results of past actions and professional and technical insight and experience, public input, field surveys and reconnaissance, and incorporation of pertinent research. PDCs and mitigation measures incorporated into this decision and used during layout and implementation will avoid or minimize known risks associated with the project and will be employed where unexpected situations arise that could potentially have a detrimental effect on resources. I am confident the selected alternative will have **no effects** that are highly uncertain or involve unique or unknown risks to the human environment.

6. **The degree to which the action may establish precedent for future actions with significant effects or represents a decision in principle about a future consideration.**

   I find the actions in the Mount Avery Spur Road project are similar in nature to actions undertaken on National Forest System lands and do not establish a precedent for future actions with significant effects, or represent a decision in principle with respect to future actions.

   From my review of the analysis and project file documentation, it is evident these actions are consistent with the Siskiyou Forest Plan, as amended. Any future decisions will need to be considered in a separate analysis using relevant scientific and site-specific information available at that time.

7. **Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.**

   I find the effects of the selected alternative combined with the effects of past, present, and reasonably foreseeable actions will not have any significant cumulative effects. Cumulative impacts are addressed, by resource, in Mount Avery EA chapter III. My review of the EA and supporting documents finds the cumulative effects analyses have adequately considered the time and space of effects to each respective resource and all impacts will be contained within the analysis area. No significant adverse environmental impacts are likely to occur due to this decision.

8. **The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.**

   I find the action will have no significant adverse effects on districts, sites, highways, structures, or objects in or eligible for listing in the National Register of Historic places since all known cultural sites will be avoided during implementation. If cultural resources are encountered during the course of this project, earth-disturbing activities in the vicinity of the find must be suspended, in accordance with federal regulations, and the Forest Archaeologist or Archaeological Technician notified to evaluate the discovery and recommend the subsequent course of action (EA, page 70-71; EA – Heritage Report).

9. **The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.**

   I have considered the degree to which the action will adversely affect endangered or threatened species or their habitat that has been determined to be critical under the Endangered Species Act of 1973 (ESA) (EA, pages 34-40). The proposed action will have **no effect** to ESA listed species within the Mount Avery project planning area.

   There are no populations of listed threatened or endangered aquatic species within the Mount Avery project planning area. Accordingly, proposed project actions will have **no effect** to aquatic species (EA, pages 31-34).

   No plants listed as threatened or endangered are expected to occur within the Mount Avery project planning area. Consequently, this project will have **no effect** to threatened and endangered plant species (EA, pages 63-66; EA – Botanical Report and Biological Evaluation).

10. **Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.**

    I find the Mount Avery project will not violate Federal, State, or local laws or requirements for the protection of the environment. Applicable laws and regulation were considered in the Mount Avery EA. The action is consistent with the Siskiyou Forest Plan, as amended.

Conclusion

After considering the environmental effects described in the EA and specialist reports, I have determined the selected alternative will not have significant effects on the quality of the human environment considering the context and intensity of impacts (40 CFR 1508.27). Thus, an environmental impact statement will not be prepared.

Chapter 4 - Consultation with Others

The Environmental Assessment and supporting documents were prepared by Zion Natural Resources Consulting for and in consultation with, Rogue-Siskiyou National Forest.

Issues associated with the proposed action were identified by an interdisciplinary team and through an extensive scoping process. This process included a review and evaluation of information gathered through specialist input, ongoing public involvement, and correspondence received since 2010. Formal scoping was conducted for this project in 2011.

The makeup of the Forest Service interdisciplinary team was based upon the proposed activities and the potential impacts on affected resources and values. Members of this team and contributors to this document are listed in Table 12 below.

Table 12. Interdisciplinary Team Members

Resource	Name
Environmental Coordinator	Holly Witt
Project Lead	Don Kay, Robin McAlpin (retired)
Geographic Information System (GIS)	Matt Timchak
Engineering, Recreation	Robin McAlpin (retired)
Forest conditions/Snags & Down Wood/Port-Orford-cedar	Matt Timchak
Fuels and Fire	Wes Crum
Soils	Joni Brazier
Hydrology	Karla Cottom
Fisheries	Karla Cottom
Wildlife	Holly Witt, John Lowe (former)
Botany, Invasive Plants	Clint Emerson
Heritage	Kristen Hauge

Following development of the proposed action, scoping letters were distributed to the general public, to federal and state agencies, and to recognized tribes having aboriginal ties to the project area. Table 13 lists the agencies consulted and the people and organizations conferred. Any responses from these parties were considered and used to refine the proposed action, to develop the action alternatives, and to analyze the environmental effects of the alternatives. More detailed information and responses received are located in the project record.

Table 13. People, Organizations, and Agencies Consulted

Federal, State, and Local Agencies		
Agency	**Name**	**City, State**
Oregon Department of Fish and Wildlife	Todd Confer/Curtis Edwards	Gold Beach, OR
Oregon State Historic Preservation Office	Dennis Griffin/Julie Osbourne	Salem, OR
Tribes		
Tribe	**Name**	**City, State**
Coquille Indian Tribe	Nicole Harris	North Bend, OR
Confederated Tribes of the Siletz	Robert Kentta	Siletz, OR
Others		
Organization	**Name**	**City, State**
Christian Futures, Inc	Rick Christian	Springfield, OR
Zion Natural Resources Consulting	Ariana Henning	Dallas, OR
Zion Natural Resources Consulting	Eric Henning	Dallas, OR
Cascade Research LLC	Dennis Gray	Ashland, OR

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SITE FIGURES

Figure 3. Sixes River Watershed Map

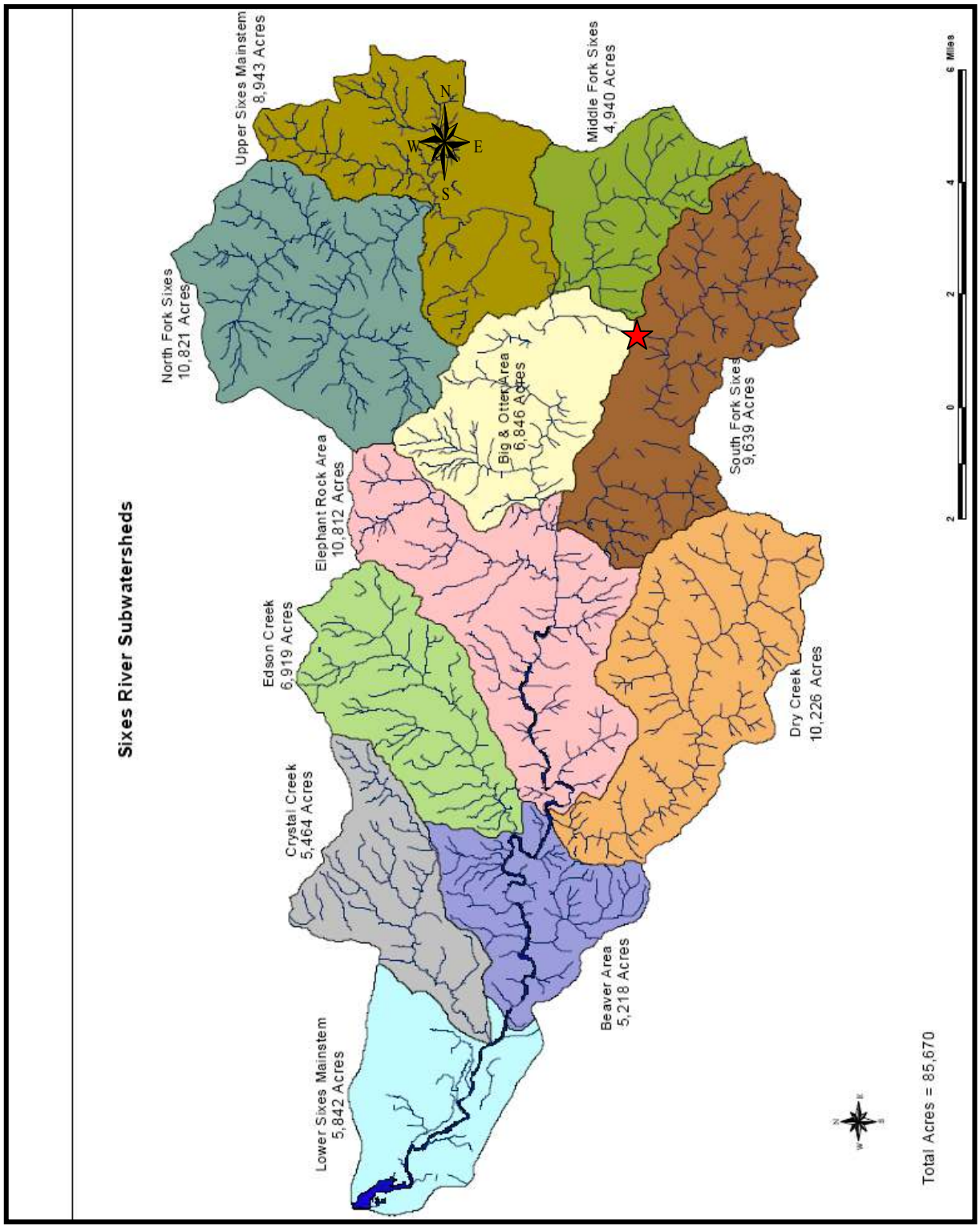

Figure 4. Alternative Routes Map

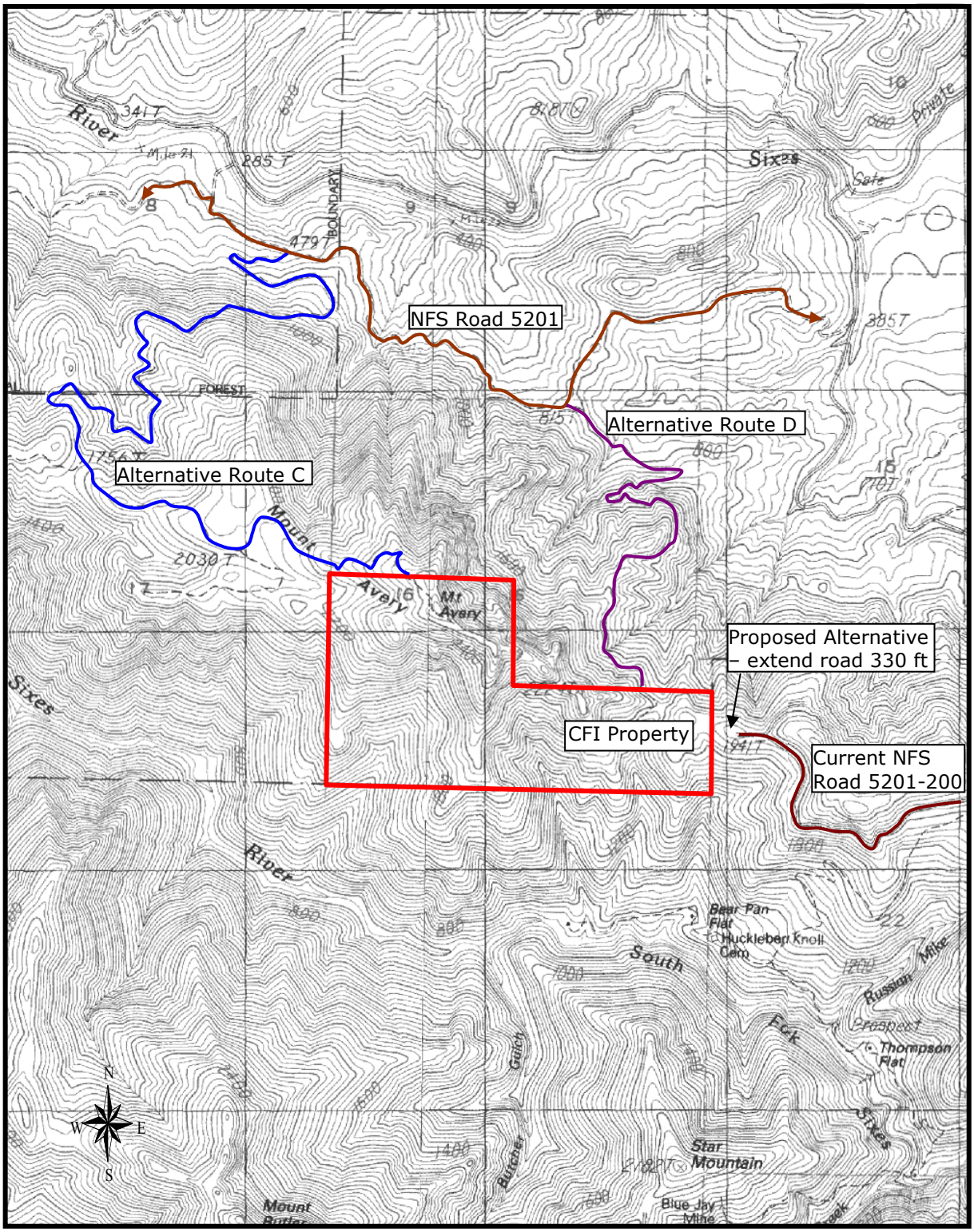

Figure 5. Topography Map

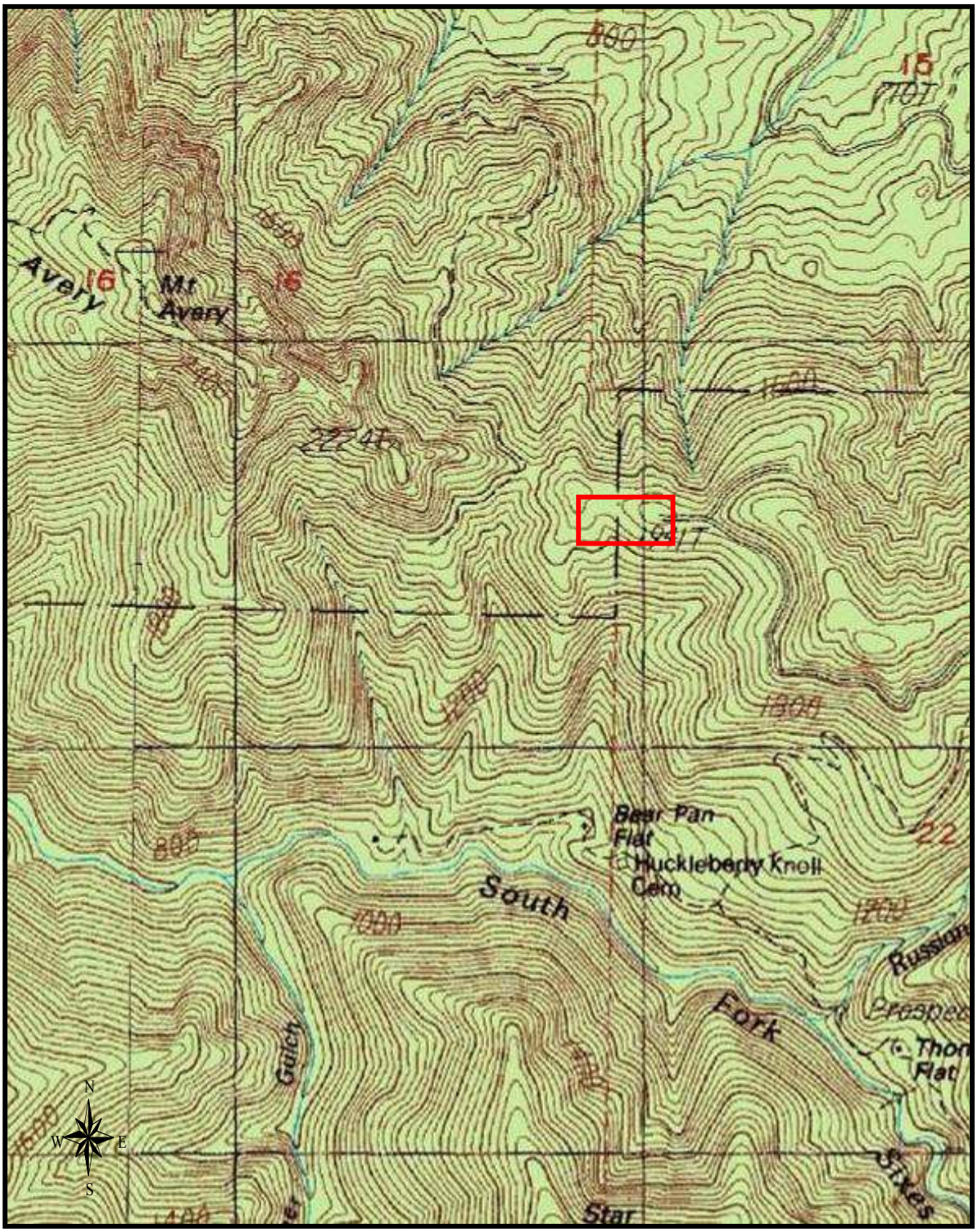

Figure 6. Tax Lot Map

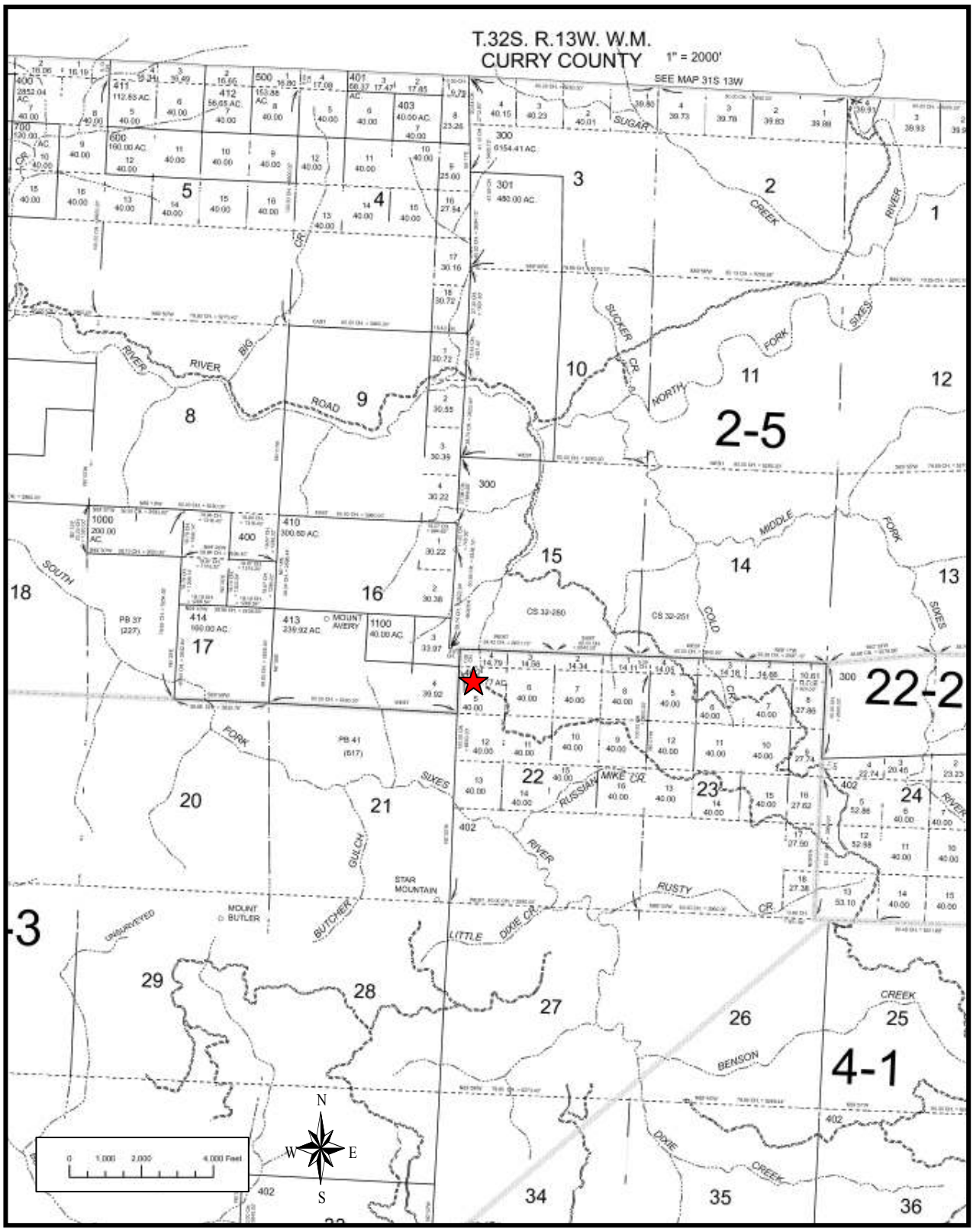

Figure 7. Curry County Soils Survey Map

Figure 8. Photo of Project Area

According to the Forest Service personnel, the last harvest date within the analysis area was 1979 and replanted in 1980 making the forest within the project area 33 years old. The harvest unit was 13.5 acres and currently the stand has typical young plantation characteristics with a dense shrub/scrub layer and a single layer open canopy with 40 trees of dbh of 14" to 16" within the project area.