

****BIOLOGICAL EVALUATION****
for
Collawash Thinning Project
Collawash River Watershed, Clackamas River District
Mt. Hood National Forest

Introduction

Forest management activities that may alter the aquatic habitat or affect individuals or populations of PETS (Proposed, Endangered, Threatened, and Sensitive) fish and aquatic species require a Biological Evaluation to be completed (FSM 2671.44 and FSM 2670.32) as part of the National Environmental Policy Act process to determine their potential effects on sensitive, threatened or endangered species. The Biological Evaluation process (FSM 2672.43) is intended to conduct and document activities necessary to ensure proposed management actions will not likely jeopardize the continued existence or cause adverse modification of habitat for:

- A. Species listed or proposed to be listed as endangered (E) or threatened (T) by the USDI-Fish and Wildlife Service or National Marine Fisheries Service (NOAA Fisheries).
- B. Species listed as sensitive (S) by USDA-Forest Service Region 6.

This evaluation addresses a proposal to thin and commercially harvest wood fiber in young plantations and fire generated stands on approximately 292 acres within the Collawash River, 5th field watershed of the Clackamas River Basin. The legal description of the project area is Township 6 and 7 South, Ranges 5 and 6 East, of the Willamette Meridian, Clackamas County, Oregon. The Collawash River is designated a Tier I, Key Watershed under the Northwest Forest Plan. Tier I watersheds have been identified as crucial refugia for at-risk fish species. The Collawash watershed supports populations of spring chinook salmon, winter steelhead, coho salmon, and resident cutthroat and rainbow trout.

The proposed treatment area is located within five subwatersheds of the Collawash River. The total area of the five watersheds is 16,157 acres and includes: Fan Creek, Thunder Creek, Dutch Creek, New Lower Collawash Tributaries, and the Hot Springs Fork Tributaries. All watersheds are 100% federally owned and managed by the Mt. Hood National Forest.

Table 1 is a summary table of effects by species, by alternative. This biological evaluation addresses all alternatives presented in the Collawash Thinning Environmental Assessment.

Project Description

The Proposed Action (Alternative B)

The Collawash Thinning Project proposes to thin approximately 205 acres of matrix land and 88 acres of Riparian Reserves. The stands are fire created natural stands (55 acres) and plantations (230 acres) ranging in age from 38 to 96 years. The average tree height is 85 feet with dbh averaging between nine and 13 inches. The timber to be harvested is primarily Douglas fir and western hemlock, as well as a small amount of western red cedar. The current stocking levels range from 211 trees per acre to 398 trees per acre. The management strategy is for a one-time entry into the Riparian Reserves. The objectives of this action are to hasten tree growth to achieve a mature forest that is structurally diverse and to accelerate future large woody debris recruitment potential and snag habitat production.

The proposed action will thin from below harvesting the smaller trees. The largest and most dominant trees will be retained. Trees will be thinned using variable spacing to stand densities ranging from an average of 80 trees per acre to 150 trees per acre (approximately 40% to 65% canopy closure). Post-harvest stand density of approximately 80 trees per acre is prescribed within the Riparian Reserves. Post-harvest stand densities within Matrix lands will range from 120 to 150 trees per acre.

Existing system roads, closed roads from previous entries, and new semi-permanent (roads that will be used longer than one winter) roads will provide access to the project area. Maintenance to the existing system roads prior to hauling will include spot patching, sealing, brushing, and ditch cleanout where needed. Ditch cleanout would be the removal of any material that may have slid into the ditch line that could impede the drainage capability. Existing ditch line vegetation would be maintained whenever possible to reduce the risk of erosion. Approximately 4,100 feet of level one road will be re-opened to access the stands. Re-opening these previously rocked roads will consist of removing any gates or berms blocking vehicle access, brushing overgrown areas, blading, and spot rocking where needed. Road construction will be restricted to the dry season between June 1 and October 31 unless unusually dry conditions permit activities outside this window.

Approximately 4,600 feet of new semi-permanent road will be constructed to access units. These roads will make it possible to yard away from riparian areas thus eliminating some yarding corridors that cross over streams. The new semi-permanent roads will be of native surface and located along ridge tops, outside of any Riparian Reserve. No semi-permanent road will cross any stream channel. The new roads will be located over 330 feet from the nearest stream and over 0.4 miles from any ESA listed fish habitat. Following harvest activities all new semi-permanent roads and newly constructed landings will be ripped and seeded.

Commercial thinning will be accomplished utilizing a combination of mechanical harvester, forwarders, tractor, skyline, and helicopter logging systems. The seasonal

operation for ground-based equipment will be between May 31 and November 1. All ground based tractor operations will take place on slopes averaging less than 30% to avoid the risk of damage to soil and water resources. Mechanical harvesters will be permitted on slopes up to 40% and will be operating within the stream influence zone (one site potential tree height ~ 180 ft.). Harvesters operating within the Riparian Reserves and Matrix Land will be required to work on a layer of residual slash placed in the harvester path prior to advancing the equipment. Harvester travel routes will be limited to one pass over a path whenever possible.

On areas where tractors will be used, skid trails will be located outside of riparian reserves and trees would be directionally felled away from the stream influence zone and winched. All skyline yarding will be one end or full suspension if needed, such as when yarding over a stream channel or seep.

Existing skid trails from prior entry in the project area will be used where possible. Following harvest activities, ground based skid roads will be seeded and mulched to reduce surface erosion. Water bars and/or cross ditches will be installed where needed to disperse water and control surface run-off.

No-harvest buffers (a minimum of 50 ft.) will be established along the active channel of all perennial streams. Larger buffer widths may be needed on a site-specific basis to prevent any increase in sediment delivery rates or a decrease in stream shading. No harvesting equipment will be allowed to operate within this area. Buffer width design will take into account the stream influence zone, steepness of slope, size and location of trees, orientation of the site to the sun (aspect), slope stability, and stream bank stability. No-cut areas will include any buffer of hardwood vegetation occurring along the stream bank. No-cut buffers will generally be at the top of slope breaks on steeper ground and would circumvent all wet areas to achieve aquatic conservation strategy objectives and maintain canopy cover along riparian areas. Falling trees for skyline corridors would be avoided, but where necessary the material would be left as woody debris.

For the next 50 ft. adjacent to the no-harvest buffers along perennial streams, only low impact harvesting equipment such as, but not limited to, mechanical harvesters or skyline systems (suspension yarding), which have minimal ground disturbance would be allowed. Mechanical harvesting equipment would be required to operate on slash-covered paths. Trees in this zone would be directionally felled away from the no-harvest buffer to minimize the disturbance to the forest floor.

No-harvest buffers (a minimum of 30 ft.) will be established along the channels of all intermittent streams. Smaller buffer widths would be allowed if it is determined on a site specific basis that there would be no increase in sediment delivery rates or a decrease in stream shading which would alter stream temperatures. Buffer width design will take into account the same parameters as perennial channels. No cut areas along seeps, springs, and wet areas would extend to the outer limits of riparian vegetation and would include the first row of coniferous trees. These no cut areas will reduce the risk of sediment entering streams or and would provide sufficient shading to sustain stream

temperatures. No measurable change in stream temperatures is expected as the result of implementing this project. This action would not produce any measurable change in water quality or aquatic resources. Falling trees or any equipment use within the no-harvest buffer would only be allowed if it would cause no increase in sediment or decrease in stream shading.

Project Alternatives

- Alternative A - No Action

Under the No-action alternative, current management plans would continue to guide management of the project area. No timber harvest or other associated actions would be implemented to accomplish project goals.

- Alternative B - The Proposed Action

(See Project Description - The Proposed Action above.)

- Alternative C

Alternative C is similar to Alternative B except it would build no roads and would not thin riparian reserves. Units that are inaccessible from existing roads would be helicopter logged. Alternative C would thin and harvest wood fiber from approximately 205 acres of matrix land. Some existing decommissioned or overgrown roads need to be reopened (~0.8 miles) to access landings for many units. Other roads have berms or drivable waterbars that would also be temporarily removed. Upon project completion, the roads would be returned to their original condition.

Mechanical felling equipment would be allowed in many units depending on slope. These machines have several advantages in terms of safety, minimal ground disturbance, reduced damage to leave trees, and increased yarding efficiency.

- Alternative D

This alternative is similar to C but would eliminate the thinning of natural second-growth stands. Alternative D would thin and harvest wood fiber from approximately 150 acres of matrix land and would reopen approximately 0.8 miles of closed roads. No new semi-permanent roads will be constructed to access the stands.

Table 1. Summary of Effects to listed, proposed, candidate, and sensitive species that may occur within or downstream of the Collawash Thinning Project

ESU Species/Status	Date of Listing	Suitable Habitat Present	Species Present	Effects of Actions			
				Alternatives			
				<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<u>Threatened</u>							
Lower Columbia River steelhead <i>(Oncorhynchus mykiss)</i>	3/99	Yes	Yes	NE	NLAA	NLAA	NLAA
Columbia River Bull trout <i>(Salvelinus confluentus)</i>	5/98	Yes	No	NE	NE	NE	NE
Upper Willamette River chinook <i>(Oncorhynchus tshawytscha)</i>	3/99	Yes	Yes	NE	NLAA	NLAA	NLAA
Lower Columbia River chinook <i>(Oncorhynchus tshawytscha)</i>	3/99	Yes	No	NE	NE	NE	NE
Lower Columbia River coho <i>(Oncorhynchus kisutch)</i>	06/05	Yes	Yes	NE	NLAA	NLAA	NLAA
<u>Sensitive</u>							
Columbia dusky snail <i>Lyogyrus n. sp. 1</i>	NA	No	No	NI	MIIH	MIIH	MIIH

NE – No Effect

NLAA – May affect not likely to adversely affect

LAA – May affect likely to adversely affect

NI - No Impact

MIIH - May Impact Individuals or Habitat, but will not likely contribute to a trend towards Federal Listing or cause a loss of viability to the population or species. but not likely to cause a trend to Federal Listing or loss of viability.

PETS species that occur or may potentially occur in the Clackamas River Basin

Columbia River Bull Trout

(Salvelinus confluentus)

Threatened

Bull trout were once prolific in the Clackamas River system. At present, they are believed to be extinct. Adult bull trout that occurred in the Clackamas River exhibited a fluvial life history character, maintaining residence in the main river and larger tributaries. It is quite likely that adult bull trout in the Clackamas River migrated to the Willamette and Columbia rivers prior to construction of River Mill Dam. Adult bull trout would reside in the mainstem and larger tributaries until their spawning period during mid-August through September, at which time they would migrate upstream to smaller tributaries to spawn.

U.S. Forest Service fisheries biologists conduct fisheries sampling on an annual basis on many streams throughout the Clackamas River watershed upstream of North Fork

Reservoir. To date, these sampling efforts have never yielded capture of bull trout. After several years of intensive sampling, U.S. Forest Service fisheries biologists believe that bull trout in the Clackamas River are considered to be "functionally extinct." Since bull trout are not present in the Clackamas River system the effects determination for this species is "No Effect" (NE) for the Collawash Thinning Project.

Lower Columbia River Steelhead

(Oncorhynchus mykiss)

Threatened

Adult steelhead migrate into the waters of the Clackamas River drainage above North Fork Dam primarily during April through June with peak migration occurring in May. Spawning occurs during the months of April through June in the Collawash, Hot Springs Fork, and Clackamas Rivers. Winter steelhead that occur within the Collawash River watershed are included in the Lower Columbia River ESU and are listed as threatened (NMFS, 1998a). Adult winter steelhead enter the waters of the Mt. Hood National Forest primarily during February through June. Spawning occurs March through June within the mainstem Clackamas River and larger tributaries. Very little spawning has been documented in tributaries of less than 4th order. Spawning in the upper Clackamas River basin has been observed in Fish Creek, North and South Forks of the Clackamas, Oak Grove Fork, Roaring River, and the Collawash River, including the Hot Springs Fork. Past steelhead redd surveys show that approximately 50% of the wild winter steelhead present in the subbasin above the confluence of the Clackamas River and Collawash, used the Collawash watershed for spawning. Winter steelhead fry emerge between late June and late July and rear in freshwater habitat for one to three years. Smolt emigration takes place March through June during freshets.

LCR steelhead are not known to occur in any of the stream reaches within the proposed units of the Collawash Project. However, LCR steelhead do occur in the mainstem Collawash River and Hot Springs Fork of the Collawash River near the mouths of streams such as Fan, Dutch, and Thunder Creeks. The nearest occurrence of LCR steelhead to any unit ranges from 0.14 to 0.7 mile downstream of intermittent tributaries and over one mile downstream of any perennial tributary.

Upper Willamette River Spring Chinook

(Oncorhynchus tshawytscha)

Threatened

Upper Willamette River spring chinook salmon occur in the Clackamas River. The ESU consists of both naturally spawning and hatchery produced fish. These spring chinook enter the Clackamas basin from April through August and spawn from September through early October with peak spawning occurring the 3rd week in September. These fish primarily spawn and rear in the mainstem Clackamas River and larger tributaries including the Collawash River and Hot Springs Fork.

Adults in the lower Clackamas drainage spawn in Eagle Creek, below River Mill Dam and between River Mill and Faraday diversion dams. Spawning in the upper Clackamas

drainage has been observed in the mainstem Clackamas from the head of North Fork Reservoir upstream to Big Bottom, the Collawash River, and Hot Springs Fork of the Collawash River, lower Fish Creek, South Fork Clackamas River and Roaring River. Upper Willamette River chinook do not occur within any of the streams that flow within the proposed Collawash units. They do occur in the mainstem Collawash River and Hot Springs Fork of the Collawash downstream of project units. Adult spring chinook have been documented in the mainstem Collawash River and Hot Springs Fork at the mouths of Fan Creek, Dutch Creek and Thunder Creek. Due to the steep gradients and low flows of these streams, chinook cannot utilize these tributaries for spawning or rearing. The nearest occurrence of UWR chinook to any proposed unit ranges from 0.14 to 0.7 mile downstream of intermittent tributaries and over one mile downstream of any perennial tributary.

Lower Columbia River Fall Chinook

(Oncorhynchus tshawytscha)

Threatened

The fall chinook within the Clackamas Subbasin are thought to originate from "tule" stock which was first released into the subbasin in 1952 and continued until 1981. Since 1981 no fall chinook have been released into the Clackamas River. However some adult fall chinook released as juveniles above Willamette Falls may have strayed into the Clackamas River.

Historically fall chinook spawned in the mainstem Clackamas River above the present site of the North Fork Dam before its construction. Currently the "tule" stock of fall chinook spawn below River Mill Dam and in the lower reaches of Clear Creek. Fall Chinook spawn late August through September. These fish primarily spawn and rear in the mainstem Clackamas River and larger tributaries and are not found on the Clackamas River Ranger District.

Lower Columbia River Coho Salmon

(Oncorhynchus kisutch)

Threatened

The Clackamas River contains the last important run of wild late-run winter coho in the Columbia Basin. Coho salmon occupy the Clackamas River and the lower reaches of streams in the Upper Clackamas watershed including the Collawash River and Hot Springs Fork of the Collawash. Adult late-run winter coho enter the Clackamas River from November through February. Spawning occurs mid-January to the end of April with the peak in mid-February. Peak smolt migration takes place in April and May.

Coho salmon occur in the mainstem Oak Grove Fork and Upper Clackamas Rivers and near the mouths of some streams such as Fan, Thunder, and Dutch Creeks. The nearest Coho salmon are approximately 0.14 to 0.7 mile downstream of intermittent tributaries that flow within or adjacent to proposed Collawash thinning units.

Columbia Dusky Snail

(Lyogyrus n. sp. 1)

Sensitive (USFS, Region 6)

This species of aquatic mollusks has a very sporadic distribution in the central and eastern Columbia Gorge, WA and OR. Known sites on the Mt. Hood National Forest occur in Clackamas, Multnomah, and Hood River counties. *Lyogyrus* have been identified in the Upper Clackamas, Lower Clackamas, and Oak Grove Fork watersheds.

This species occurs in cold, well oxygenated springs and spring outflows on soft substrates in shallow, slow-flowing areas where it appears to feed on decaying organic particles. It prefers areas without macrophytes (macroscopic emergent and submerged aquatic plants), but may also occur in areas with watercress and water hemlock. It co-occurs with *Pristinicola hemphilli* and *Juga (Oreobasis) spp.*, which are typically found in small, cold, pristine springs.

Surveys have confirmed the presence of *Lyogyrus* in streams within the Collawash River watershed.

Effects of Project Implementation

The no-action alternative would have ratings of “No Effect” (NE) for PETS fish species and aquatic organisms. The following effects determinations apply to the action alternatives.

The implementation of this project warrants a **"May Affect, Not Likely to Adversely Affect" (NLAA)** determination for Lower Columbia River steelhead, Upper Willamette River chinook and Lower Columbia River coho salmon. A determination of **"May impact individuals or habitat but will not likely contribute to a trend towards federal listing" (MIIH)** is warranted for the Columbia Dusky Snail. A **"No Effect" (NE)** determination is warranted for Lower Columbia River chinook because these species is not present upstream of River Mill Dam, which is over 30 miles downstream from the project area. A **"No Effect" (NE)** determination is also warranted for Columbia River bull trout - this species has been extirpated from the Clackamas River system. This project is not expected to have any long-term adverse effects on any listed, proposed, or sensitive fish or aquatic species.

Project elements of the action alternatives that could potentially impact PETS species or their habitats include timber harvest, road construction, yarding, log haul, and road decommissioning (obliteration). Possible impacts to aquatic species or habitat by the project activities include: an increase in turbidity and sediment and the potential to affect water temperatures by removal of the streamside canopy cover. The probability of these impacts occurring is very low. Project design features such as no-cut buffers along streams, seasonal restrictions for ground-based operations, the use of cable yarding and/or helicopters on steeper ground, and the proximity of the harvest units to habitat where PETS species occur, will prevent any adverse direct impacts to any listed or proposed fish species or their habitat. Sediment delivery to streams is not likely to occur as the result of road building or decommissioning because all new proposed roads are located on relatively flat ground, along ridge tops, and away from any water source. Sediment delivery from timber harvest is not likely to occur because vegetative buffers along all streams should preclude any sediment being transported into stream channels by surface erosion or run-off. Potential sediment delivery to streams during log transport will be minimized by restricting log haul to times when road related run-off is not present.

Since the streams within the project area are relatively small (3-10 ft. width), the 50-foot no-cut buffers along perennial channels and 30 feet along intermittent and ephemeral stream channels will provide adequate canopy cover and sufficient stream shading to maintain stream temperatures. A majority of streams within the proposed unit boundaries are intermittent and provide little or no surface flow during the time when elevated stream temperatures are a concern. The intermittent streams within the project area only carry water during wet times of the year (winter and spring) when temperatures are cooler, thus, no significant increase in stream temperature is expected downstream. No water quality effects are foreseen, and the small probability of effects would decrease, as the canopy and ground cover are re-established to pre-harvest conditions. No measurable effect to water temperature is likely to occur as the result of thinning within the Riparian

Reserves. Project actions will have an immeasurable effect to the water temperature indicator at the site scale.

Semi-permanent roads that will be obliterated following harvest activities are located far enough way from any water source that sediment impacts to listed fish species or their habitat is unlikely. The potential for sediment input into local streams along haul routes will be minimized by permitting haul only on asphalt and rocked roads during the wet season or when conditions would prevent sediment delivery to streams. Any sediment that would enter a stream during haul activities would be at crossings along aggregate surfaced roads. The majority of these stream crossing are at intermittent streams that would not be flowing, or would have very little flow, during the normal season of operation (June 1 to October 31). Any sediment that leaves the road surface due to run-off is expected to disperse over land or be stored within these small channels. It is very unlikely that any measurable amount of sediment produced during log haul would be transported to habitat where PETS species occur.

The use of project design criteria and adherence to General Best Management Practices (BMP's) will allow for very little, if any, erosion or sediment transport into the stream course, substantially reducing the impacts of soil disturbance and run-off on water quality.

Based on the effects determination for species proposed or listed as threatened or endangered under the ESA, informal consultation is required for this proposed project.

/S/ Robert Bergamini

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