Decision Notice and
Finding of No Significant Impact

Calawah Watershed Road Decommissioning Project

USDA Forest Service
Pacific Ranger District, Olympic National Forest
Clallam County, Washington
T29N, R12W; T29N, R11W; T29N, R10W; T28N, R12W; T28N, R11W; and T28N, R10W

Introduction

This Decision Notice documents my decision to implement Alternative B of the Calawah Watershed Road Decommissioning Project, and the rationale for my selection of Alternative B.

Background

An Environmental Assessment (EA) has been prepared for the Calawah Watershed Road Decommissioning Project. The project area is located on National Forest System lands within the Calawah River watershed east of the town Forks, in Clallam County, in the northwest portion of Washington's Olympic Peninsula. The legal land description of the Calawah Watershed Road Decommissioning Project planning area is T29N, R12W; T29N, R11W; T29N, R10W; T28N, R12W; T28N, R11W; and T28N, R10W. The planning area is accessed by Forest Service Roads 2900, 2912, 2922, 2923, and 2952.

The purpose of the Calawah Watershed Road Decommissioning Project is to protect and restore watershed health, water quality, and fish habitat on National Forest System (NFS) lands within the Calawah watershed. This action is needed to correct and improve existing road conditions that pose a high risk of sedimentation into streams.

Management direction for the project comes from the 1990 *Olympic National Forest Land and Resource Management Plan* (LRMP) as amended by the 1994 *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl.* The 1994 Record of Decision (ROD), along with its Standards and Guidelines, is commonly known as the Northwest Forest Plan. The 1990 LRMP, as amended by the 1994 ROD and other current amending documents, is referred to as the Forest Plan in this Decision Notice.

On December 17, 2009, the U.S. District Court for the Western District of Washington issued an order in *Conservation Northwest, etal. v. Sherman, et at.,* No. 08-1067-JCC (W.D. Wash.), granting Plaintiffs' motion for partial summary judgment and finding NEPA violations in the *Final Supplemental to the 2004 Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines* (USDA and

USDI, June 2007). In response, parties entered into settlement negotiations in April 2010, and the Court filed approval of the resulting Settlement Agreement on July 6, 2011. Projects that are within the range of the northern spotted owl are subject to the survey and management standards and guidelines in the 2001 ROD, as modified by the 2011 Settlement Agreement.

The actions proposed in the Calawah Watershed Road Decommissioning Project would treat 35.5 miles of NFS roads in the Calawah Watershed. Treatments would include removal of large stream crossing fills, culverts, and unstable side-cast material; decompaction of road surfaces to allow infiltration; recontouring to restore hillslope profile; creating cross-drains, swales, and other drainage features; blocking vehicular access by constructing berms; and seeding, mulching, and reestablishing native vegetation to minimize erosion and sediment transport. Treatment intensities would vary based on the objectives for each individual road segment.

As a result of those treatments, 18.2 miles of system road would be decommissioned and permanently removed from the road system. The remaining 17.3 miles would be converted to maintenance level 1 (ML1) administrative closure. These roads would be closed to vehicular traffic, but would remain on the Forest's road system for potential administrative use in the future.

The Calawah Watershed Road Decommissioning Project also analyzed a no-action alternative. The alternatives differed by the miles of treatment versus a no action alternative which would continue with current road management in the planning area.

Decision and Reason for the Decision

After careful review and consideration of the public comments and analysis disclosed in the Calawah Watershed Road Decommissioning Project EA, I have decided to implement Alternative B, the Proposed Action, as described in the EA (p. 6). My decision includes implementing all the treatment types (p. 8), conservation measures (p. 10), and monitoring (p. 13). My decision is based on a review of the EA and the project record, which shows a thorough evaluation of relevant scientific information, a consideration of responsible opposing views, and acknowledgement of incomplete or unavailable information, scientific uncertainty, and risk.

Alternative B includes treating 35.5 miles of NFS roads in the Calawah Watershed. Treatments would include removal of large stream crossing fills, culverts, and unstable side-cast material; decompaction of road surfaces to allow infiltration; recontouring to restore hillslope profile; creating cross-drains, swales, and other drainage features; blocking vehicular access by constructing berms; and seeding, mulching, and reestablishing native vegetation to minimize erosion and sediment transport. Treatment intensities would vary based on the objectives for each individual road segment.

As a result of those treatments, 18.2 miles of system road would be decommissioned and permanently removed from the road system. The remaining 17.3 miles would be converted to maintenance level 1 (ML1) administrative closure. These roads would be closed to vehicular traffic, but would remain on the Forest's road system for potential administrative use in the future.

In making this decision, I examined the proposed treatment of 25 segments of Forest Service system roads, the associated treatments to stabilize these roads, and related activities in relationship to the goals and objectives of the Forest Plan. I also considered the resource concerns noted in the watershed analysis and the EA. I considered the responsiveness of the alternatives to the three key issues identified in the EA (loss of public access, loss of timber harvest opportunities, and road decommissioning is too costly); applicable laws and policy; Tribal Treaty rights, and public input. I considered the effects of implementing the action alternative and the no action alternative on the physical, biological, social, and economic environment. I believe Alternative B provides the best balance among these considerations.

Implementing Alternative B with its project design criteria and mitigation measures will result in minimal impacts to resources, and will provide long term benefits to the resources. My decision to implement Alternative B meets the purpose and need for action established for this project, and is consistent with the goals, objectives, standards, and guidelines of the Forest Plan. The road treatments and system road decommissioning follow ecosystem management policies and scientific recommendations. Alternative B meets requirements under the National Forest Management Act, National Environmental Policy Act, Clean Air Act, Clean Water Act, and all other applicable environmental laws, regulations, and policies.

Alternative B also provides local economic activity and employment opportunities within the general vicinity of the project. The individual road segments selected for this proposal were identified as high priority for treatment during the collaborative Watershed Restoration Plan process. The treatments would be designed to reduce the amount of sedimentation these features contribute to aquatic habitat. This action responds to the goals and objectives of the Aquatic Conservation Strategy described in the 1990 Olympic National Land and Resource Management Plan, as amended by the 1994 Northwest Forest Plan, and helps move the project area towards desired conditions described in that plan.

Mitigation Measures and Design Features

Project design criteria and mitigation measures were developed for the action alternative and will be implemented to insure compliance with direction in the Forest Plan and Forest program direction, as well as to avoid or minimize adverse impacts of project implementation. Specific project design criteria and /or mitigation measures were developed for the following areas:

fisheries, hydrology, water quality; wildlife and wildlife habitat; invasive plants; and cultural resources. These requirements, which are described in the EA on page 10, are expected to minimize potential adverse effects of management activities. Implementation of these features is considered to be highly effective.

I have decided to add the additional design feature to those described in the EA:

As part of ML1 storage treatments on the 2912 and 2912060 roads a 2-4 foot footpath would be constructed where outsloping, or fill material storage on the road bed occurs. The intent of this measure is to facilitate walk-in access where high intensity road treatments occur.

Monitoring and Adaptive Management

Specific monitoring activities will be implemented to assure that implementation of elements of my decision are carefully tracked during and after project implementation. Monitoring activities are described in individual resource chapters in the EA.

Other Alternatives Considered

I originally considered three alternatives, one of which was eliminated from further analysis (see "Alternatives Considered but Dismissed from Further Study", below).

Two alternatives were considered in detail in the EA: one that included activities to treat 25 segments of Forest Service system road within the Calawah River watershed to reduce the potential for the roads to generate sediment, restore hillslope hydrology; and improve stability of the road prism by removing unstable sidecast fill (Action Alternative B), and one that would not (Alternative A- the No-Action Alternative).

I did not select the No-Action Alternative because it does not meet the purpose and need to protect and restore watershed health, water quality, and fish habitat on National Forest System (NFS) lands within the Calawah watershed. The primary objective for treatments on road segments proposed for decommissioning is to reduce the potential for management-related mass wasting and surface erosion that could deliver sediments to fish spawning and rearing habitat

The analysis in the EA shows that the action alternative would not result in any measurable adverse environmental effects. I have decided to implement Alternative B because it meets the purpose and need of the project most effectively.

Alternatives Considered but Dismissed from Further Study

Project commenters suggested converting route 2912 and 2912-060 into a motorized off-highway-vehicle (OHV) route. Based on these public comments, an alternative was considered that would have converted roads 2912 and 2912-060 into a motorized-use OHV route. Authorizing an OHV route is outside the scope of this project and would not meet the project's purpose and need. Proposed road treatments and reclassification of the 2912 and 2912-060 roads as ML1 would not preclude future options for trail development. The public request for OHV recreation has been identified on the Pacific Ranger District, and a separate planning effort is underway for an OHV route in the Northwest portion of the Calawah Watershed.

Public Involvement and Tribal Consultation

The Calawah Watershed Road Decommissioning Project was listed on the Olympic National Forest's *Schedule of Proposed Actions* (SOPA) July 1, 20012, and remained on the SOPA throughout the planning, analysis, and decision process. On October 16, 2012, I sent scoping letters to the Quileute Tribe to solicit comments on the project. On November 1, 2012, I sent a scoping letter to concerned citizens, organizations, and state, federal, and local government agencies that have expressed an interest in the Forest's management activities. The letter described the proposed action, and requested comments.

Based on comments received from the Tribes, the public, and other agencies, the Forest's interdisciplinary team and I developed a list of issues to address when considering alternatives to the proposed action. When the draft EA was complete, it was circulated for a 30-day comment period beginning on December 16, 2013, 2013. Five responses were received during the comment period. The comments and my responses are found in Appendix C of the EA.

Finding of No Significant Impact

After considering comments from the public and the environmental effects described in the EA, I have determined that implementation of Calawah Watershed Road Decommissioning Alternative B does not constitute a major federal action significantly affecting the quality of the human environment. Thus, an environmental impact statement will not be prepared. This determination of no significant impact is based on the EA, the design of the selected alternative, and on the following factors:

Context of Action:

The Calawah Watershed Road Decommissioning activities will be local and short-term. The treatment and decommissioning activities would occur over the next five to ten years, depending on funding.

Intensity of Effects:

The environmental effects of the following actions are documented in Chapter 3 of the Calawah Watershed Road Decommissioning EA: sedimentation during construction activities; temporary fish barriers during treatments; and temporary treatment effect on wildlife. The beneficial and adverse direct, indirect, and cumulative effects of these activities have been disclosed in the EA. Effects are expected to be low in intensity because of standard management practices and the project design criteria and mitigation measures described on pages 10 of the EA.

1. Potential beneficial and adverse effects were considered in the analysis of the proposed action and alternative. The analysis considered both direct and indirect effects, and also the project's contribution to the cumulative effects of other past, present, and reasonably foreseeable actions in the watershed. Potential adverse effects of Alternative B will be reduced or eliminated by the application of the required project design criteria and mitigation measures (EA p. 10).
2. The project will not have a significant effect on public health or safety. Roads will be closed as needed to protect public safety during treatment and decommissioning operations. Mitigation measures and design features will protect worker safety during project implementation (EA p. 10). Effects on water quality (sediment) are expected to be very limited due to mitigation measures and project design features (EA p. 10).
3. There will be no significant effects to unique characteristics of the area. No historic or cultural resources will be affected with this proposal (EA, p. 49). The project is not in close proximity to prime farmlands or ecologically critical areas. Wetlands located within the project area would be protected by project design criteria. No project activities will occur within designated Wilderness, Inventoried Road less Areas, or within the Olympic National Park, although there will be minor, short-term indirect effects from noise. There will be no effects to Wild and Scenic Rivers; the Calawah watershed is not designated as Wild and Scenic Rivers. The project is expected to be beneficial to Riparian Reserves through the decommissioning or stabilization of roads currently presenting risks to aquatic habitat (instability or sediment sources).
4. The effects of this project on the quality of the human environment are not likely to be highly controversial. Comments received during the comment period from respondents opposed to the project were concerned primarily with public and timber thinning access and converting roads to OHV use. The project will permanently decommission some existing system roads that are currently posing resource concerns and place other system roads into ML1 storage. Comments received during the 30-day comment period raised no substantial concerns.
5. The effects of this project are not highly uncertain, and do not involve unique or unknown risks. Road decommissioning has recently been a regular activity on the Olympic National Forest and is consistent with Forest direction, policies, and directives; this project will be consistent with regulations concerning these activities and the protection of natural resources.
6. This action will not establish a precedent for future actions with significant effects, and does not represent a decision in principle about a future consideration. Road

decommissioning is not a new activity on the Forest and will follow common practices with known results. The project design criteria and mitigation measures (EA p. 10) are known to be effective in reducing risks associated with project activities. The EA effectively addressed and analyzed all major issues associated with the project.

7. Implementation of Alternative B does not represent potential cumulative adverse impacts when considered in combination with other past, present, and reasonably foreseeable future actions. The discussion of effects in Chapter 3 of the EA indicates no likelihood of cumulatively significant impact to the environment.
8. It was determined that the action will not adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, nor will it cause loss or destruction of significant scientific, cultural, or historical resources. No eligible historic properties were found during surveys of the project area. The Washington State Office of Archaeology and Historic Preservation (SHPO) concurred with the No Effect finding (letter on file at the Olympic National Forest).
9. This action is covered by the Programmatic Biological Opinion (PBO) from the USDI Fish and Wildlife Service: USDI Fish and Wildlife Service. 2012. Biological Opinion and letter of concurrence for effects to marbled murrelets, northern spotted owls, bull trout, and designated critical habitat for marbled murrelets and northern spotted owls from Olympic National Forest program of activities for 2013 to 2023. U.S. Fish and Wildlife Service, Lacey, Washington. The majority of project work will have little to no affect on the structure or function of spotted owl and murrelet habitat since most activities will be restricted to the existing road prism, which is non-habitat. In most cases the vegetation removed from the road treatment areas would be shrubs, forbs/grasses or small trees at most, and as such would not involve removal of dispersal or suitable habitat or constituent elements.
10. This action does not threaten a violation of any Federal, State, or local laws or requirements for the protection of the environment. Alternative B is consistent with the Forest Plan, and is in compliance with the Clean Water Act and the Clean Air Act. It was designed to be in compliance with all applicable laws and regulations.

Findings Required by Other Laws and Regulations

The decision to approve the Calawah Watershed Road Decommissioning Project is consistent with the intent of the Forest Plan's long-term goals and objectives. The project was designed in conformance with standards and guidelines in the 1990 *Olympic National Forest Land and Resource Management Plan* (LRMP) as amended by the 1994 *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl.* I have carefully reviewed the EA and supporting documents for consistency with the Northwest Forest Plan's Aquatic Conservation Strategy objectives in accordance with the 1994 ROD, Attachment B, on page B-10. The EA includes descriptions of the existing condition, range of natural variability of important physical and biological components of the watersheds, and how the proposed project maintains the existing condition or moves it within the range of natural variability (EA p. 46). Based on my review of the EA, and the 1994 ROD, I have determined that this project does not prevent attainment of the Aquatic

Conservation Strategy objectives. I have determined that this project is consistent with the National Forest Management Act (NFMA) requirements at USC 1604 (EA p. 220).

Implementation Date

If no appeals are filed within the 45-day time period, implementation of this project may begin on, but not before, five business days from the close of the appeal filing period. When one or more appeals are filed, implementation may begin on, but not before, the fifteenth business day following the date of the last appeal disposition.

Objection Opportunities

This decision is subject to objection pursuant to Forest Service regulations at 36 CFR 218. Only individuals or organizations that submitted specific written comments during a designated opportunity for public participation (scoping or the 30-day public comment period) may object (36 CFR 218.5). Notices of objection must meet the requirements of 36 CFR 218.8(d); incorporation of documents by reference is permitted only as provided for at 36 CFR 218.8(b). Written notice of objection must be postmarked or received by the Olympic Forest Supervisor, ATTN: Objections, USDA Forest Service, 1835 Black Lake Blvd SW 98512 within 45 days of the date of publication of the notice regarding this decision in *The Peninsula Daily News* newspaper, (Port Angeles, WA). Objections delivered by mail must be received before the close of the fifth business day after the objection filing period. The objection narrative must be sufficient to identify the specific change(s) to the decision sought by the appellant or portions of the decision to which the appellant objects, and must state how the Responsible Official's decision fails to consider comments previously provided. If applicable, the objections should state how the appellant believes this decision violates law, regulation, or policy. Specific directions on how to file an objection are provided in 36 CFR 218.8. (A printed copy is available upon request.) The regulations can be found at http://www.ecfr.gov/cgi-bin/text-idx?SID=cb8e9b64f65923476f5ef9ee666b8af7&node=36:2.0.1.1.8.1.1.8&rgn=div8

Objections (including attachments) may be filed by regular mail, fax, e-mail, hand delivery, express delivery, or messenger service. The publication date of the notice regarding this decision in the newspaper is the sole means of calculating the objection filing deadline, and those wishing to object should not rely on dates or timelines from any other source. E-mail appeals must be submitted to: objections-pnw-olympic@fs.fed.us, and must be in one of the following three formats: Microsoft Word, rich text format (rtf), or Adobe Portable Document Format (pdf). Appeals submitted by FAX must be faxed to: 502-956-2330. Objections may be hand-delivered to the Supervisor's Office, 1835 Black Lake Blvd SW 98512 between 8:00AM and 4:30PM Monday-Friday.

It is the responsibility of all individuals and organizations to ensure their objections are received in a timely manner. For electronically mailed appeals, the sender should normally receive an automated electronic acknowledgement from the agency as confirmation of receipt. If the sender does not receive an automated acknowledgement of the receipt of the objection, it is the sender's responsibility to ensure timely receipt by other means.

Contact

For additional information concerning this decision or the Forest Service objection process, contact Greg Wahl, Forest Environmental Coordinator, Olympic National Forest, 1835 Black Lake Blvd SW, Olympia, WA 98512, email gtwahl@fs.fed.us , phone: 360-956-2375.

5/2/14

Dean R. Millett
District Ranger
Olympic National Forest

Date

USDA

United States

Department of

Agriculture

Forest

Service

March 2014

Environmental Assessment

Calawah Watershed
Road Decommissioning Project

Pacific Ranger District, Olympic National Forest

Clallam County, Washington

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Summary

The Olympic National Forest proposes to treat approximately 35.5 miles of National Forest System roads in the Calawah watershed to correct and improve existing road-related conditions that pose a high risk of sedimentation into streams. The project area is located in the Calawah Watershed and is within the Pacific Ranger District, Olympic National Forest, Washington.

The proposed action may have short-term minor effects to wildlife and aquatic habitat. Long-term effects are expected to be of benefit to aquatic resources. The proposed action would close 8.8 miles of road currently open to public motor vehicle use.

In addition to the proposed action, the Forest Service also evaluated a No Action alternative.

Based upon the effects of the alternatives, the responsible official will decide which road segments to treat, treatment intensities to apply, and mitigation measures to include in project implementation.

1.0 PURPOSE AND NEED

1.1 Document Structure

The Forest Service has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four parts:

Chapter 1 is the introduction. This section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.

Chapter 2 describes the proposed action and alternatives. This section provides a more detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. This discussion also includes proposed mitigation measures and this section provides a summary table of the environmental consequences associated with the proposed action.

Chapter 3 describes the affected environment and the environmental consequences of implementing the proposed action. This analysis is organized by resource area. Within each resource area section, the affected environment is described, and the anticipated effects of the proposed action are assessed. A No Action Alternative is included to provide a baseline for evaluation and comparison of the proposed action.

Chapter 4 provides a list of preparers and agencies consulted during the development of the environmental assessment.

Chapter 5 contains all appendices to the EA, including maps. Appendices: The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Pacific Ranger District Office in Forks, Washington.

1.2 Relationship to the Forest Plan and Other Direction

The Forest Service has prepared this EA in compliance with the National Environmental Policy Act (NEPA) and its implementing regulations (40 Code of Federal Regulations §1500-1508) as well as those requirements established by Federal environmental laws and regulations. It is tiered to the Final Environmental Impact Statement (FEIS) for the ONF Land and Resource Management Plan (USDA Forest Service 1990a) and the 1990 ONF Land and Resource Management Plan (USDA Forest Service 1990b), as amended.

Major plan amendments include the Final Supplemental Environmental Impact Statement (FSEIS) on Management of Habitat for Late Successional and Old-growth Forest Related Species Within the Range of the Northern Spotted Owl (USDA Forest Service and USDI Bureau of Land Management, 1994a) as adopted and modified by the April 1994 Record of Decision (ROD), which provides additional standards and guidelines (USDA Forest Service and USDI Bureau of Land Management, 1994b). These two documents are commonly referred to as the 1994 ROD or the Northwest Forest Plan.

The 1994 ROD added seven land allocations to the allocations in the 1990 Land and Resource Management Plan (LRMP). The standards and guidelines it established for these land allocations supersede management direction in the 1990 LRMP unless the 1990 LRMP is more restrictive or provides greater benefits to late-successional-forest-related species. The 1994 ROD also includes an Aquatic Conservation Strategy (ACS), designed to protect and improve the health of aquatic ecosystems.

For the ONF, the land allocations established by the 1994 ROD are Late-Successional Reserves (LSR), Adaptive Management Areas (AMA), and Riparian Reserves (RR). The objective of the LSR allocation is to protect and enhance conditions of late-successional and old-growth forest ecosystems, which serve as habitat for late-successional and old-growth related species, including the northern spotted owl. The AMA allocation was designated to encourage the development and testing of technical and social approaches to achieving desired ecological, economic, and other social objectives. Riparian Reserves (RR) include land adjacent to streams, and unstable and potentially unstable areas. Riparian Reserves are managed to maintain and restore riparian structures and functions, confer benefits to riparian-dependent and associated species other than fish, enhance habitat conservation for organisms that are dependent on the transition zone between upslope and riparian areas, improve travel and dispersal corridors for many terrestrial animals and plants, and provide for greater connectivity of the watershed. Riparian Reserves overlie all other management allocations.

In this EA, the term “Forest Plan” refers to the 1990 LRMP as amended by the 1994 ROD and other amendments currently in force.

This EA also tiers to and incorporates by reference the following documents:

- FEIS for the ONF LRMP (USDA Forest Service 1990a). This FEIS discloses the environmental consequences of six alternatives for managing the land administered by the ONF.

- ONF LRMP (USDA Forest Service 1990b). The LRMP guides all natural resource management activities and establishes standards and guidelines for the ONF.
- FSEIS on Management of Habitat for Late Successional and Old-growth Forest Related Species Within the Range of the Northern Spotted Owl (USDA Forest Service and USDI Bureau of Land Management, 1994a) as adopted and modified by the April 1994 ROD, which provides additional standards and guidelines (USDA Forest Service and USDI Bureau of Land Management, 1994c). These two documents are commonly referred to as the 1994 ROD or the Northwest Forest Plan.
- The ONF Strategic Plan (USDA Forest Service 2004a). The Strategic Plan used an interdisciplinary process to identify priority areas for aquatic and terrestrial ecosystems, restoration needs, and opportunities to integrate projects to achieve multiple benefits.
- The ONF Access and Travel Management Plan (ATM) (USDA Forest Service 2004b). The ATM documents priorities for road management objectives on the ONF.
- ONF FEIS and ROD – Beyond Prevention: Site-Specific Invasive Plant Treatment (USDA Forest Service 2008). This environmental impact statement (EIS) provides forest-level direction for the site-specific treatment of invasive plant infestations.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the ONF Headquarters in Olympia, Washington. The project record and all references cited are hereby incorporated by reference into this Environmental Assessment.

1.3 Purpose and Need for Action

The purpose of this proposal is to protect and restore watershed health, water quality, and fish habitat on National Forest System (NFS) lands within the Calawah watershed. This action is needed to correct and improve existing road conditions that pose a high risk of sedimentation into streams. The presence of roads has the potential to adversely impact aquatic and wildlife habitat depending on location and road surface condition. Roads can unnaturally increase hillslope runoff and sediment transport to streams and rivers, and this increased sedimentation can adversely impact aquatic and riparian habitat and watershed health.

The individual road segments selected for this proposal were identified as high priority for treatment during the collaborative Watershed Restoration Plan process. The treatments would be designed to reduce the amount of sedimentation these features contribute to aquatic habitat. This action responds to the goals and objectives of the Aquatic Conservation Strategy described in the 1990 Olympic National Land and Resource Management Plan, as amended by the 1994 Northwest Forest Plan, and helps move the project area towards desired conditions described in that plan (USDA 1994).

1.4 Proposed Action

The proposed project would treat 35.5 miles of NFS roads in the Calawah Watershed. Treatments would include removal of large stream crossing fills, culverts, and unstable side-cast material; decompaction of road surfaces to allow infiltration; recontouring to restore hillslope profile; creating cross-drains, swales, and other

drainage features; blocking vehicular access by constructing berms; and seeding, mulching, and reestablishing native vegetation to minimize erosion and sediment transport. Treatment intensities would vary based on the objectives for each individual road segment.

As a result of those treatments, 18.2 miles of system road would be decommissioned and permanently removed from the road system. The remaining 17.3 miles would be converted to maintenance level 1 (ML1) administrative closure. These roads would be closed to vehicular traffic, but would remain on the Forest's road system for potential administrative use in the future.

1.5 Decision Framework

The Responsible Official is the Pacific District Ranger. Given the purpose and need, the Pacific District Ranger will review the proposed action and alternative, the environmental effects associated with the alternatives, and comments received during the public comment period. Based on those reviews the District Ranger will decide:

- Which road segments to treat;
- Which treatments and treatment intensities to implement;
- What management requirements (mitigation measures and design criteria) to include in the project.

1.6 Project Implementation

Anticipated implementation of this project would begin the first summer after a decision is signed. The earliest possible implementation date would be the summer of 2014.

1.7 Scoping

This proposal was first listed in the Schedule of Proposed Actions (SOPA) on April 1, 2012. It will remain on the SOPA until a decision is made, and through the quarter following the decision. The project has appeared on the Forest's www website (*www.fs.usda.gov/projects/olympic/landmanagement/projects*) since early April 2012. A letter describing the proposal and initiating formal consultation with the Quileute Tribe was mailed on October 17, 2012. A public scoping letter was sent to 164 interested individuals, organizations, and other agencies on November 1, 2012.

The Forest received eight responses from the public scoping process. These responses were considered in the development of the current proposed action and the environmental analysis.

1.8 Issues

The Forest Service separated the issues identified through the public scoping process and through internal discussion into two groups: key issues and non-key issues. Key issues are defined as those directly or indirectly caused by implementing the proposed action, and may form the basis for developing alternatives to the proposed action. No key issues were identified either internally or in the content of the scoping comments received from the public

Non-key issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4)

conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)."

For this project, The Forest Service identified three topics raised during scoping as non-key issues:

Loss of public access. Several commenters expressed concern over losing public access to National Forest System lands as a result of road decommissioning and administrative road closures. Public access was one of the main concerns in the 2003 and 2007 Access and Travel Management processes, and continues to be an important management consideration for the Forest. Currently a backlog of road maintenance needs combined with insufficient funding to fully maintain the existing road system has resulted in both reduced access due to poor road conditions, and a need to reduce the maintenance burden by identifying roads to remove from the system. The broader question of overall public access to NFS lands is outside the scope of this project. However, this environmental analysis also considers a no-action alternative which would leave current levels of road access within the watershed unchanged.

Loss of timber harvest opportunities. One commenter expressed concern that decommissioning roads eliminates future opportunities for timber harvest. There are currently commercial thinning operations underway in other parts of the watershed as a result of the recent Sitkum Commercial Thinning planning process. Access for timber harvest is considered in this EA. The commercial harvest opportunities that would be affected by reduced road access resulting from the proposed action are generally in stands that would not be ready for harvest for another 15 years or longer. The delay in road treatments to improve watershed conditions would be too lengthy to meet the current project's purpose and need.

Road decommissioning is too costly. One commenter recommended putting funds toward maintaining roads and retaining the road infrastructure rather than decommissioning them. Funds for this project would not come from road maintenance funding. The roads selected for decommissioning or closure in this project are all roads that pose risks to aquatic resources, and were recommended for closure or decommissioning in the forest's Access and Travel Management (ATM) process. Most of them are currently closed for public use and/or currently not driveable.

In addition, available road maintenance funds have dropped precipitously over the last twenty years. As a result, the FS cannot maintain the current network of FS roads. The FS needs to work toward having a road network that both reduces resource impacts and can be maintained with the funding received. Treating the selected road segments as proposed would reduce the road maintenance burden in the watershed and allow road maintenance funds to be put to use on other, open roads that need attention.

2.0 Alternatives, Including the Proposed Action

This chapter describes and compares the alternatives considered for the Calawah Watershed Road Decommissioning Project.

2.1 Alternatives Considered in Detail

This Environmental Assessment considers two alternatives: the Proposed Action and a No-Action Alternative. The No-Action Alternative provides a basic description of current conditions against which the Proposed

Action is compared. Because there are no unresolved conflicts or concerns associated with the proposal, no other action alternatives were identified.

2.2 Alternative A – No Action

Under the No Action alternative, current road management would continue unchanged within the project area. No management actions included in the Proposed Action would be implemented. No roads would be treated to reduce aquatic risk by removing stream crossing structures, adding additional drainage features, or removing unstable sidecast fill material and then either subsequently removed from the Forest Service road system or closed and placed in maintenance level 1 (ML1) "storage." No scarification of road surfaces to restore infiltration and soil productivity would occur. There would be no change in the number of miles of road on the Forest Service road system within the Calawah River Watershed, or to current operational maintenance levels.

The No Action alternative does not represent a static, "no change" condition. The risk to aquatic resources currently posed by road-related surface erosion and by the potential for landslides and debris torrents to originate from these roads would persist into the future as the roads age and the road conditions continue to deteriorate due to reduced road maintenance funding.

2.3 Alternative B – The Proposed Action

Development of the Proposed Action

The Forest Service's Pacific Northwest Region Aquatic Restoration Strategy is a region-wide effort to protect and restore aquatic habitat across Washington and Oregon. The strategy relies on a collaborative approach to restoration and on focusing available resources in selected high priority watersheds to accomplish needed restoration activities on national forest system lands as well as other ownerships. In 2010 the Olympic National Forest selected the Calawah River Watershed (5th field) as its "Focus Watershed" for the Washington Coast basin.

The collaborative process involved local citizens, county, city, and state governments, and affected tribes to identify the highest priority work needed within the watershed to protect and restore salmon and steelhead habitat on NFS lands in the basin. The group identified a substantial number of road treatments needed to enhance and protect aquatic resources. The Calawah Watershed Road Decommissioning Project proposal generally follows the recommendations of the Watershed Restoration Plan and of the Forest's 2003 Access and Travel Management Plan (ATM), which was designed to meet administrative and public access needs while closing the gap between maintenance needs and the funding to address them.

The Proposed Action would treat 25 segments of Forest Service system road within the Calawah River watershed to reduce the potential for the roads to generate sediment due to culvert blowouts, debris torrents, and surface erosion; restore hillslope hydrology; and improve stability of the road prism by removing unstable sidecast fill. A total of 35.5 miles of Forest Service system roads would be treated: 18.2 miles of Forest Service system road would be decommissioned and removed from the Forest Service road system; and 17.3 miles of road would be placed in Maintenance Level 1 (ML1) storage. These roads and would receive treatments to stabilize areas of high risk to aquatic resources while retaining as much of the existing roadway

as possible. As ML1 roads, they would be closed to public motor vehicle use but would remain on the Forest Service road system and would be available for use at some point in the future, if needed. Table A-1 and Map A-1 in Appendix A shows the road segments proposed for treatment, their current management level, the relative intensity of the proposed restoration treatments, and the subsequent outcome or management level of each segment.

The Proposed Action has been slightly modified from the version described in the November 1, 2012 scoping letter. Changes resulted from additional field reconnaissance and public input, and are as follows:

- Road 2900030, MP 1.9-3.6, would be decommissioned (in the scoping letter this road segment was incorrectly identified as proposed for ML 1 storage when the intent was to decommission).
- Roads 2912000 and 2912060 would be treated and placed in ML 1 storage. The original proposal was to decommission and convert to trail.

This document frequently refers to a road's maintenance level, or ML. The table below contains a description of each maintenance level, how many miles of each are currently in the watershed, and how many miles of each are proposed for treatment in this project.

Table 1. Road Maintenance Levels (ML)

Maintenance Level (ML)	Description	Miles in watershed	Miles proposed for treatment
ML1	Not designated for motor vehicles as a road. Is in a storage state between uses that prevents damage to adjacent resources.	74.1	26.7
ML2	Maintain only as necessary for high-clearance vehicles. Maintain structures for high-clearance vehicles and to protect natural resources.	50.5	8.8
ML3	Maintain for prudent drivers in standard passenger cars during the normal season of use. Maintain all structures for current and future use.	37.9	0
ML4	Maintain for passenger cars and all structures to provide for current and future use.	0.28	0

Treatment Types

Decommissioning

The primary objective for treatments on road segments proposed for decommissioning is to reduce the potential for management-related mass wasting and surface erosion that could deliver sediments to fish spawning and rearing habitat. Treatments would vary based on site-specific conditions and the potential for the road to adversely affect fish habitat. Specific actions would include:

- Removal of all stream crossing culverts and fills;

- Construction of waterbars or other drainage features to reduce the potential for water diversion and restore hillslope hydrology;
- Removal of unstable sidecast fill material, and scarification of the road surface to improve infiltration and help restore soil productivity; and
- Obliteration of the roadbed by recontouring or full outsloping in some locations.

A closure barrier would be constructed at the beginning of each decommissioned road segment to prevent use of the decommissioned road by motorized vehicles. Trees and other vegetative material cleared at the site during excavation would be scattered on the roadbed and constructed side slopes to prevent soil erosion and enhance the soil with organic matter. This project proposes to decommission 18.2 miles of road.

Maintenance Level 1 (ML1) Storage

The objectives and treatments on road segments proposed for ML 1 storage would be similar to the road segments proposed for decommissioning. However, an additional objective would be to retain as much of the existing roadway as possible for future access needs. ML 1 would focus treatments on stabilizing areas of high risk to aquatic resources. Treatments would vary based on the site-specific conditions and the potential for the road to negatively affect fish habitat. Specific actions would be similar to the actions described under decommissioning above:

- Removal of stream crossing culverts and fills;
- Construction of waterbars or other drainage features to reduce the potential for water diversion and restore hillslope hydrology; and
- Removal of unstable sidecast fill material at high-risk locations.

Some ML 1 roads would require large quantities of pullback and numerous stream crossing removals to achieve the project's objectives. Side-cast pullback would be designed to retain as much of the road prism width as possible to accommodate future use objectives. However, the roadbed could be narrowed substantially in areas where unstable sidecast fill was removed. In some locations, the roadbed would be used as disposal sites for stream crossing fill and sidecast fill material. In some of these areas, especially near large stream crossing fills, the existing roadway may be fully recontoured and obliterated by the fill disposal.

ML 1 roads are closed to motorized use. Occasional administrative use may take place if authorized by the District Ranger. A closure barrier would be constructed at the beginning of each ML 1 road segment to prevent use of the road by motorized vehicles. Trees and other vegetative material cleared at the site during excavation would be scattered on the constructed side slopes to prevent soil erosion and enhance the soil with organic matter. This project proposes to place 17.3 miles of road into ML1 status.

Activities Common to Both Treatment Types

Where needed to minimize erosion potential and initiate revegetation, disturbed areas would be seeded with local native grass species and mulched. Native plants such as conifer seedlings and/or local willow species would be planted at disturbed stream crossing sites as needed. Existing infestations of noxious weeds along the road segments would be treated with herbicides prior to or concurrent with decommissioning activities. Application of herbicides to treat invasive weeds would be consistent with the 2008 Environmental Impact Statement and Record of Decision for the *Beyond Prevention: Site Specific Invasive Plant Treatment Project*.

Road treatments would be completed with heavy equipment such as excavators, bull dozers, and dump trucks. Motorized machinery such as chainsaws, pumps, and other small equipment would be used as needed.

Treatment Intensity Levels

The type and magnitude of proposed treatments for both decommissioned roads and ML 1 roads would vary based on the site-specific conditions and the potential for the road segment to adversely affect fish habitat. To help display the relative amount of work needed to treat the road segments, the relative changes that would be expected from the existing condition, and the relative difficulty that would be encountered in using the treated roads as future travelways, the road segments were grouped into two general treatment intensity categories – No/Low and High. Treatment intensity refers to the number of stream crossings and volume of fill to be removed, along with the amount of sidecast pullback required to stabilize road sections.

Generally, No/Low intensity treatment roads require minimal excavation of crossings, cross drains, or pull back. High intensity treatment road segments require sizeable amounts of excavation from many stream crossings, larger areas of pullback, and/or recontouring to stabilize the road.

No/Low Treatment Intensity

Roads segments with a proposed No/Low treatment intensity are typically located on ridgetops or other geologically stable areas. They have few, if any, stream crossing culverts to be removed, and little fill associated with them. Pullback needs are limited in extent and amount of material. The risks posed by the road to aquatic habitats are generally low. In some cases, road segments are already heavily overgrown with woody vegetation, and no additional treatments are needed to reduce aquatic risks. Low intensity treatments typically include:

- Removal of ditch relief culverts or culverts with small fills at intermittent or small perennial streams;
- Construction of drainage swales or cross ditches;
- Removal of very limited quantities of unstable road fill material; and
- Construction of a road closure barrier.

The road surface may or may not be scarified depending on site-specific conditions, resource needs, available funding, and whether the road will be decommissioned or placed in ML 1 Closure. No/Low treatment intensity projects would create relatively little change in the existing road prism. Treatments would prevent motorized vehicle access but foot access would not be substantially changed. Road segments treated with a No/Low intensity treatment and then placed in ML 1 Closure would be relatively easy and inexpensive to reconstruct to provide standard high clearance vehicle access if the road is needed in the future. This treatment intensity is proposed for 5.5 miles of road in this proposed project.

High Treatment Intensity

Roads segments with proposed High treatment intensity are typically midslope or stream-adjacent roads in geologically unstable areas with a high potential to deliver sediment to streams and fish habitat. They tend to have numerous stream crossing removals with large fills and/or substantial amounts of unstable sidecast pullback. The risks posed by these roads to aquatic habitats are high. Many of these roads have a long history of plugged culverts, water diversion, and debris torrents. In addition to removing numerous stream culverts with large, deep fills and extensive areas of sidecast pullback, High intensity treatments typically result in

sections of the roadway where the road prism has been narrowed substantially and sections of the roadway that have been fully recontoured or obliterated. High intensity treatment segments also include the removal of ditch relief culverts, construction of drainage swales or cross ditches, and construction of a road closure barrier. The road surface may or may not be scarified depending on site-specific conditions, resource needs, available funding, and whether the road will be decommissioned or placed in ML 1 closure. High treatment intensity projects would create substantial changes in the existing road prism. Treatments would prevent motorized vehicle access. Large, deep culvert fill removals and sections where the road prism has been almost fully recontoured from outsloping or using the road prism as disposal site for fill material would make even foot access more challenging. Road segments treated with a High intensity treatment and then placed in Level 1 closure would be difficult and very expensive to reconstruct to provide standard high clearance vehicle access if the road is needed in the future. 30 miles of this treatment intensity is proposed in this project.

2.4 Alternatives Considered but Eliminated from Further Analysis

Convert route 2912 and 2912-060 into a motorized off-highway-vehicle (OHV) route.

Based on public comments, an alternative was considered that would have converted roads 2912 and 2912-060 into a motorized-use OHV route. Authorizing an OHV route is outside the scope of this project and would not meet the project's purpose and need. Proposed road treatments and reclassification of the 2912 and 2912-060 roads as ML1 would not preclude future options for trail development. The public request for OHV recreation has been identified on the Pacific Ranger District, and a separate planning effort is underway for an OHV route in the Northwest portion of the Calawah Watershed.

2.5 Conservation Measures Common to All Alternatives

In response to public comments on the proposal and to known resource concerns, conservation measures were developed to minimize or mitigate some of the potential environmental impacts the various alternatives may cause.

Fisheries, Hydrology, and Water Quality

- Grass seeding and soil stability treatments would be applied after construction to limit short-term sediment production.
- Woody vegetation would be planted on the fill slopes at stream intersection points following construction as necessary.
- All live streams would be de-watered prior to the start of in-stream work.
- In-stream activities would be consistent with the applicable requirements of the Memorandum of Understanding between the Washington Department of Fish and Wildlife and the US Forest Service Pacific Northwest Region (2012), and National Best Management Practices for Water Quality Management on National Forest System Lands (USDA 2012).

Wildlife and Wildlife Habitat

- When feasible, projects would: (a) be designed to occur at times of the year and locations that reduce the potential for disturbance to spotted owls and marbled murrelets; and (b) begin activities in the

area farthest from suitable habitat when conducting activities during the nesting season that must occur within the adverse-effect threshold distances.

- Known occupied spotted owl nests shall not be exposed to sound-producing activities of 92 dB or more within the harassment distances during the early nesting season (March 1 to July 15).
- Activities generating sound levels of 92 dB or higher throughout the nesting season of marbled murrelets (April 1 to September 23) within harassment distances of unsurveyed but potentially occupied marbled murrelet habitat would begin at least 2 hours after sunrise and would end at least 2 hours before sunset to lessen disturbance to murrelets flying to and from the nest.
- Known occupied murrelet nest stands would not be exposed to sound-producing activities of 92 dB or more during the entire nesting season (April 1 to September 23) within the harassment distances.
- A seasonal restriction waiver may be granted for other areas on a case by case basis, concurrent with other resource concerns, however, sound-producing activities of 92 dB or more would still be avoided in high priority seasonal restriction areas as defined.
- Project activities located within or adjacent to suitable nesting habitat for marbled murrelets would not generate any food or food waste that may attract corvids.
- Only trees that are classified as hazard trees per Harvey and Hessburg (1992) or danger trees per Toupin et al. (2008) would be felled. Danger trees to be removed that are conifers at least 19 inches dbh would be inspected by a FS wildlife biologist or, if necessary, a qualified, designated non-biologist to determine, using whether it is a Suitable Nest Tree (SNT).
- A Forest Service wildlife biologist or, if necessary, a qualified, designated non-biologist would inspect each suitable spotted owl or murrelet nest tree proposed for removal during the entire spotted owl (March 1 to September 30) or entire murrelet nesting season (April 1 to September 23) for signs the tree is being used as a nest tree. If signs are detected, the tree would not be removed.
- Long-duration motorized and mechanized activities would not be permitted to occur within 0.25 mile of known, active fisher denning sites between 15 March and 31 May in order to minimize disturbance effects. Seasonal restrictions would not be applied for general road traffic. Adjustments for the buffer would be based on local conditions such as topography (USDI 2007c).
- Any snags, or live trees 21 inches dbh or greater, that are cut for safety reasons wpuld be left on site to contribute to down wood objectives.
- Disturbance to Decay Class 4 and 5 down wood should be minimized and where they need to be moved they should be replaced in an orientation and position similar to the one from which they were removed.

Invasive plants

- Treat existing invasive plant infestations with appropriate herbicide, mechanical, or manual methods before ground disturbing activities begin. If timing or resources prevent treatment before the project begins, then treat infestations in the project area upon completion of the project in order to prevent invasive plants from colonizing the disturbed ground.
- Clean all off-road equipment of dirt/mud, seeds, and other plant parts before it is moved onto National Forest Service land. If operating in an area infested with invasive plants, clean all equipment

before moving between sites or leaving the project area. “Off-road equipment” includes all machinery other than log trucks, chip vans, pickup trucks or vehicles used to transport personnel on a daily basis.

- If invasive species remain in substantial amounts (as determined by Forest Service Botanist, or other qualified personnel, designated by the Forest Service) at the time ground disturbing work will begin on roads listed in Table on page 42 as being a “High” level of concern, contractors would be required to wash off-road equipment and vehicles prior to moving equipment off these roads. For cleaning equipment on Forest Service land, the Contractor and Forest Service shall agree on methods of cleaning, locations of the cleaning, and control of off-site impacts, if any.
- Forest Service shall flag locations of high priority invasive plant infestations prior to work commencing and provide the contractor with a map of these locations. These areas would be avoided during work and travel associated with the project unless otherwise directed by the Contracting Officer. If directed to work in an infested area, the contractor would be required to prevent spreading the infestation into un-infested areas by cleaning vehicles and equipment (see above). The contractor should use wash stations approved by the Contracting Officer.
- All material (e.g. soil, gravel, sand borrow, aggregate, etc.) transported onto National Forest System land or incorporated into the work should be weed-free. The Contracting Officer may request written documentation of methods used to determine the weed-free status of any and all materials furnished by the contractor. Contractor-provided expertise and methods to establish weed-free status must be appropriate for the weeds on the current Washington State noxious weed list and the priority weed list maintained by Olympic National Forest Invasive Plant Program. A Forest Service weed specialist (or other qualified personnel, as determined by the Forest Service) would inspect proposed material sources to determine weed-free status. The contractor would provide the Contracting Officer written notification of proposed material sources at least 14 days prior to use. If weed species are present in the proposed source, appropriate mitigation measures may allow conditional use of the source as required by the Contracting Officer.
- Fill material generated from the project site, containing or suspected to contain invasive plants, should be stockpiled within the project area and as close to the infested source area as possible. The material should not be broadcast for disposal.
- Mulch used on the project should be weed-free. The Contracting Officer may request written documentation of methods used to determine the weed-free status of any and all materials furnished by the contractor. Contractor-provided expertise and methods to establish weed-free status must be appropriate for the weeds on the current Washington State noxious weed list
- Seed used in the project should be weed-free and meet state and local noxious weed laws.
- Give priority to seed mixes and plantings originating from local, genetically appropriate native species.
- Surveys for invasive plants would be conducted prior to any ground disturbance on the 2900800, 2900815 and 2922240 roads. If any infestations of weeds listed as “priority 1” by the Olympic National Forest, or any other weeds of particular concern are found in areas likely to be affected by project activities on or near these roads, ground disturbance in those locations would not occur until the infestations have been brought under control, or satisfactory mitigation measures are developed and implemented to prevent the spread of these particularly worrisome weeds.

- In general, as many as possible of the native tree and shrub species - especially alders, maples and other hardwoods – would be preserved during the course of this project to maintain a seed source for the areas of disturbance created by the implementation of this project. Native tree and shrub species growing upslope from old roadbeds are especially valuable for this purpose, and would be a priority for protection and preservation.

Cultural Resources

In the event that archaeological materials are encountered during project implementation work should be halted and the Forest Archaeologist should be contacted in order to assess the discovery and evaluate the significance. In the event that skeletal material or features of burial/interment are encountered, all work should be stopped immediately and contact should be established with local law enforcement, the SHPO and the affected Indian Tribes.

2.6 Monitoring

The type and degree of monitoring would vary for individual roads and trails within this project. Compliance monitoring to determine if treatments are implemented as specified in the contract would be conducted through contract administration for all projects. Photo monitoring would be conducted at specific road or trail segments to capture comparative conditions for pre-, post- and some during treatment project phases. The Forest would conduct road-related Best Management Practices (BMP) monitoring as developed at the national-level of the Forest Service on a selected subset of treated roads. The national BMP monitoring is designed to determine the effectiveness of treatments implemented in protecting water resources. The Forest would continue to collaborate with partners to conduct multi-party monitoring for select projects.

3.0 Environmental Consequences

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives.

3.1 Fisheries, Hydrology, and Water Quality

Existing Environment

The Calawah Decommissioning planning area is located in the Calawah 5th field watershed, and work is proposed in the Sitkum, North Fork Calawah, and South Fork Calawah 6th field subwatersheds. The Calawah watershed encompasses over 86,000 acres and contains three main rivers; the North Fork Calawah River, South Fork Calawah River, and Sitkum River. Farther downstream the watershed drains and combines with the Bogachiel and Sol Duc Rivers to form the Quillayute River. The major landowners in the Calawah River watershed are the Olympic National Forest, Olympic National Park, Washington Department of Natural resources, Rayonier Timberlands, the City of Forks, as well as individual small private landowners.

Commercial logging began along the Sitkum River mainstem in the 1940's. Hyas Creek and Rainbow Creek had been minimally entered at the time of the Great Forks Fire in 1951. The Great Forks fire, which originated in the Sol Duc watershed and jumped over to the North Fork Calawah watershed, burned 33,000 acres in 8 hours. The fire burned through Hyas Creek, the northwest half of the Rainbow Creek drainage, and the north

edges of the Lower Sitkum drainage. Subsequent to the fire extensive roading and salvage logging took place in both drainages. Since the early 1950s extensive road systems have been built to facilitate timber harvest. Chronological aerial photo analysis of the Sitkum and the North and South Fork Calawah subwatersheds indicate an increased frequency in mass wasting following timber harvest and road building. Mass wasting has resulted in large amounts of fine and coarse sediment being delivered into the tributaries and mainstems. Clearcut logging continued until the 1990s when the Northwest Forest Plan was adopted.

Fisheries and Fish Habitat

The Calawah River watershed supports important or major runs of native salmon and steelhead including winter and summer run steelhead, fall coho, summer and fall Chinook, river-run sockeye, resident and sea-run cutthroat trout, and chum salmon. The watershed also provides habitat for species such as mountain whitefish, pacific lamprey, and sculpins. The South Fork Calawah and Sitkum River watersheds are utilized by substantial populations of Chinook salmon, coho salmon, and steelhead trout, along with small populations of river-run sockeye salmon and chum salmon. Pacific lamprey and mountain whitefish are present in the lower mainstems of both drainages, although information on habitat utilization is very limited. Resident and sea-run cutthroat trout and sculpins are found throughout most of the watershed. Natural geologic processes and man-made disturbances have helped shape fish distribution and habitat productivity. Drainages on the northern slopes of the Sitkum and South Fork Calawah watersheds, such as Hyas Creek, Rainbow Creek and the North Fork Sitkum River have natural bedrock falls that are migration barriers for anadromous fish. Of these three drainages only Hyas Creek has anadromous fish usage up to a barrier falls at river mile (RM) 1.9. Resident cutthroat trout and sculpins are found in the North Fork Sitkum River, while no fish have been found in Rainbow Creek. Anadromous fish usage in Lost Creek, which drains off the watershed's southern slopes, is limited only by stream gradient. In the upper Sitkum River mainstem a large debris jam may be the limiting factor for anadromous fish migration. Substantial numbers of winter steelhead and fall Chinook spawn in the wide tailouts and riffles of the mainstem Sitkum and South Fork Calawah Rivers. Fall coho utilize Lost Creek and Hyas Creek.

The South Fork Calawah River provides a high quality sport fishery between its confluence with the Sitkum and North Fork Calawah Rivers. A Washington State Department of Fish and Wildlife steelhead hatchery is located eight miles downstream of the South Fork Calawah River, on the mainstem Calawah River. All fish production in the Sitkum and South Fork Calawah Rivers is currently from natural production, though in past decades juvenile salmon may have been planted in some tributaries. According to the *2002 Salmonid Stock Inventory* (SaSi), Calawah River fall and summer Chinook, fall coho, and winter steelhead are rated as healthy. Summer run steelhead is listed as unknown due to lack of information on which to make a rating.

There are no known spawning populations of bull trout/native char in the Calawah watershed. Within the Quillayute basin, the only identified population of bull trout/Dolly Varden is found in the Sol Duc River, above the Sol Duc Falls at RM 65.5. This population above the falls is a resident population (SSI, 1998). Until 2009, there had been no sport angler reports of native char caught in the lower Sol Duc River or Quillayute system. In 2009 a sport angler fishing the lower Calawah River mainstem between river miles 1 and 2, caught a native char. There are no known populations of bull trout in the Quillayute system, but foraging individuals may "dip in" from systems along the coast with known populations. The Calawah Watershed is not considered critical habitat for bull trout or other fishes by the U.S. Fish and Wildlife Service.

Sediment

Research shows the effects of sediment delivery to the channel network can be detrimental to salmonid survival and growth and affect habitat quality (Cederholm and Reid 1987; Bilby et al 1989). Substantial increases in the volume of sediment delivered to stream channels in a watershed occur from roads. Roads contribute to increases in sediment by increasing the frequency of mass wasting, and from surface erosion from the road prism, which can be delivered to streams. In the 1998 Sitkum and South Fork Calawah Watershed Analysis and the 1997 North Fork Calawah Watershed Analysis, an inventory of mass wasting events showed that roads were the major land use activity connected with these failures. Current stream crossings on many forest roads do not meet present-day standards to effectively pass high flows and the debris associated with them. These stream crossings pose high risks of failing and delivering sediment to live stream channels. Additionally, funding for road maintenance is limited and very little maintenance has occurred on forest roads, which further increases the potential for sediment transport at stream crossings and through erosion of fine sediments from the roads surface.

Comparison of Alternatives

Effects Under Alternative A- No Action

The no action alternative would leave all roads proposed for treatment untreated. Roads would remain in their current state and continue to pose a risk to aquatic resources. During wet weather events sediment transport from roads would continue to be mobilized to streams. Unstable fill slopes would continue to be at risk of failing and being transported to live streams. Increased sedimentation of aquatic habitats would be expected in the long term, due to unstable roadbeds and undersized and deteriorating culverts. It is expected that road maintenance funds will continue to be insufficient to complete the work needed to maintain a safe and environmentally acceptable road system in the long term. Approximately 129,420 cubic yards of road fill at road stream crossings remains available to be transported to aquatic habitat if no action is taken. Drainage and culvert problems on the currently closed or undriveable system roads would remain uncorrected. Existing vegetation growing on closed system roads would not be disturbed and would continue to provide limited stability to the road bed and add to the vegetative canopy. Although some vegetation exists on these roads, growing conditions are poor due to compacted surfaces and evidence of surface erosion is apparent.

Because there would be no project activities, there would be no project-related changes to current conditions, and the No Action alternative would have no cumulative effects with other past, present, and foreseeable future actions.

Effects of Alternative B- Proposed Action

Sedimentation

Long term sediment input to aquatic habitat would be reduced by removing approximately 129,420 cubic yards of road related fills associated with stream crossings. Approximately 132 stream crossings and associated fill would be removed and placed in a stable location. Crossing designs and mitigation measures would minimize the amount of sediment generated from removal of fill material and culverts. Despite best efforts some sediment would be transported to aquatic habitats through

the removal of fill. Past experience and observations from similar treatments in the western United States indicate that the sediment mobilized from construction activities settles out and travels between 300-500 feet from the construction site (Fieldnotes, 8/23/12). No stream crossing removals are within the fish bearing portion of streams, further reducing the potential for construction activities to have a direct impact on fish populations or individuals.

After construction is complete stream crossing sites would be seeded and mulched to provide some immediate stabilization benefits and to limit surface erosion from the newly disturbed material. Typically seed begins to sprout quickly and provides some minor stabilization properties, while additional vegetation like conifers, willow, and alder are planted or naturally begin to propagate on the site. These larger plants provide longer term stability, and sediment filtering properties, through a more complex and deep root system. Sites can take five to ten years and often many decades before they begin to see the long term soil holding benefits that conifers and deciduous woody vegetation provide for stability of a site. Some erosion of fine and coarse sediment into streams would occur after the first high water event and substantial rain storm. Subsequent high water and storm events would produce less sediment transported to streams, but minor amounts are still expected.

Erosion generated from the treated surface of the roadbed would be minimal, as treatments are focused on diverting water off the road bed and returning the roadbed to a more stable and natural state. Implementing the required conservation measures described in chapter 2 would minimize erosion from the obliterated roadbed in both the short and long term.

Fisheries and fish habitat

There are no known anadromous fish that inhabit stream crossing sites that are proposed to be removed. Two sites (FSR 2900030 and 2900800) may have work completed where resident cutthroat trout are found. Sediment and turbidity generated from the project is expected to be short term and would have little effect on individual resident fish species. At sites where fish are present, during the dewatering and re-watering process fish would be removed and released away from the construction site, and temporary barriers would prevent fish from re-entering the site until after construction is complete. The stream crossing removals closest to potential anadromous habitat are off FSR 2900072 and FSR 2922020. Large stream crossing removals are approximately 0.2 miles to the mainstem Sitkum River from the 2900072, and 0.2 miles to the mainstem North Fork Calawah River from the 2922020. Culvert removal would occur during the summer low flow season. The main inputs of sediment and turbidity would occur during the de-watering process. Effects of the sediment and turbidity pulse are anticipated to be localized and minimal, and would have no effect on Chinook, coho, sockeye, chum, steelhead, and coastal cutthroat habitat downstream in the North Fork Calawah and Sitkum Rivers.

Coarse and fine roadbed sediment would be removed from crossings, eliminating the potential for this anthropogenic material to influence aquatic species and habitats. Fish habitat is expected to

improve as sediment inputs are reduced from road prisms. Stream crossing removal would facilitate transport of large and small trees to fish habitat, which would improve cover and provide a mechanism for pool creation. Stream temperature is not expected to change on a channel network scale, although as planted conifers and hardwoods mature and provide increased shade, stream crossing sites may benefit from less direct solar radiation to the channel and provide cooler site temperatures. Streamside conditions at stream crossing sites would improve as riparian plant communities become reestablished. The proposed action meets all Aquatic Conservation Strategy Objectives (USDA 1994).

The two tables below show the effects determinations for listed and sensitive fish.

Table 2. Effects determinations for listed fish species	
Fish Species	**Effects Determination**
Puget Sound Chinook:	No Effect
Puget Sound Chinook Critical Habitat:	No Effect
Hood Canal Summer Chum:	No Effect
Hood Canal Summer Chum Critical Habitat:	No Effect
Puget Sound Steelhead:	No Effect
Coastal Puget Sound bull trout	No Effect

Table 3. Effects determinations for sensitive fish species				
Fish Species	**No Impact**	**May Impact[1]**	**Will Impact[2]**	**Beneficial Impact**
Olympic Mudminnow	**X**			
River Lamprey		**X**		**X**
Puget Sound/ Strait of Georgia Coho Salmon	**X**			
Puget Sound Coastal Cutthroat Trout	**X**			
Olympic Peninsula Coastal Cutthroat Trout		**X**		**X**

1 *May Impact Individuals Or Habitat, But Will Not Likely Contribute To A Trend Towards Federal Listinq Or Cause A Loss Of Viability To the Population or Species*

2 *Will Impact Individuals Or Habitat With A Consequence That The Action Will Contribute To A Trend Towards Federal Listinq or Cause A Loss Of Viability To The Population Or Species.*

The indirect effect of the Proposed Action on aquatic habitat in the project area drainages of the Calawah Watershed would be to improve conditions associated with roads that can affect water quality and fish habitat. Less road maintenance would be needed by treating the 36.2 miles of road.

Cumulative Effects

A separate planning effort is being conducted by Olympic National Forest in the Calawah Watershed to authorize Off Highway Vehicle (OHV) routes in a different part of the watershed. Sedimentation effects from the reconstruction and construction of new stream crossings associated with the OHV proposal could overlap in time and space with the removal of stream crossings proposed here, particularly if both projects are implemented in the same calendar year. Design criteria and Best Management Practices (BMPs) associated with construction and removal of crossings in and around streams would limit the amount of sediment delivered to streams from either project. Cumulative effects of the combined actions would have a minor impact on streams, and would be limited to individual construction sites.

Changes in the Washington State forest practice regulations require that private and state land managers develop management plans for their road systems aimed at meeting Clean Water Act requirements. Regeneration (clearcut) timber harvesting on private and state lands would continue at a level guided by landowner needs and policies, and additional road miles are likely to be constructed on private lands, especially in the North Fork Calawah drainage. Best Management Practices to install and remove crossings on private lands are expected to mitigate adverse cumulative effects to fish and fish habitat.

3.3 Wildlife and Wildlife Habitat

The information and analysis contained within this section come from a variety of information sources. The Sitkum and South Fork Calawah Watershed Analysis (USDA 1998), Sitkum and South Fork Calawah Watersheds Restoration Summary (USDA 2010), programmatic biological opinions, and the Sitkum Thinning EA (2011) were reviewed. The Sitkum and South Fork Calawah Watershed Analysis (USDA 1998) and the Sitkum and South Fork Calawah Watersheds Restoration Summary (USDA 2010) both identified road-related restoration opportunities that could benefit terrestrial wildlife species. The Sitkum Commercial Thinning EA contains more detailed discussions on many of these species and their habitat needs. Published and unpublished data on species occurrences (NRIS and State Priority Species Databases) and wildlife habitat were reviewed where available, and supplemented by available GIS data. No species-specific surveys were conducted specifically for this project, but occurred in conjunction with other activities and are referenced where available.

Topics considered in this assessment of the proposed project's effects on wildlife and wildlife habitat are:

- Snags and levels of coarse down wood
- Vegetation and habitat
- Federally listed species
- USFS Region 6 Regional Forester's Sensitive Species
- Olympic National Forest Management Indicator Species
- Neotropical migratory birds
- US Fish & Wildlife Service Species of Concern

Snags and Coarse Down Wood Levels

Standing dead trees (snags) and fallen (down) coarse woody debris play an important role in overall ecosystem health and soil productivity, and are important components of habitat for certain species, including the

spotted owl. Larger snags tend to be preferred by the spotted owl (Buchannan et al. 1999) and important prey species such as the northern flying squirrel (Carey 1995). Mollusks such as the blue-gray taildropper tend to prefer down logs in the latter stages of decay where associated with moist late-successional forests with high canopy cover (Burke et al. 1999).

The proposed action does not include removal of any snags or down wood unless there are safety concerns, so effects would be minimal. Project activities would occur primarily within existing road prisms where snags generally do not occur, and any affected material would be left on site. Vehicle access provided currently, or short term access provided by clearing re-vegetated roads or roads blocked by down trees prior to treatment could indirectly influence snag and coarse wood levels outside of the road prisms due to non-project-related removal of this material. Wisdom and Bate (2008), Rochelle et al. (1999) and Gaines et al. (2003) reported road- or access-related effects that include removal of snags and coarse down wood due to firewood cutting and hazard tree removal. Observations in various areas on the north end of the Olympic National Forest show that coarse wood removal is occurring as far as 200 feet from the edge of roads open to vehicular access, depending on the topography and amount and size of material on the ground. Longer term effects would be positive as vegetation recovers and with reductions in unauthorized removal of snags and coarse wood.

Table 4. Effects to snags and coarse down wood

Issue	No Action	Proposed Action
Snags and Coarse Woody Debris	No change to current condition	Short-term minor direct impacts possible as a result of project-related removal of material within the road prism. Short-term minor indirect effects possible if non-project-related removal occurs due to temporary increase in access during project implementation. Longer term effects would be positive as vegetation recovers and with reductions in unauthorized removal of snags and coarse wood.

Vegetation and Habitat

For wildlife species overall, the proposed activities may be generalized as having effects related to removal of existing vegetation on the road surfaces, incidental loss of snags and other trees due to danger-tree removal, disturbance, and temporary increase in public access as currently undrivable roads are cleared of vegetation for project-related access. For most species these impacts will be relatively minor or negligible. Longer term impacts are expected to be positive as access and disturbance are reduced and vegetative connectivity is restored, especially where the roads pass through Late-Successional Old-Growth (LSOG) habitat. Longer term benefits to wildlife would be maximized by coordinated efforts to control invasive plant species, and revegetation of project areas with native forage species preferred by wildlife.

Wildlife species and their habitat would benefit from reduced motorized access through reductions in disturbance and direct mortality, degradation of habitat components, garbage dumping, and the spread of invasive plants. Wildlife species would benefit most where the proposed treatments occur within blocks of (LSOG) habitat and other important habitat areas, and reduce human disturbance to seasonally important areas.

This is consistent with recommendations in the Sitkum and South Fork Calawah Watersheds Restoration Summary (USDA 2010).

Some of the proposed road treatment sections pass through LSOG habitat, though many pass through younger and less-diverse managed forest. The degree to which the road surfaces in question have been naturally re-vegetated is variable. The majority have only been re-vegetated with shrubs, grasses and forbs and small trees to date, at most. This includes undesirable invasive plant species in some areas. Therefore, the vegetation growing on the road surface does not constitute habitat for the majority of sensitive wildlife species, and removal in order to perform decommissioning or other road remediation work would not entail habitat removal.

Federally listed species

The project area provides habitat for two wildlife species listed as threatened under the Endangered Species Act (ESA): the northern spotted owl and the marbled murrelet. "Threatened" status means the species is likely to become endangered within the foreseeable future. The table below shows these species' potential occurrence in or adjacent to the analysis area.

Table 5. Federally listed wildlife species

Common Name	Species Name	Federal Status	Suitable Habitat Present in Project Area	Documented Sightings in Project Area
Northern Spotted Owl	*Strix occidentalis caurina*	Threatened, listed in June 1990	Yes	Yes
Marbled Murrelet	*Bachyramphus marmoratus*	Threatened, listed in September 1992	Yes	Yes

The Taylor's checkerspot butterfly was proposed for federal listing in 2012 (USDI 2012b). It is currently treated as a Forest Service Region 6 Sensitive species and was analyzed under that designation. Proposed critical habitat is not present in the watershed. If listed, the project would have no effect on this species or its critical habitat.

Northern Spotted Owl

The northern spotted owl was listed "due to loss and adverse modification of suitable habitat as a result of timber harvesting and exacerbated by catastrophic events such as fire, volcanic eruption, and wind storms" (USDI 1990). Suitable habitat is habitat that supports facets of the spotted owl's life history such as nesting, roosting, and in general, foraging. Nesting and roosting habitat generally includes attributes such as a moderate to high canopy closure (60-80%); a multi-layered, multi-species canopy with large (>30 inch dbh) overstory trees; a high incidence of large trees with various deformities (e.g., large cavities, broken tops, mistletoe infections, and other evidence of decadence); large (>30 inch dbh) snags; large accumulations of fallen trees and other woody debris on the ground; and sufficient space below the canopy for owls to fly (Thomas et al. 1990). A wider range of habitats is used for foraging and dispersal. Habitat that meets nesting

and roosting requirements also provides for foraging and dispersal (USDI 1992). Dispersal habitat is considered that habitat which functions to assist juvenile dispersal and breeding dispersal of adult spotted owls, also connects suitable habitat patches with one another. The general rule for classifying dispersal habitat is to have a stand with an average tree diameter of 11 inches dbh within a canopy cover of 40% (Thomas et al. 1990).

For the Olympic Peninsula, the mean nesting core and median home range areas are approximated by 1.4 and 2.7 miles radii circles, respectively, around an activity center. No surveys were conducted specific to this project. However, researchers with the Pacific Northwest Research Station's (PNW) Olympic demography study have identified and monitored many of the sites in Calawah and adjacent watersheds for over a decade. According to the researchers, the Sitkum core area is one of the last refuges of active (pair occupancy) northern spotted owl sites on the Olympic National Forest (Biswell 2008, pers.comm.). The core area has a large block of contiguous suitable habitat on the south side of the Sitkum River, interspersed with managed stands which are located primarily on the north side of the river, where several of the proposed road treatment segments are located. Birds in these territories often exhibit alternate year nesting, with non-nesting in between. The 2012 season was considered a "nesting" year, although observed nesting success was poor (Biswell 2012, pers. comm.). Proposed road treatment activities associated with this project would occur within the 2.7 mile home range of 8 documented spotted owl activity centers, and within the 1.4 mile nest core area of 6 of these sites. Four of the sites have documented pair occupancy within the past 5 years.

Designated Critical Habitat for the Northern Spotted Owl

As required by the ESA, the US Fish and Wildlife Service has designated critical habitat for the northern spotted owl. Critical habitat for the spotted owl was designated on January 15, 1992 (USDI 1992) on National Forest system lands outside congressionally designated wilderness and the most recent revision occurred in 2012 (USDI 2012a) with newly designated winderness included in critical habitat. The conservation principles in developing critical habitat are to:

- Develop and maintain large contiguous blocks of habitat to support multiple reproducing pairs of owls;
- Minimize fragmentation and edge effect to improve habitat quality;
- Minimize distance to facilitate dispersal among blocks of breeding habitat; and
- Maintain range-wide distribution of habitat to facilitate recovery (Thomas et al. 1990).

By its very designation, critical habitat indicates lands that may be needed for a species eventual recovery and delisting. Critical habitat will not, in itself, lead to the recovery of the species, but is one of several measures available to contribute to a species' conservation (USDI 1992).
The Northern Spotted Owl Critical Habitat Unit (CHU) that encompasses the proposed road treatment areas is Unit 1, subunit NCO 1, in the 2012 revision.

Marbled Murrelet

The primary reason for the listing of the marbled murrelet was extensive harvest of late-successional and old-growth forest, which provides nesting habitat for the murrelet. Attributes that provide nesting platforms for murrelets include large or forked branches, deformities, mistle-toe infections, and "witches brooms or other

similar structures greater than 4 inches in diameter). These attributes are generally found in old-growth and mature forests, but can be found on remnant trees in younger forests (USDI 1996).

Suitable nesting habitat for marbled murrelet can generally be approximated by northern spotted owl suitable (nesting, roosting, foraging) habitat. By contrast, dispersal habitat for northern spotted owl is not suitable nesting habitat for marbled murrelet.

Designated Critical Habitat for the Marbled Murrelet

The US Fish and Wildlife Service designated critical habitat for the marbled murrelet in 1996 (USDI 1996). Critical habitat is defined as those "lands that are considered essential for the conservation of a listed species" (USDI 2003).The Service identified two habitat features, referred to as primary constituent elements, associated with the terrestrial environment that support the requirements for nesting, roosting, and other normal behaviors.

The primary constituent elements include:

- individual trees with potential nesting platforms and
- forested areas within 0.5 mile of individual trees with potential nesting platforms and a canopy height of at least one-half the site-potential tree height (USDI 1996).

The Marbled Murrelet CHU that encompasses the proposed road and trail remediation area is WA-01-a. The majority of the project area roads are within the CHU.

Environmental Consequences for Northern Spotted Owl, Marbled Murrelet and Designated Critical Habitats

No Action Alternative

Direct, Indirect and Cumulative Effects

Under the No Action Alternative, current management would remain unchanged. The road prisms of the proposed road treatment segments would continue to re-vegetate naturally where traffic is not present, and incidental loss of snags and coarse wood would continue to occur in areas with motorized vehicle access. Activities in the project area that have had the greatest impact from habitat removal or habitat alteration that favors competing species and human disturbance on these two threatened species include previous timber harvest and road building. The type of large-scale, even-aged timber extraction that has occurred in the past on federal lands would not take place again in the foreseeable future. It can be assumed that most state and private lands surrounding the road treatment project area would be harvested in the next several decades and would not be available as either dispersal or suitable habitat in the long term. This fact would make the continued existence of habitat on federal lands even more critical. The No Action Alternative would not measurably add to the historic impacts to suitable habitat.

Proposed Action

Direct, Indirect and Cumulative Effects

All of the documented spotted owl sites that are within 2.7 miles of the proposed road treatment areas are above their respective critical thresholds for suitable habitat in their annual home ranges (40% of total area) and nesting cores (50% of total area). The majority of project work would have little to no effect on the structure or function of spotted owl and murrelet habitat since most activities will be restricted to the existing road prism, which is non-habitat. In most cases the vegetation removed from the road treatment areas would be shrubs, forbs/grasses or small trees, and as such would not involve removal of dispersal or suitable habitat or constituent elements. The only effect on habitat quality would be if snags or large live trees need to be removed as danger trees from adjacent stands. These have not been identified to date, but would only be expected in association with large fill removal activities. The number would be expected to be small. Not all of the proposed large fill removal sites are adjacent to suitable habitat where large diameter trees or suitable nest trees (SNT) would be expected. Removal of danger trees approaching SNT size requires biologist review and is generally minimal with these activities. Otherwise, long term effects to habitat would be expected to be positive as road treatment areas revegetate over time. Reductions in adverse effects associated with motorized access would also benefit these species and their habitat.

Disturbance

Spotted owls and marbled murrelets are both more vulnerable to disturbance during the early breeding season when they are producing and incubating eggs than they are during all other times of year. Noise or visual disturbance has the potential to cause nest abandonment and aborted feeding attempts by adults, which could result in under-nourishment of the chick or premature fledging (USDI 2003, USDI 2013). For spotted owls, this period extends from March 1 to July 15. After July 16, nesting failure of spotted owls due to noise disturbance becomes less of a concern because most owlets have fledged by that date, and disturbance is not a concern after September 30 because parental care has tapered off by that time (USDI 2003).

For marbled murrelets under the new programmatic biological opinion (PBO)(USDI 2013), concerns about noise or visual disturbance extend through the full breeding season from April 1 to September 23.

The primary direct effect on these species from this project would be that of disturbance or harassment. It is anticipated that harassment waivers would be requested for a portion of the road treatment areas that are within harassment distance to suitable habitat. The four proposed roads that are within 1.4 miles of occupied spotted owl sites would receive the highest priority for protection from disturbance during the early breeding season. No noise-producing activities are proposed within harassment distance of the documented nesting sites. Using a harassment distance of 65 yards from suitable habitat for this type of activity yield a maximum of 260 acres of harassment for the spotted owl, assuming all activities occur during the early breeding season. If roads that pass within 1.4 miles of the occupied spotted owl activity centers are excluded from breeding season activities, as is currently proposed, then the amount of harassment to spotted owls would be 125 acres.

Using the revised (and larger) harassment distances from the new PBO yields an estimated maximum of 480 acres of harassment for marbled murrelet, assuming all activities within harassment distance take place within

the breeding season. If roads that pass within 1.4 mile of occupied spotted owl activity centers are excluded from breeding season activities, then the amount of harassment to marbled murrelet would be approximately 234 acres, provided that the seasonal restriction in these areas is extended to include the full marbled murrelet breeding season as well.

The following table summarizes the habitat information for spotted owl sites within 2.7 miles of the Calawah Road Decommissioning Project, acres of suitable nesting, roosting and foraging (NRF) habitat in their home ranges and core areas, and effect determinations. Threshold for 2.7 mile home range is 5,708 acres of suitable habitat (40%) and for 1.4 mile core area is 1,971 acres (50%).

Table 6. Effects Determinations for NSO sites: home range and core area

Site #	Home Range current & post-treatment NRF acres [1] (%)	Core Area current & post-treatment NRF acres[1] (%)	Impact
#7, #23, #58, #73, #74, #81, #92, & Pine Mountain	>5708 ac (>40%)	>1971 ac (>50%)	No Impact to Dispersal or Suitable Habitat. Function Maintained

1 *The current and post-treatment acres of suitable habitat are the same because project activities would not impact the acreage. Project activities will only impact non-habitat.*

The effects to CHU for both species would be expected to be minor, because vegetation removal would be minimized and it is unlikely that constituent elements would be impacted. Buffering would not be affected. The surrounding stands would still function as CHU.

The table below shows Endangered Species Act (ESA) effects determinations for the Proposed Action and the No Action alternative.

Table 7. Endangered Species Act (ESA) Effects Determinations		
Issue	**No Action**	**Proposed Action**
Northern Spotted Owl and Marbled Murrelet	No Effect	May Affect, Likely to Adversely Affect (Due to Incidental Harassment; and Incidental SNT Removal)
Marbled Murrelet	No Effect	May Affect, Likely to Adversely Affect (Due to Harassment; and Incidental SNT Removal)
Critical Habitat of Northern Spotted Owl and Marbled Murrelet	No Effect	May Affect, Likely to Adversely Affect (Due to Incidental SNT Removal)

USFS Region 6 Regional Forester's Sensitive Species

The following species are listed on the USFS Region 6 Regional Forester's Sensitive Species List (USDA 2004a), and reflect revisions made in 2011. The Pacific bald eagle was placed on the Sensitive Species List concurrent with its federal de-listing. Designation as "sensitive" means these species are given special management considerations to ensure their continued viability on National Forest lands.

The table below lists the sensitive species, whether or not they are known or suspected to be present in the project area, and their effects determinations. Only those species known or suspected to be present or with habitat present in the project area will be included in the discussion of project effects.

Table 8. Regional Forester's Sensitive Species and Effects Determinations1				
Species name	**Common Name**	**Known or Suspected in Project Area**	**No Action**	**Proposed Action**
Butterflies				
Callophrys johnsoni	Johnson's Hairstreak	**Yes**	NE	NE
Euphydryas editha taylori	Taylor's Checkerspot	No	NE	NE
Oeneis chryxus valerata	Olympic Arctic	No	NE	NE
Habrodais grunus	Golden Hairstreak	No	NE	NE
Lycaena mariposa charlottensis	Makah Copper	No	NE	NE
Plebejus icariodes blackmorei	Puget Blue or Blackmore's Blue	No[2]	NE	May Impact
Plebejus lupini spangelatus	Lupine Blue Butterfly	No	NE	NE
Speyeria zerene bremnerii	Valley Silverspot	No[2]	NE	May Impact
Amphibians				

Table 8. Regional Forester's Sensitive Species and Effects Determinations1				
Species name	**Common Name**	**Known or Suspected in Project Area**	**No Action**	**Proposed Action**
Plethodon vandykei	Van Dyke's Salamander	**Yes**	NE	May Impact
Rhyacotriton olympicus	Olympic Torrent Salamander	**Yes**	NE	May Impact
Birds				
Gavia immer	Common Loon	No	NE	NE
Falco peregrinus anatum	American Peregrine Falcon	No	NE	NE
Haliaeetus leucocephalus	Bald Eagle	**Yes**	NE	NE
Histrionicus histrionicus	Harlequin Duck	**Yes**	NE	May Impact
Mammals				
Corynorhinus townsendii	Townsend's Big-Eared Bat	**Yes**	NE	May Impact
Myotis keenii	Keen's Myotis Bat	**Yes**	NE	May Impact
Martes pennanti	Pacific Fisher	**Yes**	NE	NE
Thomomys mazama melanops	Olympic (Mazama) Pocket Gopher	No	NE	NE
Marmota Olympus	Olympic Marmot	No	NE	NE
Mollusks				
Cryptomastix devia	Puget Oregonian (snail)	No	NE	NE
Hemphillia burringtoni	Burrington's (Keeled) Jumping Slug	**Yes**	NE	May Impact
Hemphillia malonei	Malone's Jumping Slug	No	NE	NE
Prophysaon coeruleum	Blue-gray Taildropper (slug)	No	NE	NE
Pristiloma johnsoni	Broadwhorl Tightcoil (snail)	No	NE	NE

1 • *NE = No Effect*
• *May Impact = May Impact Individuals Or Habitat, But Will Not Likely Contribute To A Trend Towards Federal Listinq Or Cause A Loss Of Viability To the Population or Species*

2 *Limited habitat for these species may be present in the project area*

Butterflies

The Johnson's hairstreak is found in old-growth or more advanced age second-growth habitat because the species depends on forests that contain dwarf mistletoes of the genus *Arceuthobium*, which mainly occur in western hemlock (WDFW 1995). Emerging larvae feed upon this mistletoe (Pyle 2002). While their habitat

would not be found in proposed road treatment areas, it could be found immediately adjacent to proposed decommissioning areas. This species has not been documented in the project watershed.

The Puget Blue (or Blackmore's Blue) butterfly is a colonial species whose habitat includes forest clearings with the presence of Lupine (*Lupinus* spp.), Puget lowland prairies, power line and railroad rights-of-way (Larsen et al. 1995). They have not been documented in the watershed but their habitat could be present in forested clearings.

The Valley Silverspot is highly localized and uses open prairies, arctic-alpine tundra, and subalpine glades, which are not present in road treatment areas. They are, however, also found on mid-elevation roads and clearings, which do occur within the overall project activity area. The only known larvae host plant for this species is blue violet (*Viola adunca*) (Larsen et al. 1995). This plant species requires adequate sunlight and can be found on disturbed sites so could potentially be present on some proposed road treatment segments.

No habitat is present in the project area for any of the other butterfly species on the list, and none of these species is documented or suspected to be present.

Amphibians

The Van Dyke's salamander is rare and generally considered the most "aquatic" of the woodland salamanders. It is usually associated with seepages and streams but can also be observed far from water (Leonard et al. 1993). It can be found in the splash zones of creeks or waterfalls under debris, or under logs, bark, and bark on logs near water. It is also found in wet talus and forest litter from sea level to 3,600 feet (Nordstrom and Milner 1997). The Van Dyke's salamander has been documented in several areas of the watershed and is assumed to be present. Habitat exists along many of the numerous streams within the project area.

The Olympic Torrent salamander is nearly always found around the splash zone of cold, clear streams, seepages, or waterfalls. Seepages running through talus slopes also provide habitat. The streams and riparian forest in the project area provide habitat for this species. The species has been documented in the watershed.

Birds

Common loons inhabit both salt and fresh water bodies, nesting in inland lakes and ponds and foraging in both types of water systems (Ehrlich et al. 1988). There are no large inland bodies of water in the project area that would provide nesting habitat for loons. The nearest saltwater foraging habitat is well outside of the project area. Therefore, this species is not likely to inhabit the nearby area.

There are no documented observations of Peregrine falcons within the project area. Peregrine falcon need cliffs or rocks outcrops for suitable nesting habitat. Cliff suitability surveys in the 1990's found no cliffs in this watershed that were suitable for nesting (Wilson 1996). No nesting or occupancy was ever documented and all such areas with high potential are greater than 0.5 mile from proposed road treatment areas.

Bald eagle surveys have been conducted along the South Fork Calawah River and Sitkum River. There are four recognized nest territories in the overall watershed area, although only three have been active in the past decade. None are within 0.25 mile of any of the proposed road treatment areas. In addition to nesting habitat, adequate forage resources are also a critical component of bald eagle wintering and breeding habitat,

especially anadromous fisheries (USDI 1986). A more detailed discussion of the species status, habitat use on the Olympic Peninsula, potential threats and future outlook for the bald eagle is contained in the discussion of Management Indicator Species.

The Harlequin duck is a sea duck which winters along rocky Pacific coasts and moves inland to breed in the Olympic Mountains. During the nesting season of April to June, the adults require fast flowing streams with loafing sites nearby (Lewis and Kraege 1999). Harlequin ducks appear to be sensitive to human disturbance, which can discourage use at traditional nesting sites and thereby lower productivity. In addition, aquatic insect larvae make up the bulk of the diet during the breeding season and low levels of benthic invertebrates can also impact their productivity (Lewis and Kraege 1999). There were no documented observations of this species in the project area but given the ample supply of streams this species is assumed to be present.

Mammals

Olympic marmots are endemic to the Olympic Peninsula. They are found in sub-alpine and alpine meadows and talus slopes (Linzey and Hammerson 2008). The project area does not contain any alpine or sub-alpine meadows or other suitable habitat for Olympic Marmots. They have not been documented in the watershed and it is highly unlikely that the species inhabits the area.

The Olympic Mazama pocket gopher is associated with glacial outwash prairies. The Olympic pocket gopher subspecies is found in the Olympic National Park in Clallam County where it is restricted to subalpine habitat of the higher Olympic Mountains. The project area does not contain any glacial outwash prairie systems. These pocket gophers have not been documented in the watershed and it is highly unlikely that the species inhabits the area.

The Pacific fisher commonly occurs in landscapes dominated by mature forest cover and have been categorized by some researchers as “closely-associated” with late-successional forests (Thomas et al. 1993). Until recently the fisher was considered extirpated from the Olympic Peninsula. Reintroductions of fisher to the Olympic Peninsula began in 2008, and all introduced animals were radio-collared. Several different radio-collared fisher were documented in the Calawah watershed from 2008-2010, while collars were still functioning. Although no denning was documented, it is assumed that fishers are still periodically using the watershed. While the road prisms themselves would not provide habitat, fishers could be found in older stands adjacent to project activity areas.

The Townsend’s big-eared bat and Keen’s Myotis are both potentially present in the forest surrounding the project area. Suitable roosts are critical components for the survival of the Townsend’s big-eared bat (Woodruff and Ferguson 2005). The Townsend’s has been documented using manmade structures for roosts as well as natural structures. Many species of bat, such as Keen’s Myotis, also utilize the areas beneath sloughing bark, most often found on old-growth trees and snags. Both species feed on insects and could be expected to be found foraging over riparian areas or other open areas within the overall project area.

Mollusks

The Broadwhorl tightcoil, Puget Oregonian, Malone jumping slug, and blue-gray taildropper have not been detected previously in the watershed. The keeled jumping slug is presumed to be present due to previous detections.

The Puget Oregonian snail is associated with hardwood shrubs and trees, particularly big leaf maple and vine maple. It is only known on the Olympic National Forest from one shell found on the Hood Canal Ranger District. Despite extensive surveys across the Olympic National Forest, no other shells nor live animals have been discovered (J. Ziegltrum 2006, pers. comm.).

The blue-gray taildropper slug occurs in moist conifer and mixed conifer-hardwood forests, usually located in sites with relatively higher shade and moisture levels than those of general forest habitat. It is usually associated with partially decayed logs, leaf and needle litter especially hardwood leaf litter), mosses and moist plant communities including big leaf maple and sword fern plant associations (Duncan et al. 2003).

The Malone's jumping slug occurs in moist forested habitats, generally over 50 years old with greater than 50% canopy cover especially where dense sword fern, conifer logs, coarse woody debris, exfoliated bark piles, and large decaying stumps are present. It can also be found in marshy open sites with dense skunk cabbage, fallen logs and other low vegetative cover (Duncan et al. 2003).

The keeled jumping slug is locally common and abundant on the Olympic National Forest (Ziegltrum 2001 and Ziegltrum 2004), and occur in moist conifer forest. Habitat for the keeled jumping slug may be present adjacent to existing road prisms. The Broadwhorl Tightcoil (snail) tends to occur at exceptionally moist and very diverse forest sites (Frest and Johannes 1999). Typical site descriptions include abundant ground cover (Gaultheria, Oxalis, sword fern, grasses), conifer or hardwood overstory, and moderate to deep litter.

Typical habitat for these mollusk species would not be expected within the footprint of the proposed road treatment areas, though individual habitat components such as hardwoods or large fallen logs may be found adjacent to road areas.

Environmental Consequences for Sensitive Species

No Action Alternative

Direct, Indirect and Cumulative Effects

Under the No Action Alternative, current conditions and trends would remain as described above. Historical timber harvest and road building would have had the greatest impact on the Johnson's hairstreak, both bat species, the fisher, mollusks, and perhaps even foraging for peregrine falcons and bald eagle nesting habitat. Roads that cross high-gradient creeks that are on steep, high-elevation hillsides may be currently impacting sensitive salamander species if there are culverts which do not allow access between habitat below and above the road. Related water quality degradation would have impacted the bald eagle, harlequin duck, and amphibian species. The habitat of the remaining butterfly species, the common loon, Olympic Marmot, and Mazama Pocket gopher would have been least impacted, if at all, by these activities. The No Action Alternative would not add to the historic impacts.

Proposed Action

Direct, Indirect and Cumulative Effects

Meadow habitat for the Taylor's Checkerspot butterfly would not be impacted by project activities. The limited but potential presence of habitat for the Puget Blue and Valley Silverspot butterflies represents the potential for these two species to be affected by project activities.

The Olympic Torrent Salamander is not likely to be found in project areas outside of stream crossings and large fill removal areas. Sedimentation and turbidity effects on aquatic organisms resulting from large fill removals would likely be minor and short-term. Impacts to terrestrial phase of these species could include the potential for incidental direct mortality, but this would be unlikely and restricted to very few individuals. Removing culverts and restoring the hillslope hydrology associated with the project's proposed roads would be of great benefit to these amphibians.

The Van Dyke's salamander aquatic form is generally found in association with streams or seeps. Any effects to the aquatic form would likely be minor and short-term. The terrestrial form of this species could be found moving through upland areas of the project area, but would not likely be found there for any length of time due to overall lack of coarse woody debris for cover and overall microclimate due to lack of overstory over the roads proposed for treatment. Impacts to this species would be minimal.

There are no documented bald eagle nests or winter roosts within a quarter mile of areas proposed for project activities. Therefore there would be no disturbance impacts from the project activities. Suitable nesting habitat would not be impacted by road treatment activities. Aquatic conservation measures would ensure there would be no measurable impacts to bald eagle prey species. There would be potential long-term benefits as aquatic productivity improves.

The Harlequin duck is generally found in streams. Project activities would not result in direct mortality of this species. Large fill removal activities adjacent to streams could create disturbance capable of displacing individual ducks for a short period. As mentioned above, sedimentation and turbidity effects on aquatic organisms, including Harlequin duck prey, would likely be minor and short-lived. Overall, impacts to individuals would be expected to be minor, and long-term impacts likely beneficial as aquatic productivity improves and human disturbance potential is reduced.

Habitat for the Pacific fisher does not occur within the road prism. However, habitat does occur adjacent to the proposed project areas in places. Direct impact to the structure and function of that habitat from project activities is highly unlikely. The only issue then would be potential disturbance effects on reproducing female fisher. Denning has not been documented to date in the watershed. Given the timing restriction on activities within proximity to a documented fisher den described in chapter 2, there would be no impacts to fisher from the proposed action.

Neither the Townsend's big-eared bat nor the Keen's Myotis would be found roosting in the road prism, however, they could be found roosting in snags or hollow trees immediately adjacent to work areas. Hazard tree removal could potentially remove a roost tree, but the incidence and likelihood of this is expected to be low. Overall, potential impacts would only be incurred at the individual level and would not impact the populations as a whole.

The road prisms would not generally contain optimal habitat for the keeled jumping slug, though some individuals could be present in or immediately adjacent to project areas. Habitat outside the road prism would not be affected by the proposed activities. A small level of incidental mortality could be incurred for the keeled jumping slug but this would not pose a risk to species viability or a trend toward federal listing.

Olympic National Forest Management Indicator Species

Management Indicator Species (MIS) are either selected species whose welfare is believed to be an indicator of the welfare of other species using the same habitat, or species whose condition can be used to assess the impacts of management actions on a particular area (Thomas 1979). The following species were identified as MIS for the Olympic National Forest (USDA 1990):

Table 9. Management Indicator Species and Summary of Effects

Common Name	Species Name	Indicator of Habitat Presence	Suitable Habitat Present	Documented Sightings in Project Area	Effects of No Action	Effects of Proposed Action
Bald Eagle[1]	*Haliaeetus leucocephalus*	Mature forest stands	Yes	Yes	*See table on page 25*	
Northern Spotted Owl[1]	*Strix occidentalis caurina*	Old-growth/ Mature forest stands	Yes	Yes		
Pileated Woodpecker	*Dryocopus pileatus*	Mature coniferous forest	Yes	Yes	No Impact	Possible minor impacts to individuals if individual roost trees removed for safety reasons
Primary Cavity Excavators	*Various*	Dead and dying trees	Yes	Yes		
American Marten	*Martes Americana*	Mature coniferous forest	Yes	No	No Impact	No Impact
Roosevelt Elk	*Cervus canadensis roosevelti*	Balance of cover and forage habitats; amount of vehicle disturbance	Yes	Yes	No Impact	Short term negative impacts to individuals from

Table 9. Management Indicator Species and Summary of Effects						
Common Name	**Species Name**	**Indicator of Habitat Presence**	**Suitable Habitat Present**	**Documented Sightings in Project Area**	**Effects of No Action**	**Effects of Proposed Action**
Columbia Black-tailed Deer	*Odocoileus hemionus*	Balance of cover and forage habitats; amount of vehicle disturbance	Yes	Yes		disturbance; positive impacts from forage plantings. Long-term benefits from increased security

1 The bald eagle and northern spotted owl were discussed in previous sections and therefore will not be discussed further here.

More detailed discussions of the species status, habitat use on the Olympic Peninsula, threats and future outlook for these management indicator species are contained in the project record.

The pileated woodpecker relies on dead and decaying trees for foraging and nesting and is said to be a keystone habitat modifier due to its role in creating foraging and nesting opportunities for other species and for facilitating other processes associated with decadence (Aubry and Raley 2002a). Past management in the Pacific Northwest has led to relatively few snags and down logs, especially of large diameters, remaining in many watersheds.

"Primary cavity excavators" comprise a broad group of species associated with standing dead trees or snags and down logs that excavate their own cavities. Examples include the pileated woodpecker, hairy woodpecker (*Picoides villosus*), downy woodpecker (*Picoides pubescens*), and the red-breasted nuthatch (*Sitta canadensis*). A variety of secondary cavity users such as the northern spotted owl, American marten, northern flying squirrel (*Glaucomys sabrinus*), various chickadee species and others use the dead or hollow portions of live trees that are created by these species.

The American marten, also known as the pine marten, is most closely associated with heavily forested east and north-facing slopes that contain numerous windfallen trees (Maser 1998). They tend to avoid areas that lack overhead protection and the young are born in nests within hollow trees, stumps, or logs. It is possible that marten exist within the project area in remnant old-growth or mature stands adjacent to proposed road treatment areas.

Roosevelt elk and Columbia black-tailed deer are known throughout the Olympic National Forest and Olympic Peninsula. Elk on the Olympic Peninsula are associated with the Olympic elk herd, although they are distributed throughout a variety of watersheds in smaller groups (WDFW 2004). Deer occur throughout the subwatersheds associated with the project area. Both species use a combination of habitats comprised of

cover, forage, water, and space and are susceptible to disturbance or direct mortality associated with vehicle access. New models to evaluate elk habitat have recently been developed and validated by researchers, and include elk nutrition and elk habitat use components. The Westside Elk Summer Nutrition model predicts the amount of dietary digestible energy (DDE) that elk can acquire from a given plant community during this period. The habitat model shows generally marginal forage values in areas adjacent to proposed road treatments, interspersed with patches of higher quality forage. The Westside Elk Habitat Use model incorporates the nutrition model along with additional inputs to predict levels of elk use across the landscape. Those inputs are distance to cover-forage edge, mean slope, and distance to public use roads. In general terms, higher use occurs closer to cover-forage edges, on more gentle slopes, and further from public use roads.

Winter mortality, legal harvest, and poaching were reported as the primary causes of elk and deer mortality in Washington (Taber and Raedeke 1980a, 1980b; Bender et al. 2004). Poaching of elk is believed to be prevalent on the Olympic Peninsula (WDFW 2004). As one might expect, a high density of roads, such as those common throughout much of the Peninsula, can have an adverse impact on elk with increased disturbance from legal hunting and illegal poaching (CEMG 1999, McCorquodale et al. 2003). Therefore, closing roads no longer needed results in a notable reduction in disturbance to elk (Witmer and deCalesta 1985), and would also benefit deer. The Washington Department of Fish and Wildlife (1996) recommends that road densities be kept below 1.5 mi/mi^2 mile in elk summer/fall range and below 1.0 mi/mi^2 mile in winter/spring range. Data presented in the watershed analysis documented drainages in the watershed that exceeded these recommended limits. While decommissioning and or other access-control or maintenance issues have reduced the number of open roads since that time, not all have been effective in preventing vehicle access. In addition, OHV use has been noted in the area, often on unclassified or decommissioned roads that are not necessarily reflected in these density estimates but that access areas under consideration for treatment. Roads closed to highway vehicle traffic that are accessible to OHVs and other forms of travel can still have impacts on elk (Naylor 2009).

Habitat guidelines for black-tailed deer suggest decommissioning of unneeded roads after management activities are complete in order to reduce road effects, as well as monitoring and treatment of invasive plant species along road systems (Nelson et al. 2008).

Environmental Consequences for Management Indicator Species

No Action Alternative

Direct, Indirect and Cumulative Effects

Under the No Action Alternative, current conditions would be maintained as described above. Historical timber harvest and road building would have had the greatest impact on habitat quality for the pileated woodpecker, primary cavity excavators, and Amercian marten. Timber harvest initially created large areas of early successional forage for deer and elk that gave way after several decades to mid-seral stands with little forage value. Road systems provided access for increase harvest pressure on deer, elk, and marten. The No Action Alternative would not add to the historic impacts. Indirect effects would include lost opportunities to decommission roads and enhance security for deer and elk.

Proposed Action

Direct, Indirect and Cumulative Effects

Project activities could result in incidental loss of snags or coarse wood due to safety concerns. This would have no impacts on marten and minimal impacts at most on pileated woodpeckers and primary cavity excavators. In the long term, vegetative recovery, increased security of habitat and reduced removal of snags and coarse wood due to woodcutting would benefit these species. The Forest Service has been implementing the NWFP and monitoring late-successional habitat trends since 1994. The 10-year monitoring report (Haynes et al. 2006) states "…it appears that the status and trends in abundance, diversity, and ecological functions of older forests are generally consistent with expectations of the Plan. The total area of late-successional and old-growth forest (older forests) has increased at a rate that is somewhat higher than expected, and losses from wildfires are in line with what was anticipated."

As a result projects consistent with the NWFP should be expected to maintain viability of late-successional associated species such as pileated woodpeckers, primary cavity excavators, and the marten.

Decommissioning roads or reducing motorized access would benefit deer and elk by reducing disturbance and direct mortality from vehicle and human access. This would be especially important in areas of the watershed are currently above recommended road densities for deer and elk. In the short term, seeding with road beds palatable forage species following the decommissioning efforts could also provide additional forage. Both activities would be most beneficial when conducted in areas without current access control that are adjacent to potential forage areas. The project should be expected to maintain the viability of early-successional associated species such as the Roosevelt elk and black-tailed deer.

Neotropical Migratory Birds

Executive Order (EO) 13186 signed by the President on January 10, 2001 defined the responsibility of federal agencies to protect migratory birds and their habitats. The intent of the EO was to strengthen migratory bird conservation by identifying and implementing strategies that promote conservation and minimize the take of migratory birds through consideration in land use decisions and collaboration with the U.S. Fish and Wildlife Service (FWS). The Executive Order also specifically directs federal agencies to avoid or minimize the negative impact of their actions on migratory birds. As required, the Forest Service has completed a Memoradum of Understanding (MOU) with the USFWS directed at migratory bird conservation. The project record contains more detailed information about the regulatory context for protection of migratory birds.

The Olympic National Forest falls within the Northern Pacific Rainforest delineation of Bird Conservation Regions (BCR) identified by the North American Bird Conservation Initiative (Partners in Flight 1998). High priority breeding forest birds include the spotted owl, marbled murrelet, northern goshawk (*Accipiter gentilis*), chestnut-backed chickadee (*Poecile rufescens*), red-breasted sapsucker (*Sphyrapicus ruber*), and hermit warbler (*Dendroica occidentalis*). The project area provides habitat to the species mentioned above.

Environmental Consequences for Neotropical Migratory Birds

No Action Alternative

Direct, Indirect and Cumulative Effects

Under the No Action Alternative, current conditions would be maintained as described above. Similar to the mollusks, many forest birds, particularly during the breeding periods, are associated with hardwood and mixed conifer-hardwood forests. The No Action Alternative would maintain these habitats in the current condition and would result in no adverse effects to those particular species. Historical timber harvest and road building would have had the greatest impact on the species that require late-successional habitat or those that do not respond well to fragmentation. Herbicide treatments in the past may have impacted habitat development for those species that rely upon deciduous vegetation. The No Action Alternative would not add to the historic impacts.

Proposed Action

Direct, Indirect and Cumulative Effects

Few neotropical migratory birds are likely to use the road treatment areas for nesting in their current state, therefore direct impacts would be unlikely. Project activities could result in short term effects to species using adjacent areas through disturbance, or disruption foraging patterns. All of these impacts would be minor indirect effects that would be limited to the activity period. In the long term, the neotropical migratory birds would be expected to benefit from vegetative recovery, reduced disturbance and habitat degradation associated with vehicular access and improved riparian function. Implementation of the project would be consistent with guidance given in the MOU between the USFS and USFWS.

The main past actions that may have adversely affected these species are timber harvest, road construction, and associated disturbance. The cumulative effect of the proposed action would be an incremental improvement to conditions for these species through reduction of habitat fragmentation and of disturbance.

3.7 U.S. Fish & Wildlife Service Species of Concern

The species in the table below were listed as Species of Concern (USDI 1993), a category defined as those species that might be in need of conservation action. These actions may include periodic monitoring of populations and threats as well as possible listing as threatened or endangered. There is no legal protection for Species of Concern and the term does not necessarily mean they will be listed. The table and discussion below include only those Species of Concern not previously discussed elsewhere in this document.

Both the long-eared myotis and the long-legged myotis inhabit coniferous forests where they roost in under bark, in tree cavities and rock crevices. Bats in the Pacific Northwest tend to use old-growth Douglas-fir stands disproportionately more than young or mature stands. This is presumably due to increased roost availability in old-growth stands and the paucity and lesser suitability of roost trees in second-growth stands (Wunder and Carey 1996, Grindal 1998).

Table 10. U.S. Fish and Wildlife Service Species of Concern and Summary of Effects						
Common Name	**Scientific Name**	**Indicator of Habitat Presence on Olympic National Forest**	**Habitat Present in Project Area?**	**Documented Sightings in Project Area?**	**No Action**	**Proposed Action**
Long-eared Myotis[1]	*Myotis evotis*	Coniferous forests, tree cavities, rock crevices.	Possible at higher elevations	No	No Impact	May impact individuals but would not contribute toward a need for conservation action
Long-legged Myotis[1]	*Myotis volans*	Coniferous forests, tree cavities, rock crevices.	Possible at higher elevations	No		
Northern Goshawk[2]	*Accipiter gentilis*	Coniferous forests with open understories.	Yes	In watershed	No Impact	No Impact
Olive-sided Flycatcher	*Contopus cooperi*	Coniferous forests with uneven canopies and interspersed openings and wet areas, dead or partially dead trees.	Yes	In watershed	No Impact	No Impact
Cascades Frog[1]	*Rana cascadae*	Small lakes, ponds, marshy areas adjacent to streams. Usually found above 2000 feet elevation.	Yes	No	No Impact	May impact individuals in short term but would not contribute toward a need for conservation action
Tailed Frog	*Ascaphus truei*	Fast, cold streams, sea level to 5,250' (Mt. Rainier), with cobble or boulder substrates.	Yes	In watershed		

Table 10. U.S. Fish and Wildlife Service Species of Concern and Summary of Effects						
Common Name	**Scientific Name**	**Indicator of Habitat Presence on Olympic National Forest**	**Habitat Present in Project Area?**	**Documented Sightings in Project Area?**	**No Action**	**Proposed Action**
Western Toad[2]	*Bufo boreas*	Ponds/shallow lakes, but may be found near streams during dry periods.	Yes	No		

1 Species is also designated as a State Monitor species

2 Species is also designated as a State Candidate species

The northern goshawk uses mid- to large-diameter trees for nesting and perching, and requires an open flight corridor beneath the canopy to be successful in searching for food and capturing prey. There are records of this species in the watershed, dating back to the 1990's (Washington State Heritage Database). Suitable nesting habitat for the northern goshawk includes mature or old coniferous forest, with relatively closed canopies and multiple canopy layers, and a high density of larger trees (>23 inches in diameter). Suitable goshawk habitat occurs in the watershed but does not generally include proposed road treatment areas.

The olive-sided flycatcher is a long-distance, neotropical migrant that breeds throughout coniferous forest in western Washington and Oregon. Preferred habitat consists of mid- to high-elevation montane and coniferous forests. This bird species is positively associated with edge habitats (natural or man-made), landscape heterogeneity, and juxtaposition of early and late-seral habitats (Shirley and Smith 2005, Altman and Hagar 2007). Suitable habitat for the olive-sided flycatcher exists in the watershed but is not likely to include potential road treatment areas that would require vegetation removal.

The Cascades frog is found in or near water, pools, or streams adjacent to mountain meadows, moist forests, and other seasonally flooded or marshy areas. Cascades frogs have been documented in the Olympic Mountains. They rarely occur below 2000 feet in elevation (2500-6000 feet is the norm; Corkran and Thoms 2006) though earlier records indicate they may have occurred at lower elevations on the Olympic Peninsula in the past (Leonard et al. 1993). They breed in bogs or ponds with cold springs or snowmelt (Corkran and Thoms 2006). The species could be present in the portions of the project area above 2000 feet elevation though little, if any, of the preferred habitat for adults or for breeding is likely to occur within close proximity to proposed road treatment areas.

Suitable habitat for the tailed frog consists of fast, clear, cold streams with cobble or boulder substrates and little silt, from sea-level to high elevation (Corkran and Thoms 2006). Adults can also be found occasionally along stream banks and in riparian forests where they forage for insects. Because they spend the majority of their life in aquatic environs, the tailed frog is vulnerable to management practices that alter the riparian or

aquatic zones of streams, especially those that change the moisture regime, increase stream temperature, increase sediment load, reduce woody debris input, and change stream bank integrity (Leonard et al. 2003, Hallock and McAllister 2005a). Protection of the upper reaches of streams is particularly important for this species (Hallock and McAllister 2005a). This species was documented in the watershed in the 1990's and more recently in several tributaries of the upper Sitkum River in 2009, and would be expected to occur elsewhere in the surrounding area.

The western toad occurs in a variety of terrestrial habitats. Transformed toads are terrestrial but often can be found near streams or other water bodies during dry periods. Breeding waters can include wetlands, ponds and shallow lakes, reservoir coves, and still-water off-channel habitats of rivers (Corkran and Thoms 2006, Hallock and McAllister 2005b). Direct threats to western toad include vulnerability to road traffic during adult movements to and from breeding sites in the spring, and dispersal of newly metamorphosed toads away from the breeding sites in the summer and fall (Hallock and McAllister 2005b). This species could potentially occur in the area, although there are no known sightings.

Environmental Consequences for USFWS Species of Concern

No Action Alternative

Direct, Indirect and Cumulative Effects

Under the No Action Alternative, current conditions would be maintained as described above. However, ongoing effects to aquatic habitat in terms of sediment delivery could still potentially impact amphibians during their aquatic phase. The effects of previous harvest, road building, and human disturbance have had the greatest impact on northern goshawk and olive-sided flycatcher (creating large tracts of homogenous habitat with few nesting/roosting structures), with water quality affects to amphibians as well. The No Action Alternative would not add to the historic impacts.

Proposed Action

Direct, Indirect and Cumulative Effects

Project activities would not impact the habitat of the olive-sided flycatcher or goshawk. Goshawk nests would be protected from disturbance if any were located in proximity to project activities. Therefore, project activities would have no impacts on these two species.

Incidental snag removal for safety reasons could impact individual long-legged Myotis and long-eared Myotis if they are roosting in them. This effect would be limited to individual trees adjacent to road prisms or fill removal sites.

Project activities may have an adverse effect on western toads, if individuals are in the forested areas. This effect could include some direct mortality due to road traffic but would likely be minimal in terms of effects upon the entire population. Terrestrial (adult) Cascades frogs and tailed frogs are unlikely to be found outside of areas immediately adjacent to water bodies, which would be generally be protected by aquatic conservation measures. With all three of these amphibian species, effects to aquatic environments are

generally viewed as the greater threat. Amphibians in the aquatic phase would likely experience minimal impacts due to changes in water quality, and positive impacts in the future as water quality improves. Additionally, the mobility of aquatic-phase amphibians could be positively impacted in the future through the removal of culverts. Implementing this alternative would not contribute toward a need for conservation action for the long-eared Myotis, long-legged Myotis, Cascades frog, tailed frog, and Western toad.

3.7 Botanical Resources

Introduction

This analysis addresses the potential effects of the proposed Calawah Road Decommissioning Project on threatened, endangered, proposed and sensitive vascular and non-vascular plants, in accordance with the National Environmental Policy Act (42 USC 4321 et seq.), the federal Endangered Species Act (16 USC 1531 et seq.), and the National Forest Management Act (16 USC 1604 et seq.). In addition, Forest Service Manual 2600, Chapter 2670 provides direction designed to ensure that Forest Service actions (1) do not contribute to the loss of viability of any native or desired non-native species or cause a trend toward Federal listing for any species; (2) comply with the requirements of the Endangered Species Act; and (3) provide a process and standard by which to ensure that threatened, endangered, proposed, and sensitive species receive full consideration in the decision making process.

This analysis also includes a discussion of the potential effects of the proposed action upon invasive plant spread, and measures prescribed to mitigate these effects.

Existing Environment

This project lies primarily in the North and South Fork Calawah River watersheds, Pacific Ranger District, Olympic National Forest. Elevations within the project area range between 600 and 3200 feet. The proposed project area lies primarily within the *Tsuga heterophylla* (western hemlock) zone. This vegetation zone is characterized as warm temperate to maritime. Winter and summer temperatures are moderate. Dominant tree species are Douglas-fir and western hemlock (Forested Plant Associations of the Olympic National Forest, 1989). Red cedar, Alaska yellow cedar, Pacific silver fir, red alder, and bigleaf maple exist in lesser quantities.

Analysis Methods

In order to determine whether the activities proposed in this project may affect Threatened, Endangered, Candidate, Proposed, or Sensitive species, a pre-field review was performed. The Region 6 Regional Forester's Special Status Species List (USDA Forest Service 2011), the Olympic National Forest Rare Plant Occurrence GIS cover, the Forest Service Natural Resource Information System (NRIS), Interagency Species Management System (ISMS), BLM Geographic Biotic Observations (GeoBOB), Washington State Natural Heritage program, aerial photographs, and district files were reviewed for documented occurrences of these species.

Intuitive-controlled field surveys for Region 6 sensitive and invasive plant species were conducted during May through September, 2012. All roads proposed for treatment received some level of botanical analysis to assess potential habitat for sensitive vascular plants and mosses. Surveyors targeted microhabitats such as forest openings, rock ledges, tree boles and branches, wet ditches, seeps, and stream edges. Emphasis was placed on

surveys for the following species: *Erythronium quinaultense, Parnassia palustris* var. *tenuis*, *Claytonia lancoelata* ssp. *pacifica*, *Coptis asplenifolia*, *Montia diffusa*, *Polemonium carneum*, and the moss *Iwatsukiella leucotricha* since they were thought to have the highest probability of occurring in the project area.

Federally Listed Species

There are no Endangered or Federally listed Candidate or Proposed vascular plants, bryophytes, fungi or lichens documented or suspected on the Pacific Ranger District of the ONF. There is one Federally listed Endangered vascular plant, *Arenaria paludicola* (Marsh sandwort), that was suspected to occur on the ONF, but is now considered potentially extirpated from the state of Washington. This species was removed from the most recent Region 6 Regional Forester Special Status Species List, dated December 1, 2011.

Whitebark pine (*Pinus albicaulis*), a USFS Region 6 Sensitive Species and a Federal Candidate species under the Endangered Species Act, occurs in subalpine habitats above 5,000 ft. in the Buckhorn Wilderness on the Hood Canal Ranger District of the ONF. Whitebark pine is a long-lived, cold-tolerant, five-needle pine species of high elevations. There are no known current or historical sites of this species within the proposed project area, and due to lack of suitable habitat it is not likely to occur. The implementation of this project would not affect the viability of whitebark pine.

Regional Forester's Sensitive Species

Vascular Plants

Sensitive vascular plant species were assessed for the Calawah Road Decommissioning Project planning area in June 2012. Of the 31 documented or suspected sensitive vascular plant species for the Olympic National Forest, six sensitive species were identified as having potential habitat in the proposed project area. Only one of these species - *Erythronium quinaultense* – is known to occur within the Calawah River watershed, but all have been reported from similar elevations and habitats on the western Olympic peninsula. The single known population of *E. quinaultense* is located in an area that would not be affected by the implementation of the proposed project.

The table below shows vascular plant species documented or suspected to occur on the Olympic National Forest with potential habitat in the proposed project area, and a summary of anticipated project effects. Field surveys were conducted for these six vascular plants during the period of June through September 2012. No sensitive vascular plants were found within the project area.

Table 11. Sensitive vascular plant species and summary of effects

Scientific name	Status	Common name	Habitat	No Action	Proposed Action
Claytonia lancoelata ssp. *pacifica*	Sensitive	Pacific lance-leaved spring beauty	Vernally moist areas.	No Effect	No Effect

Table 11. Sensitive vascular plant species and summary of effects					
Scientific name	**Status**	**Common name**	**Habitat**	**No Action**	**Proposed Action**
Coptis asplenifolia	Sensitive	Spleenwort-leaved goldthread	Moist woods and bogs.	No Effect	No Effect
Erythronium quinaultense	Sensitive	Quinault fawn lily	Openings and rocky ledges in coniferous forests.	No Effect	No Effect
Montia diffusa	Sensitive	Branching Montia	Moist woods at low elevations.	No Effect	No Effect
Parnassia palustris var. *tenuis*	Sensitive	Northern grass-of-Parnassus	Riparian areas, moist meadows and bogs; at or near seeps, springs, and roadside ditches.	No Effect	No Effect
Polemonium carneum	Sensitive	Great polemonium	Thickets, woodlands and forest openings, from near sea level to moderate elevations in the mountains.	No Effect	No Effect

Bryophytes (mosses and liverworts)

Sensitive bryophyte species were assessed for the Calawah Road Decommissioning Project planning area in June 2012. One species, *Iwatsukiella leuchotricha*, was identified as having potential habitat in the proposed project area. This species is known from a single site within the South Fork Calawah River watershed. This site is located less than ½-mile from one of the roads proposed for treatment, but would not be affected if the proposed project is implemented.

Field surveys were conducted for this moss between June and September, 2012. Although appropriate habitat was found in a few areas, no new populations were discovered.

Effects to Regional Forester's Sensitive Species

Alternative A (No Action) and Alternative B (Proposed Action)

Direct, Indirect and Cumulative Effects

Sensitive vascular plants. No sensitive vascular plant species were found in the project area, therefore there would be no direct, indirect, or cumulative effects to these species. Implementation of the proposed action would pose no risk to species viability or a trend toward listing.

Bryophytes. Because no sensitive bryophyte species were found in the project area, there would be no direct, indirect, or cumulative effects to these species. Implementation of the proposed action would pose no risk to species viability or a trend toward listing.

Invasive Plants

Noxious weeds and other invasive plants may pose a serious threat to the health of National Forests. Executive Order 13112, Invasive Species (Feb. 1999), provides direction that "Federal agencies shall: (1) prevent the introduction of invasive species; (2) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (3) monitor invasive species populations accurately and reliably; (4) provide for restoration of native species and habitat conditions in ecosystems that have been invaded." Prevention of invasive plant spread or new infestations, along with timely treatment and monitoring of infestations are key objectives for the Olympic National Forest under the 2008 Olympic National Forest *Beyond Prevention: Site-Specific Invasive Plant Treatment Project* EIS and Record of Decision. Treatment is also undertaken pursuant to this EIS and ROD.

Invasive species surveys were conducted during the period between June and September 2012. A wide variety of non-native species were found within the proposed project area. Those that have the highest potential to have an adverse ecological effect if left untreated are listed in the table below.

Table 12. Invasive plants species found during surveys in the project area

Scientific Name	Common Name	Abundance Within Project Area
Cirsium arvense	Canada thistle	Uncommon
Cirsium vulgare	Bull thistle	Uncommon
Cytisus scoparius	Scotch broom	Uncommon
Geranium robertianum	Stinky Bob, herb Robert	Rare
Hypericum perforatum	Common St. Johnswort	Common
Lathyrus latifolius	Everlasting peavine	Uncommon
Phalaris arundinacea	Reed canary grass	Uncommon
Senecio jacobaea	Tansy ragwort	Common

Cirsium arvense (Canada thistle) is an aggressive perennial weed that spreads from deep and extensive horizontal rhizomes. It is a shade intolerant pioneer species that often becomes established following ground

disturbance. It may form dense and persistent populations that displace native vegetation and decrease species diversity. Once established it is difficult to control.

Cirsium vulgare (Bull thistle) is a large (2-5 feet tall) biennial plant that can form rosettes three feet in diameter. Reproduction is by seed which may be spread by livestock, vehicles, hay and by seed mixes. It is most common in recently disturbed areas, along roads and ditches. Bull thistle competes with native species for water, nutrients and space, displacing native species and decreasing forage site for grazing animals.

Cytisus scoparius (Scotch broom) is an invasive, highly aggressive, flowering shrub that forms dense monotypic stands that displace native vegetation. It thrives in areas of full sun and is often found along roadsides. Seeds and other plant parts are toxic to humans, horses and livestock. It is difficult to eradicate due to substantial and long-lived seed bank.

Geranium robertianum (herb Robert) is a low growing, herbaceous, winter and spring annual. It is one of only a few weeds found on the Olympic NF that is capable of growing in full shade under a closed canopy. It can grow in very dense populations and thus poses a threat to forest understories and plant biodiversity. It is spreading rapidly in western Washington.

Hypericum perforatum (St. John's wort) is a taprooted perennial herb with yellow flowers that is mildly poisonous. It is an aggressive weed that grows conspicuously along roadsides and also invades prairies, meadows and pastures where it displaces native species. A single plant may generate 15,000 to 30,000 seeds per year that may remain viable in the soil for up to 10 years. This species reproduces primarily by seed but may also be spread by short runners.

Lathyrus latifolius (everlasting peavine) is an aggressive, herbaceous vine that is capable of growing as a dense mat that excludes all other vegetation, including shrubs and conifer saplings. It is a common invader of roadsides and open areas that have been disturbed in the past, such as landings and temporary roads. It is very hardy, and capable of reproducing both vegetatively and by seed.

Phalaris arundinacea (reed canary grass) is a rhizomatous, perennial grass that is an aggressive invader of moist waste areas, meadows, and lake shores. It is spread by seed or creeping rhizomes. This species often forms persistent monocultures that choke out native plants and pose a significant threat to wetlands.

Senecio jacobaea (tansy ragwort) is typically a biennial herb but may behave as a perennial if the flowering stalk is injured in any way while flowering. Vegetative regeneration can then occur from crowns, root fragments or intact roots. It also reproduces by seed which can range from 5,000 to 20,000 per plant. It is a weed of disturbed sites, waste areas, roadsides and forested areas recently harvested for timber. All parts of the plant are toxic to livestock and humans.

The table below shows infestations located on proposed project road segments during invasive plant surveys conducted for this project. All listed infestations were treated with herbicide in 2012. Treatments were consistent with the 2008 Olympic National Forest *Beyond Prevention: Site-Specific Invasive Plant Treatment Project* EIS and Record of Decision .

Table 13. Road segments with invasive plant infestations		
Road Number	**Invasive Plants Found During Surveys**	**Level of Concern**
2912060	Canada thistle Herb Robert Scotch broom Bull thistle Tansy ragwort Cutleaf blackberry	*High.* Presence and amount of herb Robert is of concern. Also, overall amount of invasive plant species present is of concern. Follow-up treatments are planned for 2013.
2922020	Herb Robert	*Moderate.* Herb Robert present, but in very small amounts at beginning of road. Follow-up treatments are planned for 2013.
2922200	Scotch broom St. Johns wort	*Low.* Moderate amounts of Scotch broom present; trace St. Johns wort. Follow-up treatments are planned for 2013.
2922250	Scotch broom Everlasting peavine Bull thistle	*High.* Peavine abundant, forms dense mats in some areas. Moderate amounts of Scotch broom present; trace bull thistle. Follow-up treatments are planned for 2013.
2923015	Herb Robert Tansy ragwort Bull thistle Scotch broom	*High.* Presence and amount of herb Robert is of concern. Also, Moderate amounts of Scotch broom present; trace bull thistle and tansy ragwort. Follow-up treatments are planned for 2013.
2923020	Scotch broom Tansy ragwort	*Low.* Moderate amounts of Scotch broom present; trace tansy ragwort. Follow-up treatments are planned for 2013.

Effects to Invasive Plant Species

Alternative A (No Action)

Direct, Indirect, and Cumulative Effects

Under the No Action alternative, continued vehicular use along driveable road segments would continue to spread invasive weeds, and potentially create new infestations of invasive plant species in the project area. Without treatment, these new infestations would add incrementally to existing weed problems in the watershed.

In addition, herbicide application would still occur under the No Action Alternative and not re-routing road access increases the potential for spread of invasive weeds.

Alternative B (Proposed Action)

Direct and Indirect Effects

Under the Proposed Action, there would be various levels of disturbance to old roadbeds depending on the level of treatment prescribed for each road segment. Newly exposed ground would be susceptible to invasive

plant colonization, particularly because there are already weeds documented in the area that could provide a ready source if propagules. Although pretreatment of these weed populations is currently underway, implementation of the proposed project would still contribute to the spread of invasive and noxious weeds, although at much reduced levels than if pre-treatments were not conducted. This is because eliminating all invasive plants within the timeframe of the proposed project is very unlikely, and a seed bank will still exist in the soil. Movement of soil and fill from one location to another via equipment or people would be the most likely vector of spread under these circumstances. The continued presence of weeds also has the potential to substantially decrease the chances of successful establishment of native species, whether planted or passively recruited.

In order to control noxious weed colonization and spread under the proposed action, weed-spread prevention and weed eradication activities would be implemented before, during and after project activities (see the pertinent Conservation Measures section in chapter 2). Implementation of the proposed project with these mitigations would provide positive results in the prevention of invasive plant spread, treatment of current infestations, and the successful establishment of a native plant community in the treated areas.

Cumulative Effects

With the specified conservation measures in place, implementation of this project is likely to have a positive cumulative effect on weed conditions in the watershed. Over time, these areas would over time become less susceptible to invasion due to increased shade, competition from native plants, and reduced disturbance from traffic and maintenance activities.

Past activities that have likely contributed to the spread of invasive plant species include but are not limited to the following:

- Construction of gravel and paved roads providing ease of access to the watershed for people, while simultaneously creating invasion corridors for weed populations to expand deep into the watershed.
- Timber harvest activities using machinery imported from other geographic areas containing different invasive species propagules.
- Erosion control measures and forage seeding projects introducing non-native invasive plant species in seed mixes and straw sediment barriers.
- Transport and use of material from rock sources infested with noxious weed propagules for resurfacing of roads and other projects.

Many of the activities that occurred in the past took place during a time when there was little or no awareness of the detrimental impacts of invasive plant species. In some cases non-desirable species were introduced with good intentions, such as increasing animal forage or for erosion control. The emphasis on prevention and control of invasive plant species is relatively recent. Forest practices and policy direction have evolved with our increasing knowledge and awareness regarding these species and their environmental effects.

3.8 Forested Vegetation and Forest Management

Historic Disturbance

Historically, large scale disturbances on the landscape were dominated by fire in the eastern portion of the watershed and by wind in the western portion of the watershed (USDA 1997). Within the last 200 years, there have been at least ten recorded windstorms with hurricane-force winds, including the '21 blow in 1921 and the Columbus Day storm in 1962 (Henderson et. al 1989). The '21 blow had a large impact on stands in the watershed, with blowdown of 30-40% in the western third of the watershed, less than 20% for most of the watershed, and no impact at the far eastern end of the watershed. Blowdown was both concentrated in patches and as a proportion of trees in the stands that remained following the storm, and the conclusion drawn for some stands examined after the event was that there had been a similar stand-replacing wind event about 100 years prior to the '21 blow (USDA 1997).

In the more recent history, human activities have been the dominant disturbance on the landscape. Clearcutting, broadcast burning, fire salvage and artificial reforestation has been accomplished throughout the watershed, beginning in the 1930s, peaking in the 1980s, and ending in the early 1990s. In 1951 the Great Forks Fire burned a total of 31,070 acres (USDA 1997), with the majority of the fire area in the northern third of the Calawah River watershed. Most burned stands on the Olympic National Forest were salvage harvested within 5 or 6 years following the fire (USDA 1998). Throughout the watershed, typical vegetation treatments included clearcut harvesting (and broadcast burning in most cases), followed by regeneration by a combination of planted Douglas-fir seedlings and natural regeneration resulting from seedfall from adjacent stands. According to Total Resource Inventory (TRI) records, there are approximately 49,000 acres of Olympic National Forest land within the Calawah River watershed. Regeneration harvest accomplished through clearcut harvesting or salvage was undertaken on 29,000 acres since 1935, with the remaining 20,000 acres having minimal or no management. Since the 1960s, most stands were given a precommercial thinning treatment between 10 and 20 years of age in preparation for a commercial thinning treatment at a stand age of approximately 40 years. Past vegetation management activities have had a considerable impact on forest stand structure and landscape-level connectivity in the planning area. As a result of historic stand management activities, the current landscape has a larger proportion of dense young conifer stands and less area of late-successional forest than was historically present, and old-growth patches are fragmented and discontinuous.

Current Forest Management

Since the emergence of the Northwest Forest Plan (NWFP) in 1994, vegetation treatments have shifted to an emphasis on restoring late-successional habitat conditions. Within the Calawah River watershed, NWFP designations include about 31,000 acres in Late-Successional Reserves and 19,000 acres in Adaptive Management Area. To meet the objective of accelerating the development of late successional structures in young managed stands, a potential sequence of planned treatments designed would include a precommercial (non-commercial) thinning treatment, two commercial thinning treatments, underplanting of trees or shrubs to increase species diversity, and the augmentation of coarse woody debris and snags. However, due to variability in stand conditions, all stands would not require all treatments in the sequence, and some stands may require little or no treatment.

Current Stand Conditions

Managed stands 30 years of age or older are currently in the competitive exclusion stage as defined in the Soleduck Late Successional Reserve Assessment (USDA 1996) or stem exclusion stage (Oliver and Larson 1990). This stage of stand development tends to be one of relative structural uniformity and simplicity, with only one canopy layer, little understory vegetation, and low plant species diversity. When compared to stand conditions that occur before or after this stage of stand development, the stem exclusion stage has the lower plant species and structural diversity, and provides habitat for the fewest number of wildlife species of any developmental stage. Currently 54 percent of the watershed is in this stage of stand development, and within 20 years these conditions will be present on 63 percent of the acreage in the watershed as the younger stands enter the stem exclusion stage of stand development. Carey and Curtis (1996) recommend "minimizing area and time in the competitive exclusion stage" to promote biodiversity and accelerate development of late-successional characteristics, concluding that, left untreated, managed stands may spend over 100 years in the competitive exclusion stage or fail to develop desired late-successional characteristics. Others have postulated that managed stands are on a different trajectory than the developmental pathway which produced current old-growth stands, and that managed stands are not likely to develop desired characteristics without treatment (Tappeiner et. al. 1997). Even in unmanaged stands following a stand replacing disturbance, the desired late-successional characteristics associated with single-storied stands (one tree layer) are generally not present until the stand reaches a minimum age of 175 years, and another 100 years or more is required to develop a multi-storied stand late-successional stand (USDA 1997).

Analysis Methods

Proposed road treatments were assessed for their effects on future opportunities for vegetation treatments designed to accelerate the development of late successional habitat. Table displays the managed stands accessed by each road segment, as identified through GIS analysis. Managed stands associated with these road segments currently range from 22 to 61 years of age. Stand age and general observations of stands in the area were used to assign the type of treatment (non-commercial or commercial) that could be undertaken within the next 15 years. Stands currently 25 years of age or greater were considered to have potential for future commercial treatments. Some road segments proposed for treatment did not remove stand access, and so were not included in Table 14. This analysis assumes that roads proposed for high intensity treatments and those proposed for decommissioning would preclude future access for vegetation management. For example, FSR 2912000 and 2912060 are proposed for a designation of Maintenance Level 1 following this project, indicating intent for future reopening and use. However, the proposed high intensity treatment and the removal of large fills at stream crossings would make the reconstruction in the future more expensive, and potentially less likely.

Table 14. Managed stands and associated road segments

Road Number	Segment BMP	Segment EMP	Total Length	Total Acres	Future CT[1]
2900030	1.9	3.6	1.7	788[2]	788[2]
2900072	0.0	1.5	1.5	181	181
2900075	0.0	2.0	2.0	139	127
2900078	0.0	0.3	0.3	17	-

Table 14. Managed stands and associated road segments					
Road Number	**Segment BMP**	**Segment EMP**	**Total Length**	**Total Acres**	**Future CT[1]**
2900800	0.0	4.4	4.4	117	117
2900810	0.0	1.3	1.3	164	114
2900815	0.0	2.7	2.7	445	445
2912000	0.0	5.1	5.1	450	434
2912000	5.1	6.2	1.1	342	183
2912040	0.0	1.0	1.0	178	178
2912045	0.0	0.5	0.5	94	88
2912050	0.0	0.3	0.3	159	77
2912060	0.0	2.8	2.8	297	297
2912063	0.0	0.4	0.4	109	56
2922020	0	0.9	0.9	91	91
2922200	0.8	1.4	0.6	145	12
2922250	0.0	1.3	1.3	152	139
2922300	0	1.1	1.1	154	154
2923015	0.0	0.7	0.7	35	35
2923015	0.7	2.7	2.0	114	52
2923020	0.0	0.2	0.2	74	74
2923020	0.2	0.6	0.4	54	54
2952000	0.0	2.0	2.0	162	-
TOTALS			**32.1**	**4462**	**3697**

1 CT = Commercial thinning

2 Includes acres accessed by unclassified roads associated with this road segment

The Total Acres and Future CT columns in Table overestimate the acres that would be actually available for future thinning treatments. Under current management practices, topographic conditions, resource buffers, and other considerations would reduce the actual potential acres by 25 to 30 percent.

Effects to Forested Vegetation and Forest Management

No Action Alternative

Cumulative, Direct, and Indirect Effects

The No Action Alternative would have no cumulative, direct or indirect effects on forested stand development or future access for stand management.

Proposed Action

Direct Effects

The direct effect of the Proposed Action is the loss of roaded access to approximately 4,462 acres of managed stands within the Calawah River Watershed, of which 1,865 acres are within Adaptive Management Area and

2,597 acres are within Late-Successional Reserves. Of the total acres, there are about 3,697 acres which could potentially receive a commercial thinning treatment within the next 15 years. Loss of roaded access would also decrease the likelihood of non-commercial stand treatments in the affected stands such as precommercial thinning, snag and coarse woody debris augmentation, or underplanting. The Olympic National Forest Strategic Plan identified the North Fork Calawah River subwatershed as a priority for vegetation restoration treatments including commercial thinning, with planning scheduled to begin in 2015. Of the total affected acres of stands given above, the proposed action will remove access to about 1,120 acres of managed stands in the North Fork Calawah River subwatershed, including about 700 acres of potential commercial thinning. The Proposed Action would have no direct effects on stand development.

Indirect Effects

The indirect effect of the Proposed Action is that stands would continue through the stand development process without management intervention. These stands would remain in the stem exclusion stage of stand development for another 100 years or more, providing little value for species dependent upon late-successional habitat. Left untreated, these stands would eventually move toward developing late-successional habitat characteristics as natural disturbance agents reduce tree density at the scale of the single tree or small groups of trees. The stands could stagnate, with tree growth virtually ceasing due to extreme inter-tree competition, and development of desired characteristics would probably take considerably longer than if the stands were commercially thinned.

Cumulative Effects

Previous road decommissioning projects in the Calawah River watershed have closed about 29.8 miles of road and removed access to about 2,860 acres of managed stands. An estimated 30 percent to 50 percent of the managed stands in the watershed would be accessible from Forest Service system roads following implementation of the project.

3.8 Heritage Resources

Environmental Setting

The project area is located in the river valleys, hillsides and ridges of the Calawah River drainage on the west slope of the Olympic Mountains. The Calawah watershed consists of the Sul Duc River, Sitkum River, and North and South Fork of the Calawah on the western portion of the Olympic Peninsula. These flow in a generally western direction, converging to form the Quillayute River, which flows into the Pacific Ocean. The bedrock geology of the project area is marine sedimentary rock dating to the Miocene and Oligocene. Surficial deposits include glacial till and outwash dating to the Pleistocene (WDGER 2005). Hillsides and drainages above and below the roads range from 0 to 90 percent slope, with many of the roads cut into bedrock high above the valley bottoms. Elevation ranges from 900 feet to 3000 feet. Vegetation present within the project area includes Douglas fir, spruce, Western red cedar, red alder, vine maple, salmon berry, thimbleberry, elderberry, and sword fern.

Cultural Setting

The project areas may have been occupied by both the Clallam and Quileute people. These groups were skilled hunters, gatherers, and fishermen. They utilized a variety of resources and practiced a seasonal round congregating in villages during the winter and travelling to various locations during the summer to hunt or gather specific resources.

Euro-American explorers came to the Pacific Northwest in the late eighteenth century and trappers, traders, and settlers soon followed (Kirk and Alexander 1990). The first settlers to the Olympic Peninsula came in the mid to late 1800s. Settlers slowly moved inland from the coast with settlement increasing in the inland areas in the 1890s (Righter 1978). Most early settlers practiced subsistence farming and later began raising cattle and crops for sale. Many found work logging or doing other jobs in support of the logging camps.

Literature Review

Previous Archaeology

Previous archaeology from the North Olympic Peninsula suggests the region has a long period of use. Early to mid-Holocene sites have been found near Sequim and the surrounding uplands and late Holocene shell middens have been found along the coast. A survey for a commercial thinning project in 2009 (NABD#1354102) found an isolated basalt flake along the South Fork Calawah River, on the southern boundary of the project area (CA00643). The nearest recorded sites are located along the northern and southern boundaries of the project area. All of the previously recorded sites are in valley bottoms, along river drainages (DAHP 2012).

Archival Research

For the project area GLO survey maps from 1895 show nothing being located near the impacted roads. The 1915, 1930, 1938 and 1948 maps of the Olympic National Forest show railroad logging to the north and northeast of the project area but nothing in the project area and roads were not put in until after 1948 (USDA-FS 1915, 1930, 1938, 1948).

Research Design

Expectations

Based on the draft inventory design for the Olympic National Forest (Anderson and Neil 2009) and the statewide predictive modeling in the WISAARD online database (DAHP 2012) the effected roads are low probability.

Methodology

The survey strategy was guided by the Draft Inventory Strategy for the Olympic National Forest (Anderson and Neil 2009). Survey was conducted on November 26 to 29, 2012. Pedestrian survey was conducted on 16 miles of impacted road. Vehicle survey was conducted on roads being converted to level 1 maintenance or to trail, in areas that no human being could have safely accessed prior to the road being blasted into the hillside. No

shovel probes were conducted due to the low probability for the location of cultural resources and location within the previously disturbed road prism.

Results

A water tank was found at two stream crossings on FSR 2922-200 and two water tanks on one stream crossing on FSR 2922-720. The tanks are concrete and hold approximately 1000 gallons. According to a former Forest Service employee (personal communication Stan Graham 2012) there were a number of metal and concrete tanks placed in areas where it was drier and harder to get water so that fire engines could draw water from the tanks when needed. The tanks were actively used through the 1980s when there was a large brush disposal program on the Forest. The age of these tanks is unknown. This tank was not considered significant and was noted but not recorded on a site form.

No other artifacts or cultural resources were found during survey. Off-site fill is present within the project areas from culvert maintenance. Ground visibility varied depending on use of the road with little used roads having a thick duff layer, dense salmon berry and numerous down trees.

Analyses

The project area may have been used during prehistoric time periods for hunting and gathering but there is no discernible evidence of this use. Most of the roads were placed in areas that would have been extremely difficult to travel across on foot and the lack of historic trails points to the difficulty of access. Ethnographic evidence notes that travel through the project area in precontact times was accomplished with pole boats and the area was a transit corridor to locations further in the interior.

Conclusions

No eligible historic properties were located during the survey for this project and a determination of no historic properties was reached.

Effects to Cultural Resources

No Action and Proposed Action

Direct, Indirect, and Cumulative Effects

Because no eligible historic properties were located in the project area, neither alternative would result in direct, indirect, or cumulative effects to cultural resources. The Cultural Resources conservation measure in Chapter 2 would minimize potential effects to previously undiscovered cultural resources encountered during project activities.

In the event that archaeological materials are encountered during project implementation work should be halted and the Forest Archaeologist should be contacted in order to assess the discovery and evaluate the significance. In the event that skeletal material or features of burial/interment are encountered, all work must be stopped immediately and contact must be established with local law enforcement, the State Historic Preservation Office and the affected Indian Tribes.

3.9 Roads and Road Management

There are currently 163.6 miles of National Forest system roads within the Calawah watershed. The 2003 Olympic National Forest Access and Travel Management Plan (ATM) evaluated future projections for Forest Service road maintenance funding and the needs for vehicle access against the potential risks to aquatic resources, and contains recommendations for decommissioning a total of 57.1 miles of roads within the watershed. The ATM and this analysis do not include unclassified, abandoned roads that are not on the authorized Forest road network.

Road maintenance activity and accomplishment is contingent on budgetary constraints. The current trend is a decrease in maintenance budgets and therefore maintenance activities. It is anticipated that this trend will continue. In the past, timber sale operators constructed and maintained roads on Forest Service lands for their use during the sales. In recent years, however, the timber sale program has declined and there have been insufficient funds to continue to maintain the established network of authorized roads to the standards associated with their assigned maintenance levels. For this reason, many roads in the Calawah watershed are in need or maintenance or repair, have become overgrown with vegetation, and/or are undriveable. Additionally, routine inspection and maintenance of culverts and ditches on many roads is not possible due to lack of personnel and funding and therefore risks of road failure and wash-outs have increased. Approximately 15% of the roads in the Calawah drainage currently receive maintenance to standard every four to seven years.

Table A-1 in Appendix A lists this project's proposed road treatments within the Calawah watershed. Of the 35.5 miles of road proposed for treatment, 26.7 miles are currently in maintenance level (ML) 1 closure, and 8.8 miles are in ML 2. The ML 2 roads are open to the public but are not all in good driveable condition. Proposed changes in road maintenance levels are summarized in the table below.

Table 15. Summary of proposed changes in road maintenance level (ML)

Current ML	Post-treatment ML	Miles
1	D	17.3
2	D	0.9
	Subtotal D (decommission)	*18.2*
1	1C	9.4
2	1C	7.9
	Subtotal 1C (ML1 closure)	*17.3*

Effects to Roads and Road Management

No Action

Direct, Indirect, and Cumulative Effects

There would be no direct effects to roads or road management from implementing the No Action alternative. There would be no change in the number of authorized road miles requiring maintenance. Road maintenance

would continue within the constraints discussed above, and the continued deterioration of these roads over time would be expected due to limited maintenance capacity.

Proposed Action

Direct, Indirect, and Cumulative Effects

A total of 18.2 miles (17.3 ML1 and 0.9 ML2) would be decommissioned. Roads that are decommissioned ("D" in Table , above) would be permanently removed from the authorized road system. The 17.3 miles (9.4 ML1 and 7.9 ML2) with a post-project ML of "1C" would remain part of the authorized road system as closed roads, and could be reopened in the future. Due to the intensity of the proposed treatments, maintenance needs and associated maintenance costs would be greatly reduced on these roads; however, the costs associated with future reopening would increase.

Table A-1 in Appendix A includes an estimate of costs associated with the proposed decommissioning or closure treatments associated with each road segment. Total estimated cost needed for the proposed watershed restoration work on national forest system lands is approximately $3,859,600. Costs include project planning and design, contract preparation, and contract administration as well as funds needed to award contracts.

The direct effect of implementing the proposed action would be the reduction of the authorized road system within the watershed by 18.2 miles, as a result of road decommissioning. On a mile-per-mile basis, this would reduce the road maintenance burden in the watershed by about 11 percent. The treatment of 17.3 miles of roads that would remain on the system as closed roads would address current maintenance problems and considerably reduce future road maintenance needs on these roads.

Motor Vehicle Use Map (MVUM) changes resulting from implementing the proposed action would be as follows:

- A total of 7.9 miles of ML2 roads would be reclassified as ML1;
- A total of 9.4 miles of ML1 roads would receive treatment and remain as ML1 roads;
- A total of 0.8 miles of ML2 roads would be decommissioned and permanently removed from the authorized road system;
- A total of 17.3 miles of ML1 roads would be decommissioned and permanently removed from the authorized road system.

3.10 Recreation

The Calawah watershed experiences a high level of recreational use, mostly in the form dispersed recreation. The 2900 road system is the closest National Forest road system to the town of Forks, and provides roaded access for year round recreational opportunities. The Forks community and other visitors use it for access for hunting, fishing, collecting berries and firewood, camping, hiking, general recreational driving, and winter snow play.

Recreation sites and access in the watershed

There are two developed recreation sites in the vicinity of the project area. The Klahanie Campground is immediately off the mainline 2900 road just inside the forest boundary at the west end of the project watershed. There is also one developed trailhead, the Rugged Ridge trailhead, that is accessed by foot using the 2900070 road, a ML1 road that is closed to vehicular traffic. Neither of these developed recreation sites would be directly affected by the proposed road treatments. Access to both sites would remain as it is currently.

Other roads in the watershed are used to access dispersed (undeveloped) campsites, and opportunities for dispersed recreation. Specific recreation sites and use patterns for these areas are not known.

Of the road segments proposed for treatment in this project, only four are currently drivable. Of those four, two are open to public use according to the forest's Motor Vehicle Use Map (MVUM).

- The 1.5-mile 2900072 segment is drivable along the first 0.75 mile of its length. This is a ML1 road and is closed to public use.
- The 4.4-mile 2900800 segment is also a ML1 road closed to public use, although it is currently drivable for high-clearance vehicles.
- The 0.7-mile 2923015 segment is drivable its entire length, and is a ML2 road open to public use.
- The 2.8-mile 2912060 segment is drivable to milepost 2.0, and is a ML2 road open to public use.

All roads proposed for treatment, whether open or closed to motor vehicle use, are available for foot access, although conditions vary and hikers or horse riders may have to negotiate down logs, brush, or washouts. No roads in the watershed are currently open for ATV use.

Project effects to recreation and access

No Action

Direct, Indirect, and Cumulative Effects

There would be no changes to current recreational opportunities and recreational access under the no action alternative and therefore there would be no direct, indirect or cumulative effects.

Proposed Action

Direct, Indirect, and Cumulative Effects

There would be no direct effects to developed recreational access and opportunities from implementing the proposed action. Recreationists accustomed to vehicular access to dispersed (undeveloped) sites located on the four currently drivable roads discussed above would no longer be able to drive to those sites. This represents a reduction of 7.85 miles of currently drivable roads, although only 2.7 of those miles are authorized for public use in the MVUM. Foot access on all treated road segments may become more challenging due to removal of stream crossing fills and sections of outsloping.

4.0 Consultation and Coordination

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

ID TEAM MEMBERS:

Jonathan Hanson	Interdisciplinary team leader, Fisheries Biologist
Robin Shoal	NEPA – Writer / Editor
Greg Wahl	NEPA – Writer / Editor
Kurt Aluzas	Wildlife Biologist
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Mark Senger	Silviculture
Stephanie Neil	Heritage
Tom Barton	Engineering
Molly Erickson	Recreation
Dean Millett	District Ranger (Responsible Official)

FEDERAL, STATE, AND LOCAL AGENCIES:

Olympic National Park

U.S. Fish and Wildlife Service

Washington Department of Fish and Wildlife

Washington State Department of Transportation

Washington State Department of Archaeology and Historic Preservation

TRIBES:

Quileute Nation

OTHERS:

Scoping letters were distributed to the general public and posted on the Olympic National Forest Schedule of Propsed Actions website at: http://www.fs.usda.gov/projects/olympic/landmanagement/projects.

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Appendix A: Roads Proposed for Treatment

Table A-1 displays the road segments proposed for treatment, some of the details of the proposed treatments, and the estimated cost of the treatments. Estimated costs are based on engineering input and on information in the 2011 Calawah River Watershed Restoration Plan (USDA 2011).

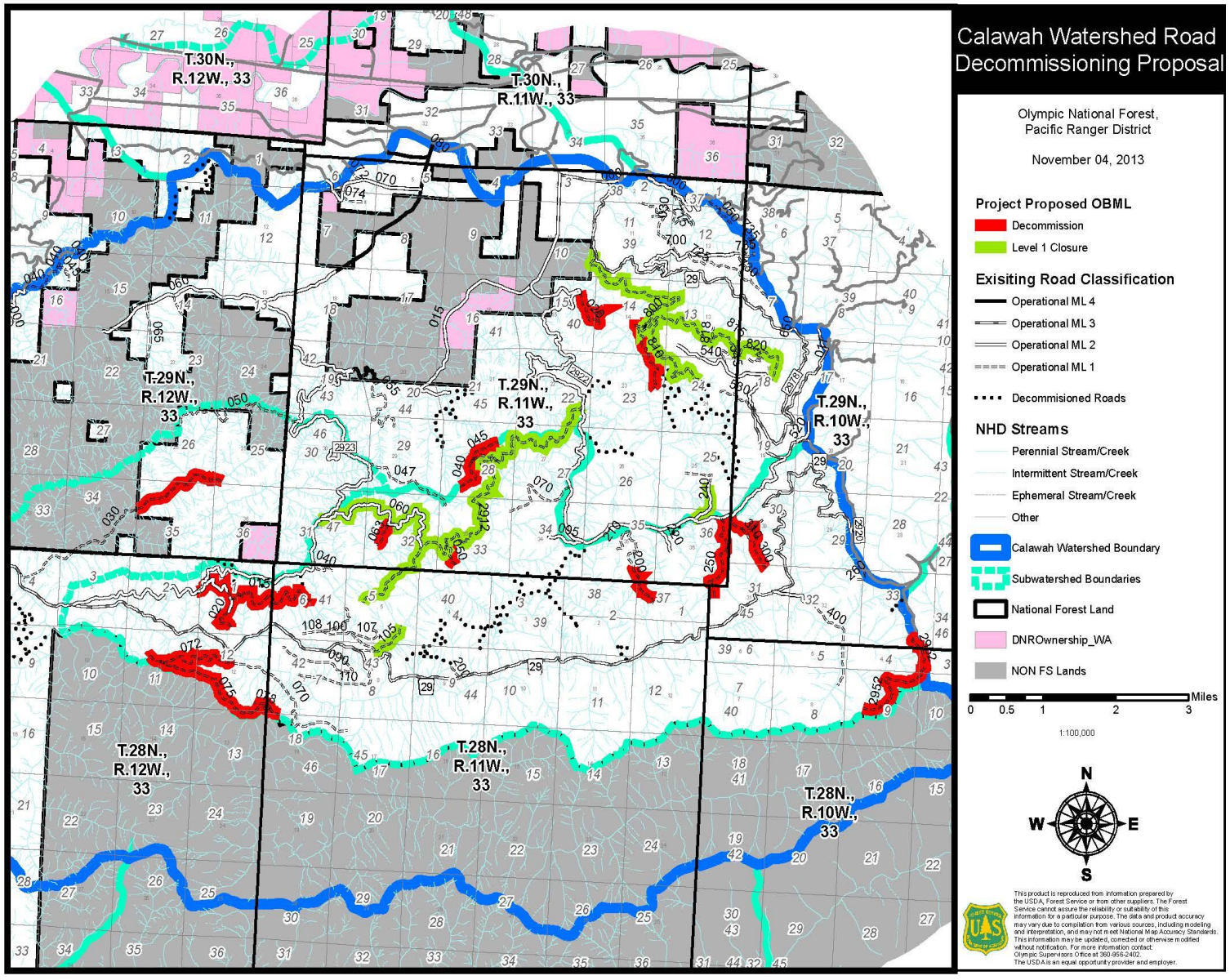
Table A-1. Roads proposed for treatment

FS Road number	BMP	EMP	Length (miles)	Current ML	ATM OBML	Project Proposed OBML	Stream Crossings	Stream crossing removal (cubic yards)	Pullback Volume (cubic yards)	Treatment Intensity	RMS Aquatic Risk Rating	Estimated cost of treatment
2900030	1.9	3.6	1.7	1	1	D	9	8500	2000	High	M	$131,600
2900072	0.0	1.5	1.5	1	D/C	D	10	8350	0	High	VH	$193,000
2900810	0.0	1.3	1.3	1	D	D	10	6525	4950	High	VH	$234,000
2912040	0.0	1.0	1.0	1	D/C	D	6	3350	400	High	H	$62,400
2912050	0.0	0.3	0.3	1	D	D	3	800	700	High	VH	$18,400
2922020	0	0.9	0.9	1	D	D	6	1425	775	High	H	$49,600
2922200	0.8	1.4	0.6	1	D	D	6	1650	2550	High	VH	$88,200
2922250	0.0	1.3	1.3	1	D	D	3	950	2950	High	H	$86,400
2923015	0.0	0.7	0.7	2	D	D	3	1680	1670	High	VH	$300,600
2923015	0.7	2.7	2.0	1	D	D	6	5720	2930	High	VH	
2952000	0.0	2.0	2.0	1	D	D	7	2790	7000	High	H	$145,000
2900800	0.0	4.4	4.4	1	1	1C	18	15,220	4650	High	VH	$664,200
2900815	0.0	2.7	2.7	1	1	1C	15	26,700	2500	High	VH	$534,600
2912000	0.0	5.1	5.1	2	D/ C	1C	28	28,700	11200	High	VH	$905,400
2912000	5.1	6.2	1.1	1	D/C	1C	0	0	3100	High	VH	
2912060	0.0	2.8	2.8	2	D/C	1C	16	12900	4500	High	VH	$354,600
2900105	0.0	0.6	0.6	1	D	1C	2	4160	0	High	M	$61,600
2900075	0.0	2.0	2.0	1	D/C	D	0	0	0	No	L	$30,000
2900078	0.0	0.3	0.3	1	D	D	0	0	0	No	VH	
2912045	0.0	0.5	0.5	1	D	D	0	0	0	No/low	H	
2912063	0.0	0.4	0.4	1	D	D	0	0	150	No/low	H	
2922240	0.0	0.6	0.6	1	D	1C	0	0	775	No/low	H	
2922300	0	1.1	1.1	1	D	D	0	0	0	No	L	
2923020	0.0	0.2	0.2	2	D	D	0	0	620	No/low	H	
2923020	0.2	0.6	0.4	1	D	D	0	0	870	No/low	M	
TOTAL			**35.5**				**148**	**129,420**	**54,290**			**$3,859,600**

Abbreviations used in Table 1:
BMP= Beginning Milepost, EMP= Ending Milepost, ML= Current Maintenance Level, OBML= Objective Maintenance Level (as recommended in the ATM), ATM= Olympic National Forest Access and Travel Management Plan, RMS = Olympic National Forest Road Management Strategy, D= Decommission, D/C= Decommission and/or Convert to Trail 1C= Level 1 Closure

Appendix B: Map

Map A-1. . Proposed road objective maintenance levels



Appendix C: Response to Comments

The 30-day Public Comment period for the East Fork Humptulips EA opened on December 16, 2013. Five comment letters were received. Table C-1 contains a summary of the comments received, accompanied by the Forest Service's response. The full texts of the comment letters are in the project record.

Table C-1. Comments received during the official comment period, and the Forest Service's responses

Commenter	Summarized Comment	Forest Service Response
Phil DeCillis	Supports project except FSR 2912 and -060 in ML1.	Convert 2912 and 2912060 to trail and not ML1 status as funding will be difficult to find. Proposed ML1 status retains that ability to convert to a trail in the future. ML1 storage would still address water quality concerns.
Chuck Burley	Reduce amount of roads being decommissioned, align key issues, and alternatives.	See Comisky (AFRC)
Glenn Glover	Convert roads to trails for public use and access.	Proposed ML1 status retains that ability to convert to a trail in the future.
Harold Brunstad	Keep timber access, keep public access, and maintain existing roads.	See Comisky (AFRC)
Matt Comisky	Greater analysis needed on road treatments, reduce amount of roads being decommissioned, and wildlife analysis.	Placing roads in ML1 status still requires that some level of maintenance is needed in the long term. Decom cost is high up front as opposed to maintenance, but cost effective long term. Proposal decreases available acres for treatment. Timing of thinning and decom can be coordinated. Although expensive utilizing ML1 roads after treatment is still an option to access stands.
John Woolley	Supports the project.	Thank you for your comment.