

Environmental Assessment
Perpetua Forests Company Right-of-Way
Road Construction Project

EA Number OR118-06-006

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Abstract:

The Glendale Resource Area, Medford District, Bureau of Land Management (BLM) is determining the effects of constructing and hauling logs on 3,609 ft of road across BLM land in response to Perpetua Forests Company's request to access their property under an amendment to a right-of-way agreement pursuant to 43 CFR 2812. The proposed location of this road is on BLM Matrix land allocation and in the Wolf Creek sixth-field watershed. The Project Area is located in portions of Township (T) 33S, Range (R) 5W, Sections 17, 18, and 20.

This environmental assessment discloses the predicted environmental effects of two alternatives: Alternative 1 (No Action) and Alternative 2 (Proposed Action).

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FINDING OF NO SIGNIFICANT IMPACT

Based upon review of the EA (Environmental Assessment #OR-118-06-006) and supporting project record, I have determined that Alternative 2 (Proposed Action) is not a major federal action and would not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity as defined in 40 CFR 1508.27. Therefore, an environmental impact statement is not needed. This finding is based on the following discussion:

Context. Perpetua Forests Company requested this road construction and hauling to access their lands through BLM administered lands on July 28, 2005. The Proposed Action is a site-specific Right-of-Way (ROW) action directly involving approximately 3.5 acres of BLM (Bureau of Land Management) administered land that by itself does not have international, national, region-wide, or state-wide importance. The Proposed Action is located within the Matrix land use allocation and within the boundaries of the 6th field Hydrologic Unit Condition (HUC 6) boundaries of the Wolf Creek sub-watershed.

The discussion of the significance criteria that follows applies to the intended action and is within the context of local importance. Chapter 3 of the EA details the effects of the Proposed Action on BLM land and the 80 acre harvest of Perpetua Forests Company's land. None of the effects identified, including direct, indirect and cumulative effects, are considered to be significant and do not exceed those effects described in the *Medford District Resource Management Plan/Final Environmental Impact Statement* (June 1995).

Intensity. The following discussion is organized around the Ten Significance Criteria described in 40 CFR 1508.27.

1. Impacts may be both beneficial and adverse. The predicted environmental effects of the Proposed Action, most noteworthy, include:

a) Alternative 2 (Proposed Action) would result in soil compaction and top soil erosion that would reduce localized areas of soil productivity on BLM land. The effects of disturbance from 3.5 acres of permanent road construction would create 1.2 acres of compaction and productivity losses within the Wolf Creek HUC 6 sub-watershed analysis area.

Given the scope and location of the proposed road construction (Alternative 2) and log hauling on BLM land, these actions are anticipated to have a negligible impact to soil productivity in federal lands at the watershed scale. These actions would be consistent with all soil productivity, compaction, and erosion standards set forth in the Medford District RMP. Additionally, it would not be expected that this project would measurably contribute to an increase in flows or runoff timing, as the near ridgetop location of the proposed spur would not intercept subsurface flow and any water intercepted or routed by

the spur road would be expected to infiltrate back into the soil prior to reaching any streams.

The road construction on BLM land would increase open space within the Wolf Creek sub-watershed by 1.2 acres which would maintain the percentage of open space conditions within the Transient Snow Zone (TSZ) of this sub-watershed at 19%. Since sub-watershed and TSZ open space conditions would remain below 25%, canopy removal for the road construction would not result in an increase in the magnitude of current peak flow events, or an increase in annual water yields within the Wolf Creek HUC 6 drainage.

b) There are three main reasons why potential weed establishment that might be caused by the Proposed Action are not expected to result in a detectable effect to overall ecosystem health. First, surveys indicate that very small percentages (less than 0.25 acres) within the Planning Area – are affected by noxious weeds. Second, the species actually residing at the proposed ROW location is not considered a priority species for manual treatment, as biological controls have proven effective at containing and eventually reducing the existing populations. Third, Project Design Features (PDFs) have been established to minimize the rate at which project activities might potentially spread noxious weed seed from outside/adjacent sources.

BLM's influence over the causes of the spread of noxious weeds is limited to those caused by human activities. Additional human disturbance and traffic would increase the potential for spreading noxious weed establishment, but regardless of human activity, spread of these weeds will continue through natural forces. Thus, the BLM cannot stop the spread of noxious weeds but might reduce the risk or rate of spread. Under the No Action Alternative, noxious weeds are likely to spread over time regardless of whether or not the ROW is granted, and that rate would not be altered to any detectable degree at the 6th field watershed level by the Proposed Action.

c) See effects to Endangered Species Act (ESA) threatened and endangered species in criteria # 9 below.

There would be no adverse effect to Essential Fish Habitat (EFH) for coho or chinook because the new road construction would be located outside riparian reserves, would have no stream crossings, and would be approximately 1.9 miles from EFH. Shade, temperature, pool habitat and potential future woody debris recruitment would not be affected because the proposed road would be located outside of riparian reserves. The use of the Board Tree quarry to place end hauled material would not affect EFH because 1) the quarry is 1.4 mile from the closest EFH, 2) material disposed of in the quarry would not enter the adjacent perennial stream due to topographic features, and 3) large woody debris (LWD) and shade would not be affected as no vegetation would be removed within riparian reserves. Disposal of end hauled material at the end of the 33-5-7 road or where the proposed road would intersect an exiting skid trail on the saddle are not expected to result in sediment entering stream channels and therefore EFH because of

the flat topographical features and there are no mechanisms for waste material to enter stream channels.

None of the environmental effects disclosed above and discussed in detail in Chapter 3 of the EA are considered significant.

2. The degree to which the selected alternative will affect public health or safety.

Public health and safety would not be affected. The Proposed Action is comparable to other right-of-way road construction projects which have occurred within the Glendale Resource Area with no unusual health or safety concerns.

The Glendale Resource Area introduced this project through the quarterly BLM Medford Messenger publication. A brief description of proposed projects, such as Perpetua Forests Company Right-of-Way Road Construction Project, a legal location and general vicinity map are provided along with a comment sheet for public responses. The project was included in these quarterly publications beginning in fall, 2005. Although inquiries were made about the project, no site specific comments were provided. No public health or safety risks were identified in those comments.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farm lands, wetlands, wild and scenic rivers, or ecologically critical areas.

There are no park lands, prime farm lands, wetlands, wild and scenic rivers or ecologically critical areas within the proposed right-of-way location across BLM land. There are no developed recreation sites that would be affected by the Proposed Action. The area is open to dispersed recreation use, as it most of the Glendale Resource Area. The Proposed Action would have a neutral effect on dispersed recreation within the resource area. While there might be increased logging truck traffic during the operational months, this type of activity is typical for the area because of harvesting on private and other government owned lands within the state of Oregon. Cultural surveys were completed for the Perpetua Forests Company Right-of-Way Road Construction Project Area and no sites were found. If cultural resources are located during the implementation of an action, the project would be redesigned to protect the values present.

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

The effects of the Proposed Action on BLM on the quality of the human environment are adequately understood by the interdisciplinary team to provide analysis for the decision. There are no highly controversial effects from the action alternatives. A complete disclosure of the predicted effects is contained in Chapter 3 and Appendix 2 of the EA.

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

The effect of the Proposed Action on BLM is not unique or unusual. The BLM has experience issuing permits for implementing similar actions in similar areas and have found effects to be reasonably

predictable. There are no predicted effects on the human environment which are considered to be highly uncertain or involve unique or unknown risks.

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

The Proposed Action on BLM does not set a precedent for future actions that might have significant effects nor does it represent a decision in principle about future consideration. The Proposed Action would occur within the needs identified in the Medford Resource Management (RMP), “Continue to make BLM-administered lands available for needed rights-of-way where consistent with local comprehensive plans, Oregon statewide planning goals and rules, and the exclusion and avoidance areas identified in this RMP,” (p.82). Any future projects would be evaluated through the NEPA (National Environmental Policy Act) process and would stand on their own as to environmental effects.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. The interdisciplinary team evaluated the Proposed Action in context of past, present and reasonably foreseeable actions. Significant cumulative effects outside those already disclosed in the *Medford District Resource Management Plan/Final Environmental Impact Statement* are not predicted. A complete disclosure of the effects of the Proposed Action is contained in Chapter 3 and Appendix 2 of the EA.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or other 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. Cultural surveys were completed for the Perpetua Forests Company Right-of-Way Road Construction Project Area on BLM land and no sites were found. The Proposed Action would not adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places, nor would the Proposed Action cause loss or destruction of significant scientific, cultural, or historical resources.

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.

Coho salmon- threatened species

The proposed road construction, log hauling, and maintenance would not effect the federally listed as threatened Southern Oregon Northern California (SONC) coho salmon. The use of the quarry would not affect SONC coho or Coho Critical Habitat (CCH) because 1) the quarry is 1.4 mile from the closest CCH, 2) material disposed of in the quarry would not enter the adjacent intermittent stream due to topographic features, and 3) LWD and shade would not be affected as no vegetation would be removed. Disposal of end hauled material at the end of the 33-5-7 road or where the proposed road would intersect an exiting skid trail on the saddle are not expected to result in sediment entering

stream channels and therefore CCH because of the flat topographical features and there are no mechanisms for waste material to enter stream channels.

Spotted owl- threatened

The Perpetua Forests Company Right-of-Way Construction activities on BLM land would remove approximately 1 acre of suitable habitat and 2.5 acres of dispersal habitat within a 1.3 mile radius of the Board Tree East and Foley Glen owl sites which would remain above 40% (43.5% and 46.6%, respectively) federal suitable habitat. No change would occur within a 0.5 mile radius or 30 acre nest patch to Foley Glen. One acre of dispersal habitat removed and no change to the nest patch would occur within 0.5 miles of Board Tree East, which remains above 50% suitable habitat on federal habitat. The amount of suitable habitat retained for each site is expected to be sufficient support spotted owl occupancy and reproduction (Courtney et al. 2004, Zabel et al. 2003). Demographic survey records show the adjacent owl sites as not nesting near the ROW. Protocol visits have not detected resident spotted owls in either Board Tree East owl site since 2000 or in Foley Glen since 2001, but have been occupied by barred owls. The sites and may not support spotted owls or spotted owls may remain undetected. The effects from the ROW road construction on suitable owl habitat in Matrix lands allocation are expected to be adverse, but not result in a measurable change in the use of forest stands by the adjacent vacant spotted owl sites for nesting, roosting and foraging, or dispersal. No cumulative effects from foreseeable suitable habitat removal or downgrade on federal land are expected to occur within the home range of the two spotted owl sites, which retain sufficient habitat to support spotted owls. The viability of owl sites in Matrix land allocation is expected to be reduced, and the effects from the project proposal are within the analysis of the NWFP (USDA/USDI. 1994a 3&4-241).

Critical Habitat

The Perpetua Forests Company Right-of-Way Construction activities on BLM land would remove approximately 1 acre of 35,165 acres of suitable northern spotted owl habitat and 2.5 acres of 24,585 acres of dispersal habitat (FY 06-08 BA p. 50) within Critical Habitat Unit (CHU) OR-32 on BLM land.

Removing 1 acre of 35,165 acres of suitable habitat and 2.5 acres of 24,585 acres of dispersal owl habitat from CHU OR#32 (FY 06-08 Biological Assessment (p.50) in a narrow strip near ridgetop would not measurably reduce the ability of the CHU to provide nesting, roosting, foraging, and dispersal habitat. The narrow corridor removal of scattered large trees interspersed with smaller trees would maintain opportunity for nesting, roosting, foraging, and dispersal in the effected stand, based on the fact that the ridgetop/upper slope location: (1) is not likely to be selected for nesting or roosting, as owls typically use the lower two thirds of slopes for this (Blakesley et. al., 1992; Hershey et. al., 1998); (2) the opening created for the ROW would be limited to 40-60 ft wide and owls will disperse across roads and forage along edges, (3) most of the ROW is in younger dispersal age habitat, and (4) and absence of spotted owl nest sites within ¼ mile since Glendale Resource Area began monitoring the owl sites in 1988 indicates known nesting habitat within the stand would not be adversely affected. The cumulative effects of removing approximately 1 acre of suitable and 2.5 acres of dispersal habitat for

a ROW within CHU OR-32 when added to other past, present, and foreseeable activities is not expected to adversely effect the function of spotted owl critical habitat.

The BLM completed informal consultation with the USFWS for the Proposed Action on BLM land, along with other projects that maintain spotted owl habitat. The Letter of Concurrence from the USFWS (USDI-USFWS 2007 p. 23) determined the effects to spotted owl, or designated spotted owl critical habitat to be “may affect, not likely to adversely affect” since the project implements the standards and guidelines of the Northwest Forest Plan and the District’s RMP and will incorporate the mandatory Project Design Criteria.

Fisher - proposed for threatened species listing

The Proposed Action is unlikely to impact fishers because they have not been found in the Glendale Resource Area for successive years by peer-reviewed survey methods. Approximately seventy remote camera surveys were conducted to protocol (Zielinski and Kucera 1995) from 2002-2005 in the Glendale Resource Area, with no fisher detections, including stations in Section 17, 18, and 9, adjacent to the proposed ROW. Fishers have not been observed by BLM field personnel over many successive years of field work within the Resource Area. Although it is possible that fisher may occur as residents or disperse through the project area, the absence of detections from surveys and frequent visits from field personnel indicates that it is unlikely large or small populations occur. Approximately 3 acres of forest which includes scattered large trees and continuous canopy, contributing as late successional habitat features to fisher habitat, would be removed. Gated access would reduce but not completely eliminate traffic disturbance to the area. The Planning area contains large block federal ownership in late-successional condition with suitable forest structure for fishers, but is constrained by well developed roads with high volumes of traffic and residential areas that may preclude the use by fishers. The Project Area would not change the assessment predicted in the NWFP (USDA/USDI 1994a, p.J2-54), which stated the fisher failed to pass the species viability screens due to its dependence on interior forest habitat and large, down woody debris.

Plants - There would be no anticipated effect from the Proposed Action on any federally listed plant.

10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment. The Proposed Action does not violate any known federal, state, or local law or requirement imposed for the protection of the environment. Furthermore, the Proposed Action is consistent with applicable land management plans, policies, and programs (EA, Chapter 1.5).

Chapter 1.0 Project Scope

1.1 Introduction

On July 28, 2005, Perpetua Forests Company requested this road construction and hauling to access their lands through BLM administered lands. This EA will analyze the impacts of proposed forest management activities on the human environment in the Perpetua Forests Company Right-of-Way Road Construction Project Planning Area. The EA will provide the decisionmaker, the Glendale Field Manager, with current information to aid in the decision making process. It will also determine if there are significant impacts not already analyzed in the Environmental Impact Statement for the Medford District's Resource Management Plan and whether a supplement to that Environmental Impact Statement is needed or if a Finding of No Additional Significant Impact is appropriate.

Chapter 1 of the Environmental Assessment (EA) for the proposed Perpetua Forests Company Right-of-Way Road Construction Project provides a context for what will be analyzed in the EA, describes the kinds of action we will be considering, defines the Planning and Project Areas, describes what the Proposed Action needs to accomplish, and identifies the criteria that we will use for choosing the alternative that will best meets the purpose and need for this proposal.

1.2 Purpose and Need for the Proposal

This environmental assessment analyzes the environmental effects associated with Perpetua Forests Company's request to construct and log haul on 3,609 feet of road across BLM Matrix land allocation to access and harvest trees on land owned by Perpetua.

The purpose of this project is to meet the needs identified in the Medford District Resource Management Plan ROD (RMP ROD). Those objectives are to:

“Continue to make BLM-administered lands available for needed rights-of-way where consistent with local comprehensive plans, Oregon statewide planning goals and rules, and the exclusion and avoidance areas identified in this RMP,” (p.82);

“Consider new locations for rights-of-way projects on a case-by-case basis. Applications may be approved where the applicant can demonstrate that use of an existing route or corridor would not be technically or economically feasible; and the proposed project would otherwise be consistent with this resource management plan and would minimize damage to the environment.” (USDI 1995, p. 83); and

“Develop and maintain a transportation system that serves the needs of users in an environmentally sound manner.” (USDI 1995, p. 84).

1.3 Project Location

The Planning Area is located southeast of the community of Glendale (see vicinity map Appendix 1 pg.62) and delineated by the 28,360 acres Wolf Creek HUC 6 sub-watershed. The legal description of the Planning Area is T33S-R5W Sections 3-11, 13-23, 26-32, 34; T33S-R6W Sections 1-3, 9-31; T33S-R7W Sections 13, 24-26, 35, 36; and T34S-R7W Section 1; Josephine County, Willamette Meridian. The Planning Area is located on Oregon and California (O&C) Railroad Lands and designated as Matrix land on federal lands that is a checkerboard pattern of public and private ownerships and is within in the 104,417 acre Grave Creek HUC 5 watershed.

The Project Area is defined by the area of ground disturbing and hauling activities on BLM land associated with the Perpetua Forests Company's request to access approximately 80 acres of their land for harvest in T33S-R5W-Section 20. These activities include constructing and hauling on 3,609 ft of natural surface road on BLM land, off road number 33-5-18.0.

1.4 Plan Conformance

This Proposed Action conforms to the:

- *Final Supplemental Environmental Impact Statement and Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (Northwest Forest Plan FSEIS 1994 and ROD 1994);
- *Final-Medford District Proposed Resource Management Plan/Environmental Impact Statement and Record of Decision* (EIS 1994 and RMP/ROD 1995);
- *Final Supplemental Environmental Impact Statement: Management of Port-Orford-Cedar in Southwest Oregon* (FSEIS 2004 and ROD 2004);
- *Final Supplemental Environmental Impact Statement and Record of Decision and Standards and Guidelines for Amendment to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (FSEIS 2000 and ROD 2001) including any amendments or modifications in effect as of March 21, 2004;
- the *Final Supplement to the 2004 Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines* (FSEIS, 2007 and ROD, 2007); and
- *Medford District Integrated Weed Management Plan Environmental Assessment* (1998) and tiered to the *Northwest Area Noxious Weed Control Program* (EIS 1985).

On July 25, 2007, the Under Secretary of the Department of Interior signed a new Survey and Manage Record of Decision¹ that removed the survey and manage requirements from

¹ Complete Title: Record of Decision To Remove the Survey and Manage Mitigation Measure Standards and Guidelines from Forest Service Land and Resource Management Plans Within the Range of the Northern Spotted Owl

all of the BLM resource management plans (RMPs) within the range of the northern spotted owl. In any case, I have designed this project to be consistent with the 2001 Survey and Manage ROD as modified by subsequent annual species reviews as allowed by the modified October 11, 2006 injunction.

The development and design of this project complies with the Northwest Forest Plan (NWFP) prior to the Annual Species Review process. The Glendale Resource Area conducted red tree vole surveys and provided management prescriptions consistent with Survey and Manage protocol and management recommendations in effect as of the 2001 ROD for Survey and Manage species whose range is in the Project Area. Information regarding effects of the project on "Survey & Manage" species has been incorporated in Chapter 3 and Appendix 2 of the EA. Therefore, this project complies with the NWFP prior to that amendment (See 2001 Compliance Review Worksheet: Survey and Manage Botany and Wildlife Species).

The Aquatic Conservation Strategy (ACS) consistency analysis (see Appendix 3 of this EA) evaluated the action alternative on BLM land in the Perpetua Forests Company Right-of-Way Road Construction Project EA and found the action alternative would not retard or prevent the attainment of the nine objectives or the four components of the ACS. Therefore, this project is consistent with the ACS of the NWFP Record of Decision (1994). The new road construction is proposed on a ridge top location and not within a riparian reserve. The use of quarries and roads to haul rock would be done within existing road prisms and existing quarries. The action alternative would not result in measurable adverse effects to water quality. There would be no measurable change to stream shade, water nutrient levels, flow regime, or chemical contamination of streams, or springs as a result of this action. This determination was based on the small spatial and temporal disturbances associated with the new road construction and haul on this road, quarry use, and road use on existing roads.

Parts of the *Grave Creek Watershed Analysis* is incorporated by reference; the watershed analyses provides background for the project planning and but are neither NEPA nor decision documents.

1.5 Permits and Approvals Required

In advance of amending O&C Logging Road Right-of-Way Permit M-2000EA and Right-of-Way and Road Use Agreement M-2000 (Alternative 2) Perpetua Forests Company would be required to pay the BLM the full stumpage value of the estimated volume of merchantable timber to be cut in the construction of the spur road (43 CFR 2812.5-1).

1.6 Public Scoping and Identification of Alternative Use of Resources

1.6.1 Public Scoping

The Glendale Resource Area accepts public comment of proposed forest management activities through the quarterly BLM Medford Messenger publication. A brief description of proposed projects, such as Perpetua Forests Company Right-of-Way Construction Project, a legal location and general vicinity map are provided along with a comment sheet for public responses. This project was included in these quarterly publications beginning in fall 2005, and no public comments were received.

1.6.2 Alternative Access Consideration

An evaluation of alternate means of access to the area of timber extraction other than road construction was explored with Perpetua Forests Company. In consideration of the absence of available roads and suitable helicopter landing and service areas within 0.75 miles creating logistical infeasibility of helicopter extraction, the original submittal for road construction location was found to be the only viable option to extract timber within the area of interest.

1.7 Decisions to be Made

The Glendale Field Manager is the official responsible for deciding whether a supplemental Environmental Impact Statement (EIS) should be prepared based on whether the Proposed Action would result in significant impacts to the human environment not already analyzed in the Environmental Impact Statements prepared for the Medford District Resource Management Plan and its amendments. If there are any such additional impacts that are significant, project proposals could be modified to mitigate the impacts so a SEIS would not be necessary. If it is determined that there is no need to prepare a SEIS, a Finding of No Significant Impact (FONSI) would be prepared. An additional decision to be made is whether to approve or deny the proposed road construction, location, Amendment # 2 amending O&C Logging Road Right-of-Way Permit M-2000EA and Right-of-Way and Road Use Agreement M-2000, and associated design features on BLM-administered lands within the Project Area.

Chapter 2.0 Alternatives

2.1 Introduction

This chapter compares the no action alternative (Alternative 1) with the action alternative, Alternative 2 (Proposed Action) as specified in 40 CFR (Code of Federal Regulations) § 1502.14. Descriptions summarize potential actions and outputs. Project Design Features were identified to ensure project compliance with higher level NEPA documents, laws and BLM guidelines. Since there were no unresolved conflicts concerning alternative uses of available resources identified by the interdisciplinary team, there was no procedural requirement to develop additional action alternatives (**Appendix 1**). As such, the alternatives that will be analyzed in detail in this EA include the No Action Alternative and the Proposed Action Alternative.

2.2 Alternative 1: No Action

Under this alternative, the federal management actions described under the action alternatives would not take place at this time. However, the opportunity to construct a road through BLM to access to the Perpetua Forests Company parcel in T33S-R5W-Section 20 would continue to be a viable option for the future but would be analyzed through a separate environmental analysis. The timber on private land would remain unharvested unless other access becomes available.

2.3 Alternative 2: Proposed Action

Pursuant to 43 CFR 2812 the proposed federal action is to amend O&C Logging Road Right-of-Way Permit M-2000EA and Right-of-Way and Road Use Agreement M-2000 to authorize Perpetua Forests Company to construct and log haul on 3,609 feet of natural surface road off of BLM road #33-5-18.0 in T33S-R5W-Section 17 SE1/4, SW1/4.

The new road would be identified as road #33-5-17.1. The clearing width would range from 40-60 feet on the upper portions of the hillslope and along a ridge. The useable road width would be 14 feet. The right-of-way clearing width would be 60 feet for the first 300 feet of road and at constructed turnouts. The remaining 3,309 feet would be a 40 foot wide right-of-way. The area of disturbance exceeds the useable road width (14 ft), and includes ditches, curve widening, and vegetative removal beyond ditches. The distance of vegetative removal above and below road prism also depends on the hillside slope. The road is designed for safety, maintenance, and was marked by a BLM engineer and wildlife biologist to minimize resource impacts. The clearing widths would vary, and resource impacts are analyzed at 40-60 feet; actual clearing widths may fall within that range, or be slightly less. To minimize sedimentation one drainage relief ditch would be created at the road switchback, and six rocked water dips would be included in the road design, with water dips spaced approximately every 250 feet. Since the right-of-way would have grades of 14%-16% at some locations, a gate would be installed at the start of

the new road prior to the October 15 (end of the dry season), of the first operating year, as another measure to reduce sedimentation caused by public traffic. The gate would be purchased, installed, and maintained by Perpetua Forests Company commensurate with its designated use.

Merchantable trees removed for road construction within the 40-60 ft right-of-way clearing limits would be sold pursuant to 43 CFR 2812.5-1.

The first 300 ft of road would be constructed with an excavator. The excavated material would be end hauled and disposed of in any of the following three sites:

- Board Tree Quarry (T33S-R5W-Section 18) approximately 1.5 miles from construction activities.
- At the end of the 33-5-7 road (T33S-R5W-Section 18) approximately 2.5 miles from construction activities.
- An existing skid trail located in a saddle which the new road would cross. The saddle and skid trail are located approximately 338 feet from the 33-5-18 road on the proposed new road location. End haul material could be placed along this existing skid trail where the new road would cross it. End haul material would be feathered out along the skid trail.

Moving material to and from the quarry would require hauling on portions of roads 33-5-18, 33-5-7, 33-5-10, 33-5-10.3 and Speaker Road. Rock needed for water dips would come from rock stockpiled at T33S-R5W-Section 9 NE1/4 NE1/4. The above construction activities are permitted between May 15 and October 15 of the same calendar year.

2.3.1 Project Design Features for Road Work

Project design features (PDF) are specific measures included in the design of the Proposed Action to minimize adverse impacts on the human environment. Many project design features for projects in the Medford District are specified in the RMP and may not be repeated in this EA. These include Best Management Practices (BMP) as described in Appendix D of the RMP.

Cultural Resources

- If cultural resources are found during project implementation; the project may be redesigned to protect the cultural resource values present, or evaluation and mitigation procedures would be implemented based on recommendations from the resource area archaeologist and concurrence by the Glendale Field Manager and State Historic Preservation Office.

Wildlife

- Work activities (such as tree felling, yarding, road construction, hauling on roads not generally used by the public, prescribed fire, muffled blasting) that produce loud noises above ambient levels, or produce thick smoke that would enter the stand, will not occur within specified distances (see table below) of any nest site or activity center of known pairs and resident singles or unsurveyed NRF habitat between 1 March and 30 June (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. The restricted zone is 1.0 mile for any unmuffled blasting. This distance may be shortened if significant topographical breaks or blast blankets (or other devices) muffle sound traveling between the blast and nest sites. March 1 – June 30 is considered the critical early nesting period; the Authorizing Officer has the option to extend the restricted season during the year of harvest, based on site-specific knowledge (such as a late or recycle nesting attempt). The boundary of the prescribed area may be modified by the action agency biologist using topographic features or other site-specific information. The restricted area is calculated as a radius from the assumed nest site (point).
- If an active spotted owl nest or activity center is located within or *adjacent* to a project area, delay the project activity until September 30th or until an action agency biologist determines that young are not present. For a given situation, the “adjacent” distance is determined by the action agency biologist – if needed, contact Level 1 team for guidance. If any project activity is so close to a known or suspected owl site that the disturbance would flush a nesting spotted owl, curtail the project activity until September 30. The Authorizing Officer has the discretion to have surveys conducted and determine fledging activity.

- Harassment distances from various activities for spotted owls

Type of Activity	Distance at which spotted owl may flush or abort a feeding attempt
a blast larger than 2 pounds of explosives	1 mile
a blast of 2 pounds or less	120 yards
an impact pile driver, a jackhammer, or a rock drill	60 yards
a helicopter or a single-engine airplane	120 yards for small helicopters; 0.25 miles for Type 1 or 2 helicopters
chainsaws (hazard trees, precommercial and commercial thinning)	65 yards
heavy equipment	35 yards

- The Authorizing Officer has the option to extend the disturbance distance up to ¼ mile and the restricted season to as late as September 30, should the road construction extend beyond June 30, based on site-specific knowledge (such as a

late or recycle nesting attempt). Road construction would occur after surveys have determined nesting and nest location status. The restricted area is calculated as a radius from the assumed nest site (point).

- Trees would be felled towards the ROW clearing to avoid disturbance to adjacent red tree vole habitat areas.

Water Quality

- The work period for road construction, drainage improvement, quarry operations, and hauling would be permitted by the Authorizing Officer generally from May 15 to October 15 of the same year to ensure that soil-disturbing activities are completed before the rainy season.
- Road construction, drainage improvement, quarry operations, and hauling would be restricted to the dry period by the Authorizing Officer generally between May 15 and October 15 to reduce erosion and road damage. Additionally, if wet weather conditions occur during this period, log haul may be suspended by the Authorizing Officer if the occurrence of saturated road surfaces would result in rutting or erosion to the extent that water is being perpetually re-routed into tire tracks or away from designed drainage patterns.
- Road construction would consist of outsloping, with rocked water dips to prevent rilling.
- All soil disturbance associated with road drainage improvement would be within the existing road Rights-of-Way, with moderate to small excavations and fills.
- Excess excavated material generated from road construction activities would be end hauled to the Board Tree Rock Quarry T33S-R5W-Section 18, would be end hauled to the Board Tree Quarry in T33S-R5W-Section 18, the end of the 33-5-7 road, or where the proposed road would intersect an existing skid trail on the saddle. Material end hauled to the Board Tree Quarry would be placed on the hillslope side of the road next to the quarry at a 1:1 slope. Exposed soil would be planted with native seed and mulched with certified weed-free mulch.
- Soil contaminated by excessive leakage of diesel, oil, hydraulic fluid and other hazardous materials as a result of equipment failure or human error would be removed from the site and disposed of in an approved site.
- Work would be temporarily suspended if monitoring indicates that rainstorms have saturated soils in the work area to the extent that there is potential for road damage or the potential for excessive stream sedimentation.
- Exposed soils, created during construction activities along either side of the constructed roadbed, would be mulched with certified weed-free mulch and

planted with native seed by Oct. 15th to reduce the amount of material that would be prone to erosion.

- Sidecasting on slopes 60% or greater, or where it would adversely effect water quality or weaken stabilized slopes would require approval by the Authorized Officer. Where sidecasting is inappropriate, excavated material would be end hauled to any of the designated sites described Section 2.3.

Invasive Species/Noxious Weeds

- Heavy equipment would be washed prior to entering federal lands, removing soil and plant parts to prevent the spread of noxious weeds into the Project Area.

Chapter 3.0 Affected Environment and Environmental Consequences

3.1 Introduction

In accordance with law, regulation, executive order, policy and direction, an interdisciplinary team reviewed the elements of the human environment to determine if they would be affected by the alternatives described in Chapter 2.0. Those elements of the human environment that were determined to be affected define the scope of environmental concern (see **Environmental Elements in Appendix 2 for full list of elements considered**). The Affected Environment portion of this chapter describes the current conditions and how they came to be. The relevant resources that could be potentially impacted are: special status wildlife species and critical habitat; and soils and water quality as the result of management activity.

The Environmental Effects portion of this chapter provides the analytical basis for the comparisons of the alternatives (40 CFR § 1502.16) and the reasonably foreseeable environmental consequences to the human environment that each alternative would have on the relevant resources. Impacts can be beneficial, neutral or detrimental. This analysis considers the direct impacts (effects caused by the action and occurring at the same place and time), indirect impacts (effects caused by the action but occurring later in time and farther removed in distance but are reasonably foreseeable) and cumulative impacts (effects caused by the action when added to other past, present and reasonably foreseeable future actions). The temporal and spatial scales used in this analysis may vary depending on the resource being affected.

As the Council on Environmental Quality (CEQ), in guidance issued on June 24, 2005, points out, the “environmental analysis required under NEPA is forward-looking,” and review of past actions is required only “to the extent that this review informs agency decision-making regarding the Proposed Action.” Use of information on the effects on past action may be useful in two ways according to the CEQ guidance. One is for consideration of the Proposed Action’s cumulative effects, and secondly as a basis for identifying the Proposed Action’s direct and indirect effects.

The CEQ stated in this guidance that “[g]enerally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.” This is because a description of the current state of the environment inherently includes the effects of past actions. The CEQ guidance specifies that the “CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions.” Our information on the current environmental condition is more comprehensive and more accurate for establishing a useful starting point for a cumulative effects analysis, than attempting to establish such a starting point by adding up the described effects of individual past actions to some environmental baseline condition in the past that, unlike current conditions, can no longer be verified by direct examination.

The second area in which the CEQ guidance states that information on past actions may be useful is in “illuminating or predicting the direct and indirect effects of a proposed action.” The usefulness of such information is limited by the fact that it is anecdotal only, and extrapolation of data from such singular experiences is not generally accepted as a reliable predictor of effects.

Scoping for this project did not identify any need to exhaustively list individual past actions or analyze, compare, or describe the environmental effects of individual past actions in order to complete an analysis which would be useful for illuminating or predicting the effects of the Proposed Action

When encountering a gap in information, the question implicit in the Council on Environmental Quality regulations on incomplete and unavailable information was posed: Is this information “essential to a reasoned choice among the alternatives?” (40 CFR §1502.22[a]). While additional information would often add precision to estimates or better specify a relationship, the basic data and central relationships are sufficiently well established that any new information would not likely reverse or nullify understood relationships. Although new information would be welcome, no missing information was determined as essential for the decision maker to make a reasoned choice among the alternatives.

Western Oregon Plan Revisions, although reasonably foreseeable, are still in process and subject to change based on public comments and subsequent administrative remedies. They, therefore, provide insufficient information for meaningful consideration at this time (see *NAEC v. Kempthorne*, 457 F.3d 969, 979-80 (9th Cir. 2006) finding it lawful to consider the cumulative effects in the later broad-scale planning analysis).

Additionally, the purpose of this current proposal is to implement the existing Medford District Resource Management Plan (RMP). This EA has been prepared to determine if any significant environmental effects of the proposal are substantially greater than what has already been analyzed in the existing RMP’s programmatic EIS. The EIS associated with the current Western Oregon Plan Revision effort contains a cumulative effects analysis that incorporates these implementation actions (projected to occur under the existing plan as the “No Action” alternative and possible ongoing actions carried forward into the Action Alternatives), in a manner appropriate to the land use planning scale. The Western Oregon Plan Revision EIS therefore serves as the appropriate vehicle for analyzing the cumulative effects of each land use alternative’s management scheme. Any potentially cumulative effects of this proposal at the programmatic level that would be relevant to the proposed plan revision will be considered in that process.

It is not the intent of the planning or NEPA processes to recalibrate all analyses of existing plan implementation actions whenever a new planning effort begins consideration of a broad array of management guidelines and alternative allocations at the programmatic scale. Analyzing the outcome of the plan revision process as a “reasonably foreseeable future action” in every implementing project of the current plan would create

a circular analysis process, where the effects of revising the plan would be used to determine whether to supplement the current plan's analysis that is already being revisited in the revision effort. Rather, the plan-level EIS itself will factor in the cumulative program effects and reset the stage for analysis of subsequent plan implementation actions.

The effects analysis of Perpetua Forests Company's private harvest tiers to the RMP which assumed that private lands would be extensively managed with an average rotation of 60 years. The analysis also assumes that Perpetua Forests Company would operate within the regulations of the Oregon Forest Practices Act (OFPA), including standards and guidelines designed to minimize project effects.

3.2 Noxious Weeds/Invasive Species

3.2.1 Affected Environment

The proposed Perpetua ROW located in T33S R5W Section 17 & 20 was surveyed for noxious weeds in the spring of 2006. One small population of *Senecio jacobaea* (Tansy ragwort), was documented directly adjacent to proposed ROW (Table 3-1). The population scantily extended up the existing road. However, this noxious weed species is not as much a concern as it once was, as the biological control (as small beetle which feeds on plant parts) has been very successful in reducing existing populations.

Table 3-1. 2006 Plant Surveys Revealing Noxious Weed Species in the Proposed Perpetua Right-of-Way Road Location

Location in Township (T), Range (R), Section (S)	Species	Coverage in Sq. Feet	Oregon Department of Agriculture Designation	Plant Description / Habitat Requirements
T33S R5W Section 17	Tansy ragwort	150	B*	Tansy ragwort, a biennial herb, requires sunlight and a disturbed site to establish. It is often found on roadsides, contributing to the spread of new infestations. Tansy ragwort will establish in disturbed sites including roadsides, pastures, and forested areas recently harvested for timber (Sweeney et al. 1992). The cinnabar moth (<i>Tyria jacobaeae</i>) is the biological agents effectively used to control tansy ragwort in Oregon, California, and Washington (Rees et. al, 1996).
Total Sq. feet		150		

* “B” designation; a weed of economic importance which is regionally abundant but which may have limited distribution in some counties. Where implementation of a fully integrated statewide management plan is not feasible, biological control shall be the main control approach (ODA, 2005).

Over the last 150 years activities such as motor vehicle traffic, recreational use, rural and urban development, timber harvest, road construction, and natural process have introduced and transported noxious weeds into the Rogue Valley. Noxious weeds are spread by the wind and by seed via attachment to vehicles and vectors such as humans, animals, and birds, and are able to grow on suitable habitat (generally considered as any newly disturbed ground and/or an influx of light due to canopy removal). Since the 1970s a recognition that weeds were causing environmental damage resulted in the passage of State noxious weed laws, the Carson-Foley Act of 1968 – Plant Protection Act of 2000, and Presidential Executive Orders like Invasive Species E.O. 13112, which directs federal agencies to combat the noxious weeds on federal lands. Additional direction is provided by the Medford District RMP, which states the district is to “contain and/or reduce noxious weed infestations on BLM-administered land... (p. 92),” and “...survey BLM-administered land for noxious weed infestations... (p. 93).” These RMP directions for weed management are intended to be met at a landscape level; whether the direction is achieved is not intended to be measured at the site specific level nor with the implementation of each project. Thousands of acres of weed treatments have occurred on federal (and non-federal) lands over the last decade across the Medford District with the RMP-driven objective of containing or reducing – not eradicating - noxious weed populations (Budesá, 2006).

3.2.2 Environmental Consequences

Alternative 1 (No Action)

Under the No Action Alternative, noxious weeds within the Planning Area would continue to spread into suitable habitat at an unknown rate. The rate at which noxious weeds spread is impossible to quantify, as it depends on a myriad of factors including,

but not limited to, logging on private lands, motor vehicle traffic, recreational use, rural and urban development, and natural processes (Northwest Area Noxious Weed Control Program EIS, p. 59). The following table (3-2) illustrates how each of these activities affects noxious weed dispersal.

Table 3-2. Factors Affecting the Determination of the Rate of Noxious Weed Spread

Activity	Role in Potential Noxious Weed Seed Dispersal
Private Land	Private lands host a perpetual source for noxious weed seed, which can be dispersed when seeds attach to tires, feet, fur, feathers or feces, or when natural processes such as wind and/or flooding events transport the seed from its source to another geographical vicinity.
Logging on Private Lands	Logging activity presents a key dispersal opportunity for noxious weed seeds per 1) attachment to tires/tracks of mechanized logging equipment, tires of log trucks, and various other logging-related substrates which subsequently transport the seed from its source to another geographic vicinity, 2) creation of openings for potential noxious weeds colonization and 3) a lack of PDFs – such as equipment/vehicle washing, etc. - which attempt to reduce the activity’s spread of noxious weed seeds.
Motor Vehicle Traffic (including Log Trucks)	Roads on public land include public use, which results in a plethora of seed-dispersing activities occurring on a daily basis. Private landowners use public roads to haul logs, undertake recreational pursuits, and/or access their properties. This transportation often occurs along BLM-administered roads, which are situated within a checkerboarded ownership arrangement. How or when seed detachment occurs is a random event could take place within feet or miles from the work site/seed source, presenting a high likelihood of detachment on public lands.
Recreational Use	The public often recreates on BLM-managed lands and can spread seed from their residences to public land in a variety of ways such as attachment to vehicle tires, hikers’ socks, shoes, or other clothing, the fur of domesticated animals, etc.
Rural and Urban Development	Rural development occurring within the checkerboarded land arrangement often requires public landowners to acquire a Right-of-Way (ROW) from the BLM to legally access their parcel(s). These ROWs, or use of BLM-administered roads is often granted (Groves, 2006). Please refer to ‘Motor Vehicle Traffic’ and ‘Private Land’ for clarification of how this affects the spread of noxious weeds from private to public lands.
Natural Processes	Wind, seasonal flooding, and migration patterns of birds/animals are a few natural processes that potentially spread noxious weeds, especially from private land to public land. Wind carries seeds, and deposits them at random intervals. High water caused by flooding reaches vegetation (often harboring a noxious weed component) growing on the banks of rivers/creeks/streams, and deposits seeds downstream.

The more aggressive species are slated for treatment under Medford District’s *Integrated Weed Management Plan and Environmental Assessment OR-110-98-14* across this District. However, the success of implementing the weed management plan would be temporary, as logging on non-federal lands, recreational use, rural and urban development, natural processes and vehicle traffic will continue to spread noxious weed populations into the Planning Area.

Indirect effects of noxious weed spread include the potential degradation of wildlife habitat (Rice et. al. 1997, Harris and Cranston 1979), a decline in natural diversity (Forcella and Harvey 1983; Tyser and Key 1988; Williams 1997), and decline in water quality (Lacey et al. 1989); however, a very small amount of land included in the ROW proposal (less than 0.25 acres) is covered by noxious weeds, resulting in immeasurable contributions to any potential decline in ecosystem health related to existing noxious

weed populations, or to any additional noxious weed populations potentially established by the activities described in Table 3-2.

Alternative 2 (Proposed Action)

In the short term (approximately 1-5 years), proposed activities within the Planning Area would result in the reasonable probability of spreading noxious weeds. However, the rate at which this potential spread would occur is unknown due to the indistinguishable causal effect of other activities and factors listed in table 1-2 on the spread of noxious weeds. Openings, such as the proposed road construction, would provide suitable habitat for noxious weeds to colonize. In addition, during project implementation, increased vehicle traffic could increase, or at least perpetuate, weed infestations along road systems because of seed dispersal. Openings and disturbance provide the greatest opportunity for the establishment of noxious weeds. In an effort to address the potential for project activities to increase the rate of spread of noxious weeds, Project Design Features (PDFs) have been included in the project to decrease the potential spread of weeds associated with the proposed ROW. Project Design Features include washing equipment prior to moving it on-site, operating vehicles/equipment in the dry season, and seeding newly created openings with native vegetation to reduce the potential establishment of noxious weeds. These PDFs are widely accepted and utilized as Best Management Practices (BMPs) in noxious weed control strategies across the nation (Thompson, 2006). Table 3-3 delineates the project design features and their expected implementation results.

Table 3-3. Project Design Features and Expected Implementation Results

Project Design Feature (PDF)	Result of Implementing PDF
Washing vehicles / equipment	Removes dirt that may contain viable noxious weed seeds, thereby reducing the potential for noxious weed spread
Operating vehicles/equipment during the dry season	Reduces the potential for viable noxious weed seed to be transported and dispersed via mud caked on the undercarriages/tires/tracks of logging equipment.
Seeding and/or planting newly created openings with native seed vegetation.	Introduces native vegetation to the site prior to noxious weed seed recruitment, allowing native plants an advantageous jump-start in reestablishment, which reduces the potential for noxious weed infestation.

Implementing the PDFs that reduce the potential spread of noxious weeds associated with the Proposed ROW, and using native species for seeding/planting newly disturbed openings is expected to result in a similar potential of noxious weed expansion as associated with the No Action Alternative.

In the long term (5-100 years), tree canopies would eventually expand and reduce light levels, which in turn would prevent weeds from growing and expanding within treated areas, because populations decline as the amount of light reaching the plants diminishes. Consequently, in the long term, remaining weed populations would be confined to the road prism and adjoining (private) disturbed land as canopy is re-established in treated areas over time.

The effect of implementing Alternative 2 could possibly result in the establishment of new noxious weed populations. Although the *immediate* potential for weed spread would be less with the No-Action Alternative than for the Proposed Action, the potential for the spread of existing noxious weeds and the introduction of new species is considered similar for both alternatives, because of the inclusion of PDFs in Alternative 2, and the fact that under the “no action” alternative, populations would continue to establish and spread due to seed transport by vehicular traffic, wildlife, and other natural dispersal methods listed in Table 3-2. Indirect effects associated with noxious weed population enlargement are similar to those mentioned in the No Action Alternative, and are known to include, generally, declines in the palatability or abundance of wildlife and livestock forage (Rice et al., 1997), declines in native plant diversity (Forcella and Harvey, 1983; Tyser and Key, 1988; Williams, 1997), reductions in the aesthetic value of the landscape, encroachment upon rare plant populations and their habitats, potential reductions in soil stability and subsequent increases in erosion (Lacey et. al, 1989), and an overall decline of ecosystem health. However, considering implementation of Alternative 2, there are three main reasons why potential weed establishment that might be caused by the Proposed Action is not expected to result in a detectable effect to overall ecosystem health. First, surveys indicate that a very small area (less than 0.25 acres) within the Planning Area is affected by noxious weeds. Second, the species residing at this site is not considered a priority species for manual treatment, as biological controls are effective at containing and eventually reducing the existing populations. Third, as aforementioned, Project Design Features (PDFs) have been established to minimize the rate at which project activities might potentially spread noxious weed seed from outside/adjacent sources.

Cumulative Effects

In order to address the cumulative effects of the Proposed Action on the spread of noxious weed encroachment, the condition of non-federal lands must be considered. However, there is no available or existing data regarding noxious weed occurrence on local non-federal lands. Therefore, for purposes of this analysis, BLM assumes that 1) there is a perpetual source of noxious/invasive weeds on non-federal lands that can spread to federal lands, especially when the land ownership is checkerboard, as within the Planning Area, and 2) conversely that noxious weeds are not established on these lands, and therefore there is a need to reduce the risk of spread of noxious weeds from the federal lands to the adjoining non-federal lands. Seeds are spread by the wind, by animal/avian vectors, natural events, and by human activities - in particular through soil attachment to vehicles. BLM’s influence over these causes of the spread of noxious weeds is limited to those caused by human activities. Additional human disturbance and traffic would increase the potential for spreading noxious weed establishment, but regardless of human activity, spread of these weeds will continue through natural forces. Thus, the BLM cannot stop the spread of noxious weeds, it may only reduce the risk or rate of spread.

Given the unpredictable vectors for weed spread, such as the vehicle usage by private parties, wildlife behavior, and wind currents, it is not possible to quantify with any degree of confidence the rate of weed spread in the future, or even the degree by which that potential would be increased by the Proposed Action. Additionally, considering Perpetua Forests Company's plans on logging the parcel directly adjacent to this portion of public land, the potential for weed spread is conceivably as great, if not greater, than the potential for spread in Alternatives 2 on BLM land.

Foreseeable activities within the Planning Area are expected to be similar to past and current activities: motor vehicle traffic, recreational use, rural and urban development, timber harvest, road construction, firewood collection. These types of activities could result in new disturbed sites available for colonization by existing noxious weed populations, and they do offer the possibility of introduction of new noxious weed species to the Planning Area under any alternative, including the no-action alternative. As stated above, there is no available or existing data concerning the rate of weed spread occurring on either federal or non-federal lands as a consequence of these types of activities. Also, as discussed above, there is no information on what, if any, increase in the rate of weed spread the Proposed Action will cause, and hence, it is not possible to quantify with any degree of confidence what the incremental effect of the Proposed Action on the spread of noxious weeds will be when added to the existing rate of weed spread caused by past, present, and future actions.

PDFs exist to reduce the potential that the Proposed Action would contribute to the spread of weed seed and establishment of new populations. PDFs are not intended or expected to completely eliminate any possibility that the Proposed Action would contribute to the spread of weed seed and establishment of new populations; however, PDFs ensure that any incremental contribution of the Proposed Action to the spread of weeds, when added to the rate of weed spread caused by past, present, and future actions, would be so small as to be incapable of quantification or distinction from background 6th field levels.

These PDFs are widely accepted as Best Management Practices (BMPs), as they are inexpensive to implement, easily attainable, and accomplish the objective of reducing the potential of spreading noxious weeds as a result of project-oriented activities.

There is no available data on the background rate of weed spread, and additional data collection on the rate of weed spread would not reduce the inherent speculation in predicting the future activities of private parties and wildlife and the resultant rate of weed spread. Further, additional data collection would not reduce the inherent speculation in predicting incremental effects of the Proposed Action on the spread of weeds because of (1) the unpredictable natural factors that largely determine whether weeds will spread after project activities, (2) the unlikelihood that future data collection would be able to detect or measure any difference between background rates of weed spread and the rate of weed spread as affected by the Proposed Action and correspondingly reduced by PDFs, and (3) the included PDFs that would reduce, if not eliminate, any project effects on the rate of weed spread that would make the already

undetectable effects of the Proposed Action even more undetectable. Finally, further data collection on the rate of spread would not alter the PDF techniques already being applied to reduce that rate of spread. It cannot be over emphasized that under the No-Action Alternative, noxious weeds are likely to spread over time regardless of whether or not the ROWs are granted, and that rate will not be altered to any detectable degree at the 6th field watershed level by the Proposed Action.

3.3 Soils and Hydrology

3.3.1 Affected Environment

This action is proposed within the 28,360 acre Wolf Creek HUC6 drainage, located within the approximately 104,400 acre Grave Creek HUC 5 watershed. In the area of the proposed road construction, soils are mapped as a Beekman-Colestine complex which is fairly deep, well drained, and typically has moderate permeability. The Josephine County Soils Survey (SCS 1983) identifies steepness of slope, hazard of erosion and compaction, and the difficulty of reforestation as the main concerns for this soil complex. Soils in this complex can be prone to rapid runoff that can lead to erosion where flows are concentrated as a result of slower permeability and moderately steep slopes. The proposed road construction and haul is located in the upper portions of the hillslope and along a ridge. Slopes within this Project Area are generally less than 40%, with only the first approximately 300 feet on the North side of the ridge exceeding this, at about 65%. There are no stream crossings or headwalls within, or adjacent to, the area of the proposed road construction.

Current Condition of Sub-Watershed

Currently approximately 1.7% (500 acres) of the Wolf Creek HUC 6 drainage is estimated to be compacted and non-productive for timber production, as a result of existing roads. Research indicates that changes in runoff timing may occur when roads acres occupy 3%-4% of the watershed (WPN, 1999). Road-caused changes in watershed hydrology are generally a result of reduced infiltration on compacted surfaces, more rapid routing of runoff in ditchlines, and the interception of surface and subsurface flows (Ziemer, 1981).

Road densities within the Wolf Creek HUC 6 drainage are currently at approximately 5.2 mi/mi². Road densities as a result of past road construction are currently above National Marine Fisheries Service (NMFS) recommended levels for properly functioning sub-watershed condition. The NMFS target established for proper functioning condition is 2 mi/mi², and above 3 mi/mi² is considered not functioning properly (USFWS/NOAA Fisheries Table of Population and Habitat Indicators, USDA et al. 2004). Roads in close proximity to streams, un-maintained or poorly maintained roads, and native surface roads used for winter haul, are the major ongoing sediment sources in these watersheds (USDI 1999). Currently about 43% of the roads within the Wolf Creek HUC 6 drainage are within 170 feet of a stream (USDI 1999). Un-vegetated ditchlines, road surfaces, and cross drains can all transport sediment. Oregon Department of Forestry monitoring data

shows approximately one-third of private and state roads deliver sediment to streams via ditchlines, especially when used during winter hauling operations. A number of issues were identified to be contributing to the problem of sediment delivery to streams from these roads including; a lack of filtering prior to road drainage entering streams; to wide of spacing between, or poor placement of, cross drainage structures; and a lack of rules to address turbidity caused by wet-weather hauling (ODF & DEQ, 2002). Most BLM roads in these watersheds are rocked, and when used for winter haul, are generally adequately surfaced to prevent excessive erosion and road damage. Natural surface roads on BLM lands are only used for log hauling during the dry season or under dry conditions as approved by the Authorized Officer.

Water Quality within the Wolf Creek HUC 6 is generally in fair condition. Aquatic habitat in fish streams within this sub-watershed is poor as a result of sedimentation, summer water temperatures, lack of large down wood in the channel, poor pool quality, high road density, and the location and integrity of riparian reserves (USDI 1999). There are two streams within the Wolf Creek HUC 6 drainage that are water-quality limited for temperatures above 64 degrees. Coyote Creek and Wolf Creek are listed on the Oregon Department Environmental Quality (ODEQ) 303(d) 2004/2006 Integrated Report as not meeting temperature standards for anadromous fish (<http://www.deq.state.or.us>). Though there is currently no standard for measuring sediment, fine sediment deposits within the substrate indicates that stream sedimentation is an issue within these sub-watersheds (USDI 1999). High temperatures and sedimentation within these streams are thought to be associated with naturally occurring factors such as: low summer flows; lower gradients and wide; shallow channels; and stream orientation that allows for maximum solar heating. Man-made factors that are thought to influence high temperature and sedimentation are natural surface and winter haul roads, diversions, grazing and areas of sparse or absent riparian cover resulting from agriculture, placer mining, gravel operations, and some non-federal logging operations. This, in some cases, can result in increased solar radiation where shade trees are removed, and a hydrologic connection between upland erosion and the stream channel.

3.3.2 Environmental Effects

3.3.2.1 Alternative 1 (No Action)

The proposed road construction across BLM would not occur under this alternative. Perpetua Forests Company would not have access to harvest the 80 acre parcel of land in T33S-R5W-Section 20 at this time, unless future access is acquired across non-BLM. Currently, other non-federal access has been denied.

Under this alternative, soil resources and watershed hydrology on BLM lands would remain in their present condition. The pattern of erosion and the existing sediment regime would be unaltered within this Project Area, since no road construction, and maintenance would occur on BLM land under this alternative. Road densities within the Wolf Creek HUC 6 sub-watershed, would remain at approximately 5.2 mi/mi² and would keep the amount of exposed soil potentially prone to erosion, compaction, and productivity loss, at

existing levels. There would, therefore, be no change in the number of acres available for forest development on BLM in the future, and no contribution to changes in watershed hydrology from BLM lands.

3.3.2.2 Alternative 2 (Proposed Action)

On BLM land, this alternative would consist of constructing and log hauling on 3,609 feet (0.68 miles) of a proposed spur road. The first 300 feet would be full bench construction, and material removed during construction would be end hauled to the Board Tree Quarry in T33S-R5W-Section 18, the end of the 33-5-7 road, or where the proposed road would intersect an exiting skid trail on the saddle. End hauling this material to pre-approved, relatively flat locations would prevent excessive erosion and reduce the likelihood of slumping that can occur when side-casting or cut and fill construction techniques are used on steep slopes. The remaining ridgeline and south slope portions of this road would be located on slopes generally between 30-45%. There are no stream crossings or headwalls within the proposed construction area on BLM land. Additional Best Management Practices (BMPs) and Project Design Features (PDFs) would be used to minimize the amount of material eroded during the construction of this road. To minimize potential road damage and drainage problems that could lead to increased erosion, this road would be restricted to dry season use, and a gate would be installed to impede access during the winter months. The proposed road would also be built using out-sloped construction with rocked water dips, and a minimum safe running surface width of 14 feet. This would further reduce potential erosion by minimizing the area prone to increased surface runoff and by not concentrating flows within ditchlines and cross drains. Exposed soils, not including the road bed, would be mulched following construction, prior to the fall rains, to reduce the amount of material that would be prone to erosion. As a result of these BMPs and construction techniques, surface erosion would be expected to be slightly elevated above natural conditions, however, since slopes throughout this Project Area are well vegetated, and for the most part only of moderate steepness, eroded material would be expected to remain primarily onsite within the vegetation during the construction and use of this road. Consequently, no measurable additional sediment would be expected to reach the closest intermittent stream, approximately 200 feet downslope, or fish-bearing stream, approximately 1.9 miles downstream, due to the substantial distance from proposed activities on BLM land.

Use of the 33-5-7 road, where the proposed road would intersect an exiting skid trail on the saddle, or the existing Board Tree Quarry as a disposal site for end hauled material is not expected to result in measurable sedimentation. A perennial stream is adjacent to the Board Tree Quarry, however, end hauled material would be located on a relatively flat ground and would be placed as far from the stream channel as possible. As a result of the topographical features associated with this quarry and PDFs, there would be no mechanisms for the waste material to enter the stream channel. Disposal of end hauled material at the end of the 33-5-7 road or where the proposed road intersects an exiting skid trail on the saddle are not expected to result in sediment entering stream channels because of the flat topographical features and there are no mechanisms for waste material to enter stream channels.

The Proposed Action would result in soil disturbance on approximately 3.5 acres, from permanent road construction and the removal of trees within the clearing limits of the road. Construction of this road would reduce the number of acres available for timber production on BLM Matrix land allocation by approximately 1.2 acres, primarily due to productivity losses from the permanent deep compaction of the ground below the road surface. However, given the scope and location of the project, the Proposed Action is anticipated to have a negligible impact to soil productivity in Matrix lands at the sub-watershed scale. Productivity loss, compaction, and disturbance would all be well within the thresholds established in the Medford District RMP.

Road densities are above 5 mi/mi² within this sub-watershed. The National Marine Fisheries Service (NMFS) target established for proper functioning condition is 2 mi/mi². Above 3 mi/mi² is considered not functioning properly. Construction of this road would increase road densities by approximately 0.02% at the HUC 6 drainage scale. Additionally, road densities would remain below the 3-4% level that research shows is necessary for sub-watershed hydrology to be measurably altered. Additionally, since this road would be out-sloped, no ditchlines would be built, and thus runoff timing would not be expected to be measurably increased.

All activities on federal land would be consistent with the standards and guidelines set forth under the Medford RMP EIS. Although the proposed action on BLM land would create a small effect at the site scale, it would be negligible at the HUC7 scale, and not detectable at the HUC 6 scale.

3.3.2.3 Cumulative Effects

In compliance with Medford RMP, a cumulative effects analysis for this project was completed at the HUC 6 sub-watershed scale. The following guidelines are provided for cumulative effects analysis, "To minimize detrimental impacts on water and soil resources resulting from the cumulative impact of land management activities within a watershed...Use the following general guidelines to delineate watersheds for cumulative effects analyses: Natural drainage boundaries, third to fifth order drainages (approximately 500 to 10,000 acres)," (USDI 1995, Appendix D, p. 153). Cumulative effects should therefore be written using a watershed delineated boundary that, as defined by acreage and stream order in the RMP, is at the HUC 7 or HUC 6 scale. This direction further states that this scale also needs to incorporate the entire project boundary to the lowest point at which a beneficial use could be affected. Therefore the cumulative effects analysis is scaled out from the project level HUC 7 scale, to the HUC 6 or HUC 5 watershed scale, until the point that any effects on water quality and other beneficial uses are no longer detectable. If a project has no detectable effects at the HUC 6 sub-watershed scale, than the project would not have detectable effects downstream at the HUC 5 watershed scale. As such, that project cannot incrementally add to effects occurring as a result of other projects in the HUC 5 watershed, no matter what the current condition of that HUC 5 watershed. Since this project is located within several HUC 7 drainages of the Wolf Creek HUC 6 sub-watershed, it is analyzed using a combination of

past and proposed direct and indirect effects, as well as the foreseeable effects of any other current or potential future, federal or non-federal projects at the HUC 6 sub-watershed scale.

There are two perennial streams (Robinson Gulch and Foley Gulch) located within the 80 acre Perpetua Forests Company parcel to be harvested via the proposed 0.7 mile ROW road construction on BLM land. Foley Gulch flows into Robinson Gulch, which then flows into Coyote Creek below the proposed harvest area. Perennial and intermittent tributaries of Foley and Robinson Gulch are also located within the potential harvest areas. Appropriate Riparian Management Areas (RMA) would be applied to these streams as guided by the Oregon Forests Practices Act. “Riparian management area widths are designed to provide adequate areas along streams, lakes, and significant wetlands to retain the physical components and maintain the functions necessary to accomplish the purposes and to meet the protection objectives and goals for water quality, fish, and wildlife set forth in OAR 629-635-0100,” (ODF, 2004).

Additional private harvest would be expected to continue to occur at current rates. Under this alternative, Perpetua Forests Company would proceed with timber harvest activities on private lands in the Project Area. Perpetua would have access to their land from the proposed new 3,609 ft road located along the ridge above their land (BLM land). Specific ground disturbance locations on private land relative to Coyote Creek within the harvest unit, are unknown, and it is not known in which portions, or to what extent, tractor yarding would be used under this alternative. Therefore, the amount of disturbance, subsequent erosion and increase in road density is uncertain. However, it can be assumed that Perpetua would tractor yard as much ground as possible from the new spur road. According to Sidle (1980) tractor yarding contributes 20% more disturbed ground than high-lead cable yarding (35% for tractor logging compared to 15% for cable). Thus, the amount of erosion and sediment produced as a result of the proposed private action would be relative to the method of harvesting used. However, harvest activities would take place during the dry season (May 15-Oct 15) which would reduce the degree of soil disturbance, and as a result, the amount of erosion available to be transported downslope and into streams. The RMP also acknowledges that land use practices on private may contribute to sediment deposition and that erosion and turbidity may continue to occur (USDI 1994, p. 4-66). As stated in the RMP EIS (p. 4-16) “increases in turbidity and sediment resulting from surface disturbing activities tend to diminish as disturbed areas stabilize and revegetate. This typically takes anywhere from 1-3 years, but can potentially be longer if soil resources have been highly degraded or compacted. It is expected that all operations would not exceed the assumptions in the RMP EIS and would be in compliance with OFPA regulations to reduce erosion and minimize sediment delivery to streams.

Currently, road densities within the Wolf Creek HUC 6 sub-watershed are at approximately 5.2 mi/mi². Road densities as a result of past road construction are currently above NMFS recommended levels of 2 mi/mi² for properly functioning sub-watershed condition (NOAA 2004). Based on mapped road locations approximately 2% of the Wolf Creek HUC 6 drainage is estimated to be compacted as a result of existing

roads. Alternative 2 does not appreciably increase road density on BLM land within the Wolf Creek HUC 6 drainage (an increase of 0.68 road miles, or less than 0.02%) and would not be expected to result in measurable stream sedimentation. Currently, there are no other planned future projects on federal ground that would result in an increase in road acres within the Wolf Creek HUC 6 drainage. The Five Rogues Timber Sale EA will result in approximately 0.5 miles of temporary road building, however since these roads will be decommissioned after use, they are not included in permanent road acre calculations. This will not result in an increase in road densities or long term erosion because all roads will be subsoiled using a winged ripper, which will immediately eliminate up to 80% of the compaction (Andrus and Froehlich, 1983) and restore nearly all hydrologic function. Following decommissioning these temporary roads will also be seeded, mulched, and waterbarred as necessary, to minimize exposed soil, and therefore largely eliminate the erosion that would be expected to originate from these roads. None of the road construction, use, or decommissioning identified the Five Rogues Timber Sale EA is expected to contribute sediment to streams because they are located on or near ridges several hundred yards from any stream.

Under the Proposed Action, road construction would be expected to continue on non-federal lands as needed to provide access for private harvest activities on a 60 year rotation. These effects however are consistent with the Medford RMP which assumes some increases in compaction as a result of private harvest. On private land specific road, skid road, and landing construction length and locations are unknown, and it is not known to what extent cable yarding or tractor yarding would be utilized; therefore, the amount that road density on Perpetua Forests Company's land would increase is uncertain. Given past trends on private ground it would be expected that up to approximately 800 acres could be harvested on non-federal lands within this HUC 6 in the next 5 years. Some of these acres may require road spurs or short road segments to be constructed to allow access to these acres, however many of these acres have been harvested in the past and thus currently have existing roads for access. Even if road acres were increased by 50% (up to 100 new miles) as a result of future access needs on private and public ground, road acres within this sub-watershed would remain below the 3-4% of road acres, which research indicates may result in measurable changes to hydrologic timing and peak flows. Since this would be an unrealistically high amount of new road miles that would be built in the foreseeable future, it would be logical to conclude that this project would not result in any measurable effects to hydrologic function or water quality even when assessed with other projects that have occurred, or could potentially occur within this HUC 6 drainage.

Because no riparian vegetation would be disturbed, construction of the spur road on BLM land is not expected to directly affect stream temperatures. However, timber harvest activities that remove canopy within the primary shade zone (as described in NWFP TMDL Implementation Strategies, Feb. 2005) would result in increases in solar exposure and stream temperature. As assumed in the RMP EIS (p. 4-18), stream water temperatures are directly influenced by non-BLM administered lands. On private ground Riparian Management Areas (RMAs), are designed to minimize the increase in solar radiation exposure and subsequent increases in stream temperature.

Past activities, including 5,065 acres of harvest, and 229 miles of existing roads, have resulted in reduced and loss of productivity on approximately 4% of land within the Wolf Creek HUC 6 drainage. Private harvest and road construction would be expected to result in further losses to productivity on private land. The Five Rogues Timber Sale EA will also reduce productivity on approximately 25 acres as a result of approximately 665 acres of timber harvest, landings, and roads. Productivity loss as a result of this Proposed Action would be minimal, and would be expected to have only a negligible (less than 0.05% of Matrix land allocation) impact on future timber volumes available for harvest on BLM Matrix land allocation in the future. Therefore this proposed road, when considering all other projects that have occurred, or will likely occur, within this HUC 6 sub-watershed, would not measurably affect soil productivity on federal lands. The combined effects associated with past, present, and future road construction, and use would not be expected to result in enough erosion to cause ODEQ water quality standards (turbidity) (available at www.epa.gov/waterscience/criteria/sediment/appendix3.pdf) to be exceeded because Oregon Forest Practices Act on non-federal lands, and the NWFP on federal lands, would be followed for all road construction activities, and these regulations were designed to keep projects in compliance with federal and state laws.

In conclusion, private actions would be consistent with OFPA standards and guidelines designed to minimize impacts to soils and water resources. Therefore, all effects, both private and federal, are well within expectations, and would not exceed the assumptions within the RMP EIS.

3.4 Special Status Wildlife Species (Threatened, Endangered, Sensitive) and Critical Habitat

3.4.1 Northern Spotted Owl (Threatened) and Critical Habitat

3.4.1.1 Affected Environment

The Planning Area is located within the Grave Creek Watershed, which contains a mixture of seral stages, including approximately 56% of mature and old-growth forest habitat in BLM ownership (28,147 out of 50,215 acres) used by northern spotted owls (USDI, 1999, p.48).

Northern spotted owl suitable habitat includes stands suitable for nesting, roosting, and foraging (NRF). There are two categories of suitable habitat. *Habitat 1* conifer stands satisfy the daily and annual needs of the owl for nesting, roosting and foraging. These stands generally have a multi-layered canopy with large trees in the overstory and an understory of shade tolerant conifers and hardwoods. Canopy closure generally exceeds 70%, and average diameter at breast height (dbh) is generally 21 inches or greater. *Habitat 2* suitable habitat includes conifer stands with understory vegetation or coarse woody debris which provide roosting and foraging opportunities but lack the necessary structure for consistent nesting. These stands have less diversity in the vertical structure

and canopy closure generally exceeds 60% and average dbh is 11- 21 inches. Dispersal (non-suitable) habitat includes conifer stands with trees greater than or equal to 11 inches dbh and canopy closure of 40-60%, and lack structure such as large down wood, snags, and multi-story layering. The proposed right-of-way location was field-reviewed to determine if it met the definition of suitable and/or dispersal habitat.

The Proposed Action area on BLM ownership (3.5 acres) includes many conifers greater than 11 inches dbh, scattered trees greater than 21 inches dbh, and canopy closure greater than 60% in some areas, and is considered to contain 1 acre of suitable northern spotted owl habitat. The suitable habitat is unlikely to be used for nesting, as the ridge top habitat is not typically selected for nesting, and surveys in the Klamath Demographic Study Area since 1988 have not detected any spotted owl nesting in the Project Area. There is also 2.5 acres of dispersal habitat present within the Project Area.

There are 2 spotted owl sites (Board Tree East and Foley Glen) with home ranges (1.3 mile radius from an active owl nesting site or historical activity area) within the proposed road construction. These sites were identified prior to the signing of the Northwest Forest Plan (NWFP) and contain 100 acres to be managed for late-successional characteristics. Board Tree East is within approximately 0.5 miles of the proposed road construction and annual demographic surveys last determined occupation in 1999. Foley Glen is within 1 mile and surveys last determined occupation in 2000. Barred owls have been documented at the Board Tree East and Foley Glen spotted owl site since 1999.

Extensive harvesting on BLM lands occurred in the Planning Area (HUC 6) prior to the 1990 listing of the spotted owl, and the implementation of the NWFP in 1994. Harvesting on private lands continues to be extensive. Most private land has been intensively harvested, much of it in the last few decades (Medford Change Detection, Five Rogues EA (EA#OR118-05-007), and trend analysis). The majority of the habitat on the private land (approximately 80 acres) accessed by the proposed ROW is typical of dispersal habitat, with occasional larger trees. It may provide some nesting opportunity, but primarily provides roosting, foraging and dispersal habitat, and lacks the complex structure found in the older stands on BLM.

The Perpetua Forests Company Right-of-Way Road Construction is located in the USFWS Section 7 Rogue-Middle Section 7 watershed which encompasses the Grave, Evans, Rogue River-Gold Hill, Rogue River-Grants Pass, Jumpoff Joe, Rogue River-Hellgate Creeks 5th field watersheds. The baseline suitable (nesting, roosting, and foraging) habitat for this Section 7 watershed is 88,774 acres (USDI-USFWS 2007, p.10). The U.S. Fish and Wildlife Service analyzed incidental take of northern spotted owls by determining disturbance to nesting owls and the removal, downgrading, or maintenance of all suitable and dispersal habitat for the spotted owl within the Rogue-Middle Section 7 Watershed. *Maintained suitable or dispersal habitat* maintains the components of spotted owl habitat within a stand, such that spotted owls continue to have their life history requirements supported (i.e. the functionality of habitat for use by spotted owls remains intact post project activity). For spotted owl dispersal-only habitat, a 40 percent canopy cover along with other habitat elements (including snags, down wood, tree-height

class-diversity, and older hardwoods) will be maintained post project activity that adequately provide for spotted owl dispersal. A *downgraded* suitable habitat, decreases the quality of suitable habitat to the point it is no longer used for nesting/roosting/foraging, but may be used for dispersal. For example, because of decreased cover and increased metabolic demands or fewer prey items, spotted owls may have a lower survival rate when migrating through the area and its quality is degraded. Since dispersal habitat is generally considered the lowest quality of habitat still useable by the species, dispersal habitat that is downgraded is no longer considered habitat. Thus, downgrading dispersal habitat is generally considered equivalent to *removing the dispersal habitat*.

The function of Matrix lands is to serve as connectivity between late-successional reserves (p. B-43, USDA/USDI 1994). Prior to January 1994, owl sites received a 100 acre residual habitat area. Owl sites found after January 1994 receive no mandatory protection, except for the nest tree and seasonal operating restrictions. The reduction of suitable habitat and degradation to owl sites in Matrix and private lands is within analysis criteria of the NWFP. A shift to increasing numbers of owl sites in maturing Late Successional Reserves is expected to contribute to the recovery goals and conservation needs of spotted owls, through providing multiple clusters of breeding spotted owls. Demographic data from northern spotted owls in the Klamath Demographic Study Area collected from 1985-2003 indicate that populations appear to be stable in the Klamath study area as a result of high survival and number of young produced over the period of the study.

The Bureau of Land Management (BLM), U.S. Forest Service (USFS), and US Fish and Wildlife Service (USFWS) have conducted a coordinated review of four recently completed reports containing information on the northern spotted owl (NSO). The reviewed reports include the following:

- *Scientific Evaluation of the Status of the Northern Spotted Owl* (Sustainable Ecosystems Institute, Courtney et al. 2004);
- *Status and Trends in Demography of Northern Spotted Owls, 1985-2003* (Anthony et al. 2004);
- *Northern Spotted Owl Five Year Review: Summary and Evaluation* (USFWS, November 2004); and
- *Northwest Forest Plan – The First Ten Years (1994-2003): Status and trend of northern spotted owl populations and habitat, PNW Station Edit Draft* (Lint, Technical Coordinator, 2005).

Although the agencies anticipated a decline of NSO populations under land and resource management plans during the past decade, the reports identified greater than expected NSO population declines in Washington and northern portions of Oregon, and more stationary populations in southern Oregon and northern California. The reports did not find a direct correlation between habitat conditions and changes in NSO populations, and they were inconclusive as to the cause of the declines. Lag effects from prior harvest of suitable habitat, competition with barred owls, and habitat loss due to wildfire were

identified as current threats; West Nile virus and Sudden Oak Death were identified as potential new threats. Complex interactions are likely among the various factors. The status of the NSO population, and increased risk to NSO populations due to uncertainties surrounding barred owls and other factors, were reported as not sufficient to reclassify the species as endangered at this time.

The effects on NSO populations identified in the four reports are within those anticipated in the RMP EIS, and that the RMP goals and objectives are still achievable in light of the information from the reports (BLM, 2005).

Northern Spotted Owl Critical Habitat

The Planning Area lies entirely within Critical Habitat Unit #OR-32. Critical Habitat for the northern spotted owl is identified in the FY06-08 Biological Assessment (Appendix B) and was designated in *Federal Register 57* (USDC 2002) and includes the primary constituent elements that support nesting, roosting, foraging, and dispersal. Designated Critical Habitat also includes forest land that is currently unsuitable, but has the capability of becoming suitable habitat in the future (FR57 (10):1796-1837).

Primary constituent elements of spotted owl critical habitat *are those physical and biological attributes that are essential to species conservation. In addition, the Act stipulates that the areas containing these elements may require special management consideration or protection. Such physical and biological features, as stated in 50 CFR 424.12 includes, but are not limited to the following:*

- Space for individual and population growth, and for normal behavior;*
- Food, water, or other nutritional or physiological requirements;*
- Cover or shelter;*
- Sites for breeding, reproduction, rearing of offspring; and*
- Habitats that are protected from disturbance or are representatives of the historic geographical and ecological distribution of the species.*

Critical Habitat Unit OR-32 coincides with the Rogue-Umpqua Area of Concern, which provides an essential link in connecting the Western Cascades Province with the northern end of the Klamath Mountains Province as well as the southern portion of the Coast Range Province (USDA/USDI 2006, BA, App. B-18). The land ownership patterns elevate the importance of maintaining owl nesting habitat to link the Western Cascades, Coast Ranges and the Klamath Provinces (USDA/USDI 2006 BA, App. B-18). Harvesting on private land has converted stands into early and mid-seral stages, which may not serve as suitable habitat. As a result of past events or actions removing and downgrading habitat in CHU OR-32, an estimated 35,165 acres of the 68,873 acre CHU, or approximately 51%, are currently suitable for nesting, roosting, and foraging habitat (USDA/USDI 2006 BA p.50).

3.4.1.2 Environmental Effects

Alternative 1 (No Action)

Under the No Action Alternative, no suitable or dispersal habitat would be removed on BLM land from road construction, and no habitat on the 80 acre parcel of Perpetua Forests Company's land would be harvested at this time. The proposed BLM action area and the private parcel would continue to provide habitat contributing to the productivity and dispersal of spotted owls using mature and late-successional habitat. The Project Area may be reviewed under future right-of-way requests submitted to the BLM and subsequent analysis or future access may be granted from other private land owners, resulting in removal of suitable habitat on private land. Habitat on private would not be expected to remain and contribute towards maintenance or recovery trends for spotted owls.

Recent and foreseeable actions in Critical Habitat Unit #OR-32 that maintain habitat through harvesting and fuels/young stand treatment include Fizzy Stew, Healthy Murph and Starving Cow (677 acres NRF and dispersal maintained) [Middle Cow LSR Landscape Planning EA Project # OR118-05-022]. Spotted owl habitat analyzed for suitable habitat removal (198 acres), downgrade to a dispersal (367 acres), and dispersal habitat maintained (292 acres) in CHU OR-32 (Westside Project EA #OR-118-05-021) for foreseeable projects from the EA would maintain suitable and dispersal habitat conditions.

Recent and foreseeable non-commercial/small wood/hazardous fuels reduction projects occurring in CHU OR-32 that maintain critical habitat elements include Wolf Tree Upland Fuels (1,769 acres) [Wolf Tree EA #OR-110-01-036]; Grave Creek Fuels (1,200 acres) [Young stand Management and Fuels Reduction Treatments within the Grave Creek Watershed EA#OR118-03-004]; NCDM/ Small Wood/Hazardous Fuels (634 acres) [Slim Jim EA # OR118-04-014]; Westside Fuels (300 acres) [Westside Project EA #OR-118-05-021] and Eastside/Middle Cow fuels (2,500 acres) [Middle Cow LSR Landscape Planning EA Project # OR118-05-022]. Projects that maintain components of spotted owl habitat within a stand continue to have owl life history requirements supported. The functionality of habitat for use by spotted owls is maintained or would be improved after completion of the project.

The Board Tree East and Foley Glen spotted owls are likely to continue to be occupied by barred owls, which may have negative effects on spotted owl occupation and detectability (Olson et. al. 2005), and therefore the owls sites may be vacant of spotted owls, or occupied but undetected.

Alternative 2 (Proposed Action)

The ROW request from Perpetua Forests Company involves construction of approximately 0.7 miles of access road on BLM land in T33S R5W, Sections 17 and 20. The new road would be 60 feet wide for the first 300 feet, and 40 feet wide for the remaining 3,609 ft. Approximately 6-8 trees (21 inches dbh or greater), 10-12 trees (15 to 20 inches dbh) and remainder of trees less than 15" dbh, would be removed within approximately 1 acre (1,000 ft of the ROW) of upper slope/ridgetop suitable owl habitat

for ROW access. Approximately 2.5 acres of dispersal habitat would be removed for the remainder of the ROW. The proposed road location was modified in the field with a BLM engineer and wildlife biologist to minimize the impacts to large suitable habitat trees. Due to topographical limitations, not all suitable trees would be avoidable. The ROW occurs in a young fire replacement stand and intercepts the edge of a forest stand with residual older trees, and would remove 3.5 acres of critical northern spotted owl habitat (OR-32).

An owl site is considered viable if there is at least 40% within the 1.3 mile home range (Thomas et al. 1990 and Courtney et al. 2004) and 50% of the 0.5 mile radius core area (Wagner and Anthony 1998, Dugger et al. 2005, Zabel et al. 2003, Bingham and Noon 1997) is in suitable habitat condition, although some sites contain less than these percentages and remain occupied and productive. Under this methodology, any removal of spotted owl habitat is presumed likely to have adverse effects to the spotted owl within identified spotted owl home ranges. However, the effects of the habitat removal in relation to spotted owl sites depends on size, location, and configuration of removal, and in some cases may be beneficial where little diversification of habitat type occurs, such as woodrats inhabiting young forest stands and preyed upon by owls (Zabel et.al. 1995).

Approximately 1 acre of suitable habitat and 2.5 acres of dispersal habitat would be removed within a 1.3 mile radius of the Board Tree East and Foley Glen owl sites which would remain above 40% (43.5% and 46.6%, respectively) federal suitable habitat. No change would occur within a 0.5 mile radius or 30 acre nest patch to Foley Glen. One acre of dispersal habitat removed and no change to the nest patch would occur within a 0.5 mile radius of Board Tree East which remains above 50% suitable habitat on federal land.

Demographic survey records show the adjacent owl sites as not nesting near the ROW. Protocol visits have not detected resident spotted owls in either Board Tree East owl site since 2000 or in Foley Glen since 2001, but have been occupied by barred owls since 1999. The sites and may no longer be occupied by spotted owls or spotted owls may occur but be undetected (Olson et. al. 1995).

The effects from the ROW road construction on suitable owl habitat in matrix land allocation are expected to be adverse, but not result in a measurable change in the use of forest stands by resident spotted owls due to the small quantity and narrow configuration of habitat removed, the quantity of suitable habitat within the owl sites above viable thresholds, and the possibility that the sites may be vacant of resident spotted owls and used territorially by only barred owls. However, the habitat is suitable for spotted owls, which may re-occupy the sites if the barred owls cease occupation.

The trees in the proposed ROW have functioned as foraging, roosting, and dispersal habitat for the Board Tree East and Foley Glen owl sites. It is expected that the narrow corridor removal of large trees and adjacent smaller trees would maintain opportunity for nesting, roosting, foraging, and dispersal in the effected stand. Nor are the effects expected to result in measurable impacts to the productivity or occupation of the adjacent

spotted owl sites. Both of these conclusions are based on the fact that a ridgetop/upper slope location: (1) is not likely to be selected for nesting or roosting, as owls typically use the lower two thirds of slopes for this (Blakesley et. al., 1992; Hershey et. al., 1998); (2) the opening created for the ROW would be limited to 40-60 ft wide and owls will disperse across roads and forage along edges, (3) most of the ROW is in younger dispersal age habitat, (4) the quantity of suitable habitat within the owl sites are above viable thresholds, and (5) the sparse condition of large trees present and absence of spotted owl nest sites within ¼ mile since Glendale Resource Area began monitoring the owl sites in 1988.

The NWFP and RMP anticipated habitat modification and removal of habitat would continue on private as well as federal lands within the Planning Area. The remaining habitat on private land is not expected in the future to be suitable habitat, given a stand age rotation of 60 years (RMP/EIS, pp.4-5), but is expected to provide some dispersal habitat. The removal of habitat from private would reduce available habitat for spotted owls, and due to the checkerboard pattern of private and BLM ownership, remaining suitable habitat on BLM is widely spaced and results in large home ranges for spotted owls (Zabel, McKelvey, and Ward, 1995). If habitat quantity and suitable prey density resources are no longer adequate to support the productivity or occupation of the adjacent owls, owls may remain at the current sites or site selection may change, and owls may become less productive or owl sites may no longer be viable.

The Proposed Action is not expected to change the viability of the spotted owl as determined by the NWFP. The effects of loss, degradation, and disturbance to habitat are not greater than what was analyzed in the RMP (USDA/USDI 1994, p. 4-78) and NWFP (USDA/USDI 1994a, pp. 3&4 -211-234).

Cumulative Effects for the Northern Spotted Owl and Critical Habitat

Cumulative effects result from the incremental impact of the Proposed Action, added to other past, present, and reasonably foreseeable actions regardless of land ownership.

Extensive harvesting on BLM occurred within suitable habitat for the spotted owl prior to the 1990 listing of the spotted owl as a threatened species, and the implementation of the NWFP in 1994. The Grave Creek Watershed Analysis (p.51) notes that the late-successional stands in this watershed are highly fragmented and frequently isolated from other late successional stands because of the checkerboard pattern of federal land ownership and past logging practices. Harvesting on private lands continues to be extensive. Most private land has been intensively harvested, much of it in the last few decades (Medford Change Detection Satellite Imagery Program data 1974-2002, Five Rogues EA (EA#OR118-05-007, and trend analysis). Other activities, such as quarry development, road building, herbicide application (private lands), and fire have additionally contributed to the loss or degradation of spotted owl habitat.

Recent timber sale projects occurring in CHU OR-32 that remove or downgrade habitat include Coyote Pete and King Wolf (241 acres NRF Removed, 12 acres dispersal

maintained) [Wolf Tree EA #OR-110-01-036]. There are no foreseeable actions removing or downgrading habitat. The approximate baseline amount of suitable and dispersal habitat after removal in NRF habitat (35,165 ac) and dispersal habitat (24,585ac) in CHU OR-32 was reported in the FY 06-08 Biological Assessment (p.50).

Recent and foreseeable actions that maintain habitat through harvesting and fuels/young stand treatment include Fizzy Stew, Healthy Murph and Starving Cow (677 acres NRF and dispersal maintained) [Middle Cow LSR Landscape Planning EA Project # OR118-05-022]. Spotted owl habitat analyzed for suitable habitat removal (198 acres), downgrade to a dispersal (367 acres), and dispersal habitat maintained (292 acres) in CHU OR-32 (Westside Project EA #OR-118-05-021) for foreseeable projects from the EA would maintain suitable and dispersal habitat conditions.

Recent and foreseeable non-commercial/small wood/hazardous fuels reduction projects occurring in CHU OR-32 that maintain critical habitat elements include Wolf Tree Upland Fuels (1,769 acres) [Wolf Tree EA #OR-110-01-036]; Grave Creek Fuels (1,200 acres) [Young stand Management and Fuels Reduction Treatments within the Grave Creek Watershed EA#OR118-03-004]; NCDM/ Small Wood/Hazardous Fuels (634 acres) [Slim Jim EA # OR118-04-014]; Westside Fuels (300 acres) [Westside Project EA #OR-118-05-021] and Eastside/Middle Cow fuels (2,500 acres) [Middle Cow LSR Landscape Planning EA Project # OR118-05-022]. Projects that maintain components of spotted owl habitat within a stand continue to have owl life history requirements supported. The functionality of habitat for use by spotted owls remains or would be improved after completion of the project.

The cumulative effects of removing 1 acre of 35,165 acres of suitable habitat and 2.5 acres of 24,585 acres of dispersal owl habitat from CHU OR#32 (FY 06-08 Biological Assessment (p.50) in a narrow strip near ridgetop when added to other past, present, and foreseeable activities would not measurably reduce the ability of the CHU to provide nesting, roosting, foraging, and dispersal habitat because the narrow corridor removal of scattered large trees interspersed with smaller trees would maintain opportunity for nesting, roosting, foraging, and dispersal in the effected stand, based on the fact that the ridgetop/upper slope location: (1) is not likely to be selected for nesting or roosting, as owls typically use the lower two thirds of slopes for this (Blakesley et. al., 1992; Hershey et. al., 1998); (2) the opening created for the ROW would be limited to 40-60 ft wide and owls will disperse across roads and forage along edges, (3) most of the ROW is in younger dispersal age habitat, and (4) and absence of spotted owl nest sites within ¼ mile since Glendale Resource Area began monitoring the owl sites in 1988 indicates known nesting habitat within the stand would not be adversely affected.

The BLM completed informal consultation with the USFWS for the Proposed Action on BLM land, along with other projects that maintain spotted owl habitat. The Letter of Concurrence from the USFWS (USDI-USFWS 2007 p. 23) determined the effects to spotted owl, or designated spotted owl critical habitat to be “may affect, not likely to adversely affect” since the project implements the standards and guidelines of the

Northwest Forest Plan and the District's RMP and will incorporate the mandatory Project Design Criteria (Section 2.3.1).

3.4.2 Fisher (Bureau Sensitive, Federal Candidate)

3.4.2.1 Affected Environment

Fishers are secretive small mammals associated with closed canopy conditions in late-successional forests throughout its range in the western United States, often associated with riparian areas (Aubry and Houston 1992, Dark 1997). Jones and Garton (1994) noted that fisher do not use non-forested lands (<40% canopy cover). The fisher was analyzed in the NWFP and failed to pass the screens indicating likelihood of persistence (species viability screens) due to its dependence on interior forest habitat and large, down woody debris (USDA/USDI 1994a, Appendix J-2,).

Approximately 28,000 acres of the 50,215 acres of BLM administered lands within the 104,057 acre Grave Creek watershed are considered to be late-successional forest (USDI 1999). BLM checkerboard ownership may be one of the primary factors limiting the ability of BLM lands to provide optimal habitat for fishers (USDA/USDI 1994b).

The USFWS listed the west coast distinct population segment of the fisher under ESA in 2004, as warranted but was precluded due to other USFWS priorities (Federal Register April 8, 2004). The document further discloses that extant fisher populations in Oregon are restricted to two disjunct and genetically isolated populations in the southwestern portion of the State: one in the Siskiyou Mountains of the southwestern region and a reintroduced population in the southern Cascade Range. The fishers in the Siskiyou Mountains near the California border are probably an extension of the northern California population, and are believed to represent the northern extent of indigenous fisher populations in the Pacific states. Causes of historical population declines in the Pacific states include loss of habitat from logging, overtrapping, predator control, and urban and agricultural development. High intensity fires from fuels buildup could have also contributed to the loss of large conifers, live large trees with cavities, snags, and large down wood important to late successional habitat related species utilizing these features. Dispersal of fishers is also possibly restricted by large rivers and wide highways. There are no known sightings in the Glendale Resource Area. The nearest known sighting is approximately 15 miles away near Galice, Oregon, but it is possible that fishers may occur or disperse within the Planning Area. Powell and Zielinski (1994) generalized an average home range for fishers as 40 and 15 km² for males and females respectively. Habitat in the adjacent South Umpqua/Galesville Late Successional Reserve (LSR), which contains solid block ownership and extensive stands of older interior forest, could be used by fisher, and they could occupy or be dispersing through the Project Area.

Approximately seventy remote camera surveys were conducted to protocol (Zielinski and Kucera 1995) in 2002-2005 in the Glendale Resource Area, including stations in Sections

17, 18, and 9, with no fisher detections. BLM personnel have not had any incidental detections in the Glendale Resource Area.

The BLM ownership in the Project Area contains mature conifer forest with high levels of canopy closure, large snags, and down wood potentially suitable fisher habitat.

3.4.2.2 Environmental Effects

Alternative 1 (No Action)

Under the No Action Alternative, the Grave Creek watershed would continue to provide habitat poorly suited for fishers due to landscape fragmentation as a result of checkerboard ownership, continued harvesting and stand age rotation of 60 years on private lands (USDI 1994, p.4-5), past federal harvest, low quantity of large blocks of closed canopy and late-successional forest on BLM, low densities of large snags and down wood on BLM land harvested prior to the NWFP, and high road densities.

Approximately 80 acres of private and 3.5 acres of BLM forested landscape would not be harvested at this time, and would continue to provide poor forested conditions for fisher use. However, the opportunity to construct a road through BLM for private access could be explored as a viable option in the future, analyzed through a separate environmental analysis. The timber on this parcel of Perpetua Forests Company's land would remain unharvested unless other access becomes available. Disturbance from local residential people and vehicular traffic would continue and may deter the use of the stand by fisher. The BLM ownership would continue to be reviewed for potential forest management projects such as fuels reduction, thinning, and rotational harvesting or forest treatments and harvesting on private, that would alter stand conditions.

Alternative 2 (Proposed Action)

The Proposed Action would remove 1 acre of scattered old-growth remnant trees and 2.5 acres with diameters predominately 10-20 inches. The proposed ROW does not make any stand level changes to suitable BLM habitat, and the Grave Creek watershed is already in a high road density condition, with extensive BLM and private forest fragmentations. The removal of trees for a ROW would have a very minor and unmeasurable effect on the suitability of fisher habitat in the Project Area and in the Grave Creek watershed as there are no known sites or populations to be affected, and the ROW would not create any barriers to dispersal that would affect known sites or populations. Therefore it is not expected to contribute to the need to list the fisher as endangered or threatened.

This project would not change the assessment predicted in the NWFP (p.J2-54), which stated the fisher failed to pass the species viability screens due to its dependence on interior forest habitat and large, down woody debris.

Cumulative Effects to Fisher

Approximately 80 acres of younger private forest (with tree diameters approximately 10-20 inches) would be harvested.

The USFWS Section 7 Rogue-Middle watershed baseline suitable habitat is 88,774 acres. While this figure represents suitable owl nesting, roosting, or foraging habitat; its late-successional, closed-canopy conditions also act as an indicator of the relative amount of mature forest habitat available for fisher use. The cumulative removal and downgrading of suitable habitat from foreseeable projects in this Section 7 watershed is approximately 9,401 acres, or 10.6% of the baseline (USDA/USDI 2006 BA p.48).

The remaining forested habitat on private land is not expected in the future to be suitable for fisher use, given a stand age rotation of 60 years (RMP/EIS, p.4-5). The habitat on private has been previously entered for harvest, and most late successional habitat has been removed. The habitat provides the dense canopy utilized by fisher, but lacks the large down wood and the standing large trees that provide the large down wood. The removal of trees from private land would reduce foraging habitat and secure dispersal habitat, until dense canopy is regained in 30-40 years.

Due to the small size and isolation of late-successional forest units from previous harvesting on BLM Matrix land and private within the Planning Area, it is possible that the area may no longer be suitable for resident fishers. The largest late-successional blocks are expected to continue be restricted to LSRs. With the cumulative effects of private harvesting, road construction, low BLM ownership, and few large patches of BLM late-successional habitat at low elevations, combined with the fisher's natural rareness and slow re-colonization rates of restored habitats; the species is not expected to be well distributed throughout its range. The fisher was analyzed in the NWFP and failed to pass the species viability screens due to its dependence on interior forest habitat and large, down woody debris (USDA/USDI 1994, Appendix J-2, p. 53, 470). This project would not change the trend predicted in the NWFP.

3.5 Red Tree Vole (Removed from Survey & Manage and Special Status from the FSEIS ROD 2007)

3.5.1 Affected Environment

As stated under Section 1.4 (Plan Conformance), the development and design of this project complies with the Northwest Forest Plan (NWFP) prior to the Annual Species Review process as the Glendale Resource Area conducted red tree vole surveys to comply with the Survey and Manage protocol and implement management recommendations in effect as of the 2001 ROD for Survey and Manage species whose range is in the Project Area. Under *the Record of Decision for the Final Supplement to the 2004 Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines* (FSEIS, 2007 and ROD, 2007), the red tree vole is a non-managed species, as it is not listed as a Survey and Manage or Special Status species.

Habitat for red tree voles is present throughout the Project Area. Large trees (<21 inches dbh) are scattered through a small portion (1 acre) within the ROW mixed with younger trees (10-20 inches dbh). Most of the ROW (2.5 acres) is dominated by 5-15 inches dbh trees. The proposed ROW location is not optimal habitat for the red tree vole. Primary habitat for the RTV is generally forest stands dominated by multi-storied and single-storied conifer trees greater than 20 inches dbh (USDA/USDI 2000 p.377). Surveys were conducted in 2006, and 2 active nests were located adjacent to the Project Area. Surveys were conducted in 2004 in adjacent optimal habitat on BLM land in the Planning Area, with multiple RTV sites containing 2 or more active nests per site.

The majority of remaining older forest in this watershed is on public lands managed by BLM. Approximately 48% of the Grave Creek watershed is BLM ownership, and approximately 56% of BLM administered lands is considered to be late-successional forest (USDI 1999, p.48).

3.5.2 Environmental Effects

3.5.2.1 Alternative 1 (No Action)

Under the No Action Alternative, the Perpetua Forests Company ROW road construction proposal would not occur across BLM land at this time; therefore, 1 acre within late-successional habitat containing sporadic large trees capable of supporting persistent active nests and 2.5 acres of smaller trees with diameters 10-15 inches would not be removed. Development of late-successional forest habitat would continue on the 3.5 acres into late-successional conditions resulting in additional large trees with large stable branches capable of supporting multiple nests per tree. Active nest density would be expected to increase as habitat improves and provides a continuous overstory of late-successional trees. Private land is not expected to contribute to the stability of red tree voles. Perpetua Forests Company may continue to evaluate alternative access to this portion of their land. BLM ownership in the Project Area could be reviewed in future analysis for future timber sales or private access right-of-way requests that may remove suitable habitat in the Matrix land allocation.

3.5.2.2 Alternative 2 (Proposed Action)

The proposed road location was modified in the field with a BLM engineer and wildlife biologist to minimize the impacts to large suitable habitat trees. Due to topographical limitations, not all large trees would be avoidable. Approximately 6-8 large trees (>21 inches dbh) and 10-12 smaller trees (15-20 inches dbh) would be removed as result of the proposed road construction, suitable for supporting RTV nests. Large trees contain large branches capable of supporting nests, whereas smaller trees have less structure to stably support nests or are more easily predated upon. Surveys located one active nest in a large ponderosa pine in an area dominated by smaller fir trees, and one nest in a small 10 inch dbh fir in an area with no large trees. The active nest in the 10 inch dbh fir is in an area that is not suitable habitat, and is unlikely to persist in that tree.

The development of habitat areas for red tree voles are intended to provide a short-term measure for managing red tree voles, as well as taking into consideration other management objectives. It is the intent of the RTV Management Recommendations to maintain a level of flexibility for interdisciplinary teams to provide management of the species in the context of other NWFP goals (IM OR 2000-086). Red tree vole surveys were conducted, and the road location was selected that would least impact large trees and meet road engineering standards. The proposed ROW location has been designed to minimize the removal of large suitable trees adjacent to the nest trees. As a result, the red tree vole nest trees located from surveys would not be removed. Construction of a road adjacent to the nests would be expected to reduce the function of the red tree vole habitat areas, and may reduce the preference or effectiveness of the adjacent nests by altering the microclimate conditions. Red tree voles may alter nest preference within existing alternate nests, build new adjacent nests within or adjacent to the current nest selection habitat area, or remain and continue to utilize the same nests. Red tree vole surveys in the Glendale Resource Area have observed active red tree vole nests immediately adjacent to roads, recently harvested timber stands, natural openings, and small habitat islands within surrounding unsuitable habitat. Red tree voles readily cross small openings, forest roads, and canopy gaps 33-66 feet wide while traveling between nest trees (USDI 2000, p. 8). The proposed ROW is therefore expected to reduce the function of habitat areas surrounding the two active sites by removing tree crowns supporting arboreal nesting, foraging, or movement, however the active sites may continue to persist.

Red tree vole surveys were conducted in 2004 on adjacent late-successional habitat (Five Rogues EA#OR118-05-007) and located red tree vole sites with multiple active nests per site, and represent sites contributing major support for red tree vole population persistence within Matrix land in the Grave Creek watershed. The proposed ROW location contains less than optimal habitat conditions, with sporadic large trees capable of supporting active nests but lacking a continuous late-successional canopy. Less than optimal habitat areas with 1-2 active nests do not provide major support for red tree vole population persistence, but may help maintain species distribution and connectivity (USDI 2000).

The implementation of two 10 acre habitat areas to comply with Management Recommendations for the RTV (IM-OR-2000-086) conflicts with Perpetua's ROW request, as removal of trees within the habitat area is necessary. A Non-high Priority Site (NPS) analysis process (BLM IB-OR-2001-273, BLM IM-OR-2006-047) was initiated on April 25, 2007 by the Glendale Resource Area Field Manager to evaluate RTV sites as Non-high Priority Sites (Appendix 4), and to ensure species persistence. 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" provides several situations where specific projects may be exempted from the Standards and Guidelines. These provisions are varied, and are intended for very specific sets of conditions. The identification of Non-high Priority Sites (Standards and Guidelines, Page 10) is one such example. The process allows the local land manager to identify Non-high Priority Sites for Category C and D species on a case-by-case basis. This is an interim

process until a Management Recommendation that identifies High Priority Sites is completed or the Record of Decision to Remove the Survey and Manage Mitigation Measure Standards and Guidelines from the Bureau of Land Management Resource Management Plans within the Range of the Northern Spotted Owl is implemented. The USFWS has concurred that the 2 active nests meet the criteria for as Non-high Priority Sites. This designation allows tree removal within habitat areas surrounding the active nests, while maintaining species persistence at the Grave Creek 5th field watershed and survey area scale.

3.5.2.3 Cumulative Effects to Red Tree Vole

The majority of remaining late-successional in the Grave Creek 5th field watershed is on public lands managed by BLM. Approximately 48% of the Grave Creek watershed (104,084 total acres) is BLM ownership, and approximately 55% (29,000 acres) of BLM administered lands is considered to be unmodified late-successional forest (USDI 1999). The cumulative effects of foreseeable BLM projects and relatively short rotation harvesting on private land would remove approximately 950 acres of suitable red tree vole habitat and reduce landscape habitat continuity.

Private land is not expected to not contribute to the persistence of the red tree vole due to harvesting on a 60 year rotation (USDI 1994, p. 4-5) and provides mostly dispersal habitat. Approximately 80 acres of private land would be harvested via access from the proposed 0.7 mile road construction on BLM land containing predominantly smaller diameter (10-20 inches dbh) mid-successional mixed hardwoods and conifers, and scattered larger trees, and habitat suitable for supporting low densities of red tree voles. Reforestation in the private parcel would function primarily as dispersal habitat in approximately 30 years, and not support persistent nesting colonies of red tree voles.

Breeding habitat supporting stable populations is expected to occur primarily on federal land. Approximately 35% of the species range occurs on federal land, with 50% of the federal land occurring on LSRs or congressionally withdrawn areas (USDA/USDI 1994a, p. 474). Implementation of the NWFP ROD Standards and Guidelines (USDA/USDI 1994, p.C-5) and RTV Management Recommendations (USDI 2000) for known sites on federal land, within the Planning Area and the Grave Creek watershed, would maintain well distributed populations and dispersal habitat through existing late-successional habitat on Matrix land allocation, 100 acre reserve habitat areas, and Riparian Reserves. Implementation of managing known breeding colonies in Matrix with implementation of Riparian Reserves (USDA/USDI 1994a, p.475) would improve breeding and dispersal for red tree voles throughout their range, resulting in greater than 80% likelihood of habitat occurring with sufficient quality, distribution, and abundance to allow the species to stabilize, well distributed across federal land. Management of RTV colonies would provide better habitat in the Matrix land allocation until habitat in LSRs and Riparian Reserves achieve late-successional condition. The cumulative impacts are therefore not expected to affect the viability and persistence of red tree voles, as sites designated as Non-high Priority Sites would not be needed as a mitigation to improve or maintain breeding and dispersal for red tree voles.

Chapter 4.0 List of Preparers

The following individuals participated on the interdisciplinary team or were consulted in the preparation of this EA:

<u>Name</u>	<u>Title</u>	<u>Primary Responsibility</u>
Marlin Pose	Wildlife Biologist	Team Lead, Wildlife, Visual Quality
Michelle Calvert	Ecosystem Planner	NEPA
Dustin Wharton	Engineer	Transportation
Carl Symons	Right-of-Way Specialist	Right-of-Ways, Realty
Colleen Dulin	Hydrologist	Soils, Watershed, Riparian
Stephanie Messerle	Fish Biologist	Fisheries
Rachel Showalter	Botanist	Botany & Noxious weeds
Amy Sobiech	Archaeologist	Cultural Resources
Donni Vogel	Fire and Fuels Specialist	Fire Hazard and Fire Risk

Chapter 5.0 Public Involvement and Consultation

5.1 Public Scoping and Notification

5.1.1 Public Scoping

The Glendale Resource Area accepts public comment of proposed management activities through the quarterly BLM Medford Messenger publication. A brief description of proposed projects, such as Perpetua Forests Company Right-of-Way Road Construction Project, a legal location and general vicinity map are provided along with a comment sheet for public responses. The project was included in these quarterly publications beginning in fall 2005, and no public comments were received.

5.1.2 30-day Public Comment Period

The Environmental Assessment will be made available for a 30-day public review period. Notification of the comment period will include: the publication of a legal notice in the Daily Courier, newspaper of Grants Pass, Oregon; and a letter to be mailed to those individuals, organizations, and agencies that have requested to be involved in the environmental planning and decision making processes for proposed timber sales. Comments received in the Glendale Resource Area Office, 2164 NE Spalding Avenue, Grants Pass, Oregon 97526 on or before the end of the 30-day comment period will be considered in making the final decision for this project.

5.1.3 Administrative Remedies

Administrative review of right-of-way decisions requiring National Environmental Policy Act (NEPA) assessment will be available under 43 CFR Part 4 to those who have a “legally cognizable interest” to which there is a substantial likelihood that the action authorized would cause injury, and who have established themselves as a “party to the case,” (See 43 CFR § 4.410). Other than the applicant/proponent for the right-of-way action, in order to be considered a “party to the case” the person claiming to be adversely affected by the decision must show that they have notified the BLM of their alleged injury through their participation in the decision-making process (See 43 CFR § 4.410(b) and (c)). The publication of the legal notice of decision in the Daily Courier, newspaper of Grants Pass, Oregon, will establish the date initiating a 30-day appeal period.

5.2 Consultation

5.2.1 United States Fish and Wildlife Service (USFWS)

A Non-high Priority Site (NPS) analysis evaluated two active red tree vole sites affected by the proposed ROW construction to determine if the RTV sites met the criteria for NPS rating. The USFWS has concurred that the two active nests meet the criteria for as Non-

high Priority Sites, and release of the sites for other resource uses would not measurably change the distribution pattern of the remaining active RTV sites.

In accordance with regulations pursuant to Section 7 of the Endangered Species Act 1973, as amended, consultation with the USFWS concerning the potential impacts of implementing the Perpetua Forests Company Right-of-Way Road Construction Project upon the northern spotted owl was completed. The USFWS Letter of Concurrence stated that the effects of the Perpetua ROW may affect, but are not likely to affect the spotted owl or designated spotted owl critical habitat since the project implements the standards and guidelines of the Northwest Forest Plan and the District's RMP and will incorporate the mandatory Project Design Criteria (USDI-USFWS 2007 p.23)

Since the Project Area is outside the natural range of the marbled murrelet on BLM land within the Project Area, no consultation is needed for these species.

Since no threatened or endangered plant species were found within the Project Area, no consultation is needed.

Instruction Memorandum No. 2003-142 states that initiation of Endangered Species Act consultation is limited to "proposed federal actions" that would have an effect on listed species. The proposed federal action does not include any private action on private land.

5.2.2 National Marine Fisheries Service (NMFS)

Consultation for the Endangered Species Act or the Magnuson-Stevens Act with NMFS is not needed as the Proposed Action would not affect listed species or their habitat.

Instruction Memorandum (IM) No. 2003-142 detailed policy for evaluating proposals for access to non-federal lands across lands administered by the BLM in situations involving compliance with the Endangered Species Act. The Interagency Agreement (IA) attached to the IM stated:

- "If BLM or the Forest Service has discretionary authority to issue or condition a ROW, the agency must determine whether the proposed federal action "may affect" listed species or designated critical habitat. If a "no effect" determination is made, ESA compliance is complete. This finding should be placed in the record and processing of the application may continue in accordance with agency authority."

The IA also states "the proposed Federal action does not include any private action on private land." Therefore in terms of the analysis for ESA, the federal action does not include the private actions of Perpetua Forests Company. Based on this IM and its attached IA, ESA consultation is not warranted for the proposed federal action because the federal action is a "no effect" to Southern Oregon Northern California coho and coho critical habitat.

The Magnuson-Stevens Act does not have a clause which requires consultation on actions connected to federal actions. Therefore, effects of the private timber sale actions do not need to be evaluated in terms of consultation needs for EFH.

5.2.3 State Historical Preservation Office

Required cultural surveys were completed for the proposed right-of-way location. The State Historical Preservation Office approved the clearance/tracking form for the Perpetua Forests Company Right-of-Way Road Construction Project. The form is contained within the environmental assessment case file.

5.2.4 Native American Tribal Consultation

The BLM Medford Messenger publication is sent to local federally recognized Native American tribes. A meeting with the Glendale Resource Area archaeologist and Cow Creek Band of Umpqua Indians was held June 15, 2006. The tribe was provided with a description and location of proposed project activities for the Perpetua Forests Company Right-of-Way Road Construction Project. The tribe did not identify any areas of concern within the proposed ROW road location across BLM land. No other tribes made contact with the Glendale Resource Area about the Perpetua Forests Company Right-of-Way Road Construction Project.

ACRONYMS AND GLOSSARY

Abbreviations:

ACEC	Area of Critical Environmental Concern
ACS	Aquatic Conservation Strategy
BA	Biological Assessment
BO	Biological Opinion
BLM	Bureau of Land Management
BMP(s)	Best Management Practices
BSO	Bureau Sensitive
CCH	coho critical habitat
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CHU	Critical Habitat Unit
dbh	diameter at breast height
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FLPMA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
HUC	Hydrologic Unit Condition
IA	Interagency Agreement
LSR	Late Successional Reserve
LWD	Large Woody Debris
MAMU	marbled murrelet
NEPA	National Environmental Policy Act
NWFP	Northwest Forest Plan
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic & Atmospheric Administration
NPS	Non-high Priority Site
NRCS	Natural Resource Conservation Service
NSO	northern spotted owl
O&C	Oregon & California
ODEQ	Oregon Department Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
ODF	Oregon Department of Forestry
OFPA	Oregon Forest Practices Act
PDF	Project Design Feature
RMA	Riparian Management Area
RMP	Resource Management Plan
ROD	Record of Decision
ROW	Right-of-Way
RTV	Red Tree Vole
SHPO	State Historic Preservation Office
SONC	Southern Oregon/Northern California
S&M	Survey and Manage

SSS	Special Status Species
T/E	Threatened/Endangered
TSZ	Transient Snow Zone
USDA	United States Department of Agriculture
USDI	United States Department of Interior
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
VRM	Visual Resource Management

Air Quality. Refers to standards for various classes of land as designated by the Clean Air Act, P.L. 88-206, Jan. 1978.

Best Management Practices (BMP). Practices determined by the resource professional to be the most effective and practicable means of preventing or reducing the amount of water pollution generated by non-point sources; used to meet water quality goals (See Appendix D in RMP (USDI BLM 1995)).

Canopy. The more or less continuous cover of branches and foliage formed collectively by adjacent trees and other woody species in a forest stand.

Coarse Woody Debris. Portion of trees that have fallen or been cut and left in the woods. Usually refers to pieces at least 20 inches in diameter.

Cover. Vegetation used by wildlife for protection from predators, or to mitigate weather conditions, or to reproduce. May also refer to the protection of the soil and the shading provided to herbs and forbs by vegetation.

Cross drains. Device or structure designed to remove water off the road surface and release it or disperse it off the edge of the road in a manner that minimizes effects to adjacent areas and the watershed.

Cultural resources. The physical remains of human activity (artifacts, ruins, burial mounds, petroglyphs, etc.) having scientific, prehistoric or social values.

Cumulative effect. The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can also result from individually minor, but collectively significant actions taking place over a period of time.

Diameter at Breast Height (dbh). The diameter of a tree 4.5 feet above the ground on the uphill side of the tree.

Dispersal Habitat. Dispersal habitat for the northern spotted owl consists of forest lands generally greater than 40 years of age with canopy closures of 40 percent or greater and an average diameter at breast height of 11 inches or greater. Spotted owls use dispersal habitat to move between blocks of suitable habitat; juveniles use it to disperse from natal

territories. Dispersal habitat may have roosting and foraging components, enabling spotted owls to survive, but lack structure suitable for nesting.

Edge. Where different plant communities meet, or where variations in successional stage or vegetation conditions within the plant community come together.

Effects (or Impacts). Environmental consequences as a result of a Proposed Action. Effects provide the scientific and analytical basis for comparison of alternatives. Effects might be either direct (caused by the action and occur at the same time and place) or indirect (occurring later in time or at a different location, but are reasonably foreseeable or cumulative results of the action).

Effects and impacts as used in this EA are synonymous. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic quality, historic, cultural, economic, social, or healthy effects, whether direct, indirect, or cumulative. Effects might also include those resulting from actions that might have both beneficial and detrimental effects, even if on the balance it appears that the effects would be beneficial.

Endangered Species. Any species defined through the Endangered Species Act of 1973 as amended, as being in danger of extinction throughout all or a significant portion of its range and published in the Federal Register.

Environmental Assessment (EA). A statement of the environmental effects of a proposed action and alternatives to it. It is required for major federal actions under Section 102 of NEPA and is released to the public and other agencies for comment and review. It is a formal document that must follow the requirements of NEPA, CEQ guidelines, and directives of the agency responsible for the project proposal.

Erosion. Detachment or movement of soil or rock fragments by water, wind, ice, or gravity. Accelerated erosion is more rapid than normal, natural, or geologic erosion, primarily resulting from the activities of people, animals, or natural catastrophes.

Floodplain. The lowland and relatively flat area adjoining inland and coastal waters, including, at a minimum, areas that are subject to a one percent or greater chance of flooding in any given year.

Forage. Food available to animals for feeding. Habitat containing forage for predators is a source and hiding cover and/or shelter for prey species.

Forb. Any herb other than grass.

Fuels. Combustible wildland vegetative materials present in the forest which potentially contribute to a significant fire hazard.

Full bench construction. Road construction requiring full excavation of material to create the road prism and ditches, with excavated material hauled to an approved disposal site.

Hardwoods. A conventional term for broadleaf trees and their wood products.

Impacts. A spatial or temporal change in the environment caused by human activity. See effects.

Indirect effects. Secondary effects which occur in locations other than the initial action or significantly later in time.

Intermittent stream. Any nonpermanent flowing drainage feature having a definable channel and evidence of scour or deposition. This includes what are sometimes referred to as ephemeral streams if they meet these two criteria.

Mitigation. Mitigation 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 the impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (5) compensating for the impact by replacing or providing substitute resources or environments.

National Environmental Policy Act of 1969 (NEPA). This law requires the preparation of environmental impact statements for every major Federal Action which causes a significant effect on the quality of the human environment.

No-Action alternative. The No-Action Alternative is required by regulations implementing the National Environmental Policy Act (NEPA) (40 CFR 1502.14). The No-Action Alternative provides a baseline for estimating the effects of other alternatives. When a proposed activity is being evaluated, the No-Action Alternative discusses conditions under which current management direction would continue unchanged.

Non-attainment. Failure of a geographical area to attain or maintain compliance with ambient air quality standards.

Non-high Priority Site (NPS).- The Record of Decision (ROD) for Survey and Manage (S&M) Species (ROD and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines) provides several situations where specific projects may be exempted from the Standards and Guidelines. These provisions are varied, and are intended for very specific sets of conditions. The identification of Non-high Priority Sites (Standards and Guidelines, Page 10) is one such example. A four-step process (BLM Information Bulletin-OR-2001-273, BLM Information Memorandum-OR-2006-047) allows the local land manager to identify Non-high Priority Sites for Category C and D species on a case-by-case basis and release

habitat around survey and manage sites for other management. This is an interim process until a Management Recommendation that identifies high priority sites is completed, or until an environmental analysis is completed which changes the management status for the species and protection of the known sites is no longer required.

Noxious weeds. Rapidly spreading plants that can cause a variety of major ecological or economic impacts to both agriculture and wildland.

Outsloped construction. A road constructed without ditches and culvert relief pipes. The constructed road surface is sloped 2% - 3% towards the fill slope to drain water off the road surface.

Overstory. That portion of trees which form the uppermost layer in a forest stand which consists of more than one distinct layer (canopy).

Peak flow. The highest stream flow that occurs during a storm event.

Perennial streams. Streams that flow continuously throughout the year.

Regeneration. The renewal of a tree crop, whether by natural or artificial means. This term might also refer to the crop itself (seedlings, saplings).

Resource Management Plan (RMP). A land use plan prepared by the BLM under current regulations in accordance with the Federal Land Policy and Management Act. (See USDI, BLM 1995).

Riparian Reserves. Designated riparian areas found outside Late-Successional reserves.

Riparian habitat. Those terrestrial areas where the vegetation complex and microclimate conditions are products of the combined presence and influence of perennial and/or intermittent water, associated high water tables and soils which exhibit some wetness characteristics. Normally used to refer to the zone within which plants grow rooted in the water table of these rivers, streams, lakes, ponds, reservoirs, springs, marshes, seeps, bogs and wet meadows.

Road maintenance. The work required to keep a facility (road) in such a condition that it may be continuously utilized at its original or designed capacity and efficiency, and for its intended purposes.

Seral stages. The series of relatively transitory plant communities that develop during ecological succession from bare ground to the climax stage. Generally there are five stages recognized: early-seral, mid-seral, late-seral, mature-seral, and old-growth.

Sidecasting. Disposal location of excavated material when placed on adjacent slopes of constructed road. Areas are seeded and mulched with weed-free, native seed and mulch.

Snag. A standing dead tree usually without merchantable value for timber products, but having characteristics of benefit to cavity nesting wildlife species.

Soil compaction. An increase in bulk density (weight per unit volume) and a decrease in soil porosity resulting from applied loads, vibration, or pressure. Compaction decreases productivity by reducing water and nutrient holding capacity, root respiration, and microbial activity.

Stand. A community of trees or other vegetation uniform in composition, physiognomy, spatial arrangement, or condition to be distinguishable from adjacent communities.

Sub-watershed. In this document the term refers to the entire area that contributes water to a drainage system or stream at the sixth-field watershed scale (HUC 6). The sixth field watershed within the Perpetua Forests Company Right-of-Way Road Construction Project Planning Area is Wolf Creek.

Transient Snow Zone (TSZ). The area in which the winter snow pack is short-lived and transitory in nature (these areas normally do not have a substantial covering of snow for an entire winter season). Within our region this zone generally exists above 2,500 feet in elevation.

Trend analysis. Estimated annual rate of private harvest applied to the years 2003-2007 by averaging the annual private acres harvested through satellite imagery data since implementation of the Northwest Forest Plan (1994-2002).

Threatened Species. Any species of plant or animal which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range, and which has been designated in the Federal Register as such. In addition, some states have declared certain species in their jurisdiction as threatened or endangered.

Understory. Vegetation (trees or shrubs) growing under the canopy formed by taller trees.

Water dips. A road constructed with periodic gradual dips designed to transport water from the road surface to the fill slope and off the road.

Water Quality. The chemical, physical and biological characteristics of water.

Watershed. Entire area that contributes water to a drainage system or stream. The fifth-field watershed within the Perpetua Forests Company Right-of-Way Road Construction Project Planning Area is Grave Creek.

Water yield. The total volume of surface runoff, measured as stream discharge that leaves a sub-watershed area. Increased water yield is primarily a result of reduced evapotranspiration and interception within the watershed, and can persist for one to two decades following harvest activity depending on the rate of vegetative recovery. As

forests regenerate, water yields generally decrease to pre-treatment levels within two to three decades.

Yarding. The act or process of moving logs to a landing.

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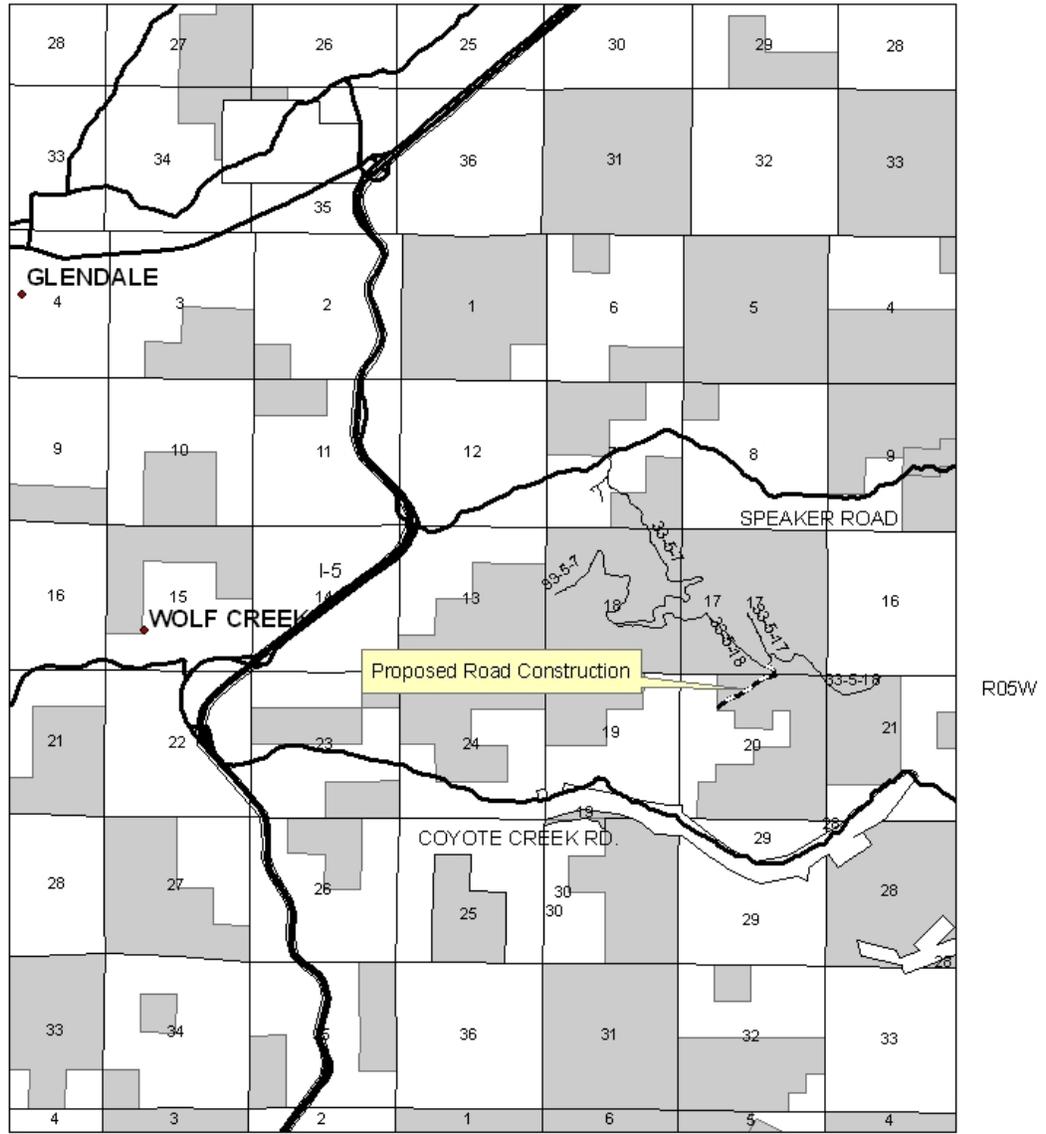
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APPENDIX 1 – PROJECT VICINITY MAP

Proposed Right-of-Way Road Construction for Perpetua Forests Company



Legend

- ◆ Cities
- HWY I-5
- major roads
- Proposed Perpetua road
- selected_roads
- sections
- BLM Ownership



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use without the data. Original data were compiled from various sources and may be updated to show new features.

APPENDIX 2 - ALTERNATIVE DEVELOPMENT SUMMARY

Environmental Assessment Number OR-118-06-006

Pursuant to Section 102 (2) (E) of NEPA (National Environmental Policy Act of 1969, as amended), Federal agencies shall “Study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.” The CEQ (Council on Environmental Quality) regulations for implementing the procedural provisions of NEPA states, alternatives should be “reasonable” and “provide a clear basis for choice” (40 CFR 1502.14).

In light of the direction contained in both NEPA and the CEQ Regulations, the following questions were used to 1/ identify the alternatives to be analyzed in detail in this environmental assessment that are in addition to the “proposed action” and “no action” alternatives, and 2/ document the rationale for eliminating alternatives from detailed study.

- 1. Are there any unresolved conflicts concerning alternative uses of available resources? If yes, document and go to Question #2. If no, document rationale and stop evaluation.**

The Proposed Action occurs on Matrix land allocation. There are no proposed activities within the Late Successional Reserve under this project. The Northwest Forest Plan Standards and Guidelines state that at least 15% of fifth field watersheds should be managed to retain late-successional patches (USDA/USDI 1994, C-44.) Retention of late-successional habitat in the Grave Creek 5th field watershed (HUC 5) exceeds 15%; the Grave Creek Watershed contains 56% of mature and old-growth forest habitat in BLM ownership (28,147 out of 50,215 acres) used by northern spotted owls (USDI, 1999, p.48), therefore no unresolved conflict occurs with retention of late-successional habitat on Matrix land allocation.

- 2. What alternatives should be considered that would lessen or eliminate the “unresolved conflicts concerning alternative uses of available resources”?**
List alternatives and go to Question #3. If no alternative is identified other than the “no action” alternative, document and stop evaluation.

No other alternative is identified other than the “no action” alternative. No other viable alternative means of timber removal has been identified when explored with Perpetua Forests Company. Other private access has been denied. Helicopter logging would not be logistically or economically feasible since no existing BLM road access or suitable helicopter landings occur within 0.75 miles of the private harvesting area.

3. **Of those alternatives identified in Question #2, are there reasonable alternatives for wholly or partially satisfying the need for the proposed action? If so, briefly describe alternatives and go to question #4. If no, document rationale and stop evaluation.**

No other reasonable alternative exists to partially or wholly provide access to private land and extract timber.

4. **Of those alternatives identified in Question #3, will such alternatives have meaningful differences in environmental effects? If so, seek line officer approval to carry alternatives forward for detailed analysis in the environmental assessment. If no, document rationale and stop evaluation.**

APPENDIX 3 - ENVIRONMENTAL ELEMENTS

Environmental Assessment Number OR-118-06-006

In accordance with law, regulation, executive order and policy, the interdisciplinary team reviewed the elements of the human environment to determine if they would be affected by the alternatives described in Chapter 2 of the EA (environmental assessment). The following three tables summarize the results of that review. Those elements that are determined to be “affected” will define the scope of environmental concern, Chapter 3 of the EA.

Table 1. Critical Elements of the Environment. This table lists the critical elements of the human environment (BLM Handbook 1790-1) which are subject to requirements specified in statute, regulation, or executive order and the interdisciplinary teams predicted environmental impact per element if the alternatives described in Chapter 2 of the Environmental Assessment were implemented.		
Critical Element of the Human Environment	Status 1/ Not Present 2/ Not Affected 3/ Affected	Interdisciplinary Team Remarks 1/ If not affected, why? 2/ If affected, develop cause/effect statement, unit of measure to describe environmental impacts, and if applicable, design features not already identified in Appendix D of the RMP to reduce or avoid environmental harm
Air Quality (Clean Air Act)	Not Affected	Dust created from building approximately 3,609 ft of road on BLM land and hauling on this road are expected to be localized. Particulate matter would not be of a magnitude to harm human health, affect the environment, or result in property damage. As such, the Proposed Action is consistent with the provisions of the Federal Clean Air Act.
Areas of Critical Environmental Concern (ACEC)	Not Affected	There are no ACECs within the Project Area.
Cultural, Historic, Paleontological	Not Present	On BLM land, cultural resource surveys were completed April 2006 and no sites were found. Guidelines for the survey followed compliance procedures for cultural resource survey set forth by Section 106 National Historic Preservation Act (NHPA). Surveys would be conducted using Oregon State Historic Preservation Office (SHPO) protocol. If cultural resources are found during project implementation; the project may be redesigned to protect the cultural resource values present, or evaluation and mitigation procedures would be implemented based on recommendations from the resource area archaeologist with concurrence from the State Historic Preservation Office. All such sites would be evaluated and protected by the BLM under the following Federal laws: Federal Land Policy and Management Act of 1976, National Historic Preservation Act (Section 106) of 1966, Antiquities Act of 1906, Archaeological Resource Protection Act of 1979, Reservoir Salvage Act of 1960, American Indian Religious Freedom Act of 1978, National Environmental Policy Act of 1960, and Native American Graves Protection and Repatriation Act of 1990.
Energy (Executive Order 13212)	Not Present	There are no known energy resources located in the Project Area. The Proposed Action would have no effect on energy development, production, supply and/or distribution.
Environmental Justice (Executive Order 12898)	Not Affected	The Proposed Action is not anticipated to have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

Table 1. Critical Elements of the Environment. This table lists the critical elements of the human environment (BLM Handbook 1790-1) which are subject to requirements specified in statute, regulation, or executive order and the interdisciplinary teams predicted environmental impact per element if the alternatives described in Chapter 2 of the Environmental Assessment were implemented.

Critical Element of the Human Environment	Status 1/ Not Present 2/ Not Affected 3/ Affected	Interdisciplinary Team Remarks 1/ If not affected, why? 2/ If affected, develop cause/effect statement, unit of measure to describe environmental impacts, and if applicable, design features not already identified in Appendix D of the RMP to reduce or avoid environmental harm
Prime or Unique Farm Lands	Not Present	There are no Prime or Unique farmlands in or adjacent to the Project Area.
Flood Plains (Executive Order 11988)	Not Affected	The proposed road is located near a ridgeline, and does not involve occupancy and modification of floodplains, and would not increase the risk of flood loss. As such, the Proposed Action is consistent with Executive Order 11988.
Hazardous or Solid Wastes	Not Present	
Invasive, Nonnative Species (Executive Order 13112)	Affected	<p>The existing roadside and proposed ROW location on BLM land was surveyed for noxious weeds in the spring of 2006. One population of <i>Senecio jacobaea</i> (Tansy ragwort) was located.</p> <p>Openings from road construction and increased vehicle traffic can provide suitable habitat for noxious weeds to colonize or provide vectors that may introduce noxious weed seeds into the disturbed area. In an effort to address the potential for project activities to increase the rate of spread of noxious weeds, Project Design Features (PDFs) have been included in the project to decrease the potential spread of weeds associated with the action alternatives. These PDFs are widely accepted and utilize Best Management Practices (BMPs) in noxious weed control strategies across the nation (Thompson, 2006).</p> <p>There are three main reasons why potential weed establishment that might be caused by the Proposed Action is not expected to result in a detectable effect to overall ecosystem health. First, surveys indicate that a very small area (less than 0.25 acres) within the Planning Area is affected by noxious weeds. Second, the species residing at the proposed ROW location is not considered a priority species for manual treatment, as biological controls have proven effective at containing and eventually reducing the existing populations. Third, as aforementioned, Project Design Features (PDFs) have been established to minimize the rate at which project activities might potentially spread noxious weed seed from outside/adjacent sources. Refer to Section 3.2 of the EA for a discussion of the affected environment and environmental effects of the alternatives related to this element of the environment.</p>
Native American Religious Concerns	Not Present	No pre-European settlement cultural sites were found during within the Project Area. If such sites are found during the implementation of the Proposed Action, the project may be redesigned to protect the site values present, or evaluation and mitigation procedures would be implemented based on recommendations from the Resource Area Archaeologist.

Table 1. Critical Elements of the Environment. This table lists the critical elements of the human environment (BLM Handbook 1790-1) which are subject to requirements specified in statute, regulation, or executive order and the interdisciplinary teams predicted environmental impact per element if the alternatives described in Chapter 2 of the Environmental Assessment were implemented.

Critical Element of the Human Environment	Status 1/ Not Present 2/ Not Affected 3/ Affected	Interdisciplinary Team Remarks 1/ If not affected, why? 2/ If affected, develop cause/effect statement, unit of measure to describe environmental impacts, and if applicable, design features not already identified in Appendix D of the RMP to reduce or avoid environmental harm
T/E (Threatened or Endangered) Fish Species or Habitat	Not Affected (SONC coho salmon including coho critical habitat)	<p>The new road construction on BLM land and associated hauling on the new road would have no effect on Southern Oregon Northern (SONC) California coho salmon (ESA-Threatened) or coho critical habitat (CCH). Coho presence and CCH in Coyote Creek is approximately 1.9 mile from the proposed road construction, hauling and road maintenance. The proposed road is located on a stable site, with no stream crossings. Sediment would not be transported to CCH because of the slope, the ridgeline location, the lack of stream crossings, the location of the road outside of riparian reserves, the proximity of the road to fish habitat and the design features to reduce the transmission of fine sediment. No effects from the new road construction or hauling are anticipated to occur to CCH.</p> <p>The Board Tree Quarry, which would be used to dispose of the end haul material, is located within a riparian reserve approximately 1.4 mile from CCH in Wolf Creek. Due to topographic features, material disposed in the quarry would not enter the adjacent perennial stream. Disposal of end hauled material at end of the 33-5-7 road or where the proposed road intersects an exiting skid trail on the saddle are not expected to result in sediment entering stream channels and therefore CCH because of the flat topographical features and there are no mechanisms for waste material to enter stream channels. Therefore no effects from the use of any of the disposal sites to CCH are anticipated. Rock would be removed from an existing stock pile of rock in a quarry located in T33S R5W section 9, along the 33-5-10.3 road. Removing rock from this quarry would have no effect on CCH, approximately 3.28 miles away in Wolf Creek, because the rock is in an existing stock pile, vegetation would not be removed, and the quarry is not within a riparian reserve. Moving rock to and from these locations would require hauling on portions of roads 33-5-18, 33-5-7, 33-5-10, 33-5-10.3 and Speaker Road. Hauling on these roads would not result in sediment entering CCH because 1) these roads are either paved or graveled and 2) the minimal number of loads to be hauled (approximately 6 rock trucks).</p> <p>No other T/E fish species occur within this watershed.</p>
T/E (Threatened or Endangered) Plant Species or Habitat	Not Present	<p>Of the four federally listed plants on the Medford District (<i>Fritillaria gentneri</i>, <i>Limnanthes floccosa</i> ssp. <i>grandiflora</i>, <i>Arabis macdonaldiana</i>, and <i>Lomatium cookii</i>), only <i>Fritillaria gentneri</i> has a range and habitat which extends into the Glendale Resource Area. Although this ROW Project Area is within the range and habitat of <i>F. gentneri</i>, as determined by the 2006 US Fish and Wildlife Service Biological Opinion, vascular plant surveys were conducted in the spring of 2006, and no <i>Fritillaria gentneri</i> populations were found. There would be no anticipated effect from the Proposed Action on any federally listed plant.</p>

Table 1. Critical Elements of the Environment. This table lists the critical elements of the human environment (BLM Handbook 1790-1) which are subject to requirements specified in statute, regulation, or executive order and the interdisciplinary teams predicted environmental impact per element if the alternatives described in Chapter 2 of the Environmental Assessment were implemented.

Critical Element of the Human Environment	Status 1/ Not Present 2/ Not Affected 3/ Affected	Interdisciplinary Team Remarks 1/ If not affected, why? 2/ If affected, develop cause/effect statement, unit of measure to describe environmental impacts, and if applicable, design features not already identified in Appendix D of the RMP to reduce or avoid environmental harm
T/E (Threatened or Endangered) Wildlife Species, Habitat and/or Designated Critical Habitat	Affected (NSO & Fisher habitat including NSO Critical Habitat) Not Present (MAMU, including Critical Habitat)	<u>Affected:</u> The Proposed Action would remove 1 acre of federal suitable habitat and 2.5 acres of dispersal habitat in CHU OR-32 for the NSO (northern spotted owl) – threatened and 3.5 acres for the Pacific fisher (candidate). <i>Refer to Section 3.4 of the EA for a discussion of the affected environment and environmental effects of the alternatives related to this element of the environment.</i> <u>Not Present:</u> The Project Area is outside the natural range of marbled murrelets. The Proposed Action would not occur within designated marbled murrelet Critical Habitat.
Water Quality (Surface and Ground)	Not Affected (Temperature, Large Woody Debris, Chemical/Nutrient Contamination, Sedimentation)	The federal action does not involve the manipulation or removal of any riparian vegetation on BLM land and thus would not affect stream temperatures or the recruitment and development of large woody debris. There would be no burning and no herbicides or pesticides would be used in conjunction with this road construction or timber hauling activities. As such, this action would not be expected to result in any chemical or nutrient contamination. The proposed road construction is located in the upper portions of the hillslope and along a ridge. There are no stream crossings or headwalls within this Project Area. Slopes within this Project Area are generally less than 40%, with only the first approximately 300 feet exceeding this, at about 65%. This first 300 feet would be full bench construction to prevent excessive erosion, or any potential slumping issues. Slopes throughout this Project Area are well vegetated and would act to keep erosion primarily on site. As such there are no apparent mechanisms for excessive sediment transport to streams to occur as a result of this project. The overall effects of the proposed action on water quality are expected to be neutral and the State of Oregon water quality standards would not be exceeded.
Wetlands (Executive Order 11990)	Not Affected	The Proposed Action would not result in the destruction, loss or degradation of any wetland. As such, the Proposed Action is consistent with Executive Order 11990.
Wild and Scenic Rivers	Not Present	
Wilderness	Not Present	

Table 2. Other Elements of the Environment. This table lists other elements of the environment which are subject to requirements specified in law, regulation, policy, or management direction and the interdisciplinary teams predicted environmental impact per element if the alternative described in Chapter 2 of the Environmental Assessment were implemented.

Other Elements of the Environment	Status 1/ Not Present 2/ Not Affected 3/ Affected	Interdisciplinary Team Remarks 1/ If not affected, why? 2/ If affected, develop cause/effect statement, unit of measure, and if applicable, design features not already identified in Appendix D of the RMP to reduce or avoid environmental harm
Essential Fish Habitat [Magnuson-Stevens Fisheries Conservation and Management Act (MSA)]	Not Affected (Essential Fish Habitat for coho and chinook salmon)	<p>The new road construction and associated hauling on the new road would have no effect on Essential Fish Habitat (EFH). EFH in Coyote Creek is approximately 1.9 mile from the proposed road construction and hauling. The proposed road is located on a stable site, with no stream crossings. Sediment would not be transported to CCH because of the slope, the ridgeline location, the lack of stream crossings, the location of the road outside of riparian reserves, the proximity of the road to fish habitat and the design features to reduce the transmission of fine sediment. No effects from the new road construction and hauling are anticipated to occur to EFH.</p> <p>The Board Tree Quarry, which would be used to dispose of the end haul material, is located within a riparian reserve approximately 1.4 mile from EFH in Wolf Creek. Due to topographic features, material disposed in the quarry would not enter the adjacent intermittent or perennial streams. Disposal of end hauled material at the end of the 33-5-7 road or where the proposed road intersects an exiting skid trail on the saddle are not expected to result in sediment entering stream channels and therefore EFH because of the flat topographical features and there are no mechanisms for waste material to enter stream channels. Therefore no effects from the use of any of the disposal sites to EFH are anticipated. Rock would be removed from an existing stock pile of rock in a quarry located in T33S R5W section 9, along the 33-5-10.3 road. Removing rock from this quarry would have no effect on EFH, approximately 3.28 miles away in Wolf Creek, because the rock is in an existing stock pile, vegetation would not be removed, and the quarry is not within a riparian reserve. Moving rock to and from these locations would require hauling on portions of roads 33-5-18, 33-5-7, 33-5-10, 33-5-10.3 and Speaker Road. Hauling on these roads would not result in sediment entering EFH because 1) these roads are either paved or gravel and 2) the minimal number of loads to be hauled (approximately 6 rock trucks).</p>
Fire Risk	Not Affected	Although new road construction has the potential to increase risk of fire ignition due to an increase in human presence, construction of the ROW road would have a negligible affect on fire risk. This is because the length of road is minimal; would not be a major travel route as a spur road; it would not provide access to an appealing recreation or other high-use site; nor is it near any major population centers which provide the potential for human presence; and would be gated to further limit human presence. Hauling has not been known to considerably affect fire risk. As such, there would be no expected measurable adverse affects on fire risk.
Fire Hazard	Not Affected	The proposed ROW road construction and associated hauling are not expected to have any direct effects on fire hazard in the area because the action would not result in any measurable changes to the current fuel model as the area involved is minimal and most of the slash would be crushed and covered in the fill slope of the road.

Table 2. Other Elements of the Environment. This table lists other elements of the environment which are subject to requirements specified in law, regulation, policy, or management direction and the interdisciplinary teams predicted environmental impact per element if the alternative described in Chapter 2 of the Environmental Assessment were implemented.

Other Elements of the Environment	Status 1/ Not Present 2/ Not Affected 3/ Affected	Interdisciplinary Team Remarks 1/ If not affected, why? 2/ If affected, develop cause/effect statement, unit of measure, and if applicable, design features not already identified in Appendix D of the RMP to reduce or avoid environmental harm
Land Uses (right-of-ways, permits, etc)	Not Affected	The Proposed Action would not have adverse or beneficial effects to any existing land use.
Mineral Resources	Not Present	
Late-Successional Forest	Proposed Action is in compliance with the 15% Standard and Guideline	Federal ownership of late-successional forest is approximately 58% (USDI 1999) of the entire Grave Creek fifth-field watershed. The Northwest Forest Plan standards and guidelines state that at least 15% of fifth field watersheds should be managed to retain late-successional patches (ROD, C-44). As such, the Proposed Action is in compliance with the 15% Standard and Guideline.
Port-Orford-Cedar	Not Present	Project Area is outside the natural range of Port-Orford-cedar.
Recreation	Not Affected	<p>There are no developed recreation sites that would be affected by the Proposed Action. The area is open to dispersed recreation use, as it most of the Glendale Resource Area. The Proposed Action would have a neutral effect on dispersed recreation within the resource area. There may be increased logging truck traffic during the operational months, this type of activity is typical for the area because of harvesting on private and other government owned lands.</p> <p>The total 0.68 miles (3,609 feet) increase in a dead-end BLM spur road is not expected to change the current condition of off-road vehicle use in the area since this is a minimal increase to road mileage and does not connect with the rest of the road system within this watershed. Such conditions would not encourage additional use by the general public.</p>
Rural Interface Areas	Not Present	The Proposed Action is not located in an area designated as Rural Interface (RMP, map 13). Installation of a gate at the start of the new road would reduce public traffic to the area.
Special Areas (not including ACEC)	Not Present	

Table 2. Other Elements of the Environment. This table lists other elements of the environment which are subject to requirements specified in law, regulation, policy, or management direction and the interdisciplinary teams predicted environmental impact per element if the alternative described in Chapter 2 of the Environmental Assessment were implemented.

Other Elements of the Environment	Status 1/ Not Present 2/ Not Affected 3/ Affected	Interdisciplinary Team Remarks 1/ If not affected, why? 2/ If affected, develop cause/effect statement, unit of measure, and if applicable, design features not already identified in Appendix D of the RMP to reduce or avoid environmental harm
Special Status Species (not including T/E): Fish Species/Habitat	<p>Not Present Survey & Manage</p> <p>Not Present Southern Oregon Coast/California Coast Fall and Spring Chinook</p> <p>Not Affected: Southern Oregon/Northern California Coho (also federally listed as threatened)</p>	<p>There are no Survey and Manage fish species listed in the <i>Final Supplemental Environmental Impact Statement and Record of Decision and Standards and Guidelines for Amendment to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines</i> (FSEIS, 2000 and ROD, 2001) including any amendments or modifications in effect as of March 21, 2004.</p> <p>Southern Oregon Coast/California Coast chinook, a Bureau Strategic species are not located within the Wolf Creek sub-watershed</p> <p>The new road construction on BLM land and associated hauling on the new road would have no effect on the Bureau Sensitive Southern Oregon Northern (SONC) California coho salmon. Coho presence and CCH in Coyote Creek is approximately 1.9 mile from the proposed road construction, hauling and road maintenance. The proposed road is located on a stable site, with no stream crossings. Sediment would not be transported to CCH because of the scope, the ridgeline location, the lack of stream crossings, the location of the road outside of riparian reserves, the proximity of the road to fish habitat and the design features to reduce the transmission of fine sediment. No effects from the new road construction or hauling are anticipated to occur to coho.</p> <p>The Board Tree Quarry, which would be used to dispose of the end haul material, is located within a riparian reserve approximately 0.5 mile from summer and winter steelhead in Board Tree Creek. Due to topographic features, material disposed in the quarry would not enter the adjacent intermittent or perennial streams. Disposal of end hauled material at the end of the 33-5-7 road or where the proposed road intersects an exiting skid trail on the saddle are not expected to result in sediment entering stream channels and therefore steelhead habitat because of the flat topographical features and there are no mechanisms for waste material to enter stream channels. Therefore no effects from the use of any of the disposal sites to steelhead are anticipated. Rock would be removed from an existing stock pile of rock in a quarry located in T33S R5W section 9, along the 33-5-10.3 road. Removing rock from this quarry would have no effect on steelhead, approximately 0.61 miles away in Wolf Creek, because the rock is in an existing stock pile, vegetation would not be removed, and the quarry is not within a riparian reserve. Moving rock to and from these locations would require hauling on portions of roads 33-5-18, 33-5-7, 33-5-10, 33-5-10.3 and Speaker Road.</p>

Table 2. Other Elements of the Environment. This table lists other elements of the environment which are subject to requirements specified in law, regulation, policy, or management direction and the interdisciplinary teams predicted environmental impact per element if the alternative described in Chapter 2 of the Environmental Assessment were implemented.

Other Elements of the Environment	Status 1/ Not Present 2/ Not Affected 3/ Affected	Interdisciplinary Team Remarks 1/ If not affected, why? 2/ If affected, develop cause/effect statement, unit of measure, and if applicable, design features not already identified in Appendix D of the RMP to reduce or avoid environmental harm
Special Status Species (not including T/E): Fish Species/Habitat (continued)	<p>Not Affected: Klamath Mountain Province Summer and Winter Steelhead Trout (continued)</p> <p>No management requirement: Pacific lamprey and coastal cutthroat trout</p>	<p>Summer and winter steelhead trout, a Bureau Strategic Species (which do not require species management IM OR-2007-072) are present in Coyote Creek. The new road construction and the associated hauling on the new road would have no effect on summer or winter steelhead. Summer and winter steelhead use in Coyote Creek is approximately 1.9 mile from the proposed road construction and hauling. The proposed road is located on a stable site, with no stream crossings. Sediment would not be transported to CCH because of the scope, the ridgeline location, the lack of stream crossings, the location of the road outside of riparian reserves, the proximity of the road to fish habitat and the design features to reduce the transmission of fine sediment. No effects from the new road construction and hauling are anticipated to occur to steelhead habitat. Streams with steelhead trout are managed by the BLM as fish bearing streams as directed by the RMP. The BLM objective for fisheries management is to maintain or enhance the fisheries potential of streams and other waters (RMP p. 49). As such habitat for lamprey and cutthroat habitat would be maintained within the Planning Area.</p> <p>Hauling on these roads would not result in sediment entering steelhead habitat because 1) these roads are either paved or gravel and 2) the minimal number of loads to be hauled (approximately 6 loads).</p> <p>Pacific lamprey and Oregon coast cutthroat trout are also found within the planning areas. Lamprey and cutthroat are not on the Special Status Species list. Streams with lamprey and cutthroat trout are managed by the BLM as fish bearing streams as directed by the RMP. The BLM objective for fisheries management is to maintain or enhance the fisheries potential of streams and other waters (RMP p. 49). As such habitat for lamprey and cutthroat habitat would be maintained within the Planning Area.</p>

Table 2. Other Elements of the Environment. This table lists other elements of the environment which are subject to requirements specified in law, regulation, policy, or management direction and the interdisciplinary teams predicted environmental impact per element if the alternative described in Chapter 2 of the Environmental Assessment were implemented.

Other Elements of the Environment	Status 1/ Not Present 2/ Not Affected 3/ Affected	Interdisciplinary Team Remarks 1/ If not affected, why? 2/ If affected, develop cause/effect statement, unit of measure, and if applicable, design features not already identified in Appendix D of the RMP to reduce or avoid environmental harm
Special Status Species (not including T/E): Plant Species/Habitat	Not Present: Bureau Special Status Vascular and Nonvascular Plants	On BLM land, vascular plant surveys were conducted in the spring of 2006, and surveys were completed in the spring of 2006 for lichens and bryophytes. A professional botanist surveyed the proposed ROW using intuitive controlled methodology, wherein areas supporting high potential habitat were surveyed more intensively. All surveys were completed in accordance with the 2001 S&M protocol, and revealed no Survey and Manage or Bureau Special Status plant sites and no new S&M or bureau special status nonvascular plant sites.
	Not Present: Lichens (Nonvascular)	Bryoria pseudocapillaris, Bryoria spiralifera, Hypogymnia duplicate, Leptogium cyanescens, Lobaria linita, Nephroma occultum, Niebla cephalota, Pseudocyphellaria perpetua, Pseudocyphellaria rainierensis, Teloschistes flavicans
	Not Present: Bryophytes (Nonvascular)	Schistostega pennata, Tetraxis geniculata
	Not Present: Vascular Plants	<i>Botrychium minganense, Botrychium montanum, Coptis asplenifolia, Coptis trifolia, Corydalis aquae-gelidae, Cypripedium fasciculatum, Cypripedium montanum, Eucephalis vialis, Galium kamtschaticum, Plantanthera orbiculata var. orbiculata</i>

Table 2. Other Elements of the Environment. This table lists other elements of the environment which are subject to requirements specified in law, regulation, policy, or management direction and the interdisciplinary teams predicted environmental impact per element if the alternative described in Chapter 2 of the Environmental Assessment were implemented.

Other Elements of the Environment	Status 1/ Not Present 2/ Not Affected 3/ Affected	Interdisciplinary Team Remarks 1/ If not affected, why? 2/ If affected, develop cause/effect statement, unit of measure, and if applicable, design features not already identified in Appendix D of the RMP to reduce or avoid environmental harm
Special Status Species (not including T/E): Plant Species/Habitat (continued)	Not Affected: Bureau Special Status Fungi	<p>The project area was not surveyed for fungi, as pre-disturbance surveys for Special Status fungi are not practical, nor required per BLM – Information Bulletin No. OR 2004-121, which states “If project surveys for a species were not practical under the Survey and Manage standards and guidelines (most Category B and D species), or a species’ status is undetermined (Category E and F species), then surveys will not be practical or expected to occur under the Special Status/Sensitive Species policies either (USDA FS and USDI BLM, 2004, p.3).” Current special status fungi were formerly in the aforementioned S&M categories which did not consider surveys practical, and are therefore exempt from survey requirements. With the recent instatement the new Bureau Special Status Species policy, 18 species of fungi were designated as Sensitive, 9 of which have been documented on Medford District. As mentioned above, none of these species require surveys.</p> <p>District wide, the Medford BLM has 18 Bureau Sensitive (BSO) fungi species; 9 are suspected to occur here, while the remaining 9 have been documented. Based on the outcome of utilizing the ‘Likelihood of Occurrence Key’ provided from the BLM Oregon State Office, there is a ‘low likelihood of occurrence and low risk to species viability or trend toward listing.’ for sensitive fungi species potentially located in the Project Area. While it is possible that this project is occurring within potential habitat for some species, there is very little information available describing the <i>exact</i> habitat requirements or population biology of these species (USDA/USDI 2004, p. 148).</p> <p>Based on the above information, the likelihood of a Bureau Sensitive fungi species in this Project Area is very low; the likelihood of a sensitive fungi occurring within the Project Area is even lower. The likelihood of contributing toward the need to list is not probable.</p>

Table 2. Other Elements of the Environment. This table lists other elements of the environment which are subject to requirements specified in law, regulation, policy, or management direction and the interdisciplinary teams predicted environmental impact per element if the alternative described in Chapter 2 of the Environmental Assessment were implemented.

Other Elements of the Environment	Status 1/ Not Present 2/ Not Affected 3/ Affected	Interdisciplinary Team Remarks 1/ If not affected, why? 2/ If affected, develop cause/effect statement, unit of measure, and if applicable, design features not already identified in Appendix D of the RMP to reduce or avoid environmental harm
Special Status Species (not including T/E): Wildlife Species/Habitat	Affected	<p><u>Red Tree Vole</u> – (2001 ROD S&M species) Suitable habitat for red tree voles, present in the Project Area. The very limited scope of a 40-60 ft wide, 2/3 mile new road construction is expected to remove a small amount of red tree vole habitat, 1 acre containing scattered trees >20 inches, and remaining 2.5 acres with average dbh less than 16 inches. The area of disturbance exceeds the useable road width (14 ft), and includes ditches, curve widening, and vegetative removal beyond ditches. The distance of vegetative removal above and below road prism also depends on the hillside slope. The road is designed for safety, maintenance, and was marked by a BLM engineer and wildlife biologist to minimize resource impacts. A Non-high Priority Site (NPS) analysis evaluated 2 active RTV sites affected by the ROW to determine if they meet the criteria for NPS rating. The designation of the two sites as NPS, to be released for other resource uses would not measurably change the distribution pattern of the remaining active RTV sites, because the sites do not occur in an area where active nest density is low or surveys have detected low densities of active nests, or where removal of known sites would redefine the edge of the species’ range, and do not occur in an area where persistence has been identified as a concern. The USFWS has concurred that the 2 active nests meet the criteria for as Non-high Priority Sites. Refer to Section 3.5.1 of the EA for a discussion of the affected environment and environmental effects of the alternatives related to this element of the environment.</p>
	Not Affected	<p><u>Fringed Myotis- (Bureau Sensitive)</u> No known sites in the project area. Large tall snags in early decay stages providing roosting structure not present in the project area. The removal of trees for ROW is not expected to affect snag day roosts, or contribute towards the need for federal listing.</p>
	Not Present	<p><u>Bureau Sensitive:</u>– white-tailed kite, American peregrine falcon, flammulated owl, Lewis’ woodpecker, white-headed woodpecker, streaked horned lark, red-necked grebe, Siskiyou short-horned grasshopper, Johnsons’s hairstreak, mardon skipper, coronis fritillary, Siskiyou hesperian snail, traveling sideband snail,. Oregon shoulderband snail, Chace sideband snail, Crater Lake tightcoil, evening fieldslug, Siskiyou mountain salamander, foothill yellow-legged frog, Oregon spotted frog, Townsend’s big-eared bat, pallid bat.</p>

Table 2. Other Elements of the Environment. This table lists other elements of the environment which are subject to requirements specified in law, regulation, policy, or management direction and the interdisciplinary teams predicted environmental impact per element if the alternative described in Chapter 2 of the Environmental Assessment were implemented.

Other Elements of the Environment	Status 1/ Not Present 2/ Not Affected 3/ Affected	Interdisciplinary Team Remarks 1/ If not affected, why? 2/ If affected, develop cause/effect statement, unit of measure, and if applicable, design features not already identified in Appendix D of the RMP to reduce or avoid environmental harm
Migratory Birds	Not Affected	Olive-sided flycatcher, rufous hummingbird, (USFWS identified species of conservation concern (Federal Register July 10, 2003 Vol. 68, No. 25, 6179). Some migratory bird individuals other than USFWS species of concern may be lost or displaced during project activities, but there would be no perceptible shift in species composition because of the small scale habitat modifications. Adequate untreated areas in and adjacent to the Project Area would maintain habitat for displaced individuals. Overall, populations in the region would be unaffected due to this small amount of loss that would not be measurable at the regional scale. Partners in Flight supports the eco-regional scale as appropriate for analyzing bird populations.

Table 2. Other Elements of the Environment. This table lists other elements of the environment which are subject to requirements specified in law, regulation, policy, or management direction and the interdisciplinary teams predicted environmental impact per element if the alternative described in Chapter 2 of the Environmental Assessment were implemented.

Other Elements of the Environment	Status 1/ Not Present 2/ Not Affected 3/ Affected	Interdisciplinary Team Remarks 1/ If not affected, why? 2/ If affected, develop cause/effect statement, unit of measure, and if applicable, design features not already identified in Appendix D of the RMP to reduce or avoid environmental harm
Water Resources (not including water quality)	Not Affected	<p>Road acres in this HUC 6 sub-watershed would occupy approximately 2% of the sub-watershed, which is below the 3-4% that research describes as the low end when hydrologic effects such as runoff timing alterations and peak flow increases become measurable (Bowling and Lettenmaier, 1997). The proposed road construction on BLM land would add 0.68 miles (3,609 feet) of road and would remain below the level (3-4%) where changes in runoff timing may occur within a watershed. The near ridgetop location of the proposed spur would not intercept subsurface flow, and any precipitation intercepted or routed by the short spur would be expected to infiltrate back into the soil prior to reaching any streams. Therefore it would not be expected that the activities on BLM land would measurably contribute to an increase in flows or runoff timing.</p> <p>The proposed 3,609 ft spur road on BLM land would increase the amount of impermeable surface in the watershed by 1.2 acres and would not result in a measurable increase in base flows or water yield over the existing condition. Watersheds are generally considered to be at risk for measurable increases in peak flows and water yields, as a result of activities such as road construction or timber harvest, when open space exceeds 25% within the Transient Snow Zone (TSZ) (generally above 2,500 ft in elevation for this area). Rain-on-snow events within the TSZ can accelerate snow melt in forest openings, further increasing the rate of delivery and enhancement of peak flows within a watershed. The road construction on BLM land would increase open space within the Wolf Creek sub-watershed by 1.2 acres which would maintain the percentage of open space conditions within the TSZ of this sub-watershed at 19%. Since sub-watershed and TSZ open space conditions would remain below 25%, canopy removal for the road construction would not result in an increase in the magnitude of current peak flow events, or an increase in annual water yields within the Wolf Creek HUC 6 drainage.</p> <p>The Proposed Action on federal ground is not anticipated to have measurable effects on watershed hydrology and would not affect municipal and domestic water use.</p>

*Bureau Special Status Species Policy for sensitive species requires that the BLM protect, manage, and conserve those species and their habitats such that any Bureau action would not contribute to the need to list any of these species. Bureau Strategic species, which are not eligible for federal listing status like Bureau sensitive species require documentation of occurrences. These species do not require management or mitigation (IM OR-2007-072).

APPENDIX 4 – AQUATIC CONSERVATION STRATEGY CONSISTENCY ANALYSIS

Environmental Assessment Number OR-118-06-006

“The Aquatic Conservation Strategy was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. The strategy would protect salmon and steelhead habitat on Federal lands managed by the Forest Service and Bureau of Land Management within the range of the Pacific Ocean anadromy,” (Medford District RMP p. 22).

There are four components of the ACS which are riparian reserves, key watersheds, watershed analysis, and watershed restoration. The ACS was designed to meet the nine objectives discussed below.

This ACS consistency analysis evaluates the action alternative (Alternative 2) on BLM land in the Perpetua Forests Company Right-of-Way Road Construction Project EA.

Analysis of the Four Components of the ACS:

1. **Riparian Reserves:** The proposed new road construction and haul on the 3,609 ft of road on BLM land would be located outside riparian reserves and would not have an effect on stream temperature or large woody debris recruitment, nor would it result in any measurable change in sediment to streams or to fish habitat.

The Board Tree Quarry, which would be used to dispose of end hauled material created from the road construction, is located within a riparian reserve. Due to topographic features, material disposed in the quarry would not enter the adjacent intermittent or perennial streams. Disposal of the end hauled material at the end of the 33-5-7 road or where the proposed road would intersect the existing skid trail on the saddle, are located within riparian reserves.

Rock would be removed from an existing stock pile of rock in a quarry located in T33S-R5W-Section 9, along the 33-5-10.3 road. Removing rock from this quarry would have no effect on fish, streams, or riparian areas because the rock is in an existing stock pile, vegetation would not be removed, and the quarry is not within a riparian reserve. Moving rock to and from these quarries would require hauling on portions of roads 33-5-18, 33-5-7, 33-5-10, 33-5-10.3 and Speaker Road. Hauling on these roads would not result in sediment entering fish habitat because 1) these roads are either paved or gravel and 2) the minimal number of loads to be hauled (approximately 6 loads).

The action alternatives are also consistent with the Best Management Practices (BMPs) within Appendix D of the Medford RMP.

2. Key Watershed: The proposed actions within the action alternative are not located in a Key Watershed.
3. Watershed Analysis: The Glendale Resource Area completed the Grave Creek Watershed Analysis in 1999. The action alternative is consistent with the watershed analysis and would maintain the existing condition of the watershed.

The Grave Creek Watershed Analysis discussed restricting road construction or considering alternatives to constructing new roads in sensitive soil areas (USDI 1999). The proposed new road construction is not located in a sensitive soil area as identified in the Watershed Analysis.

The Grave Creek Watershed Analysis recommended reducing road densities which are not needed for future management (p. 174). Roads contributing sediment to streams are identified to be decommissioned through routine BLM work and during landscape management project planning.

The proposed new road construction is located outside of riparian reserves, would not contribute sediment to fish habitat, and is consistent with management direction in the RMP and the Watershed Analysis. Excerpts from the Grave Creek Watershed Analysis relating to new road construction and maintain riparian and fish habitat are listed below.

- “Current management direction for Riparian Reserves, road building, and road maintenance on Federal land, serve to enhance the protection of the riparian zones as well as unstable areas that could result in sedimentation of fish streams” (USDI 1999, p.15-16).
- “Current RMP directives are thought to produce properly functioning riparian zones on federal lands in the long term and contribute to better water quality and less sedimentation” (USDI 1999, p.16).
- “The most effective, long-term approach for restoring habitat complexity and productivity is through riparian restoration, protection and ensuring that all activities within and outside the riparian area are conducted in accordance with Aquatic Conservation Strategy objectives; this applies to public as well as on non-federal lands” (USDI 1999, p.110).

The Watershed Analysis found that management directions in the Northwest Forest Plan and the RMP including the Aquatic Conservation Strategy, Best Management Practices, and riparian reserve management would be adequate at protecting, maintaining and improving fish habitat.

4. Watershed Restoration: The Perpetua Forests Company Right-of-Way Road Construction Project EA is not a watershed restoration project. The action alternative would not reverse any restoration efforts which have been accomplished or are

planned in the Grave Creek Watershed. Roads within the Grave Creek Watershed are decommissioned when possible through separate landscape planning projects. The new road construction is proposed on a ridge top location and not within a riparian reserve. The control and prevention of road related runoff and sediment production would be addressed through out-sloped construction with rocked water dips and dry season road construction and hauling.

Consistency Analysis with the Record of Decision Northwest Forest Plan (1994)
Aquatic Conservation Strategy nine objectives:

1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.

The watershed and landscape-scale features which protect species, populations and communities dependent on aquatic systems would be maintained. This conclusion was based on the following information found in the EA:

- “The proposed 3,609 ft spur road on BLM land would increase the amount of impermeable surface in the watershed by 1.2 acres and would not result in a measurable increase in base flows or water yield over the existing condition” (EA p. 72).
- “The road construction on BLM land would increase open space within the Wolf Creek sub-watershed by 1.2 acres which would maintain the percentage of open space conditions within the TSZ of this sub-watershed at 19%. Since sub-watershed and TSZ open space conditions would remain below 25%, canopy removal for the road construction would not result in an increase in the magnitude of current peak flow events, or an increase in annual water yields within the Wolf Creek HUC 6 drainage” (EA p. 72).
- “The proposed road construction on BLM land would add 0.68 miles (3,609 feet) of road and would remain below the level (3-4%) where changes in runoff timing may occur within a watershed. The near ridgetop location of the proposed spur would not intercept subsurface flow and any precipitation intercepted or routed by the short spur would be expected to infiltrate back into the soil prior to reaching any streams. Therefore it would not be expected that the activities on BLM land would measurably contribute to an increase in flows or runoff timing” (EA p. 72).
- “The proposed 3,609 ft spur road construction on BLM land is located near a ridge. There are no stream crossings or headwalls within this Project Area. Because the proposed road spur would not be hydrologically connected to any stream channels and there would be no culvert or ditchline conduit created as a result of the construction of this road spur, eroded material is expected to remain primarily onsite within roadside vegetation” (EA p. 71).
- “Use of the 33-5-7 road, where the proposed road would intersect an exiting skid trail on the saddle, or the existing Board Tree Quarry as a disposal site for end hauled material is not expected to result in measurable sedimentation. A perennial stream is adjacent to the Board Tree Quarry, however, end hauled material would be located on a relatively flat ground and would be placed as far

from the stream channel as possible. As a result of the topographical features associated with this quarry and PDFs, there would be no mechanisms for the waste material to enter the stream channel. Disposal of end hauled material at the end of the 33-5-7 road or where the proposed road intersects an exiting skid trail on the saddle are not expected to result in sediment entering stream channels because of the flat topographical features and there are no mechanisms for waste material to enter stream channels,” (EA p. 27).

- Rock would be removed from an existing stock pile of rock in a quarry located in T33S R5W section 9, along the 33-5-10.3 road. Removing rock from this quarry would have no effect on fish, streams, or riparian areas because the rock is in an existing stock pile, vegetation would not be removed, and the quarry is not within a riparian reserve.
- “Moving rock to and from these locations would require hauling on portions of roads 33-5-18, 33-5-7, 33-5-10, 33-5-10.3 and Speaker Road. Hauling on these roads would not result in sediment entering fish habitat because 1) these roads are either paved or gravel and 2) the minimal number of loads to be hauled (approximately 6 rock trucks)” (EA p. 62).
- “As a result of the project’s ridge-top and upper slope location and project design features, the road construction, log haul, and quarry use are expected to have a neutral effect on mass wasting potential” (EA p. 71).

2. Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.

The spatial and temporal connectivity within and between watersheds would not be affected by the new road construction on BLM land, using any of the designated disposal sites for end hauled material, or using (including the transportation of) rock stockpiled at T33S-R5W-Section 9 NE1/4 NE1/4. Chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species would be maintained because the new road construction is proposed on a ridge top and would not include any stream crossings nor would it be within a riparian reserve.

3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.

The physical integrity of aquatic systems, including shorelines, banks, and bottom configurations would not be affected because the new road construction on BLM land is proposed on a ridge top and not within a riparian reserve. The use of designated end hauled material disposal sites, quarries and roads to haul the materials would not cause a change in the shorelines, banks, or bottom configurations because the activities would be done within existing road prisms and existing quarries.

4. Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.

Water quality would not be affected. This conclusion was based on the following information found in the EA:

- “The federal action does not involve the manipulation or removal of any riparian vegetation on BLM land and thus would not affect stream temperatures or the recruitment and development of large woody debris. There would be no burning and no herbicides or pesticides would be used in conjunction with the proposed action activities. As such, this action would not be expected to result in any chemical or nutrient contamination” (EA p. 63).

5. Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.

The sediment regime under which aquatic ecosystems evolved would be maintained. This conclusion was based on the following information found in the EA:

- “The proposed 3,609 ft spur road construction on BLM land is located near a ridge. There are no stream crossings or headwalls within this Project Area. Because the proposed road spur would not be hydrologically connected to any stream channels and there would be no culvert or ditchline conduit created as a result of the construction of this road spur, eroded material is expected to remain primarily onsite within roadside vegetation” (EA p. 71).
- “Use of the 33-5-7 road, where the proposed road would intersect an exiting skid trail on the saddle, or the existing Board Tree Quarry as a disposal site for end hauled material is not expected to result in measurable sedimentation. A perennial stream is adjacent to the Board Tree Quarry, however, end hauled material would be located on a relatively flat ground and would be placed as far from the stream channel as possible. As a result of the topographical features associated with this quarry and PDFs, there would be no mechanisms for the waste material to enter the stream channel. Disposal of end hauled material at the end of the 33-5-7 road or where the proposed road intersects an exiting skid trail on the saddle are not expected to result in sediment entering stream channels because of the flat topographical features and there are no mechanisms for waste material to enter stream channels,” (EA p. 27). Rock would be removed from an existing stock pile of rock in a quarry located in T33S R5W section 9, along the 33-5-10.3 road. Removing rock from this quarry would have no effect on fish, streams, or riparian areas because the rock is in an existing stock pile, vegetation would not be removed, and the quarry is not within a riparian reserve. “Moving rock to and from these locations would require hauling on portions of roads 33-5-

18, 33-5-7, 33-5-10, 33-5-10.3 and Speaker Road. Hauling on these roads would not result in sediment entering fish habitat because 1) these roads are either paved or gravel and 2) the minimal number of loads to be hauled (approximately 6 rock trucks)” (EA p. 62).

6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.

The in-stream flows, including the timing, magnitude, duration, and spatial distribution of peak, high, and low flows would be maintained. This conclusion was based on the following information in the EA:

- “The proposed 3,609 ft spur road on BLM land would increase the amount of impermeable surface in the watershed by 1.2 acres and would not result in a measurable increase in base flows or water yield over the existing condition” (EA p. 72).
- “The road construction on BLM land would increase open space within the Wolf Creek sub-watershed by 1.2 acres which would maintain the percentage of open space conditions within the TSZ of this sub-watershed at 19%. Since sub-watershed and TSZ open space conditions would remain below 25%, canopy removal for the road construction would not result in an increase in the magnitude of current peak flow events, or an increase in annual water yields within the Wolf Creek HUC 6 drainage” (EA p. 72).
- “The proposed road construction on BLM land would add 0.68 miles (3,609 feet) of road and would remain below the level (3-4%) where changes in runoff timing may occur within a watershed. The near ridgetop location of the proposed spur would not intercept subsurface flow and any precipitation intercepted or routed by the short spur would be expected to infiltrate back into the soil prior to reaching any streams. Therefore it would not be expected that the activities on BLM land would measurably contribute to an increase in flows or runoff timing” (EA p. 72).

7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.

The timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands would not be affected because the new road construction on BLM land is proposed on a ridge top and not within a riparian reserve, meadow, or wetland. The use of disposal sites for end hauled material, quarries and roads to haul the material would not cause a change in the characteristics of meadows or wetlands because the activities would be done within existing road prisms and existing quarries. Use of the designated disposal sites or quarries would not involve any vegetation removal. “The Proposed Action would not result in the destruction, loss or degradation of any wetland on federal land” (EA p. 63).

8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.

The species composition and structural diversity of plant communities in riparian areas and wetlands would not be affected because the new road construction on BLM land is proposed on a ridge top and not within a riparian area or wetland. Construction of the new road would not involve the manipulation or removal of any riparian vegetation.

The use of designated end hauled material disposal areas, quarries and roads to haul the material would not cause a change in species composition and structural diversity of plant communities in riparian areas and wetlands because the activities would be done within existing road prisms and existing quarries. Use of the designated end hauled material disposal areas or quarries would not involve any vegetation removal.

9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.

Habitat for riparian-dependent plant, invertebrate and vertebrate species would not be affected because the new road construction is proposed on a ridge top and not within a riparian reserve. The use of designated end hauled material disposal sites, quarries and roads to haul the material would not cause a change in riparian-dependent plant, invertebrate and vertebrate species habitat because the activities would be done within existing road prisms and existing quarries. Use of designated end hauled material disposal sites and the quarries would not involve any vegetation removal.

CONCLUSION:

No cumulative adverse effects from the proposed actions are anticipated because the proposed new road would be located outside of riparian reserves on a near ridge top location and not hydrologically connected to streams. The action alternative would not appreciably increase road density on BLM land within the Wolf Creek HUC 6 drainage (an increase of 0.68 road miles or less than 0.02%) and would not be expected to result in measurable sediment entering stream channels (EA p. 26). “Currently there are no other planned future projects on federal ground that would result in an increase in road acres within the Wolf Creek HUC 6 drainage” (EA p. 28). The proposed road, when considering all other projects that have occurred, or will likely occur, within this HUC 6 sub-watershed, would not measurably affect soil productivity on federal lands (EA p. 27). The combined effects associated with past, present, and future road construction and use would not be expected to result in enough erosion to cause Oregon Department of Environmental Quality water quality standards for turbidity to be exceeded (EA p. 27).

The proposed action alternative on BLM land in the Perpetua Forests Company Right-of-Way Road Construction Project EA would not retard or prevent the attainment of the nine objectives or the four components of the ACS. The new road construction is proposed on a ridge top location and not within a riparian reserve. The use of the designated end hauled material disposal sites, quarries and roads to haul the material would be done within existing road prisms and existing quarries. The action alternative would not result in measurable adverse effects to water quality. There would be no measurable change to stream shade, water nutrient levels, flow regime, or chemical contamination of streams, or springs as a result of this action. This determination was based on the small spatial and temporal disturbances associated with the new road construction, quarry use, and road use on existing roads. Therefore, the proposed actions are consistent with the ACS of the Northwest Forest Plan Record of Decision (1994).

APPENDIX 5 - FIRE SPECIALIST REPORT

1.0 Fire Hazard

1.1 Background Information

Fire hazard is the ability of a fire to spread once ignition has occurred (NIFC-B 2006). It is contingent upon the fire behavior that a stand has the potential to produce. Fire behavior is determined by three factors: weather conditions like temperature, wind speed, and relative humidity; topographical characteristics such as slope, aspect, and elevation; and the type and arrangement of fuels available such as surface, ladder, or aerial.

Fire is a chemical reaction that results in the release of energy in the form of heat and light when oxygen combines with a combustible material (fuel) at a suitably high temperature (heat). This combination of fuel, heat, and oxygen is often referred to as “the fire triangle” and if any one of the three components is not present, fire cannot burn (NIFC-A 2006).

Fuels, in regard to land management, are defined as combustible vegetative material. Fuels are categorized in several ways, depending on their arrangement:

Surface Fuels: Loose litter on the soil surface, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches that have not yet decayed enough to lose their identity; also grasses, forbs, low and medium shrubs, tree seedlings, stumps, downed branches, and downed logs (NIFC-B 2006).

Ladder Fuels: Material that provides vertical continuity between surface fuels and aerial fuels. Ladder fuels may include tall grasses and low lying limbs of trees, along with bushes, shrubs, and small trees that make up the understory of a forested stand (NIFC-B 2006).

Aerial Fuels: Vegetation in the forest canopy, including tree branches, twigs and cones, snags, moss, and high brush (NIFC-B 2006).

Fire behavior, in the context of wildland fire, is dictated by fuel, weather, and topography. There are several types of fire behavior, categorized by the fuels that sustain the flame:

Surface fires burn on the surface of the ground and consume surface fuels. The fire stays on the ground.

Passive crown fires, also referred to as “torching,” occur when the fire burns up through the ladder fuels and into the crown of an individual tree or small groups of

trees. The fire is sustained by the surface fuels but a solid flame is not consistently maintained in the canopy of the stand of trees.

Active crown fires burn from the surface fuels, up through the ladder fuels, and into the aerial fuels enabling a solid flame to be consistently maintained in the canopy of the stand of trees.

Fire suppression strategies are the methods that firefighting personnel use in order to contain wildland fires. The strategy employed depends on the fire behavior. There are essentially two basic fire suppression strategies, direct attack and indirect attack.

Direct Attack can be used when a fire is exhibiting surface or passive crown fire behavior because the fire intensity is low enough to allow for safe operations by firefighters at the fire’s edge (NWCG 1994).

Indirect Attack is used when fire intensity is extreme enough to make working at the fire’s edge impractical. This method is usually required when dealing with active crown fires (NWCG 1994).

There are many advantages of using the direct attack method compared to indirect attack. The most important of which is that direct attack is safer for fire suppression personnel than indirect attack because firefighters can escape into the already burned area if necessary. Also, direct attack minimizes the amount of area burned because massive backfiring operations are not required, meaning fires can be contained at smaller sizes (NWCG 2004).

Fire Behavior Threshold-Fire behavior dictates which fire suppression strategy may be effectively employed, and therefore the extent to which a fire may grow and the subsequent damage it may cause. Because fire behavior is critical in fire suppression strategy selection, it serves as the threshold used for analysis. The unit of measure of the threshold is considered in terms of flame length. Flame lengths under 4 feet can generally be effectively managed by fire suppression personnel, such as hand crews, using the direct attack method. Flame lengths greater than 4 feet generally require specialized equipment and indirect attack methods which are inherently more expensive and dangerous due to their complexity (Rothermel 1982).

Table A-3-1. Fire Behavior and Suppression Activities

Flame Length (in feet)	Fire Suppression Strategy	Fire Suppression Tactics
0-4	Direct Attack	Hand crews
4-8	Direct Attack	Dozers, engines, aircraft
8-11	Indirect Attack	Backfiring operations
11+	Indirect Attack	Backfiring operations

Fire behavior fuel models are a tool used to predict fire behavior, including flame length, which is the unit of measure for the fire behavior threshold. The models classify vegetation into four groups: grass, shrub, timber, and slash. Several fuel characteristic

factors are incorporated into the models in order to predict the type of fire behavior a stand has the potential to produce under certain environmental conditions.

Table A-3-2. Fire Behavior Fuel Models with Flame Lengths

Fire Behavior Fuel Model	Fuel Model Group	Flame Length (in feet)
1	Grass	4
2	Grass	6
3	Grass	12
4	Shrub	19
5	Shrub	4
6	Shrub	6
7	Shrub	5
8	Timber	1
9	Timber	2
10	Timber	4
11	Slash	3
12	Slash	8
13	Slash	10

1.2 Affected Environment

Reference Conditions

The Grave Creek watershed is located within the Klamath Province Region of southwestern Oregon where fire is recognized as a key natural disturbance process (Atzet and Wheeler, 1982). Prior to Euro-American settlement, low and mixed severity fires burned regularly in most dry forest ecosystems, such as those conditions found in this area. These types of fires controlled the regeneration of fire intolerant species (plants unable to physiologically withstand heat produced by fires), promoted fire tolerant species (for example ponderosa pine and Douglas-fir), and maintained an open forest structure by reducing forest biomass (Graham, 2004). Native Americans influenced vegetation patterns for over a thousand years in this area by igniting fires to enhance values that were important to their cultures (Agee, 1993). Large, low and mixed severity fires were a common occurrence in the area, evidenced by fire scars and vegetative patterns.

Ecosystems with substantial presence of fire contain species that are adapted to it in order to survive (Agee, 1993). The plant communities found in the Grave Creek watershed include the Douglas-fir/tanoak-madrone group, the Mixed conifer/madrone-deciduous

brush/salal group, and the White oak-ponderosa pine/manzanita-wedgeleaf/grass groups (USDI 1994). These plant communities are related to natural fire regimes I, II, and III.

Fire regimes refer to a general classification of the role fire would play across a landscape naturally, meaning in the absence of modern human intervention such as aggressive fire suppression efforts. The fire regimes are classified based on fire return interval and fire severity.

Table A-3-3. Natural Fire Regimes

Fire Regime	Fire Return Interval (in years)	Fire Severity	Percent of Planning Area
I	<35	Low	60
II	<35	High	25
III	<50	Mixed	15
IV	35-100+	High	0
V	200+	High	0

Fire Regime I. 0-35 years, High Frequency/Low Severity

Plant communities include pine-oak woodlands and dry Douglas-fir sites found on south and west aspects. Surface fires are the norm with large, high severity fires rarely occurring (i.e. every 200 years). Approximately 60% of BLM land in the Grave Creek watershed is within this fire regime.

Fire Regime II. 0-35 years, High Frequency/High Severity

Plant communities include ceanothus and Oregon chaparral. Typical fire return intervals are 10-25 years. High fire severity occurs due to the presence of brushy vegetation. Approximately 25% of BLM land in the Grave Creek watershed is within this fire regime.

Fire Regime III. < 50 years, Moderate Frequency/Mixed Severity

Plant communities include mixed conifer and Douglas-fir sites found on north and east aspects. Fire severity is mixed with large, high severity fires occurring rarely (i.e. every 200 years). This fire regime exhibits fire behavior that results in mosaic patterns on the landscape with burned and unburned patches. Approximately 15% of BLM land in the Grave Creek watershed is within this fire regime.

Current Conditions

The natural fire regimes in the Grave Creek watershed indicate that the landscape experienced fires frequently, less than every 35 years in 75% of the area and less than every 50 years in 100% of the area (FMP 2006). Aggressive fire suppression efforts since the 1940s have interrupted this natural fire regime, shifting the area into condition classes 2 and 3.

Condition class is a relative description of the degree of departure from natural fire regimes and generally describes how ecosystems have reacted with fire intervals outside their historic range of variability (FMP 2006).

Condition Class 1 = Fire frequencies are within or near the historical range, and have departed from natural frequencies by no more than one return interval.

Condition Class 2 = Fire frequencies and vegetation attributes have been moderately altered from the historical range, and fire frequencies have departed from natural frequencies by more than one return interval.

Condition Class 3 = Fire frequencies and vegetation attributes have been considerably altered from the historical range, and fire frequencies have departed from natural frequencies by multiple return intervals.

Frequent fires that historically served as thinning mechanisms by naturally regulating stand densities were effectively being excluded from ecosystems by the 1940s (Graham 2004). As a result of the exclusion of fire, natural levels of vegetation are shifting to overstocked stands, with an increase in the number of suppressed trees and shrub species. This dense vegetation serves as surface and ladder fuels that cause undesired changes to potential fire behavior. For example, some stands that naturally resembled Timber Group fuel models 8, 9, and 10 have shifted into Shrub Group fuel models 4 and 6, which have the potential to produce flame lengths above the 4 foot fire behavior threshold (Table A-3-2).

Intensive management practices may have similar effects on fire hazard by producing dense, even-aged stands. The analyses in the RMP are based on the assumption that all private land would undergo intense management on a sixty year rotation (USDI 1994, p. 4-73). The current condition of the 80 acres of private land is a mosaic pattern of vegetation ranging from early to mid seral stage characteristics and can generally be described as Shrub fuel models 4 and 6 as well as Timber fuel models 9 and 10 with the majority of the area capable of producing flame lengths at or above the four foot fire behavior threshold.

1.3 Environmental Effects

Alternative 1

The proposed road construction across BLM would not occur under this alternative. Perpetua Forests Company would not have access to harvest the 80 acre parcel of land in T33S-R5W-Sec20 at this time, unless future access is acquired across non-BLM. Without access, no activity slash would be created, nor would the stand be expected to transition from its current characteristics resulting from forest management activities or from wildfire as fire suppression is expected in the event of a wildfire. Over time it is expected that the growth of vegetation would increase the amount of surface and ladder

fuels present. Since the majority of the area is already capable of producing flame lengths at or above the fire behavior threshold in its current condition, there would be no meaningful adverse affect on fire behavior under Alternative 1.

Alternative 2

Indirect Effects

Short term refers to the six month to two year period from the time slash is produced from harvest activities to the time it is mitigated by being disposed of through removal and/or prescribed fire, or up to three years for the fine fuels to decompose naturally in the absence of treatment.

In the short term, the slash created during the harvest activities could cause the 80 acre area to transition from the current fuel models to a Slash fuel model 11 or 12 with flame lengths of 4 to 8 feet. This transition does not necessarily translate into an affect on fire hazard however, as the flame lengths associated with the current fuel models also exceed the fire behavior threshold. Also, the minimal amount of slash created during the construction of the road is not expected to be abundant enough to change the current fuel model in that area and most of the slash created would be crushed and covered in the fill slope of the road. Therefore, there is no expected direct adverse affect on fire hazard under Alternative 2 either from the harvest activities on the 80 acres of private land or the road construction activities including approximately 3.5 acres of land.

Long term refers to the approximately 20 year period between the time the area has been replanted to the time the plantation undergoes pre-commercial thinning.

The 80 acre parcel is currently a mosaic of vegetation resembling several fuel models. The areas described as Timber fuel model 9 are the minority and are interspersed with areas of fuel models that exceed the 4 foot flame length threshold. In the long term, the early seral conditions resulting from the harvest activity could cause the portions of the 80 acre area that currently resemble Timber fuel model 9, with flame lengths below 4 feet, to transition to Shrub fuel models 4 and 6 with flame lengths above 4 feet, particularly before brushing and pre-commercial thinning treatments are implemented. As stated previously, however, the areas within the 80 acre parcel that resemble fuel model 9 are the minority. As such, this transition does not necessarily translate into a meaningful adverse affect on fire hazard, as the flame lengths associated with the current fuel models in the majority of the area and the future fuel model both exceed the 4 foot fire behavior threshold. Therefore, there is no expected measurable indirect adverse affect on fire hazard under Alternative 2.

2.0 Fire Risk

2.1 Affected Environment

Fire risk is the probability of a fire starting, as determined by the presence of ignition sources (NIFC-B 2006). Ignition sources include natural causes such as lightning, and human causes such as improperly discarded cigarettes and unattended camp fires. Fire risk generally increases as human presence increases because these types of activities become more frequent. Recreational areas and areas along travel routes like trails and roads are usually at a higher risk of a fire ignition than areas that experience less frequent human activity. However, the miles of new road construction and increased human presence do not correlate on a one-to-one basis because many factors aside from access contribute to increased human presence. The most important factor is how appealing the areas are into which the new roads provide access. The new road proposed in Alternative 2 is proposed in order to access timber harvest units, meaning it is a relatively short spur road that dead ends.

2.2 Environmental Effects

Alternative 1

No new road construction would take place on BLM land at this time, therefore no related increase in human presence would occur. As such, there are no expected adverse affects on fire risk under Alternative 1.

Alternative 2

Proposed new permanent road construction theoretically affects fire risk by allowing for increased human presence. This particular road, however, would have negligible affects on fire risk because: the length of road is minimal; the road would not be a major travel route because it would dead end; the road would not provide access to an appealing recreation or other high-use site; the general location of the road is not near any major population centers which provide the potential for human presence; and the road is proposed to be gated to further limit human presence. As such, there would be no expected measurable adverse affects on fire risk associated with Alternative 2.