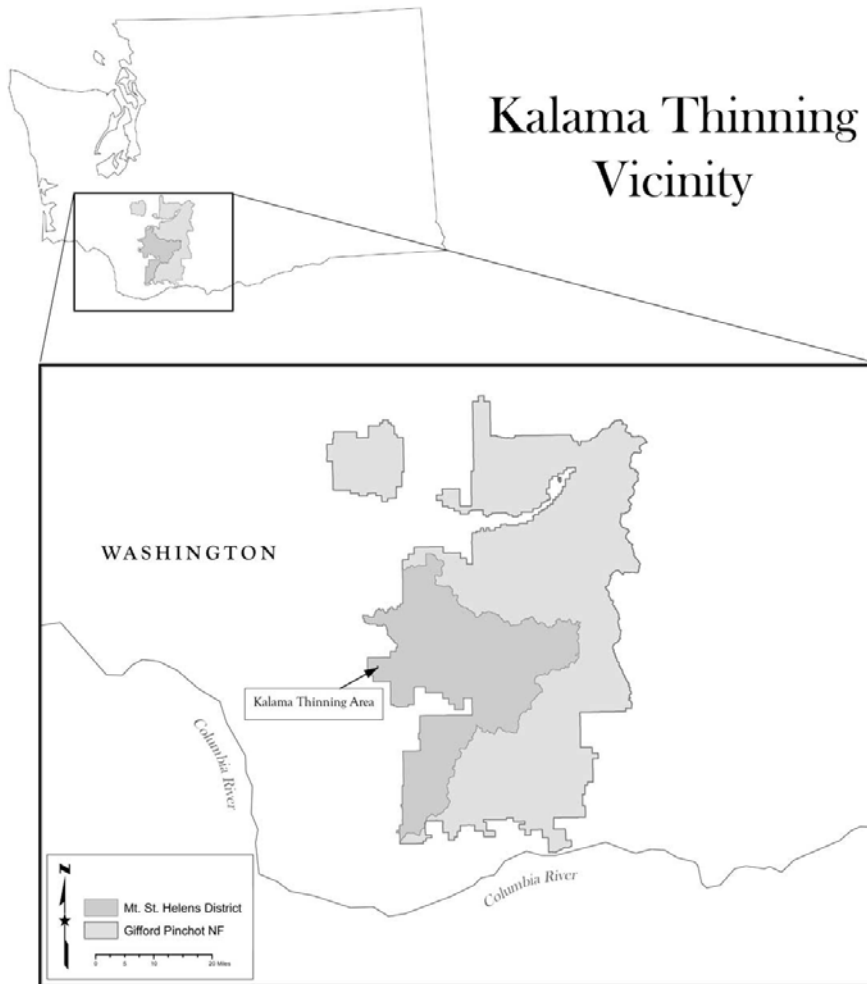


**DECISION MEMO  
KALAMA COMMERCIAL THINNING PROJECT**

USDA Forest Service  
Mount St. Helens National Volcanic Monument,  
Gifford Pinchot National Forest  
Skamania County, Washington  
Section 20, T.8N, R.4E, W. M.

The Mount St. Helens National Volcanic Monument is proposing a 70-acre commercial thinning project within Section 20, T 8N, R.4E, in the vicinity of Fossil Creek (refer to Figure 1). The area consists of a dense, second growth stand of Douglas-fir that was planted following logging in 1965.



**Figure 1. Kalama Thinning project area location.**

## PURPOSE OF AND NEED FOR ACTION

The purpose of this action is to maintain and/or accelerate the timber growth and yield of this 70 acre, 40 year old timber stand and to manage these lands within the General Forest management area as suitable for the continued production and utilization of forest resources, principally timber, water, fish, dispersed recreation, and wildlife [Gifford Pinchot National Forest Land and Resource Management Plan (1990) as amended by the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (Amendment 11), page 6-25]. Some riparian areas within the unit are proposed for thinning and planting of shade tolerant species (western redcedar, western hemlock). The purpose of the riparian treatments is to diversify riparian forest stands and accelerate development of large trees and late successional characteristics in the Riparian Reserves.

There is a need for action because, without intervention, stands in the General Forest management area will not achieve the desired future condition for the General Forest, and stands within the Riparian Reserves will be delayed in development of tree size, structure and species diversity necessary to achieve the goal for Riparian Reserves in providing refugia and sustaining aquatic function.

Overall tree growth is slowing due to stand age, over-crowded conditions, and competition for water, light, and nutrients. These stand conditions move the area away from the desired future condition of optimizing timber production and other forest resources as defined by the Gifford Pinchot NF Forest Plan, as amended by the Northwest Forest Plan, and providing forest products on a fully regulated basis.

## MANAGEMENT DIRECTION

Management Direction for the Kalama Thinning planning area is provided by the Gifford Pinchot National Forest Land and Resource Management Plan (1990) as amended by the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl*. The Kalama Thinning project is located within General Forest (matrix – TS) management area (Figure 2). These lands are meant to contribute to a predictable supply of timber and other resources while maintaining a healthy ecosystem.

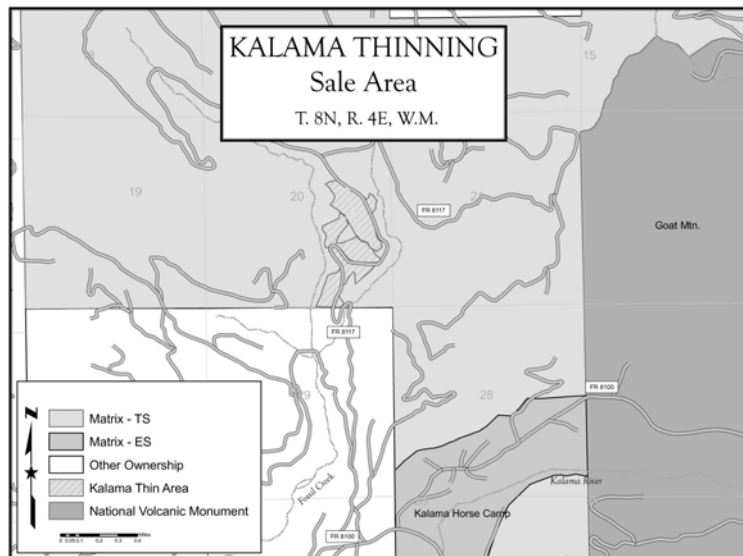


Figure 1. Kalama Thinning project area location.

Recommendations from the 1996 *Gifford Pinchot National Forest Kalama River Watershed Analysis* (Chapter VI, pages 5-8) encourage reduction of the density of these stands to enhancing tree growth. The proposed Kalama Thinning is located within sub-watersheds that are identified in the watershed analysis as the highest priority for this type of treatment. The Kalama River Watershed is not identified as either a Tier 1 or 2 Key Watershed in the Northwest Forest Plan.

## **CATEGORICAL EXCLUSION**

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Based on a preliminary assessment and the results of public scoping, this proposal falls within a category of actions listed in the Forest Service NEPA Handbook (FSH) that are excluded from documentation in an environmental assessment or environmental impact statement and there are no extraordinary circumstances that would preclude use of the category. (FSH 1909.15, Chapter 30, Section 31.2, Category 13: “Harvest of live trees not to exceed 70 acres, requiring no more than ½ mile of temporary road construction”).

## **PUBLIC INVOLVEMENT**

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A proposal to thin approximately 70 acres within this area was listed in the January, 2006 Schedule of Proposed Actions for the Gifford Pinchot National Forest. The proposal was sent to a mailing list of 30 members of the public and other agencies for comment during the scoping period that was initiated on January 11, 2006.

As of February 15, 2006, only two comments were received in response to scoping. Both comments requested additional information and rationale for the prescribed thinning densities. One comment questioned the method of slash treatment and the location and need for temporary road construction. These questions did not result in modification of the original proposed action, however the location of the proposed temporary road is now indicated on Figure 3.

Though this action may be categorically excluded, pursuant to the September 16, 2005, order issued by the U. S. District Court for the Eastern District of California in Case No. CIV F-03-6386JKS (*Earth Island, et al. v Ruthenbeck*) the proposal was issued for a formal 30-day public comment period beginning on March 6, 2006. Substantive comments were received from two sources. Comments questioned the basis for the thinning intensity, the need for slash treatment throughout the entire thinned area, and requested disclosure of the road-related actions. No significant issues were raised through public or internal scoping, therefore no alternatives to the proposed action were developed. A summary of public comments and Forest Service responses is found in Appendix A of this Decision.

## **PROPOSED ACTION**

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The proposed action would thin the trees to a Curtis relative density (RD) of 38 (approximately 126 trees/acre, which are 8.0” dbh or greater) within the uplands and a Curtis RD42 (approximately 146 trees/acre, which are 8.0” dbh or greater) within the Riparian Reserves. The exception is the west branch Riparian Reserve of Fossil Creek, which would be thinned to a Curtis RD38. A combination of log yarding systems (skyline and ground based equipment) will be used to remove the sawlogs.

Approximately 120 linear feet of down logs and 2.6 snags per acre would be created or maintained over the entire 70 acres.

Approximately 0.5 miles of temporary road would be constructed to facilitate the log removal activities.

The proposed road treatment for Forest Road 8117 is surface blading to smooth the road surface.

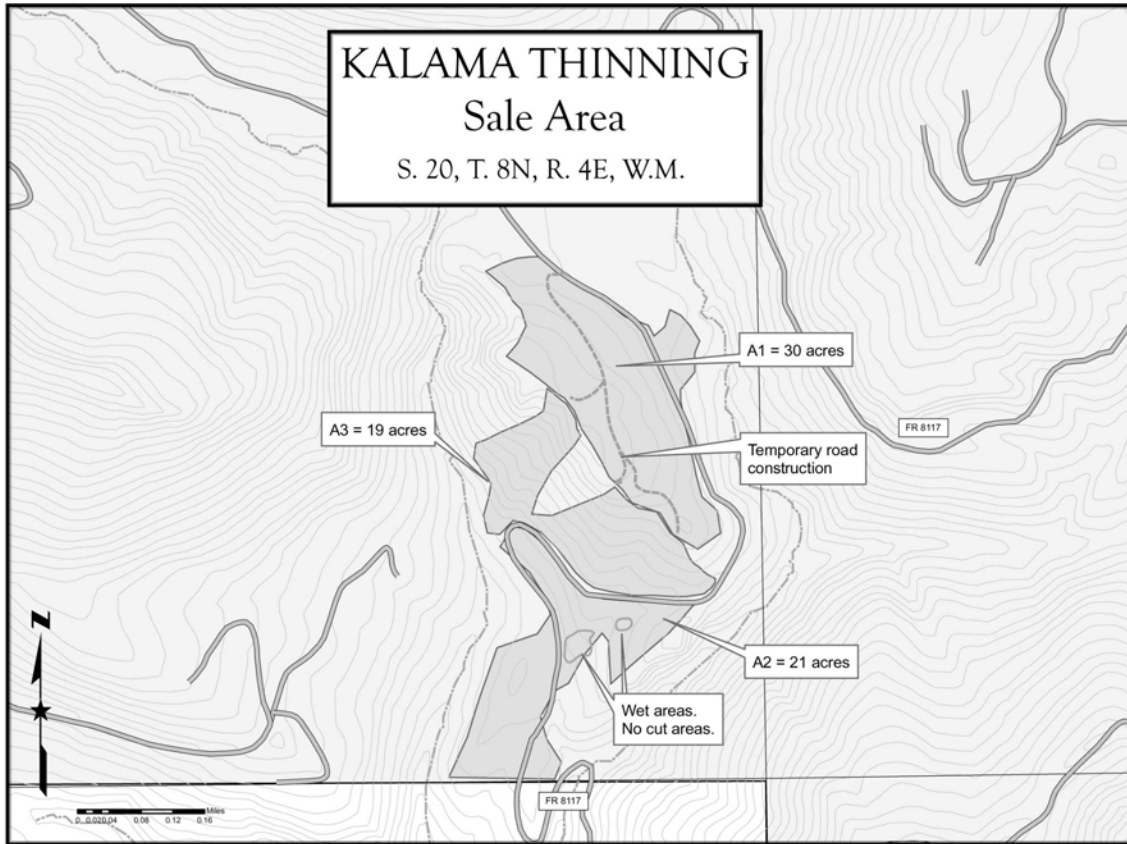


Figure 3. Kalama Thinning project.

### PROJECT DESIGN FEATURES

To comply with standards and guidelines, best management practices, or on the basis of site-specific analysis the following specific design features have been incorporated into the project proposal:

1. The silvicultural treatment in the Riparian Reserves will follow a prescription to optimize structural development and plant species diversity to benefit water quality and old growth dependent fauna including native salmonids. The riparian silvicultural prescription will be broken into two riparian management zones including the following components:
2. Riparian Reserve thinning guidelines:
  - Riparian Reserve widths:
    - Non fish bearing streams = 1 site potential tree, or 170'.
    - Fish bearing streams (Fossil Creek) = 2 site potential trees or 340'.
    - Intermittent streams = 170'.

- Wetlands less than 1 acre = 170'.
  - Fossil Creek (Westside) – Flag unit to the slope break 25 feet back from break (150–200' from creek). Thin outer portion of riparian to a Curtis RD38. No conifer planting.
  - East Fork Fossil Creek tributary (east side of Forest Road 8117) – Flag unit to within 10–25 feet from the slope break of Fossil Creek. Thin remainder of Riparian Reserve to a Curtis RD38. Plant conifers within the 25 foot buffer strip.
  - Two seeps/springs (east side of Forest Road 8117) – No cut/entry buffer 25 feet from seep/spring and associated intermittent streams. Thin remainder of Riparian Reserve to a Curtis RD42. Plant conifers within the 25-foot no cut buffers.
  - One wet area (less than 1 acre) with associated intermittent creek (on the north boundary of unit, west side of Forest Road 8117) – No cut/entry buffer 25 feet from the wetland and associated intermittent stream. Thin remainder of Riparian Reserve to a Curtis RD42. Plant conifers within the 25-foot no cut buffer.
  - Two ephemeral channels (200–300 feet south of northern unit boundary, west side of Forest Road 8117) - No cut/entry buffer 25 feet from channels. Plant conifers within the 25-foot no cut buffer.
  - One north/south ephemeral/intermittent/perennial stream (south end of unit) – No cut/entry buffer 25 feet from creek. Thin remainder of the Riparian Reserve to a Curtis RD42. Riparian Reserve extends above Forest Road 8117 to the point that annual scour and deposition is no longer visible. Above that point is an ephemeral channel that does not receive a Riparian Reserve, but that should be protected from direct tree removal and logging activities. Retain all trees with ten feet of ephemeral centerline above Forest Road 8117 and do not log across this feature. At lower end of this channel (below Forest Road 8117), use the slope break to establish no-cut buffer, which will be greater than 25 feet. The slope break occurs as the stream gradient decreases and the stream enters a gently sloping bench that has dispersed wet areas. No thinning should occur on this bench in the vicinity of the wet areas. Plant conifers within the 25 foot no cut buffers.
  - Daylight three trees per acre (largest diameter) within the riparian reserve treatment areas. Remove all Douglas-fir trees within an 18-foot radius of these trees.
  - Plant shade tolerant species (western redcedar [40%], western hemlock [60%]) within the specified riparian reserve areas. Place Vexar® tubing, with two sticks, on the western redcedar to deter animal browsing. Tubing should be completed within one week after planting.
  - No slash piling will be done within the Riparian Reserves.
  - Pacific silver fir, western hemlock, western red cedar, or hardwoods will not be harvested with Riparian Reserves. The exception would be in dense areas of predominately Pacific silver fir and western hemlock trees. In this case, Pacific silver fir and hemlock trees could be cut, but the leave tree must be one of these two species.
3. Retain 2.6 green broken topped trees, 30 to 70 feet in height, 12" dbh or greater for snag retention. If insufficient numbers exist, retain additional green trees for snag creation.
  4. Protect existing remnant down logs to the extent possible by falling trees away from the logs, and routing skid trails around them.
  5. To minimize the wounding (bark slough) of residuals, sale operations will be prohibited from March 15 to July 1.
  6. All aquatic features and Riparian Reserves will be located on Sale Area Maps. Riparian Reserve boundaries and cutting boundaries within Riparian Reserves will also be marked on the ground to

ensure that the location of these features is clearly identified to Timber Sale Administrators and operators.

7. Forest Road 8117 will require surface blading and brushing prior to log haul. No reconstruction is needed. Road treatments on existing roads will occur during the dry season (e.g. July – Oct. 1) to minimize sediment delivery to streams.
8. To minimize the extent of soil compaction and displacement, landings, temporary roads, skyline corridors, and skid trails will be approved prior to timber felling. Equipment used in yarding and brush disposal activities will be confined to these pre-approved areas. The exception is that feller-bunchers (for cutting/bunching) and track mounted excavators (for loader logging) would be permitted to operate outside of approved areas when operating on slash or forest debris. Skid roads and trails will be located on slopes less than 30%.
9. Skid trails will be spaced a minimum of 150 feet apart for tractors and 400 feet apart for loaders. Use of existing roads must be used if possible rather than creating new roads. Timber will be felled to lead to the skid trail locations. Rubber tire tractors will remain on skid trails and winch logs as necessary. Loaders operating off designated skid trails must operate over slash beds that are as thick and continuous as practicable.
10. Ground-based machinery will be operated during the dry season. Machinery will not be operated where soil water content is high, or in areas where rutting exceeds six inches in depth for a length of ten feet or more. This measure will limit the degree of soil compaction, rutting, and puddling as well as reduce the potential for offsite stream sedimentation.
11. Western redcedar and hardwoods will not be harvested.
12. Use of ground-based equipment within Riparian Reserves will be minimized as described below to minimize disturbance of ground cover, soils and vegetation within Riparian Reserves.
  - No heavy equipment will be operated within 50 feet of any aquatic feature.
  - Feller-bunchers (for cutting/bunching) and track mounted excavators (for loader logging) will be permitted to access trees within treated portions of Riparian Reserves.
  - Skidders will remain outside Reserves.
13. Directional felling, away from the stream channel, is required within 50 feet of any channel. The exception is for four trees per acre that will be felled toward the streams and left in place within the riparian areas to provide down woody material for hydraulic control and riparian zone terrestrial habitat.
14. A slack pulling carriage will be required for lateral yarding in cable logging areas.
15. One end suspension will be achieved in all yarding activities to minimize ground disturbance including displacement of the soil, and to reduce the potential for erosion and sediment introduction to the aquatic system.
16. Landings, temporary roads, skyline corridors, and skid trails will be approved prior to timber felling. Equipment used in yarding and brush disposal activities will be confined to these pre-approved areas. The exception is that feller-bunchers (for cutting/bunching) and track mounted excavators (for loader logging) would be permitted to operate outside of approved areas when operating on slash or forest debris. Skid roads and trails will be located on slopes less than 30 percent.
17. Prior to any expected seasonal period of precipitation and runoff, cross drains and grade breaks will be installed in all temporary roads, skid trails, landings and skyline corridors to reduce concentration of surface flow from temporary roads and harvest related activities and to maintain soil permeability and soil productivity.

18. Machine piling of slash will be accomplished with as light a track machine as is practicable, equipped with a swivel grapple. Piling will begin at the end of the unit furthest from the access road and work its way back, operating on top of the slash.
19. No more than 10 percent of the thin organic litter and duff layer will be consumed in fuels treatment. Burning will be limited to periods when soil and duff moisture is sufficient to prevent consumption of more than ten percent of the duff layer.
20. Subsequent to burning machine piled slash, soil under piles greater than 100 square feet will be seeded, but not fertilized. This measure will mitigate the effects of severe burning on the soil.
21. Final treatment of skid trails and skyline corridors will occur as follows:
  - Where trees are felled by hand and moved to the landing with a skidder, then all skid trails will be scarified to break up surface compaction. Crossdrains or waterbars will be installed every 150 feet or more frequently where slopes exceed 5 percent. Available logging slash will be placed across the scarified surface. (A qualified specialist will specify type of weed free mulch and application rates).
  - If skyline yarding causes gouging of the soil surface greater than 12 inches deep for a length of 10 feet or more, gouged areas will be treated with cross drains that have outlets. Treated areas will be seeded or will have slash piled over them.
22. Temporary roads and landings will be subsoiled to a depth of 18 inches (minimum). To prevent re-compacting of the treated roadways and landings, no ground-based equipment will be operated on subsoiled portions of roads and landings after subsoiling is completed. Crossdrains or water bars will be installed every 150 feet or more frequently where slopes exceed 5 percent. Available logging slash will be placed across the subsoiled road-landing surface. (A qualified specialist will specify type of weed free mulch and application rates). Subsequent vehicular access to these areas will be prevented (e.g., by construction of a four-foot high earth berm at the entrance to the road or landing).
23. Rock will be used only when necessary to reduce erosion, puddling and compaction on landings and temporary roads, and applied only where needed (“spot rocking”). Rock will be incorporated into the roadbed by ripping or scarification following harvest activities (see following mitigation measure).
24. To control known populations of weeds within the planning area, on adjoining and/or access roads, weeds will be removed by hand pulling or by other methods determined to be appropriate, before project implementation. The following are site-specific control measures:
  - Control specified invasive plants at staging areas, landings, culvert replacement sites, and along Kalama Timber Sale access roads for 1/2 mile preceding areas of ground disturbance (i.e. staging areas, and harvest units adjacent to roads), to 1/2 mile following area of ground disturbance, and within timber harvest units, as specified below:
    - During the season before the ground disturbing phase of project implementation begins, weeds will be hand pulled, bagged and disposed of outside of Gifford Pinchot National Forest boundaries. Control efforts should occur before invasive species have set seed for the year (May or June).
    - During seasons of project implementation weed re-occurrences at sites listed above will be controlled as specified above.
    - For two field seasons following project completion, weed re-occurrences at sites listed above, will be controlled as specified above. In addition, harvest units will be surveyed for invasive plant establishment and/or encroachment. If new invasive plant populations are located within harvested units, population data will be collected and invasive plants will be controlled, as specified above.

- After two years, the Botanist will re-evaluate the weed control needs within the project area and determine whether further treatment is needed.
  - During years of project implementation, conduct road brushing activities during spring-early summer, before seed heads mature, in order to prevent formation and release of viable seeds that could be dispersed along hauling corridors by vehicles, and/or when wind-borne seeds could disperse into newly harvested units.
  - Minimize road maintenance clearing zones, as much as safety regulations will allow, in order to maintain shady conditions that help minimize invasive plant population expansion.
25. To help prevent the introduction and spread of new species of noxious weeds into the planning area, the contractor will be required to ensure that all logging equipment (harvesters, skidders, excavators) moved onto national forest lands is free of soil, seeds, vegetative matter, or other debris that could hold or contain seeds.
  26. Gravel, fill, sand stockpiles, quarry sites, and borrow material will be inspected for invasive plants before use and transport. Infested sources will be treated to remove the weeds before any use of pit material. Only gravel, fill, sand, and rock that is judged by Forest Service weed specialists to be weed free will be used.
  27. Weed-free straw and mulch will be used for all erosion control activities within the sale area and associated with road construction or reconstruction.
  28. Native plant materials will be the first choice in revegetation for restoration and rehabilitation where timely natural regeneration of the native plant community is not likely to occur. Non-native, non-invasive plant species may be used in any of the following situations: 1) when needed in emergency conditions to protect basic resource values (e.g., soil stability, water quality and to help prevent the establishment of invasive species), 2) as an interim, non-persistent measure designed to aid in the re-establishment of native plants, 3) if native plant materials are not available, or 4) in permanently altered plant communities. Under no circumstances will non-native invasive plant species be used for revegetation. Refer to the Botanical Resource Report for the seeding and site preparation prescription for this project.
  29. A KV Collection Plan will be prepared to treat noxious weeds, for tree planting and for felling trees within the Riparian Reserve. KV funding will be contingent upon excess receipts from the sale of the timber sale. Monitoring visits should be made for at least two years subsequent to the project work to control new infestations of noxious weeds. After two years, the project proponent and Zone Botanist will determine whether revisits to the site are a priority.
  30. Activity slash, within the unit, will not be piled, except at the designated landing locations and along 100 feet of Forest Road 8117.

## **CONSERVATION MEASURES**

Protect existing remnant down logs to the extent possible by falling trees away from the logs, and routing skid trails around them.

## **EFFECTS ANALYSIS SUMMARIES**

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In addition to addressing the above categorical exclusion requirements, the following summarizes the project team's analysis reports. Complete reports and references are found in the Kalama project file



## **Soils Summary**

The Kalama Thin is within Forest Plan standards for soil quality. Roads occupy greater than five percent of the unit's area, however detrimental conditions are limited to less than 20 percent, overall.

Previous ground-based timber harvest has altered soil properties and decreased soil productivity in the planning area. Much of the soil disturbance between skid trails and away from landings has decreased over time, but soil productivity was reduced where ground-based skidding operations displaced organic surface layers or caused deep compaction.

### ***Soil Organisms and Soil Productivity***

Based on the best information available, the Standards and Guidelines are considered to be adequate to protect the soil resource. The extent and distribution of detrimental soil impacts such as compaction, displacement, and severe burning, measured in percent of each activity area, are used to analyze the effects of management activities on long-term soil productivity. Project design features to protect the soil, maintain organic matter, and encourage rapid revegetation of native species would help to conserve soil organisms, facilitate re-colonization, and maintain forest productivity.

Locally concentrated losses in soil productivity would occur due to additional compaction and displacement, or severe burning. Additional soil damage is expected to be minor with application of project design features (which include Best Management Practices) and the prescribed logging system design.

Predicted losses are relatively minor in intensity, and vary with time. Short-term losses should be low to moderately damaging to soil quality. This should translate to similar effects on soil productivity. New construction of temporary roads and landings are offset through implementation of project design features (Best Management Practices).

Logging slash is an important source of organic matter that supplies sites with nutrients and reduces the potential for surface erosion. Harvesting only the bole of trees does not greatly deplete nutrients, and losses tend to be associated with whole tree harvest and short rotations. Neither whole tree harvest nor short rotations will be employed in this sale.

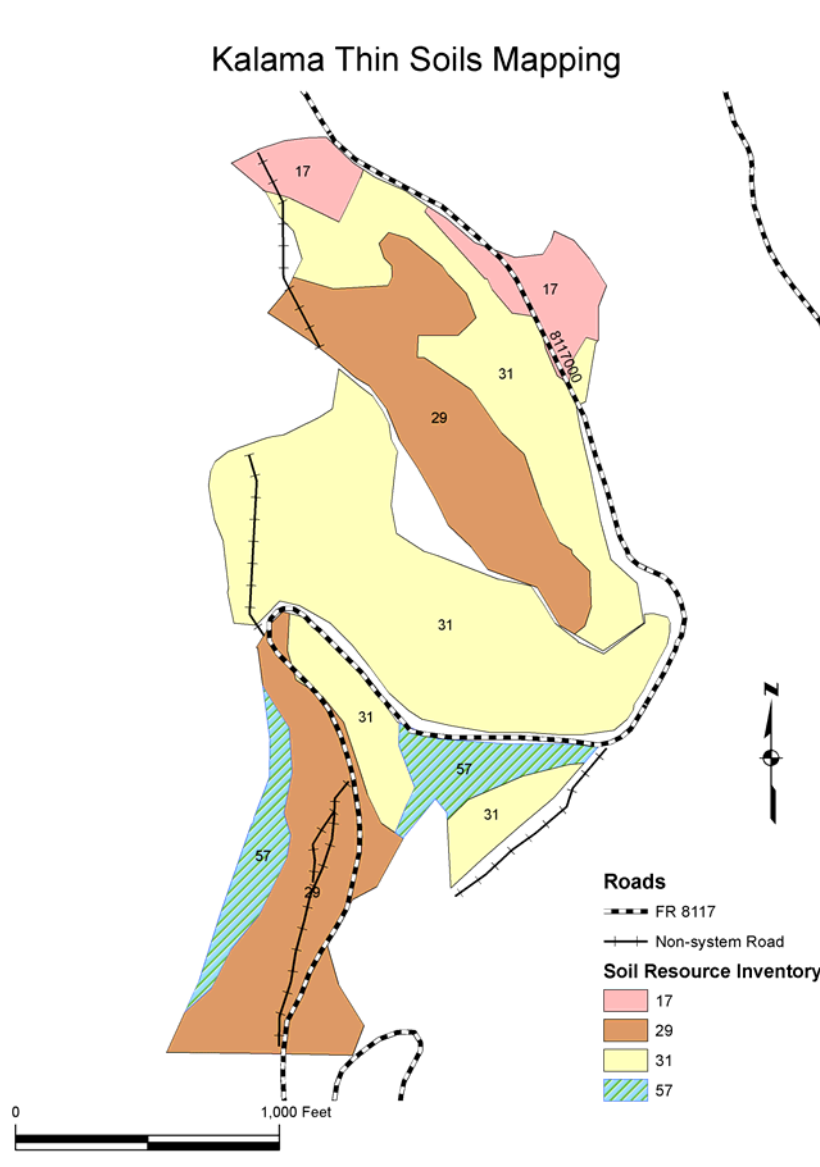
Localized burning in slash piles would likely result in severe burning and result in nutrient loss through volatilization and perhaps from accelerated leaching. Water-repellency can also be induced which may lead to increased erosion. However slash burning would generally not be a concern because the extent of burning is relatively small, representing a fraction of a percent of the unit's area (Harm 2003). The distribution of these piles is spread out across the unit, which also reduces the threat of a negative impact. Fuel treatments would be conducted under conditions when soil and duff moisture are high, leaving larger diameter wood and the duff layer largely intact. With incorporation of project design features, the effects of slash burning on soils would be insignificant.

### ***Mass Wasting***

Two areas of potentially unstable soils, mapped as Soil Map Unit 57 (Figure 4), exist within the southern portion of the sale. One area is part of the Riparian Reserve east of Forest Road 8117, and the other is on the western edge.

Unstable and potentially unstable slopes are designated as Riparian Reserves by the Northwest Forest Plan. There would be no change in the rate, size, or number of mass failure events due to the proposed

action. The risk to additional mass wasting would be avoided by not thinning areas of potentially unstable soils because the presence of live tree roots adds strength to the soils and keep the soils drier by using the soil moisture.



**Figure 4. Soil Mapping of Proposed Action, update to Wade, et al., 1992.**

Soils in the activity areas are suitable for timber harvest in alignment with timberland suitability classification (FSM 2415.2). Soils mapping was updated to reflect field observations and topographic features more closely as displayed in Figure 4. A summary of soil characteristics is displayed in Table 1.

**Table 1. Selected Soil Mapping Interpretations**

Soil Mapping Unit	Percent of Total Area	Displacement Potential	Compaction Potential	Erosion Potential	Potential for Regeneration	Slope Stability
17	5.6 ac. 7%	Moderate	Moderate	Slight	Low to Moderate	Very Stable to Stable
29	25.7 ac 33%	High	Moderate	Moderate	Low to Moderate	Very Stable
31	40.9 ac 52%	N/A <sup>1</sup>	N/A <sup>1</sup>	Moderate	Low to Moderate	Stable to Moderately Stable
57	5.8 ac. 8%	High	High	Moderate	Moderate to High	Moderately Stable to Unstable <sup>2</sup>

**Roads**

System roads convert productive soils to an essentially non-productive condition for an extended period of time (greater than fifty years). Most of the precipitation that falls on the compacted surfaces becomes surface runoff. National Forest system roads currently occupy seven percent of the activity areas. System roads were estimated using GIS analysis and include roads within and adjacent to each unit boundary. Non-system roads were discovered and mapped (Figure 4) by field verification.

Landings and skid trails occupy between approximately 9 and 11 percent of the activity area (Table 2). Representative areas of each proposed unit were traversed on the ground to evaluate compacted skid trails and landings.

**Table 2. Existing Detrimental Soil Conditions**

Area (Acres)	System Roads (% Area)	Non-system Roads, 3 Landings (% Area)	Detrimental Condition (% Area)
78	2.1 ac, 2.7%	1.6 ac., 2.1%	3.7 ac., 4.8%

<sup>1</sup> SRI mapping does not address this characteristic on steep slopes. Ground based equipment would not operate on the steeply sloped areas (>30%).

<sup>2</sup> Mass movement can be increased as a result of management activity.

## Wildlife Biological Evaluation Summary

### *Threatened or Endangered Wildlife Species*

Except for northern spotted owl (*Strix occidentalis caurina*), there will be no impact to Threatened or Endangered wildlife species from the Kalama Thinning Timber Sale.

The northern spotted owl was listed as a threatened species throughout its range in Washington, Oregon and northern California effective July 23, 1990 (USDI, 1990a). Loss of late-successional forest habitat from timber harvest was the primary reason for the listing.

The project area is located within Critical Habitat Unit (CHU) WA-39 (Figure 4). This CHU was designed to improve spotted owl and habitat distribution in an area devastated by the 1980 eruption. It was intended to provide spotted owl demographic and genetic connectivity across the Lewis River and between provinces. As a result of the Plum Creek land exchange in the late 1990s, about 120 acres of mature timber were harvested by Plum Creek before the land was reacquired by the Forest Service.

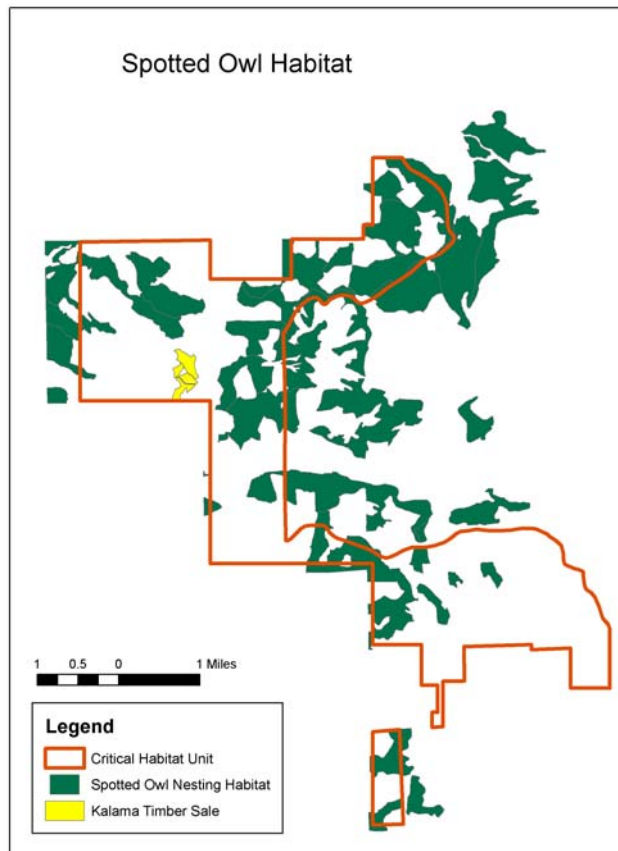


Figure 4. Northern spotted owl habitat in the vicinity of Kalama Thinning Timber Sale.

The Kalama timber sale unit is not classified in the Gifford Pinchot National Forest's GIS database as habitat that is even useable by spotted owls for dispersal. However, upon inspection on the ground it was determined that the stand probably meets the minimum requirements for dispersal habitat (at least 11 inches average dbh, and at least 40 percent canopy cover). The timber sale unit is not adjacent to suitable nesting habitat, and the closest nesting habitat is about 240 yards away to the north.

The thinning would modify dispersal habitat in the stand by reducing the canopy cover from 70 to 80 percent currently down to 40 to 50 percent. The stand would still meet the minimum requirements for dispersal, and the reduction of canopy cover would be fairly short-term. The growth on the leave trees would be accelerated and the canopy cover would increase to current levels in 10 to 15 years. The short-term modification of dispersal habitat may affect, but is not likely to adversely affect spotted owls. In the long-term, development of large trees with deep crowns, multiple canopy layers, and structural diversity would be accelerated, improving habitat for spotted owls.

The project Wildlife Biologist has determined that there would be no effect to the important elements of Critical Habitat.

Due to the distance between the proposed unit and suitable nesting/foraging habitat, a seasonal restriction for spotted owls is not required. However, a seasonal operating restriction would be required from March 15 to July 1 to prevent bark damage to retained trees. This period covers nearly the entire spotted owl limited operating period (March 1 to June 30).

The proposed action and the likely effects to Threatened and Endangered species are consistent with commercial thinning projects that were analyzed in the Programmatic Biological Assessment for Forest Management (August 2001). Additional consultation with U.S. Fish and Wildlife Service for terrestrial species is not required.

### ***Regional Forester's Sensitive Species and Northwest Forest Plan Survey and Manage Species***

Mollusk surveys were conducted to protocol in the project area in the spring of 2006. No Survey and Manage/Sensitive species were found, and it's not likely that any exist in the project area. While there are large logs and other woody debris that appear to be suitable for these mollusks, the project area has a very thin litter layer over a layer of volcanic ash from the 1980 eruption. The project Wildlife Biologist has determined that these factors, along with the effects of the previous clearcut harvest likely make the habitat currently unsuitable.

Townsend's big-eared bat may forage in the project area. There is a suspected maternity site about a mile west of the project area, but the project Wildlife Biologist has determined that there would be no impacts to this site, and the bats' ability to forage in the project area would not be affected.

### ***Gifford Pinchot National Forest Management Indicator Species***

*Cavity Excavators:* Cavity excavators represent species requiring snags and down logs. The *Gifford Pinchot National Forest Land and Resource Management Plan* contains standards and guidelines for retention of snags and logs. The standards and guidelines are written primarily to address regeneration harvest and not necessarily commercial thinning in young stands. The standards and guidelines state that created or retained snags will be at least 17 inches diameter and 40 feet tall, and that the density of snags would be at least 2.6 per acre.

The web-based Decayed Wood Advisor (DecAid, Mellen et al. 2006), which contains information on abundance of snags and logs in forests of different ages based on data from vegetation plots was designed to be used at the landscape scale, and was originally developed for Forest Plan revisions. As such, it has limited value on a small project such as Kalama timber sale.

The previous stand was clearcut in the 1960s and there are no remnant trees or snags from the previous stand. Currently the stand contains some small snags that are overtopped trees and a number of green trees with broken tops that will likely develop into snags over time. There is evidence of woodpecker foraging on some of these small snags. The existing logs in the unit are primarily large soft logs remaining from the previous harvest and slash burn. In addition to these, there are small trees that have died and fallen over. These are generally less than 12 inches diameter.

It is likely that some of the existing soft remnant logs will be disturbed during the thinning and yarding process for this project. Forest Plan standards and guidelines require that existing large down wood be protected to the extent possible, so the overall effects to existing down wood would be minor.

The density of snags would increase following harvest as they are created from reserve trees. Down log density is likely to increase naturally due to effects of minor wind throw. The project Wildlife Biologist has determined that the Forest Plan standards and guidelines would be met with this project.

Conservation measures for snags and down wood have been incorporated into the project design features (pages 4 through 8). They include:

- Protect existing remnant down logs to the extent possible by falling trees away from the logs, and routing skid trails around them.
- To the extent possible retain existing snags and live broken-top trees.
- If needed, top or girdle additional trees to increase snag density to at least 2.6 per acre.

*Pileated Woodpecker and Pine Marten:* Pileated woodpecker and pine marten represent species that require old-growth and mature forest conditions. Old growth stands in the watershed that are surrounding the Kalama stand (see Figure 4) provide habitat for these species. The Kalama stand does not currently provide these habitat conditions, but it could provide dispersal habitat and cover for individual animals moving within their home ranges. Canopy closure in optimal habitat for pileated woodpecker and pine marten is 75 percent and 50 percent, respectively. The high canopy closure in the Kalama project area would allow these species to move through the stand.

The short-term effect of the thinning would be to reduce canopy closure, and slightly increase levels of small snags and logs. Reduction in canopy closure would make it less likely that marten and pileated woodpeckers would utilize the stand until the crowns on the residual trees close in again. In the long-term, habitat would be improved as growth on residual trees is accelerated, and number of snags and logs increase.

The project Wildlife Biologist has determined that the short-term loss of the ability for pileated woodpecker and pine marten to disperse through the stand is insignificant.

*Elk and Deer Winter Range:* The standards and guidelines in the Forest Plan that address elk and deer address winter range and special features such as mineral licks and calving/fawning areas. The project area is not within winter range for these animals, nor is it known to be a calving/fawning area.

In general, elk and deer on the Forest are expected to decline with the reduction in regeneration harvest and the associated decline in forage. The project area does not currently produce much forage. Vine maple is present, but the shaded conditions discourage herbaceous vegetation.

Reducing canopy cover from the current level down to 40 to 50 percent would allow much more sunlight to reach the ground level, and would boost forage production for 10 years or so until the overstory canopy increases again to its current level. There would be no increase in road density since the temporary road would be obliterated following the harvest.

The project Wildlife Biologist has determined that the proposed project would have a minor beneficial effect for elk and deer due to a small increase in forage in the watershed.

*Wood Duck and Goldeneye Duck:* Wood ducks represent species that require mature and old-growth deciduous riparian habitat. Goldeneye duck represent species that require mature and old-growth coniferous riparian habitat. The pond/wetlands in the western part of the unit may provide habitat for these species during wet years only. During most years the wetland does not contain enough standing water to provide nesting habitat. In addition, the area around the wetland was cut over during the last timber harvest, and there are no large trees in the area that could provide nesting structures.

The project Wildlife Biologist has determined that there is no habitat for either of these species in the project area, and they would not be affected.

### ***Neotropical Migratory Birds***

The Kalama stand is classified as mid-successional, and would provide habitat for birds species found in mature/young stands as shown in Table 2. This structure stage is the most common structure stage found in the Upper Kalama sub-watershed. Forty-one percent of the sub-watershed is in this structure stage. There are no species associated with this habitat type from the Partners in Flight report that are thought to be declining.

The Kalama unit currently contains a minor amount of hardwood trees, primarily red alder and big-leaf maple, and it is adjacent to other small stands that are dominated by these hardwood species. Deciduous understory shrubs, primarily vine maple, are fairly common. The presence of these deciduous species probably increases the bird species diversity over what would occur in a pure conifer stand.

The proposed thinning would open the stand enough to encourage growth of understory deciduous shrubs such as vine maple. Opening the mid-story, increasing the deciduous understory and forest floor complexity would improve habitat conditions for Hammond's flycatcher, Wilson's warbler and winter wren. The hardwood trees would be retained in the stand, maintaining habitat diversity.

In the long-term, the treatment would accelerate development of habitat for Vaux's swift, red crossbill, pileated woodpecker, and varied thrush.

The proposed action would treat habitat that is not limited in the watershed, and improve conditions in the short-term by adding complexity and structural diversity. It would accelerate development of the large tree structure stage, which is more limited in the watershed, and provides habitat for bird species that are thought to be declining. For these reasons, the project Wildlife Biologist has determined that the project would not result in significant effects to neotropical migrant bird populations, and would have long-term beneficial effects.

## **Fisheries Biological Evaluation Summary**

### ***Threatened or Endangered Fish Species***

As documented in the Biological Evaluation (project file) the Project Elements of the Kalama Thin Timber Sale would have a no influence in the long-term to temperature; Chemical contamination/nutrients; physical barriers; large woody debris; pool frequency; pool quality; off-channel habitat; refugia; width/depth ratio; streambank condition; floodplain connectivity; peak/base flows; drainage network increases; road density and location; disturbance history; Riparian Reserves; sediment/turbidity; substrate; and disturbance regime indicators at the site and 6th field watershed scales.

The Kalama Thin Timber Sale would have no influence on essential features of designated critical habitat. The analysis determined that the effects of the Proposed Action to the indicators and essential features will have no direct effects to Lower Columbia River (LCR) steelhead (*Oncorhynchus mykiss*), LCR Coho salmon (*Oncorhynchus kisutch*), or LCR Chinook salmon (*Oncorhynchus tshawytscha*).

The project Fisheries Biologist has determined that the Kalama Thin Timber Sale would have no effect on Lower Columbia River steelhead trout and Designated Critical Habitat for steelhead, Lower Columbia River Chinook salmon and Designated Critical Habitat for Chinook salmon, Lower Columbia River coho salmon or Lower Columbia River bull trout. A natural migration barrier is located approximately 4.25 miles downstream in Kalama River and it is unlikely that any affects from this project would be observed 4.25 miles downstream. Therefore, there will be no effect to designated critical habitat for steelhead or Chinook.

Project design features that contribute to the no effect determination are summarized below:

- The Proposed Action contains project design features that will minimize or eliminate sediment delivery into streams including limited activity in Riparian Reserves, no-disturbance buffers on all streams, and obliteration and planting of roads and landings.
- 0.5 miles of temporary roads will be constructed on native surfaces. These roads will be obliterated after harvest.
- Thinning in Riparian Reserves will only affect 21 acres. This is not expected to have any downstream effect on stream temperature or large wood recruitment in listed fish habitat.
- No new permanent roads are proposed.
- There is some potential for sediment input into local streams along the haul routes, but this will be minimized with the restriction to dry weather hauling.

### ***Magnuson-Stevens Fishery Conservation & Management Act***

The Sustainable Fisheries Act of 1996 (Public Law 104-267) amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to require federal agencies to consult with NOAA Fisheries on activities that may adversely affect “Essential Fish Habitat” (EFH). Essential Fish Habitat is defined in the Act as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” Essential Fish Habitat includes all freshwater streams accessible to anadromous fish, marine waters, and intertidal habitats. Essential Fish Habitat excludes areas upstream of certain impassable artificial barriers and long-standing naturally impassable barriers.

Essential Fish Habitat in the Lewis River has been designated for coho and chinook salmon (NOAA 2004). EFH extends up to approximately 4.25 miles downstream from the project area boundary.



Therefore it has been determined that there is no Essential Fish Habitat for coho or Chinook in the Kalama River above this point.

Minimal ground disturbance 4.25 miles upstream of EFH is not expected to impact EFH below the project boundary. Proposed project prescribes no new stream crossings. The impacts on Riparian Reserves will be minimized by the substantial retention of forest canopy and considerable riparian buffer. Thinning activities in the portions of the riparian reserve will retain a canopy closure of 50%.

The project Fisheries Biologist has determined that the proposed action will have no effect on EFH for coho or Chinook outside of the analysis area because they are at least 4.25 miles downstream of the Kalama Thinning project area boundary.

## **Botany Biological Evaluation Summary**

### ***Threatened, Endangered, or Proposed Plant Species***

*Howellia aquatilis* is the only federally listed plant species suspected to occur on the Gifford Pinchot National Forest. There is no habitat for this species within the project area.

### ***Sensitive Species***

Within the adjacent 5th field watershed, there are known sites for four Region 6 Regional Forester's Sensitive species: *Corydalis aquae-gelidae*, *Tetraxis geniculata*, *Schistostega pennata*, and *Usnea longissima*. Surveys were conducted during 2005 and 2006. There were no sites found for these species within the project area. A number of the Sensitive species (1 lichen and 13 fungi) are considered survey impractical. For analysis purposes, it is assumed that these species are present in the project area. The project scope and area is relatively small in relation to the project habitat type in the watershed (mid-successional stands regenerated from previous harvest). The project Botanist has therefore determined that the Kalama Thinning project may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

### ***Survey and Manage Species***

The Survey and Manage mitigation measure originated from the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (1994, amended in 2001) and was modified in 2004 to remove the requirement to conduct pre-disturbance surveys. As part of a subsequent and ongoing lawsuit (*Northwest Ecosystem Alliance, et al. v. Mark E. Rey, et al.*) the Bureau of Land Management and the Forest Service have been ordered by Judge Pechman<sup>3</sup> to follow the 2001 ROD, incorporating any amendments or modifications that were in effect as of March 21, 2004, including consideration of the 296 Survey and Manage species that were in place as of the 2003 Annual Species Review decision in December 2003. In accordance with this direction, surveys were conducted in 2005 and 2006. The Survey and Manage mitigation measure is directed toward species that are associated with late-successional or old growth forests. Although the project area consists of a 40-year old stand, there is potential for legacy elements, such as down wood and individual remnant old growth trees to be present that may host Survey and Manage species. No Survey and Manage botanical species were found during either survey.

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<sup>3</sup> in Order Number 04-844P, Order On Plaintiffs; Motion For Injunctive Relief, U.S. District Court Western District of Washington.

### Noxious Weed and Invasive Non-Native Species

Forest Service Manual direction requires that Noxious Weed Risk Assessments be prepared for all projects involving ground-disturbing activities. For projects that have a moderate to high risk of introducing or spreading noxious weeds, recent Forest Service policy requires that decision documents must identify noxious weed control measures that will be undertaken during project implementation (FSM 2081.03, 11/29/95). In addition, the *Pacific Northwest Region Invasive Plant Program Record of Decision for Preventing and Managing Invasive Plants* (USDA 2005) provides invasive plant prevention and treatment/restoration standards and direction on all National Forest Lands within Region 6.

Of the five types of weed classifications in Washington State, Class A weeds require immediate eradication efforts. Class B weeds require active control. Class C weeds require monitoring, and project work, with the eventual goal of elimination.

Listed below are the invasive plants within or adjacent to the Kalama Timber Sale project area, with an estimated level of infestation:

<u>Class A</u>	<b>Level of Infestation</b>
None	
<u>Class B</u>	
<i>Centaurea diffusa</i> (diffuse knapweed)	Low
<i>Cytisus scoparius</i> (scotch broom)	Low
<i>Leucanthemum vulgare</i> (oxeye daisy)	Low
<i>Senecio jacobaea</i> (tansy ragwort)	Low
<u>Class C</u>	
<i>Hypericum perforatum</i> (St. Johnswort)	Low

Based on the presence of these species within the project area and the potential for spread from heavy equipment operations, vehicular traffic, or the importation of soil or gravel the risk ranking for weeds is High. Project design criteria have been added to the project to manage and prevent the spread of invasive weeds (pages 7 and 8). Refer to the Botanical Resource Report for this project for specific requirements.

### Silviculture Summary

The proposed density reduction treatment is a harvest performed while trees are young and thrifty before they reach culmination of mean annual increment. The purpose of this action is to increase/maintain growth and yield (uplands) and to develop structural diversity and accelerate the development of late successional forest conditions (i.e., herb, shrub, two tree layers, and large crowned trees) within the Riparian Reserves. The stand proposed for thinning contains a high density of trees that are currently experiencing inter-tree competition for light, water, and nutrients. If these conditions are not managed, it will limit tree growth and/or delay the attainment of large, old-growth trees within the riparian reserves; a key characteristic of the Riparian Reserve's desired future condition (Franklin, et al. 1981). Thinning will provide faster attainment of large diameter individual trees than would otherwise be possible in young, fully stocked forest stands (Curtis 1982).

Following the thinning treatment, individual characteristics are expected to develop: 1) branch self pruning will slow or stop, thus retaining deeper live crowns and additional needle material for maintaining/accelerating growth, and 2) species diversity will be increased by retaining the minor species within the stand and planting addition shade tolerant seedlings within portions of the Riparian Reserves.

Table 3 displays the stand conditions that would remain after each type of thinning treatment in terms of canopy closure, trees per acre, tree spacing, and relative density of the resulting stand.

**Table 3 – Characteristic Thinning Treatment Descriptions**

Treatment	Approx. Canopy Closure	Approx. Trees Per Acre (TPA)	Approx. Spacing	Relative Density (RD)
Uplands	40-45%	126	19' x 19'	38
Riparian Reserves	55-60%	146	17' x 17'	42

A total of approximately two acres are proposed for underplanting within the unit, which is designed to increase the establishment of structural diversity within the Riparian Reserves (underplanting of shade tolerant species). Three trees per acre (largest diameter) within the Riparian Reserve treatment areas will be “daylighted” by removing all Douglas-fir trees within an 18-foot radius of these trees. This treatment will accelerate the development of habitat (large trees) within the riparian areas and provide horizontal and vertical structural diversity to the stand.

Table 4 displays the projected average diameter growth that would occur under three different thinning regimes. These stand projections were taken from stand exams and projected into the future using the Forest Vegetation Simulator (FVS). For the purpose of this projection, no future density reduction treatments were introduced into the simulation. Note that the average stand diameter at age 52 increases with wider tree spacing, from no thin to thin RD38. This is because the prescribed thinning treatments cut the smaller trees and leaves the larger trees, known as “thinning from below”. The rate of increase that occurs after thinning from age 52 to 92 as a result of thinning at the various levels is higher as spacing increases. For example, no thin shows an average diameter increase of 3.9 inches and thin RD38 shows an average diameter increase of 4.5 inches over the next 50-year period. A 13 percent diameter growth increase is realized in the uplands and a 11 percent diameter growth increase is realized in the riparian reserves.

**Table 4 – Projected Diameter Growth**

Treatment	Average Stand Diameter at Age 52 (10 yrs growth)	Average Stand Diameter at Age 92 (50 yrs growth)
No Thinning	12.6	16.5
Thin to RD38 (Uplands)	13.3	17.8
Thin to RD42 (Riparian)	13.2	17.6

## DECISION

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I have considered the purpose and need, the project design criteria, the effects analysis, and public comments and I have decided to approve the Kalama Thinning project, including the specific actions and the Project Design Criteria described above.

Categorical exclusion is appropriate to this proposed action because there are no extraordinary circumstances potentially having effects which may significantly affect the human environment. Specifically, I considered and determined that the potential for adverse effects on the following resource conditions do not preclude the proposed action from implementation.

*Federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, or Forest Service sensitive species:* This project may affect, but is not likely to adversely affect northern spotted owls. This project would have no effect on other listed wildlife, fish, or plant species or designated critical habitat. I find that the nature of the action (thinning) is such that there is no potential for significant adverse effect to federally listed wildlife, fish, or plant species or designated critical habitat, or on species or critical habitat proposed for listing

*Floodplains, wetlands, or municipal watersheds:* This project is not located within a floodplain or a municipal watershed. Wet areas exist within the project area. A 170-foot Riparian Reserve has been designated around all wet areas, including seeps and springs. Though thinning is permitted within the Riparian Reserve, the wet areas are protected by 25-foot no-cut buffers and no heavy equipment is permitted within 50 feet of these areas. Through these actions I find that there is no potential for significant effects to wetlands.

*Congressionally designated areas, inventoried roadless areas, research natural areas:* There are no such areas in or affected by the Kalama Thinning. The western boundary of the Mount St. Helens National Volcanic Monument (legislated Monument) is just over a mile east of the Kalama project area. Thinning and log hauling are actions that would not affect the Monument. I find that there is no potential for significant effects to the Monument.

*American Indian and Alaska Native religious or cultural sites:* There are no known religious or cultural sites within the project area. Scoping was conducted with the Cowlitz Tribe and the Yakima Nation. I find that there would be no effect to culturally significant areas from actions associated with the Kalama Thinning project.

*Archaeological sites, or historic properties or areas:* There are no known sites within the project area.

## FINDINGS REQUIRED BY LAW

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I find that this decision is consistent with the National Forest Management Act. The project was designed in conformance with forest plan standards and guidelines for the *Gifford Pinchot National Forest Land and Resource Management Plan* as amended by the Northwest Forest Plan. I find that there will be no irreversible or irretrievable commitment of resources from implementation of this project.

I find that this action is consistent with the Endangered Species Act of 1973. For Threatened and Endangered terrestrial species, this action and the likely effects to species and their habitat are consistent with commercial thinning projects that were analyzed in the Programmatic Biological Assessment for Forest Management (August 2001). Additional consultation with U.S. Fish and Wildlife Service for

terrestrial species is not required. For Threatened and Endangered aquatic species, it is determined that this project *may effect but is not likely to adversely affect* Lower Columbia River steelhead, therefore informal consultation with NOAA Fisheries is required. This project *may impact individuals or habitat/not likely contribute to a trend towards Federal listing or loss of viability to individual or species* for 14 plant species that are listed on the R6 Regional Forester’s sensitive species list. No consultation is required.

I find that this action is consistent with the Sustainable Fisheries Act of 1996 (Public Law 104-267) (which amended the Magnuson-Stevens Fishery Conservation and Management Act). Because EFH will not be adversely affected for any of these species, no consultation is necessary.

I find that all applicable state and federal requirements associated with the Clean Water Act (CWA) will be met through planning, application, and monitoring of BMP’s in conformance with provisions of the CWA, Federal guidance and management direction.

There are no impacts to resources of cultural or historical significance therefore I find that this action is consistent with the National Historic Preservation Act.

I find that this action does not violate other Federal, State, or local laws designed for the protection of the environment.

**IMPLEMENTATION DATE** \_\_\_\_\_

This project may be implemented immediately.

**ADMINISTRATIVE REVIEW OR APPEAL OPPORTUNITIES** \_\_\_\_\_

This decision is not subject to administrative appeal.

**CONTACT INFORMATION** \_\_\_\_\_

For additional information concerning this decision or the Forest Service appeal process, contact:

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/s/ Tom Mulder \_\_\_\_\_

12/12/2006 \_\_\_\_\_

TOM MULDER  
Monument Manager

Date

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