

# CHAPTER 1 – PURPOSE AND NEED

## Introduction

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The Forest Service has prepared this Environmental Assessment (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. The EA is a document that summarizes the: Purpose and Need for the project; Proposed Action; identification of issues or concerns; development of potential action alternatives; and the environmental analysis of anticipated resource impacts resulting from the potential activities including applicable direct, indirect, and cumulative effects. The Responsible Official will use this EA to make a reasoned and informed decision regarding implementation of activities on public lands administered by the Forest Service.

Throughout this EA there is reference to more detailed information that may be obtained in the project analysis file. The analysis file is considered an integral part of the environmental assessment and includes such information as:

- Public comment letters
- Cultural resources report
- Specialist Reports

The project analysis file and more detailed information are located at the Olympic National Forest Supervisor's Office in Olympia, Washington.

## Project Location

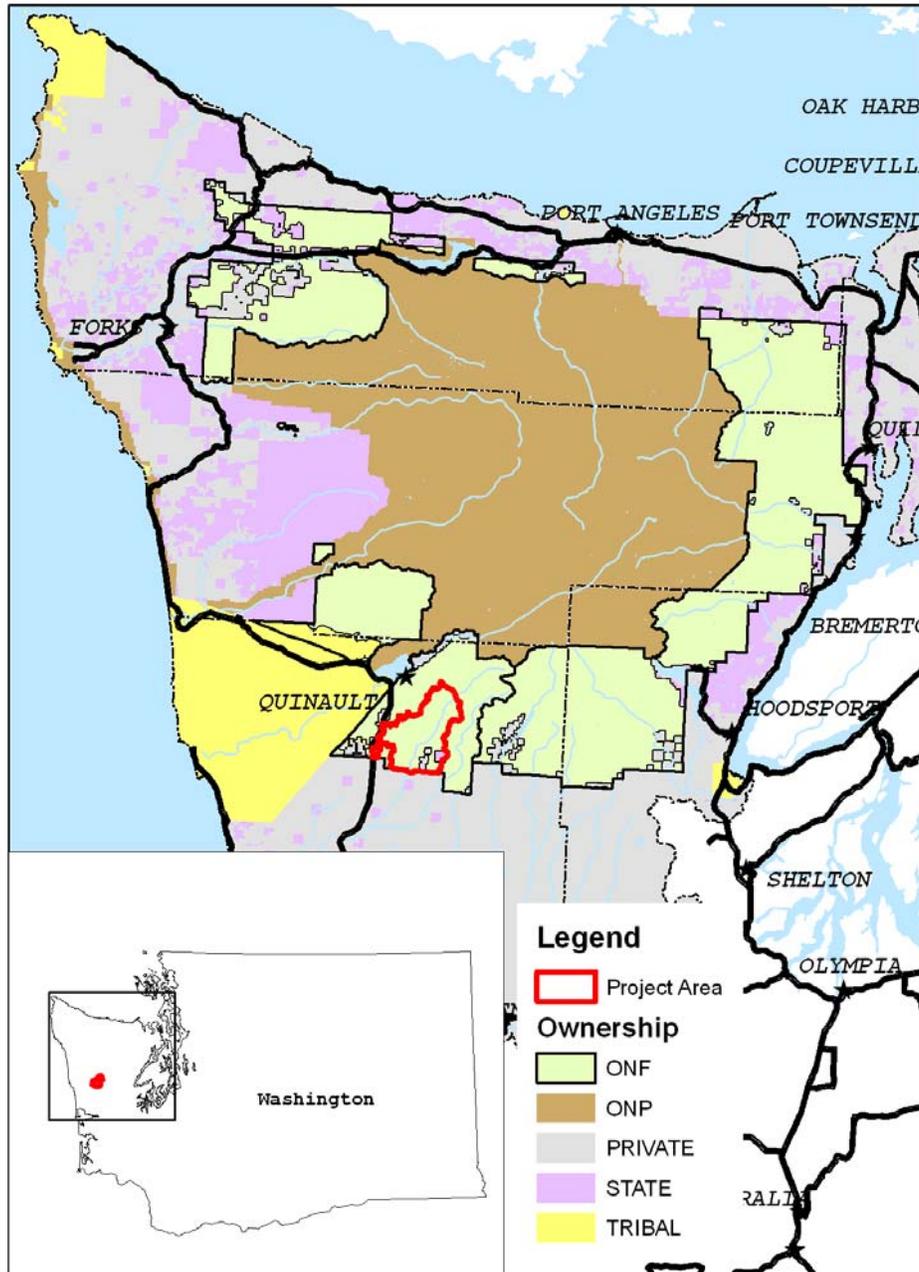
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This action would occur within the 26,716-acre West Fork Humptulips Planning Area which is located primarily in the West Fork Humptulips 6<sup>th</sup> field subwatershed with some additional land in the Cook Creek and Middle Quinault River subwatersheds in Grays Harbor County. The legal location of the project is: T21N, R9W, Sections 1-6; T22N, R9W, Sections 1-3, 8-35; T22N, R10W, Sections 35-36; T22N, R8W, Section 6; and T23N, R9W, Sections 35-36.

The Planning Area is located on public lands administered by the Olympic National Forest, Pacific Ranger District. (See Vicinity Map) The land management allocations within the Planning Area are designated in the *1990 Olympic National Forest Land and Resource Management Plan (LRMP)*(USDA 1990), 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* (Northwest Forest Plan, USDA and USDI 1994) (NWFP).

The Planning Area follows watershed and administrative boundaries and is bounded to the north by the Colonel Bob Wilderness Area and Moonlight Dome Inventoried Roadless Area; to the west by the South Quinault Ridge Inventoried Roadless Area, the town of Neilton Municipal Watershed and Highway 101; to the east by Humptulips Ridge; and to the south by the Forest boundary and Rayonier Timber Lands.

Figure 1-1. Vicinity Map



The Planning Area is accessed by Forest System Roads (FSR): 2200, 2203, 2204, 2205, 2207, 2208, 2220, and 2258

## Background

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Vegetation within the 26,716-acre Planning Area has been influenced by timber harvest activities beginning in the early 1900's and continuing up to the early 1990's. These activities converted approximately 50 percent of the Planning Area into even-aged forest stands across the watershed and fragmented the landscape with patches of 60-100 acre dense, homogeneous stands that exhibit little structural or species diversity (USDA 1999c and Total Resource Inventory [TRI] records). In conjunction with past timber harvesting, an extensive road system was developed in the area.

All of these dense, homogeneous stands (Refer to Figure 1-2) are between 36 and 72 years of age and range between 9 to 16 inches in diameter at breast height (dbh). A mix of western hemlock, Douglas-fir, and Pacific silver fir comprise the overstory of these stands, with variations in the relative abundance and dominance of these three species from stand to stand. Occasional western redcedar, red alder, and Sitka spruce are also present in the overstory. Scattered vine maple clumps are present in some stands; in addition to sapling or pole-sized red alder, bigleaf maple, Douglas-fir, and black cottonwood associated with small canopy gaps. These stands tend to be single-storied and in the competitive exclusion stage where dense populations of trees fight for available sunlight and nutrients. Tree canopies are overlapping, resulting in few understory trees, shrubs, and herbaceous plants that reflect a lack of diverse plant communities. All stands appear to be experiencing a slowing of growth due to overcrowding.

Most of the stands contain numerous small snags 6-12 inch diameter at breast height (dbh), but there are few larger snags and/or legacy snags. These larger legacy snags tend to be older snags (typically 30+ inches in dbh and 200+ years of age) that survived historic management activities. They tend to be scattered across the landscape either as individuals or small groups. Usually they are found in riparian areas or close to previous harvest unit boundaries. Coarse woody debris (CWD) levels are generally measured in the range of 3%-20% cover (the average may be around 10% cover). As noted for legacy snags, there is a minor legacy live tree component of the stands that is scattered across the landscape as well.

Figure 1-2. Existing stand conditions



Early logging was concentrated in the lowlands and valley bottoms. Splash damming in the mainstem of the West Fork Humptulips River as a means of moving logs downstream had a strong effect on riparian vegetation and fish habitat. Starting in the 1960's, roads were constructed on the steeper hillslopes to access timber. Riparian areas adjacent to the larger fish bearing streams started to receive minimal protection in the following decades, while along many smaller streams clearcut logging continued to occur right to the stream edge. As a result Riparian Reserve areas, as defined in the NWFP amendment, tend to be similar to adjacent managed forest conditions in structure and composition.

Given the importance of this area for old-growth dependent and aquatic species, and the objective of protecting and accelerating the development of late-successional characteristics in Late Successional Reserves, Adaptive Management Areas, and Riparian Reserves there is a need for improving conditions in the West Fork Humptulips 6<sup>th</sup> field watershed and adjacent areas. Thus, silvicultural treatment using commercial timber harvest is needed in the Planning Area to accelerate the development of late successional forest conditions in 35 to 80 year-old second-growth stands to meet the following objectives for accelerating late-successional habitat features as identified in the LSR (RW102 and RW103) Assessment:

- Enhance the spatial diversity with a variable density thinning;
- Retain minor species and enhance their development;

- Retain larger diameter trees and those trees with large limbs, forked tops, and other deformities;
- Thin around patches of understory to maintain or stimulate growth;
- Maintain or increase tree growth rates to accelerate eventual attainment of large trees, snags, and coarse woody debris;
- Contribute to the coarse woody debris component; and
- Maintain forty percent canopy cover at a stand level.

Variable density thinning can enhance spatial diversity by leaving some areas unthinned while creating gaps in the canopy in others. Such thinning can also produce large diameter trees more quickly, and can encourage understory re-initiation of shade tolerant species such as western hemlock, western redcedar, and various hardwoods, shrubs, and herbaceous plants.

The watersheds within the Planning Area currently have existing road densities ranging from approximately 2.0 miles/square mile to 3.0 miles/square mile. Roads within the Planning Area consist primarily of gravel surfaces with minor mileage in native surfaces, including existing unclassified roads. Unclassified roads are older logging roads that were abandoned. In many cases, these roads remain fully intact with drainage structures still in place. The Planning Area has a minor component of Forest System Roads (FSR) that is paved (FSR 2204). Road maintenance continues in the Planning Area, but at a reduced level. In the past decade, focus of maintenance has been on primary roads to maintain access for passenger cars to destination recreation areas and major “through” roads.

## Purpose and Need for Action

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The overall purpose of this action is to *restore* and *improve* watershed conditions using management actions that are consistent with direction in the Land and Resource Management Plan for the Olympic National Forest. (Refer to the Management Section for more detail). This purpose would be achieved by taking the following management actions:

1. Accelerating the development of previously managed stands in Late Successional Reserves (LSR), Riparian Reserves (RR), and Adaptive Management Area (AMA) from an existing condition of relatively young, simple vegetative structure and composition that has little diversity; to a desired condition that contains more diverse forest stands that would have elements characteristic of late-successional and old-growth habitats.

To add elements of characteristic late-successional and old-growth habitat within the previously managed stands, this action would *Need* to treat vegetation to enhance and promote the development of:

- Tree structural diversity with horizontal and vertical variation,
- Spatial arrangement of live trees and dead standing or down material,
- A range of tree sizes, including large trees with large and complex crowns,
- A diverse understory with an environment that promotes growth and coverage of herbaceous plants including lichens, mosses, and fungi; and

- A component of large diameter conifer trees adjacent to streams that will serve as future recruitment for large woody debris for in-stream habitat, shading, and wildlife habitat.
2. Moving current roaded conditions within watersheds to conditions where long-term sediment effects are reduced and natural hydrologic and biologic processes are restored.

To improve roaded conditions within watersheds, this action would *Need* to promote activities that would:

- Use certain existing unclassified roads in treatment unit design so that they may be appropriately decommissioned.
3. Using funds generated from the project to support additional watershed improvement activities. Because the only certain funding source to accomplish the implementation of this project is through the sale of wood products that would be removed as part of the treatment, the project should consist of economically viable commercial timber sales. Additional restoration work could be implemented with any excess revenue generated from these sales.

To enable implementation of project activities and allow for an opportunity to provide additional watershed restoration activities, this action would *Need* to be economically viable and produce a level of excess timber receipts that would support some measure of additional improvements such as:

- Allow decommissioning of certain existing unclassified roads that were not used in the Proposed Action.
- Allow for certain existing Maintenance Level 1 roads (currently a Forest System road that is closed to motorized traffic) to be decommissioned and/or appropriately closed to vehicle traffic,
- Allow for certain existing Maintenance Level 2 roads (currently a Forest System Road that is open to high clearance motorized traffic) to be decommissioned and/or closed to vehicle traffic,
- Allow for replacing culverts where existing road crossings are considered barriers to fish passage.
- Allow for preventing the spread of invasive plant species.

## Proposed Action

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The Proposed Action for the West Fork Humptulips Thinning Project would apply a variable density thinning silvicultural treatment on 63 units totaling approximately 5,211 acres over the next 1-6 years. The variable density thinning treatment would include “skips” (unthinned areas), “gaps” (small openings), and areas of heavy thinning (areas thinned to 20 to 50 trees per acre), in addition to a “thinning from below” across the majority of the acreage. Skip areas currently identified total approximately 1,110 acres and include no-cut riparian buffers, unstable areas, and buffers for protected trees, snags, and plants. On the approximately 4,101 remaining acres where a commercial thinning treatment would be applied, gaps 0.1 to 0.25 acre in size would total about 261 acres, and heavy thinning areas would total about 261 acres.

Within the remaining area, thinning from below would be accomplished by removing the suppressed, intermediate, and some co-dominant trees (i.e. the smaller trees), while favoring the retention of less common species in order to increase diversity. To implement commercial thinning, a full range of logging systems would be used including ground-based, skyline, and helicopter; appropriate to site and ground conditions. An additional 82 acres would be included in the Project Area for reopening of existing unclassified roads, constructing new temporary roads and constructing helicopter landings, and potential quarry pit development that occur outside treatment units.

To facilitate product removal, access for this project would use approximately 60.8 miles of Forest System roads currently open; use approximately 7.4 miles of Forest System roads currently open and close them<sup>1</sup> with traffic control barriers for resource protection and perform other work as needed for long term resource protection (other resource protection work is dependent on project funding and could include side cast pull back, culvert removal, and subsoiling compacted soil); reopen and close after use approximately 4.3 miles of Forest System roads currently closed; reopen and close with traffic control barriers for resource protection and perform other work as needed for long term resource protection (other resource protection work is dependent on project funding and could include side cast pull back, culvert removal, and subsoiling compacted soil) about 12.1 miles of Forest System roads currently closed; open approximately 19.0 miles of unclassified roads; and construct approximately 4.4 miles of new temporary roads. Unclassified roads and new temporary roads would be decommissioned after project use.

This project would conduct normal road maintenance activities on all roads to be used by this action. Site-specific reconstruction would be required to replace culverts that have reached the end of their lifespan on existing open roads and to open existing classified roads currently closed to vehicular traffic.

To facilitate haul on temporary roads and open existing unclassified roads, some road surface rock would be required. Rock would be supplied from four existing quarry sites located on the Forest. These quarry sites would require further pit development to meet project demands.

Treatment of activity-generated fuels within the harvest units would be a combination of: no treatment, lopping and scattering, hand piling and burning, machine piling and burning, and/or piling without burning.

## Decision Framework

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Given the scope of the Proposed Action and level of environmental analysis, the Responsible Official is the Forest Supervisor of the Olympic National Forest. The Forest Supervisor will review the Proposed Action, other action alternatives, and comments received during the public involvement process. The Responsible Official will decide how much commercial thinning will be accomplished, what logging systems and associated road access are appropriate in the project area, and what management requirements and project design criteria to include in the project.

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<sup>1</sup> The goal for these open and closed system roads which are proposed for closure and long term resource protection work is decommissioning, as funding becomes available. Due to Forest Service regulation and policy, project funding (such as tied to a timber sale contract or KV) is not available and decommissioning would require a separate funding source.

Selection of an alternative and project design criteria will be based, in part, on environmental effects, the ability to meet the project's Purpose and Need, and economic feasibility.

The decision will include a determination of the significance of the effects and a statement regarding consistency with the standards, guidelines, goals and objectives of the Forest Plan, and other laws and regulations.

## Management Direction

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This EA is tiered to the Olympic National Forest Land and Resource Management Plan Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) approved July 17, 1990, (USDA 1990a and 1990b) as amended. A major amendment includes the FSEIS on Management of Habitat of Late-Successional and Old-Growth Related Species Within the Range of the Northern Spotted Owl, as adopted and modified by the April 1994 Record of Decision (1994 NWFP ROD) (USDA/USDI 1994), which provides additional standards and guidelines (commonly known as the Northwest Forest Plan). Northwest Forest Plan documents, including the Record of Decision and Standards and Guidelines, are available on the internet at <http://www.reo.gov>.

This EA incorporates by reference the following documents:

- Olympic National Forest Land and Resource Management Plan (Forest Plan) (USDA 1990). The Forest Plan guides all natural resource management activities and establishes management standards and guidelines.
- Olympic National Forest Final Environmental Impact Statement and Record of Decision. Beyond Prevention: Site-Specific Invasive Plant Treatment Project. (USDA 2008b). This decision approves integrated manual, mechanical, herbicide, and restoration treatments on known infestations, as well as on future detections.
- East/West Fork Humptulips Watershed Analysis (USDA 1999c), Boulder and Cook Watershed Analysis (USDA 1999a and 1999b), and Quinault Watershed Analysis (USDA 1999). The purpose of these analyses is to develop and document a scientifically based understanding of the ecological structures, functions, processes, and interactions occurring within the watershed.
- Quinault South Late Successional Reserve Assessment (USDA 1996). This assessment examines the historic and current uses, vegetative conditions, and late-successional forest associated species within the late successional reserve (LSR), as well as identifying appropriate treatments to achieve desired conditions.
- Olympic National Forest Access and Travel Management Plan (ATM) (USDA 2003). The objective of this planning process was to develop a framework for managing the Forest's present road system in a safe and environmentally sound manner in the context of substantially reduced road maintenance funding. This plan provides the starting point for moving toward a smaller, more affordable road network, and informs future analyses and decisions regarding management of the Forest's road system.
- Council on Environmental Quality (CEQ) Memo – Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (CEQ 2005).
- West Fork Humptulips Project analysis file – Contains specialist reports and other technical documentation used to support the analysis and conclusions in this EA.

The Forest Service lands within the analysis area are allocated to a number of management areas identified in the Forest Plan, as amended. These allocations are briefly described below

and shown in maps in Appendix A. For a more detailed description of each allocation refer to the Forest Plan.

The 1994 NWFP ROD (USDA/USDI 1994) incorporates seven land allocations (three of which are found in the project area: Late-Successional Reserve, Adaptive Management Area, and Riparian Reserve) which amend the allocations described in the 1990 Forest Plan. There is considerable overlap among some allocations, and more than one set of standards and guidelines apply (such as Riparian Reserve requirements within a Late Successional Reserve). In addition, standards and guidelines and land allocations in the 1990 Forest Plan not directly superseded remain in effect, and where these standards and guidelines are more restrictive or provide greater benefits to late-successional forest related species than do those of the 1994 ROD, the 1990 standards and guidelines apply.

## LAND MANAGEMENT ALLOCATIONS

The Proposed Action would occur within Olympic LRMP Management Allocations with specific goals, standards and objectives. A description of applicable Management Strategies is shown below. A detailed description of these Management Strategies can be found in the Olympic National Forest LRMP. See Northwest Forest Plan Land Allocations and 1990 LRMP maps in Appendix A.

***Late Successional Reserve:*** The purpose of Late Successional Reserves is to maintain and enhance late-successional forest as a network of existing old-growth forest ecosystems, which serve as habitat for late-successional and old-growth related species including the northern spotted owl. Stand management should focus on stands that have been regenerated following timber harvest or stands that have been thinned. These include stands that will acquire late-successional characteristics more rapidly with treatment. There is no harvest allowed in stands over 80 years old. Thinning prescriptions should encourage development of diverse stands with large trees and a variety of species in the overstory and understory. (NWFP, pages B 4-9 and C 9-21)

A LSR Assessment was to be completed prior to implementation of most management activities within a LSR. The Quinault North (RW102) and Quinault South (RW103) Late-Successional Reserve Assessment was completed in July 1996 (USDA 1996) and addresses past and current conditions, current function of late-successional ecosystems, fire management concerns and strategies, and criteria for developing treatments designed to foster or maintain desired LSR conditions.

***Adaptive Management Area:*** The purpose of the Olympic Adaptive Management Area (AMA) is to develop and test innovative approaches at the stand and landscape level for integration of ecological and economic objectives, including restoration of structural complexity to simplified forests and streams, and develop more diverse managed forests. (NWFP; pages B 9-17, C 31-38, and D1-17)

A management plan is required prior to implementation of most management activities within an AMA. The Olympic Adaptive Management Area Guide was completed in 1998 (USDA 1998b). The goal of the AMA is to learn better ways to achieve desired results within other land allocations or land ownerships, more than it is to establish a given set of conditions within the AMA itself. The Northwest Forest Plan contains specific goals for the Olympic AMA, the most important with respect to future conditions being the restoration of structural complexity to simplified forests and streams.

**Riparian Reserves:** Riparian Reserves, a component of the Aquatic Conservation Strategy, are used to maintain and restore the ecological health of watersheds and aquatic ecosystems. Riparian Reserves cross all land management area allocations. Refer to Northwest Forest Plan Land Allocations map in Appendix A. The process used to determine Riparian Reserves boundaries is a part of watershed analysis and is discussed below in the Watershed Analysis subsection. The distribution of land use activities, such as timber harvest or roads, must minimize increases in peak streamflows. Headwater riparian areas need to be protected, so that when debris slides and flows occur, they contain coarse woody debris and boulders necessary for creating habitat farther downstream. Riparian areas along larger channels need protection to limit bank erosion, ensure an adequate and continuous supply of coarse woody debris to channels, and provide shade and microclimate protection. (NWFP, pages B 9-17 and C 31-38)

**A-2: Scenic:** The Forest would continue to implement the USDA Forest Service Visual Management System, with emphasis on maintaining the natural or near natural character of the landscape within specific viewsheds. Landscapes visible from key recreation travel routes and use areas will involve management practices and techniques that will meet the Visual Quality Objectives (VQO) of Retention and Partial Retention. The Planning Area falls within the Quinault Highway 101 viewshed with VQO of both retention and partial retention. The desired future condition for the area is to display a slightly altered condition while traveling along Highway 101. (LRMP, pages IV 24-25 and 68-69)

**A4BG/N: River Corridor, General and Natural:** Under the LRMP, the Forest would continue to prescribe management of the West Fork Humptulips River Corridor to meet a variety of objectives, and will be managed with a range of intensities. Within the allocations of Natural and General intensities, the following Standards and Guidelines shall be met: VQO of retention and partial retention as seen from the river and riverbank; provide semi-primitive and roaded natural opportunities; habitat should be managed to maintain 70 percent or more of the area in thermal/hiding cover; project should be coordinated with the Washington Department of Fish and Wildlife, and with applicable Treaty tribes; and timber harvest shall be programmed, but must be designed to meet the desired future condition and goals of these two intensity levels. (LRMP; pages IV 26-27, and 78-81; FEIS Appendix F)

**F-1: Municipal Watershed:** Under the LRMP, the Forest would continue to provide high quality water for domestic use over the long-term. A secondary goal is to minimize soil erosion associated with management activities. Timber harvest should be programmed so that the acreage harvested per decade does not exceed a level which will generate sediment in excess of a specified threshold of concern. (LRMP, pages IV 12-13 and 98-100) Domestic use in context to this area is for the town of Neilton and includes the Neilton Water Cooperative and Meadowlands Water Service. (LRMP FEIS, page III-25)

## **OTHER GUIDANCE**

Development of the Proposed Action and subsequent environmental analysis also utilizes information and recommendations from the East/West Fork Humptulips Watershed Analysis (USDA 1999c), Boulder Watershed Analysis (USDA 1999a), Cook Watershed Analysis (USDA 1999b), Quinault Watershed Analysis (USDA 1999), 2003 Olympic National Forest Access and Travel Management (ATM) Plan, and Olympic National Forest Strategic Plan (USDA 2003). A description of applicable recommendations is shown below. These documents are incorporated by reference. For more detail, they may be found in the project files.

**Watershed Analysis;** Watershed Analysis (WA) has been completed for the following

watersheds: East/West Fork Humptulips (USDA 1999c), Boulder (USDA 1999a), Cook (USDA 1999b), and Quinault (USDA 1999). The entire watersheds, including all land ownerships were analyzed. Watershed Analyses contain a synthesis of scientific knowledge about watershed trends and conditions at watershed scales as well as by smaller sub-watersheds. For more detailed information refer to the Watershed Analyses located in the Project Files.

As noted above under the Riparian Reserves discussion, Riparian Reserve areas cross all other land allocations. The East/West Fork Humptulips watershed analysis (Module D - Riparian Function Assessment) describes the determination of Riparian Reserve boundaries. Site Potential Tree heights were used to determine appropriate reserve distances and vary depending on Plant Association Groups (PAGs). Reference to these PAGs may be found in Module B of the watershed analysis – Vegetation Assessment.

The Planning Area is located within the 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> -field watersheds listed in Table 1-1.

Table 1-1: West Fork Humptulips Thinning Project 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> Field Watersheds

Affected 5th Field Name	Affected 6th Field Name	Affected 7th Field Name	Acres of Planning Area within 7 <sup>th</sup> field watersheds	Acres and percent of Project Area <sup>(1)</sup> within watersheds
Lower Quinault River 110,856 ac	Middle Quinault River 48,939 ac	South Boulder Creek 5,103 ac	269 ac	162 ac / 3% (7 <sup>th</sup> ) 0.3% (6 <sup>th</sup> )
	Cook Creek 29,596 ac	Upper Cook Creek 13,799 ac	2,568 ac	668 ac / 5% (7 <sup>th</sup> ) 2% (6 <sup>th</sup> )
Subtotal (5 <sup>th</sup> field)			2,837 (5 <sup>th</sup> field)	830 ac / 0.8% (5 <sup>th</sup> field)
Humptulips River 177,024 ac	West Fork Humptulips River 47,028 ac	Headwaters West Fork Humptulips River 11,730 ac	664 ac	13 ac / 0.1% (7 <sup>th</sup> )
		Upper West Fork Humptulips River 5,319 ac	5,317 ac	696 ac / 13% (7 <sup>th</sup> )
		Chester Creek 6,754 ac	6,516 ac	980 ac / 15% (7 <sup>th</sup> )
		Middle West Fork Humptulips River 9,265 ac	8,799 ac	1,422 ac / 15% (7 <sup>th</sup> )
		Donkey Creek 4,798 ac	2,480 ac	230 ac / 5% (7 <sup>th</sup> )
	Subtotal (6 <sup>th</sup> field)		23,776 ac (6 <sup>th</sup> )	3,341 ac / 7% (6 <sup>th</sup> )
	Stevens Creek 27,003 ac	Upper Stevens Creek 9,604 ac	101 ac	10 ac / 0.1% (7 <sup>th</sup> ) 0.04% (6 <sup>th</sup> )
East Fork Humptulips River 29,405 ac	Middle East Fork Humptulips River 10,188 ac	2 ac	2 ac / <0.02% (7 <sup>th</sup> ) too small to measure (6 <sup>th</sup> )	
Subtotal (5 <sup>th</sup> field)			23,879 ac (5 <sup>th</sup> field)	3,353 ac / 2% (5 <sup>th</sup> field)
TOTAL			26,716 ac	4,183 ac

(1) – For the analysis process, the total Project Area with management activity is estimated to be 4,183 acres. This includes 4,101 acres of commercial thinning treatment *plus* an additional estimated 82 acres of activities outside of those treatment units that include: pit development, helicopter landing construction, unclassified road activities, temporary road construction and Other Project activities.

The 7<sup>th</sup> field watersheds and Riparian Reserves are shown in maps found in Appendix A. For the purpose of interpreting the table, the acres within the Project Area are comprised of: all treatment units (including riparian areas), unclassified road activities, temporary road activities,

pit development, and helicopter landing construction.

Middle Quinault River and Cook Creek watersheds are designated as a “Key Watersheds”. Treatment activities would be allowed to occur within these watersheds subject to their respective watershed analyses (NWFP, pages B18-20).

A watershed analysis for the Stevens Creek Watershed has not been completed to date. Any activities within this watershed would be required to stay out of Riparian Reserves until watershed analysis has been completed (NWFP, page B20). Ten acres of the Project Area are located within the Stevens Creek watershed. These acres represent approximately 0.34 mile of unclassified road to access two potential helicopter landings as well as approximately 7 acres of stand treatment outside of Riparian Reserves.

Two acres of project area are within the East Fork Humptulips River watershed and consists of one existing closed road (about 0.53 mile) that would be reopened to access a potential helicopter landing.

Approximately 80% of the Project Area is located within the 6<sup>th</sup> Field West Fork Humptulips watershed. As described in the Forest Plan and the East/West Fork Humptulips Watershed Analysis there is a need for forest stands that have elements characteristic of late-successional and old-growth habitats, such as structural diversity with horizontal and vertical variation in forms and spatial arrangement of live and dead plant material; a range of tree sizes, including large trees with large and complex crowns; and a diverse understory light environment that promotes growth and coverage of herbaceous plants on the forest floor.

**Access and Travel Management:** The Olympic National Forest developed an Access and Travel Management (ATM) Plan in 2003. The objective of the planning process was to involve the public and develop a framework for managing the Forest’s present road system in a safe and environmentally sound manner. The ATM Plan provides a starting point for managing the Forest’s road system and guides future analyses and decisions for the Olympic National Forest roads. The ATM Plan will be used to inform road management decisions as projects are developed across the forest. A review of the ATM Plan and additional field inspection by road engineers has been conducted to determine appropriate road management activities within the Planning Area.

**Olympic National Forest Strategic Plan:** The Olympic National Forest Strategic Plan (USDA 2004b) is a tool to help prioritize limited resources to accomplish work in the areas with the greatest resource need and where possible, satisfy multiple resource management objectives, based on aquatic, wildlife, and vegetation considerations. Fire prevention needs were also to be considered as opportunities allowed. The Strategic Plan provides priority ratings by resource area and 6<sup>th</sup> field watershed as shown in Table 1-2.

Table 1-2: Forest Strategic Plan ratings for Planning Area 6<sup>th</sup> field watersheds

	West Fork Humptulips River	Middle Quinault River	Cook Creek
Overall Priority	High	Moderate	Moderate
Aquatic Restoration	High	Moderate	Moderate
Wildlife Restoration	High	Moderate	High
Vegetation Priority Ranking			
LSR, 0-80 yrs (acres)	10,151	656	2,601
AMA, 1-120 yrs (acres)	384	1,157	2,537
Pre-Commercial Thin (acres)	4,184	875	1,301
Economic Rating	High	Moderate	Moderate

These priority ratings for each resource area were developed based on the following criteria:

**Aquatic** – The priority for the aquatics resource area was based on three primary issues: maintaining or improving fish habitat, assisting in the recovery of listed threatened and endangered fish species, and maintaining water quality for municipal water supplies.

**Wildlife** – The priority for the wildlife ranking was based on the primary issues of improving late-successional terrestrial wildlife species habitat and improving elk forage. Watersheds where the Olympic National Forest could have the greatest positive impact on listed threatened and endangered wildlife species, most notably the northern spotted owl and marbled murrelet, and forage availability were identified.

**Vegetation Management** – Commercial thinning opportunities were evaluated by identifying all managed forest stands currently between the age of 41 to 60 and 61 to 80 years of age in designated Late-Successional Reserves (LSR) or within Adaptive Management Areas (AMA). The potential for economically viable commercial thinning sales was also evaluated.

## Scoping

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“Scoping” (40 CFR 1501.7) is a process designed to determine the potential issues associated with a Proposed Action and to identify those issues and concerns that may be significant to the decision. Issues identified through the scoping process are used to develop and refine alternative management actions. This section of the assessment discusses Public Involvement - the review process by interested parties from the general public, recognized Tribes, other Federal and State agencies, and further analysis by the Interdisciplinary Team.

The West Fork Humptulips Thinning Project Proposal was listed in the Schedule of Proposed Actions (SOPA) on January 2007 and all subsequent SOPAs. Formal scoping was initiated with a letter sent to recognized tribes on January 12, 2007 and *The Daily World* published an article about the West Fork Humptulips Project Proposal on February 5, 2007. On February 12, 2007, formal scoping was initiated with the general public as the agency sent letters to all the individuals on the district’s NEPA mailing list (approximately 85 individuals) announcing the availability of the Proposed Action and the opportunity to respond on the proposal.

Eight responses to scoping efforts were received and have been incorporated and considered as part of this West Fork Humptulips Project EA.

## Issues

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All relevant issues were reviewed and categorized by the interdisciplinary team and Responsible Official. The Forest Service separated potential issues into three groups: Key Issues; Other Issues; and Issues Raised, But Dropped From Further Analysis. Further explanation of these issues and consequences is included in Chapter 3 of this document.

### KEY ISSUES

Key Issues are used to formulate alternatives or drive alternatives themes, affect the design of the alternatives, prescribe mitigation measures, or describe important and variable Environmental Consequences. The following issue was identified as being “Key” to the analysis of this project:

**1. Effects to aquatic conditions from road construction activities:** Opening (reconstruction) unclassified roads and construction of temporary roads may negatively impact aquatic conditions by increasing sedimentation. Soils on the Olympic National Forest tend to be porous in nature and have relatively high infiltration rates. Important factors found to directly contribute sediment into stream waters are stream crossings by roads and road construction activities in proximity to streams. Key effects from implementing the Proposed Action to the environment may be evaluated by the following criteria:

- Miles and acres of new temporary road construction and reconstruction of unclassified abandoned roads.
- Miles and acres of new temporary road construction and reconstruction of unclassified abandoned roads in Riparian Reserves.
- Number of stream crossings directly affected by road construction/reconstruction activities associated with unclassified and temporary roads.

## **OTHER ISSUES**

Other Issues as used in this environmental analysis are those that have been determined to be relevant, are used to disclose consequences, may affect design or prescribe mitigation measures, or whose disclosure of environmental effects are required by law or policy. Further explanation of these issues and consequences is included in Chapter 3 – Environmental Consequences, of this document. The following “*Other*” issues were identified as being relevant to the analysis of this project:

### **2. Physical Resources:**

Soils and Site Productivity. Density management (thinning) treatments and other connected actions may affect soils and site productivity through detrimental soil disturbance and effects on coarse woody material.

Hydrology. Density management (thinning) treatments and other connected actions may affect hydrologic conditions, including channel morphology, large woody material, sediment delivery, water yield (flow), and stream temperature.

Water Quality. Density management (thinning) treatments and other connected actions may affect hydrologic conditions, and water quality regarding 303(d) listed waterbodies.

Northwest Forest Plan Aquatic Conservation Strategy. Density management (thinning) treatments and other connected actions may affect attainment of Northwest Forest Plan (NWFP) Aquatic Conservation Strategies and Objectives.

Fire/Fuels. Density management (thinning) treatments and other connected actions may affect fuel loading and fire hazard conditions.

Air Quality. Density management (thinning) treatments and activity fuels treatments may affect air quality.

### 3. Biological Resources

Botanical species and/or habitat. Density management (thinning) treatments and other connected actions may affect botanical species and habitat, including Proposed, Threatened, Endangered, or Sensitive species.

Invasive non-native plants. Density management (thinning) treatments and other connected actions may affect spread of non-native (invasive) plant species.

Wildlife Proposed, Threatened, Endangered, or Sensitive species, and/or Critical Habitat. Density management (thinning) treatments and other connected actions may affect terrestrial wildlife species of concern, including Proposed, Threatened, Endangered, or Sensitive species and/or Critical Habitat.

Wildlife Other Rare, or Uncommon species and/or Habitat; management indicator species, and neo-tropical birds. Density management (thinning) treatments and other connected actions may affect terrestrial wildlife species of concern, including other rare or uncommon species and/or habitat; management indicator species, and neotropical birds.

Snags and Coarse Woody Material. Density management (thinning) treatments and other connected actions may affect existing and future levels of snags and coarse woody material within watersheds.

Aquatic Species and Habitats. Density management (thinning) treatments and other connected actions may affect aquatic species and habitats, including Threatened, Endangered, or Sensitive species and/or Essential Fish Habitat.

### 4. Human/Social Resources

South Quinault Ridge and Moonlight Dome Inventoried Roadless Areas. Density management (thinning) treatments and other connected actions may affect the character and experience within the Inventoried Roadless Areas.

Colonel Bob Wilderness Area. Density management (thinning) treatments and other connected actions may affect the character and experience within the Wilderness area.

Neilton Municipal Watershed. Density management (thinning) treatments and other connected actions may affect water quality and availability to the residents of Neilton.

West Fork Humptulips River potential for inclusion in the Wild and Scenic Rivers System. Density management (thinning) treatments and other connected actions may affect the future possibility for inclusion into the Wild and Scenic Rivers System.

Lower Pete's Trail #858.1. Density management (thinning) treatments and other connected actions may affect the recreational experience for users of the Lower Pete's Trail.

Visuals. Density management (thinning) treatments and other connected actions may affect the viewing character of the landscape as seen from the Quinault Highway (HWY 101).

Recreation/Human Safety. Density management (thinning) treatments and other connected actions may affect safety to the public along well-used travelways.

Neilton Electronics Site. Density management (thinning) treatments and other connected actions may affect the electronic site and its operations.

Economics. Density management (thinning) treatments and other connected actions may affect the economic feasibility of implementing such treatment activities.

## **ISSUES RAISED BUT DROPPED FROM FURTHER ANALYSIS**

The interdisciplinary team (IDT), with Responsible Official involvement and approval, has identified the following issues as raised but dropped from further analysis associated with the Proposed Action. Issues raised but dropped from further analysis 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 size and controversy of this project may require documentation under an Environmental Impact Statement (EIS).** The Responsible Official determined that the activities proposed in this project did not warrant a need to compile an EIS. The Forest has considerable experience with the types of activities included in the Proposed Action and project effects were expected to be low in intensity. The proposed activity acres total only about 3% of the affected 6<sup>th</sup> field watersheds. Additionally an informal survey of other completed Environmental Assessments in the region showed that the size and scale of this project are consistent with other EAs.

**Quantitative and landscape level analyses should be conducted.** The appropriate level of analysis is determined by the Responsible Official such that a reasoned and informed decision may be made. Where quantitative estimates are not practical, have high degree of error, or do not provide useful points of reference, qualitative analyses may be more practical. The scale and level of analysis is appropriate and relative to each resource studied and its respective area of influence.

**Concern for efficacy of thinning stands greater than 50 years of age.** Extensive research has been conducted to quantify the increases in tree growth resulting from thinning, generally in stands younger than 50 years of age, with fewer studies done in older stands. This has led to some concern about whether stands over 50 years of age can be expected to respond similarly to thinning treatments. Studies of the potential growth response to thinning in 110-year-old Douglas-fir stands found no short-term increase in diameter growth of residual trees 6 years following treatment (Yerkes, 1960), however increased diameter growth was observed with longer observation periods of 11 years (Williamson, 1966) and 19 years (Williamson, 1982), and positive growth response was reported by Worthington (1966) 30 years after thinning in a 60-year-old Douglas-fir stand. Even in much older trees (158 to 650 years old) diameter growth responses were observed after a lag of 5 to 25 years following density reduction (Latham and Tappeiner, 2002).

These results suggest that while older trees may not respond as rapidly as younger trees or stands they do exhibit a growth response to reductions in stand density. In stands on the Olympic Peninsula, similar in age to those included in this project, one recent study

found significant increases in the diameter growth of individual trees within 5 years of a variable density thinning treatment (Roberts and Harrington, 2008).

Thinning these 36-72 year-old stands addresses the stated purpose and need and stand management objectives for LSR, AMA, and RR lands. There is no requirement to optimize tree growth at the stand scale within these lands. A commercial thinning treatment is a silvicultural opportunity in these candidate stands.