

# Executive Summary

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## ES-1 Introduction

The National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) (collectively referred to as the Services) are responding to applications from Simpson Resource Company (Simpson) for an Incidental Take Permit (ITP) and Enhancement of Survival Permit (ESP), respectively, as authorized under Section 10 of the federal Endangered Species Act (ESA). Simpson has initiated efforts to expand and improve its aquatic species conservation and ecosystem management program on its forestland in Humboldt and Del Norte Counties in California. Simpson's recent efforts have resulted in the development of a multi-species Aquatic Habitat Conservation Plan/Candidate Conservation Agreement with Assurances (AHCP/CCAA). The AHCP/CCAA was prepared to support the ITP and ESP applications to the Services.

Simpson is requesting authorization for the incidental take of three fish Evolutionary Significant Units (ESUs) that are listed as threatened under the ESA and that overlap Simpson's lands in northern California. These fish ESUs are the Southern Oregon/Northern California Coast coho salmon ESU, the California Coastal chinook salmon ESU, and the Northern California steelhead ESU. Simpson also is requesting authorization for the incidental take of three other fish ESUs, two fish species and two amphibian species that are currently unlisted, if they become listed in the future. These unlisted ESUs/species are chinook salmon (Southern Oregon and Northern California Coastal ESU, Upper Klamath/Trinity Rivers ESU), steelhead (Klamath Mountains Province ESU), coastal cutthroat trout, rainbow trout, southern torrent salamander, and tailed frog. Chapter 3 of the proposed AHCP/CCAA describes the ESUs/species for which Simpson is seeking permit coverage. Simpson has proposed an AHCP/CCAA duration (permit period) of 50 years.

NMFS and USFWS have determined that issuance of an ITP by NMFS and issuance of an ESP by USFWS are major federal actions that trigger the National Environmental Policy Act (NEPA) requirement for the analysis and disclosure of the potential environmental impacts of the actions. Pursuant to NEPA, the environmental consequences of the federal incidental take authorizations are analyzed in this Environmental Impact Statement (EIS), which was prepared with the USFWS and NMFS as co-lead federal agencies.

This Executive Summary includes the following sections:

- ES-2 Purpose and Need of the Proposed Action
- ES-3 Action Area
- ES-4 Proposed Action and Alternatives
- ES-5 Public Scoping Issues
- ES-6 Preferred Alternative
- ES-7 Summary of Impacts

Table ES-2 is a comparative summary of the impacts of the Proposed Action and alternatives, including the No Action Alternative.

## ES-2 Purpose and Need of the Proposed Action

The USFWS and NMFS are responding to applications from Simpson for: (1) an ESP pursuant to Section 10(a)(1)(A) of the federal ESA; and (2) an ITP pursuant to Section 10(a)(1)(B) of the ESA, respectively. Pursuant to ESA Section 10(a), if NMFS finds that all ESA requirements for ITP issuance are met, NMFS is required to issue the requested permit. Similarly, USFWS may approve an ESP if it finds that the CCAA meets the regulatory requirements for such permits. In addition, implementing the provisions of these permits will further the NMFS and USFWS long-term objective of ensuring long-term survival of ITP/ESP species, while allowing otherwise lawful activities of the applicant to continue. The Services' purpose and need in this action, therefore, is to respond to Simpson's ITP and ESP application for incidental take authorization pursuant to an HCP/CCAA that provides protection and conservation to listed, proposed, and unlisted species and their habitats consistent with the requirements of Section 10(a)(1)(A) and Section 10(a)(1)(B) of the ESA.

The applications request that NMFS approve Simpson's application and issue an ITP, and USFWS approve Simpson's application and issue an ESP. The Services' approval and issuance of these permits are the NEPA "actions" analyzed in this EIS.

## ES-3 Action Area

As discussed in Chapter 1, the Action Area includes all commercial timberland acreage within the 11 Hydrographic Planning Areas (HPAs) on the west slopes of the Klamath Mountains and the Coast Range of California in Del Norte and Humboldt counties where Simpson owns lands or harvesting rights, during the period of such ownership within the permit term. The Action Area is currently 416,531 acres, including approximately 1,866 acres of lands on which Simpson owns perpetual harvesting rights. The Action Area acreage will adjust during the permit term to reflect real property transactions involving Simpson.<sup>1</sup> To account for those potential adjustments, the EIS analyzes possible impacts of the Proposed Action and the alternatives on all commercial timberlands within the 11 HPAs, defined as the "Primary Assessment Area." Under Alternative C, the Action Area and Primary Assessment Area contain additional areas outside the 11 HPAs that are known as "rain-on-snow" areas (see Section 2.5).

## ES-4 Proposed Action and Alternatives

The process used in developing the alternatives to the Proposed Action included the review and analysis of the purpose and need for the Action, oral and written comments received

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<sup>1</sup> Additional commercial timberlands that Simpson may acquire in the future may be added to Simpson's Initial Plan Area (known herein as the current Action Area), subject to Simpson submitting to the Services a description of the lands it intends to add, along with a summary of relevant characteristics they share with existing Action Area lands within that HPA. Up to 15 percent of the current Action Area (e.g., 61,821 acres), including areas on which Simpson owns perpetual harvesting rights, may be added to or deleted from the Action Area without an amendment to the proposed HCP/CCAA. The 15 percent cap would not apply to certain categories of land transfers as specified in the proposed Implementation Agreement between Simpson and the Services.

during public scoping, detailed information provided in the AHCP/CCAA, and the issues described in Chapter 1.

Five alternatives are considered in detail in this EIS, as summarized in Table ES-1. The No Action Alternative and the three action alternatives represent the reasonable range of alternatives to the Proposed Action. Key attributes of the No Action, Proposed Action, and three action alternatives are summarized in more detail in Table 2.7-1 at the end of Chapter 2. Additional alternatives were considered; those eliminated from detailed evaluation are summarized in Section 2.6. This EIS compares the Proposed Action and the other three action alternatives against the No Action Alternative as required by NEPA.

**TABLE ES-1**  
Alternatives Analyzed in Detail in the Simpson AHCP/CCAA EIS

Title	Brief Description
No Action (No Permit/No Plan)	<ul style="list-style-type: none"> <li>• Continuation of Simpson's existing timber harvesting and forest management practices in the Action Area under existing regulations (see Sections 2.1.1 and 2.1.2).</li> <li>• Continued application of existing measures for protection of fish and wildlife habitat (Section 2.1.3).</li> <li>• Continued implementation of measures contained in Simpson's Northern Spotted Owl Habitat Conservation Plan (NSOHCP) and associated Implementation Agreement (IA) that provide for the legal incidental take of northern spotted owls in connection with timber harvesting and forest management operations.</li> <li>• Continued implementation of take avoidance measures for other listed species; continued implementation of other measures to mitigate or avoid significant impacts to unlisted species (Section 2.1.4 and 2.1.5).</li> </ul>
Proposed Action	<ul style="list-style-type: none"> <li>• Continuation of existing operations pursuant to existing regulations, other applicable laws, and Simpson's NSOHCP, as augmented by the proposed AHCP/CCAA Conservation Strategy.</li> <li>• Incidental take coverage for three listed fish ESUs, three unlisted fish ESUs, two unlisted fish species, and two unlisted amphibians through issuance of an ITP by NMFS and an ESP by the USFWS.</li> <li>• AHCP/CCAA/ITP/ESP obligations for the covered species, to include: (1) fixed and variable RMZ/EEZ widths for Class I, II, and III watercourses; (2) implementation of road management plan, slope stability, and ground disturbance measures; and (3) effectiveness monitoring.</li> </ul>
Listed Species Only (Alternative A)	<ul style="list-style-type: none"> <li>• Same as the Proposed Action except for no incidental take coverage for unlisted species/ESUs and, consequently, more limited effectiveness monitoring.</li> </ul>

**TABLE ES-1**

Alternatives Analyzed in Detail in the Simpson AHCP/CCAA EIS

Title	Brief Description
Simplified Prescription Strategy (Alternative B)	<ul style="list-style-type: none"> <li>Continuation of existing operations pursuant to existing regulations, other applicable laws, and Simpson's NSOHCP, as augmented by an HCP/CCAA conservation strategy.</li> <li>An HCP/CCA would be implemented for the same fish and wildlife species covered by the Proposed Action, and an ITP/ESP would be issued for those species. AHCP/CCAA/ITP/ESP obligations for the covered species modify obligations incurred under the Proposed Action and include fixed, no-cut riparian buffer widths for Class I and II watercourses on the fee-owned lands of the Action Area.</li> </ul>
Expanded Species/Geographic Area (Alternative C)	<ul style="list-style-type: none"> <li>Same as Proposed Action except for: (1) an expanded area of Action Area coverage to include an additional 26,116 acres of rain-on-snow areas; (2) incidental take coverage for three listed fish ESUs, one listed fish species, three unlisted fish ESUs, two unlisted fish species, four unlisted amphibians, one unlisted reptile, and two listed bird species through issuance of ITPs by NMFS and the USFWS; and (3) modifications to the HCP/ITP obligations that include additional species-specific measures.</li> </ul>

## ES-5 Public Scoping Issues

During the public scoping process for the EIS, the following issues were raised:

- Preserve aquatic habitat values and identify potential impacts
- Identify potential impacts on water quality and maintenance of beneficial uses given existing and future regulatory requirements, including Total Maximum Daily Loads (TMDLs), which would affect the Action Area
- Identify adverse and beneficial fisheries impacts, and compliance with the requirements of the ESA
- Identify potential impacts on all terrestrial wildlife and plant species that may be affected by the project, including species not proposed for coverage in the AHCP/CCAA
- Identify potential impacts on cultural values of tribes in and adjacent to the Action Area, including environmental justice concerns
- Conform the proposed AHCP/CCAA with planning documents such as the Water Quality Control ("Basin") Plan, air quality attainment plans, federal Recovery Plans, and local Coastal Zone requirements
- Scale the scope of the cumulative impacts analysis appropriately

## ES-6 Preferred Alternative

A Preferred Alternative is not identified in this Draft EIS. The Preferred Alternative will be identified in the Final EIS, after the lead agencies have had the opportunity to review comments on the Draft EIS.

## ES-7 Summary of Impacts

### ES-7.1 Overview

This section presents a summary of the impacts of implementing the proposed AHCP/CCAA, which contains prescriptive conservation measures related to Simpson's forestry management activities. The AHCP/CCAA conservation strategy is designed to: (1) avoid the environmental effects that could cause take; and (2) minimize and mitigate the potential impacts of take. The AHCP/CCAA measures are summarized above and in Chapter 2 of this EIS. The potential direct, indirect, and cumulative effects of the Proposed Action and alternatives, including the No Action Alternative, are described and evaluated in Chapter 4 (*Environmental Consequences*) for the resource areas listed below. (The affected environment for each of these resource areas is presented in Chapter 3, *Affected Environment*.)

- Geology, Geomorphology, and Mineral Resources (Section 4.2)
- Hydrology and Water Quality (Section 4.3)
- Aquatic Resources (Section 4.4)
- Vegetation/Plant Species of Concern (Section 4.5)
- Terrestrial Habitat/Wildlife Species of Concern (Section 4.6)
- Air Quality (Section 4.7)
- Visual Resources (Section 4.8)
- Recreational Resources (Section 4.9)
- Cultural Resources (Section 4.10)
- Land Use (Section 4.11)
- Social and Economic Conditions (Section 4.12)

Table ES-2 (at the end of this Executive Summary) provides a comparative overview of the impacts of the Proposed Action (i.e., the proposed AHCP/CCAA) and the alternatives for each of the resource areas assessed in this EIS. Detailed analysis of impacts is contained in Chapter 4 (*Environmental Consequences*).

### ES-7.2 Summary of Impacts

On the basis of the assessment of direct and indirect impacts presented in Chapter 4, implementing the proposed AHCP/CCAA or the other action alternatives would result in either no change to the environment or in beneficial environmental effects. No significant adverse impacts are anticipated to occur and, therefore, no additional mitigation measures other than those in the proposed AHCP/CCAA are required.

Implementing the proposed AHCP/CCAA provisions would improve the overall condition of habitat for the covered species in the Action Area. Implementation of the AHCP/CCAA would contribute to the development and maintenance of properly functioning habitat and,

therefore, would also help to preclude the possible need to list unlisted covered species in the future. Implementing the proposed AHCP/CCAA or the action alternatives would result in additional net benefits to the environment.

Overall, the critical resources assessed in this EIS are the aquatic species covered by the AHCP/CCAA measures and the resource areas that contribute most directly to their maintenance (e.g., geology, geomorphology, hydrology, and water quality). Hydrology, riparian conditions, sediment production and delivery, the potential for mass soil movement, and water quality conditions have the greatest potential to affect aquatic habitat quality in the Primary Assessment Area (see Chapter 4). Implementing the measures contained in the proposed AHCP/CCAA conservation strategy would result in either no change or an improvement in conditions to the covered species and their riparian habitat. Key AHCP/CCAA provisions that would contribute to such improved conditions are summarized below and in Chapter 2. They include:

- Implementation of an ownership-wide Road Management Plan that provides for road-related fish passage enhancement (barrier removal); implementation of practices that are designed to minimize sediment discharge to Class I, II, and III streams; and decommissioning of some roads. The proposed Road Management Plan provides for accelerated repair (over a 15-year period) of high- and moderate-risk sediment delivery sites on roads on the Simpson fee ownership, in accordance with the schedule established in the proposed AHCP/CCAA.
- Protection of unique geomorphic features (i.e., channel migration zones and floodplains).
- Adoption of various slope stability and ground disturbance conservation measures.
- Implementation of effectiveness monitoring, plus adaptive management with structured feedback loops.

Under the No Action Alternative, environmental conditions are also anticipated to improve over time but not at the accelerated rate at which they would improve under the Proposed Action. The differences among the alternatives is summarized above and detailed in Chapter 2.

The AHCP/CCAA conservation measures under the Proposed Action differ from the No Action Alternative in the following ways.

- The No Action Alternative would apply existing regulations and guidelines, whereas the Proposed Action would apply the additional AHCP/CCAA conservation measures (in conjunction with existing regulations and guidelines). The additional conservation measures of the Proposed Action are designed to minimize erosion and sediment-causing activities throughout the Primary Assessment Area on an accelerated basis.
- The No Action Alternative would apply the existing regulations and guidelines only on a THP-by-THP basis, whereas the Proposed Action would apply the additional AHCP/CCAA conservation measures (in conjunction with existing regulations and guidelines) consistently throughout the individual HPAs in the Action Area. Application of the Proposed Action conservation measures on an ownership-wide basis

throughout the Action Area would result in consistent (i.e., not on a THP-by-THP basis) and expedited application of the conservation measures compared with existing conditions or conditions expected to occur over time under the No Action Alternative.

### **ES-7.3 Cumulative Impacts**

Because the overall effect of implementation would result in net environmental benefits, implementing either the proposed AHCP/CCAA or the action alternatives in conjunction with other management actions would not likely result in cumulative impacts. Section 4.1.2, *Cumulative Impacts*, and the individual resource area discussions in Chapter 4 include detailed discussions of potential cumulative impacts of implementing the Proposed Action in combination with other management strategies on public and private lands.

**TABLE ES-2**  
Summary of Potential Environmental Impacts Associated with Each Alternative

No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C
<b>4.2 Geology, Geomorphology and Mineral Resources</b>				
<b>Surface Erosion</b>				
The potential for riparian management and harvest-related (i.e., non road-related) activities to affect surface erosion is expected to remain about the same as under current conditions.	The risk of sediment delivery through harvest-related surface erosion is expected to decrease slightly relative to the No Action Alternative.	Same as the Proposed Action.	Similar to the Proposed Action.	Same as the Proposed Action.
Erosion from fire areas is not expected to differ from current conditions.	Same as the No Action Alternative.	Same as the No Action Alternative.	Same as the No Action Alternative.	Same as the No Action Alternative.
<b>Mass Soil Movement</b>				
The risk of mass soil movement owing to timber harvesting in sensitive areas would decrease under the No Action Alternative.	The risk of mass soil movement owing to timber harvesting in sensitive areas would decrease relative to the No Action Alternative through implementation of slope stability and other conservation measures.	Same as the Proposed Action.	The risk of mass soil movement owing to timber harvesting would decrease relative to the No Action Alternative, but would likely be greater than would occur under the Proposed Action.	Same as the Proposed Action.
Shallow landslide potential would be reduced under the No Action Alternative.	Shallow landslide potential would decrease relative to the No Action Alternative through implementation of slope stability conservation measures.	Same as the Proposed Action.	Shallow landslide potential would decrease relative to the No Action Alternative, but would increase relative to the Proposed Action.	Same as the Proposed Action.

**TABLE ES-2**  
Summary of Potential Environmental Impacts Associated with Each Alternative

<b>No Action Alternative</b>	<b>Proposed Action</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>
The risk of deep-seated landslides is expected to remain the same as current conditions.	Deep-seated landslide potential would decrease relative to the No Action Alternative through implementation of slope stability conservation measures.	Same as the Proposed Action.	Same as the No Action Alternative.	Same as the Proposed Action.
Soil creep is expected to remain the same as under current conditions.	Same as the No Action Alternative.	Same as the No Action Alternative.	Same as the No Action Alternative.	Same as the No Action Alternative.
<b>Road-Related Sediment Production</b>				
Sediment production from roads and landings is expected to remain the same or decrease relative to current conditions.	Numerous additional protective measures would decrease sediment production from roads and landings relative to the No Action Alternative.	Same as the Proposed Action.	Sediment control measures would likely decrease sediment production from roads and landings relative to the No Action Alternative, but would offer less protection than the Proposed Action.	Same as the Proposed Action.
The potential for road construction and use to affect mass soil movement is expected to decrease relative to current conditions.	Management measures related to road construction and use under the Proposed Action would substantially reduce the potential for road-related mass soil movement relative to the No Action Alternative.	Same as the Proposed Action.	Same as the No Action Alternative.	Similar to the Proposed Action.
Sediment production related to skid trails is expected to decrease relative to current conditions.	Sediment production from skid trails would likely be reduced relative to the No Action Alternative.	Same as the Proposed Action.	Sediment control measures would likely decrease sediment production from skid trails relative to the No Action Alternative, but would offer less protection than the Proposed Action.	Same as the Proposed Action.

**TABLE ES-2**  
Summary of Potential Environmental Impacts Associated with Each Alternative

No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C
<b>4.3 Surface Water Hydrology and Water Quality</b>				
<b>Hydrology</b>				
No substantive changes in the existing hydrologic regime or in the magnitude and timing of naturally occurring peak or low (base) flows are anticipated.	Same as the No Action Alternative.	Same as the No Action Alternative.	Same as the No Action Alternative.	Same as the No Action Alternative.
<b>Water Temperature</b>				
Generally suitable water temperatures are expected to remain at suitable levels. Stream shading is expected to improve over time compared with current conditions, contributing to slight decreases in water temperatures.	Similar to the No Action Alternative, stream shading would likely improve over time to a greater degree than under the No Action Alternative, contributing to slight decreases in water temperatures.	Same as Proposed Action.	Stream shading is expected to increase slightly more than under the Proposed Action due to the non-managed riparian buffers, contributing to slight decreases in water temperatures.	Same as Proposed Action.
<b>Sediment-Related Water Quality Parameters</b>				
Suspended sediment levels, turbidity, and nutrient and contaminant loading are expected to decline over time as sediment delivery is reduced.	Conservation measures implemented under the Proposed Action would likely reduce suspended sediment, turbidity, and nutrient and contaminant loading over time to a greater degree than under the No Action Alternative.	Same as the Proposed Action.	Sediment control measures would be similar to the No Action Alternative, with increased sediment filtration provided by the non-managed riparian buffers.	Same as the Proposed Action.

**TABLE ES-2**  
Summary of Potential Environmental Impacts Associated with Each Alternative

No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C
<b>4.4 Aquatic Resources</b>				
<b>Hydrologic Effects</b>				
Because no substantive changes in peak or low (base) flows are anticipated, there would likely be no flow-related changes in channel morphology, incidence of bed scour and bank erosion, or quality of aquatic habitat relative to existing conditions.	Same as the No Action Alternative.	Same as the No Action Alternative.	Same as the No Action Alternative.	Same as the No Action Alternative.
<b>Large Woody Debris Recruitment</b>				
Current levels of large woody debris recruitment would likely be maintained or enhanced over time.	With increased riparian protection under the Proposed Action, LWD recruitment would increase relative to the No Action Alternative.	Same as the Proposed Action.	LWD recruitment may increase slightly more than under the Proposed Action due to the non-managed riparian buffers.	Same as the Proposed Action.
<b>Stream Shading</b>				
As it relates to stream shading, canopy coverage would likely increase relative to current conditions, with improvements over time as riparian stands grow and mature.	Canopy closure is expected to increase relative to the No Action Alternative, with corresponding benefits to stream shading.	Same as the Proposed Action.	Canopy closure is expected to increase slightly more than under the Proposed Action due to the non-managed riparian buffers, with corresponding benefits to stream shading.	Same as the Proposed Action.
<b>Sediment Filtration</b>				
Sediment filtration, relative to current conditions, is expected to remain the same or increase over time.	With increased riparian protection under the Proposed Action, sediment filtration would increase relative to the No Action Alternative.	Same as the Proposed Action.	Similar to the Proposed Action, with increased sediment filtration provided by the non-managed riparian buffers.	Same as the Proposed Action.

**TABLE ES-2**  
Summary of Potential Environmental Impacts Associated with Each Alternative

No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C
<b>Bank Stability</b>				
Riparian conservation measures under the No Action Alternative will improve bank stability relative to existing conditions, primarily along Class I watercourses.	Increased riparian protection under the Proposed Action will increase bank stability relative to the No Action Alternative, particularly along Class II and III watercourses.	Same as the Proposed Action.	Similar to the Proposed Action.	Same as the Proposed Action.
<b>Nutrient Input (Leaf and Litterfall)</b>				
Riparian conservation measures under the No Action Alternative will favor conifers over hardwoods in the WLPZs. In the long term, this may reduce the amount of high quality leaf and litterfall relative to current levels.	Increased riparian protection under the Proposed Action will favor conifers over hardwoods in the RMZs. In the long term, this may reduce the amount of high quality leaf and litterfall relative to the No Action Alternative.	Same as the Proposed Action.	Similar to the Proposed Action, with decreased amounts of high quality leaf and litterfall in the long term provided by the non-managed riparian buffers.	Same as the Proposed Action.
<b>Sediment Production and Delivery</b>				
Sediment production and delivery to Primary Assessment Area streams would likely be reduced relative to existing conditions.	Sediment production and delivery to Primary Assessment Area streams would be reduced under the Proposed Action relative to the No Action Alternative.	Same as the Proposed Action.	Sediment production and delivery to Primary Assessment Area streams under Alternative B would be generally comparable to the No Action Alternative.	Same as the Proposed Action.
<b>Aquatic Habitat</b>				
A positive trend in the quality of aquatic habitat is expected, with a concomitant benefit to anadromous and resident salmonids.	Aquatic habitat conditions related to forestry management activities are expected to improve under the Proposed Action relative to existing conditions and to the No Action Alternative.	Same as the Proposed Action.	Similar to the No Action Alternative, with the non-managed riparian buffers contributing to the positive trend in the quality of aquatic habitat.	Same as the Proposed Action.

**TABLE ES-2**  
Summary of Potential Environmental Impacts Associated with Each Alternative

<b>No Action Alternative</b>	<b>Proposed Action</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>
Water quality and substrate conditions would likely improve over time as sediment inputs are decreased.	Water quality and substrate conditions are expected to improve under the Proposed Action relative to existing conditions and to the No Action Alternative.	Same as the Proposed Action.	Similar to the No Action Alternative, water quality and substrate conditions would likely improve over time as sediment inputs are decreased.	Same as the Proposed Action.
Because little change or improvement in canopy cover, shading, or sediment production and delivery is expected, thermal conditions are likely to remain similar to existing conditions.	Because improvements in canopy cover, shading, and reduced sediment production and delivery are anticipated, future thermal conditions would be improved relative to existing conditions and relative to the No Action Alternative.	Same as the Proposed Action.	Because canopy coverage and shading would likely increase, and there would be little change in sediment production and delivery, future thermal conditions would improve slightly relative to existing conditions, but to a lesser extent than under the Proposed Action..	Same as the Proposed Action.
Habitat complexity would likely increase slightly through increased LWD recruitment, bank stability, canopy coverage, and reduced sediment input over time relative to existing conditions.	Habitat complexity would likely increase over time through increased LWD recruitment, bank stability, canopy coverage, and reduced sediment inputs relative to existing conditions and to the No Action Alternative.	Same as the Proposed Action.	Similar to the Proposed Action, with the non-managed buffers contributing to the increase in LWD recruitment, bank stability, and canopy closure.	Same as the Proposed Action.
Restoration and maintenance of fish passages during road upgrades and new road construction would occur in association with THP implementation. Systematic and comprehensive barrier removal over the entire ownership would not occur.	The Road Management Plan under the Proposed Action will result in an inventory, prioritization, and elimination of fish passage problems at road crossings over time in a systematic process.	Same as the Proposed Action.	Same as the No Action Alternative.	Same as the Proposed Action.

**TABLE ES-2**  
Summary of Potential Environmental Impacts Associated with Each Alternative

No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C
<b>4.5 Vegetation/Plant Species of Concern</b>				
<b>Riparian Management Effects</b>				
Vegetation management activities in riparian areas would be expected to remain relatively unchanged from existing timber harvesting practices, and similar species compositions would be retained. Riparian vegetation would likely be composed of a greater number of mature trees, over time, compared with existing conditions.	Vegetation management activities in riparian areas would result in a more desirable plant community composition over time. More conifers would be maintained where mostly hardwoods currently exist in riparian areas. Due to limited harvest activities in riparian areas, riparian vegetation would be composed of a greater number of mature trees by the end of the permit term compared with either existing conditions or conditions under the No Action Alternative.	Same as the Proposed Action.	Similar to the No Action Alternative, but the riparian areas and corridors would not be disturbed or manipulated, favoring shade-tolerant and woody species over shade-intolerant and non-woody species.	Same as the Proposed Action.
<b>Listed Plant Species and Other Plant Species of Concern</b>				
Potential impacts to listed plant and other plant species of concern are anticipated to be minimal. Continued implementation of existing regulations and operating guidelines, including Simpson's Plant Protection Program will avoid or minimize potential adverse impacts to listed plant species.	Same as the No Action Alternative.	Same as the No Action Alternative.	Same as the No Action Alternative.	Same as the No Action Alternative.

**TABLE ES-2**  
Summary of Potential Environmental Impacts Associated with Each Alternative

No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C
<b>4.6 Terrestrial Habitat/Wildlife Species of Concern</b>				
<b>Riparian Management Effects</b>				
There would be retention of a greater number of mature forest stands throughout the Primary Assessment Area, especially in riparian zones and northern spotted owl protection zones, relative to existing conditions. The species that would benefit the most from this effect include frogs, salamanders, herons, eagles, bats, marbled murrelets, and owls.	Vegetation structure in riparian areas would be more diverse and less intensively harvested compared to the No Action Alternative. Vegetation management activities in riparian areas would result in maintenance of a greater number of conifers where mostly hardwoods currently exist in riparian areas. The species that would benefit the most from this effect include frogs, salamanders, herons, eagles, bats, marbled murrelets, and owls.	Same as the Proposed Action.	Similar to the No Action Alternative, except riparian areas and corridors would not be disturbed or manipulated. Vegetation in riparian areas would develop naturally over time, resulting in a greater number of stands with older, mature trees compared to the No Action Alternative. The species that would benefit the most from this effect include frogs, salamanders, herons, eagles, bats, marbled murrelets, and owls.	Same as the Proposed Action.

**TABLE ES-2**

Summary of Potential Environmental Impacts Associated with Each Alternative

No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C
<b>Listed Wildlife Species and Other Wildlife Species of Concern</b>				
Continued compliance with existing regulations and implementation of Simpson's NSOHCP should result in development of greater structural diversity and a greater number of stands with late-seral forest characteristics, relative to what currently exists, especially within WLPZs. This trend is beneficial to listed species and other wildlife species of concern that breed or forage in older trees or late-seral stands. These species include the bald eagle, marbled murrelet, northern spotted owl, osprey, Vaux's swift, Humboldt marten, red tree vole, and tailed frog.	Potential benefits to listed species under the Proposed Action would generally be greater than under the No Action Alternative, primarily because of increased overstory-canopy requirements within Class II RMZs, retention of all LWD within Class III Tier A EEZs, and retention of evenly distributed conifer trees within SMZs. Also, slightly more land would likely be left undisturbed in riparian areas relative to the No Action Alternative. These differences would amplify benefits described under the No Action Alternative for listed species and other wildlife species of concern that breed or forage in older trees and late-seral-forest stands.	Same as the Proposed Action.	Similar to the No Action Alternative. Potential benefits to listed species under Alternative B would generally be greater than under the No Action Alternative, primarily because slightly more land would likely be left undisturbed in riparian areas relative to the No Action Alternative. These differences would amplify benefits described under the No Action Alternative for listed species and other wildlife species of concern that breed or forage in older trees and late-seral-forest stands.	Similar to the Proposed Action, with the exception of short-term adverse impacts to some species from the phased harvesting of isolated marbled murrelet stands. Phased harvesting would result in short-term impacts to listed species and other wildlife species of concern that breed or forage in older trees and late-seral-forest stands. Species that would benefit from the phased removal of late-seral habitat include: Cooper's hawk, sharp-shinned hawk, and yellow-breasted chat.

**TABLE ES-2**  
Summary of Potential Environmental Impacts Associated with Each Alternative

No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C
<b>4.7 Air Quality</b>				
PM <sub>10</sub> would be generated by slash-burning activities associated with site preparation under even-aged management. There would be little change from existing conditions.	Similar to the No Action Alternative. Although various alternative management practices would result in some change in PM <sub>10</sub> generation, these changes are not expected to be substantial relative to overall PM <sub>10</sub> conditions under the No Action Alternative.	Same as the Proposed Action.	Same as the No Action Alternative.	Same as the Proposed Action.
<b>4.8 Visual Resources</b>				
Current CFPRs and Simpson's operational policies may reduce, to some degree, the visual effects of commercial forest management relative to the historical level of impact.	Implementation of the AHCP/CCAA may reduce, to some degree, the visual effects of commercial forest management relative to the historical level of impact.	Same as the Proposed Action.	Similar to the Proposed Action, with minor potential benefits associated with no-harvest riparian buffers.	Same as the Proposed Action.
<b>4.9 Recreation</b>				
Recreational activities would continue to occur on the ownership, subject to written entry permits. The potential for harvest-related impacts would likely be similar to current conditions.	Same as the No Action Alternative, with some potential for additional benefits to recreational experiences provided by improved riparian and fishery conditions.	Same as the Proposed Action.	Similar to the Proposed Action, with minor potential benefits associated with no-harvest riparian buffers.	Same as the Proposed Action.

**TABLE ES-2**  
Summary of Potential Environmental Impacts Associated with Each Alternative

No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C
<b>4.10 Cultural Resources</b>				
Current CFPRs contain measures for protection of cultural resources that would minimize the effects of timber harvesting on cultural resources.	Same as the No Action Alternative.			
<b>4.11 Land Use</b>				
Current land use on the ownership would continue in a manner consistent with local land use plans and compatible with surrounding land uses.	Same as the No Action Alternative.			
<b>4.12 Social and Economic Conditions</b>				
Timber harvest levels under the No Action Alternative are expected to remain about the same as current conditions; therefore, job growth and local tax revenues are expected to remain similar to current conditions.	Same as the No Action Alternative.			